

Ownership division of distribution networks within the Dutch heating sector

An analysis of conflicts between (categories of) stakeholders

Master thesis Complex Systems Engineering and Management (CoSEM)

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by

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Preface

Completing this thesis marks a significant milestone in my academic journey. Over the course of seven months, I have dedicated myself in research, engaged in conversations with my supervisors, stand-ups with fellow graduates, and acquired a wealth of new knowledge. As my time as a student in Delft draws to a close, this report marks the final chapter of my academic journey: my master's thesis.

Within these pages, my thesis delves deep into the subject of ownership division of distribution networks in the Dutch heating sector. It explores the diverse approaches of stakeholders to this complex issue, shedding light on the conflicts among them.

I extend my gratitude to all the participants who contributed to my research, enriching it with their insights and engaging discussions. Furthermore, I would like to express my appreciation to my first supervisor, Mark de Bruijn, for his guidance and support, especially during the final stages of this journey. I also want to thank my second supervisor, Aad Correljé, whose guidance and expertise were valuable during important moments like the project kick-off and green-light phase.

Lastly, but certainly not least, I want to extend my thanks to Marjolein ten Haaf and Alexander Oei, who provided supervision on behalf of Accenture. Combining this thesis with a thesis internship at Accenture was an enriching experience.

*T.C.G. Boucherie
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Executive summary

Since the early 1990s, there has been an ongoing discussion regarding efficient and effective assurance of public values within Dutch network sectors. This perspective stems from the efforts of EU member states to establish a cohesive European internal market, initiated in 1987. In the past, this dialogue pertained to diverse sectors such as electricity, gas, water, railways, and telecommunications in the Netherlands. In the contemporary landscape, this discussion extends to the heating sector as well, partially influenced by the sector's planned expansion.

The Dutch government is targeting substantial growth within the heating sector, with ambitions to double the number of sustainable heat connections for households by 2030 – from 0.5 to 1 million – and eventually reaching 2.5 million connections by 2050. The proposed institutional design outlined in the new Heat Act, also known as the "Wet collectieve warmtevoorziening (Wcw)" or "Warmtewet 2.0," aims to catalyze the heat transition, by prescribing a public majority interest for distribution infrastructures.

Around 2000, the discussion concerning assurance of public values within network sectors revolved around privatization, liberalization, and the level of competition involved. The prevailing notion was that markets would self-regulate, with governmental bodies overseeing controlling competition from the sidelines. In the present day, there has been a resurgence of interest in nationalization and public ownership, not only within the Netherlands but also in other European nations. There is growing skepticism towards the self-regulation of markets, leading to calls for greater influence from public entities. This shift in perspective has notably impacted discussions, in the Dutch heating sector as well, particularly those pertaining to the ownership structure of distribution infrastructures.

Jetten approached the issue of ownership division of distribution networks in the Dutch heating sector, in line with the procedural requirements for legislative processes, from a multi-actor perspective, involving key stakeholders in the (legislative) decision-making process. The Dutch Minister of Climate has gathered the perspectives of stakeholders, and tried to design an ownership division in line with the interests of the key stakeholders. This however resulted in more discussion and conflicts than consensus between stakeholders. Given the fact these perspectives of stakeholders have been considered during the legislative decision-making process, which apparently resulted in issues between stakeholders, it is interesting to research the nature of these issues and what these are able to conclude regarding the (shift of the) discussion regarding ownership division of distribution networks (in network sectors). The previous results in the following (main) research question:

What issues are playing a role regarding ownership division of distribution networks within the Dutch heating sector?

Identified issues between (categories of) stakeholders

In order to answer this question, seventeen different stakeholders (municipalities, provinces, distribution operators, heat companies, producers, transmission operators, independent supervisor, consumers) have been interviewed to obtain an overview of their perspectives regarding the criteria for the decision-making process, focusing on their interpretation and the value they attach to these criteria. Based on these (differences in) perspectives, issues have been identified. With the help of eight experts, with varying backgrounds related to the Dutch heating sector, the issues have been validated. Figure 1 shows the main identified issues, after validation with experts. Issues are in this research defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector.

It is interesting that affordability is the sole public value highlighted as an issue. This emphasis on affordability, along with the related (in)transparency of tariffs, might be driving the discussion on ownership division (i.e., whether it is better assured under public or private ownership). In contrast, this discussion appears to be less prevalent in relation to the other public values of reliability and sustainability.

To some extent, it is noteworthy that security of investment is not heavily debated among stakeholders, particularly private companies currently owning the distribution networks. This lack of emphasis on security of investment might be attributed to stakeholders trusting the government to compensate them for their investments.

The limited variation in stakeholders' perspectives concerning the technological criterion is intriguing as well, based on the validation sessions with experts. Although researching the technological aspect could be vital in determining an appropriate ownership division, it is not addressed by various stakeholders. This issue regarding the technological development of the sector is therefore considered in Figure 1 as an additional one, partly as a result of the validation round with experts.

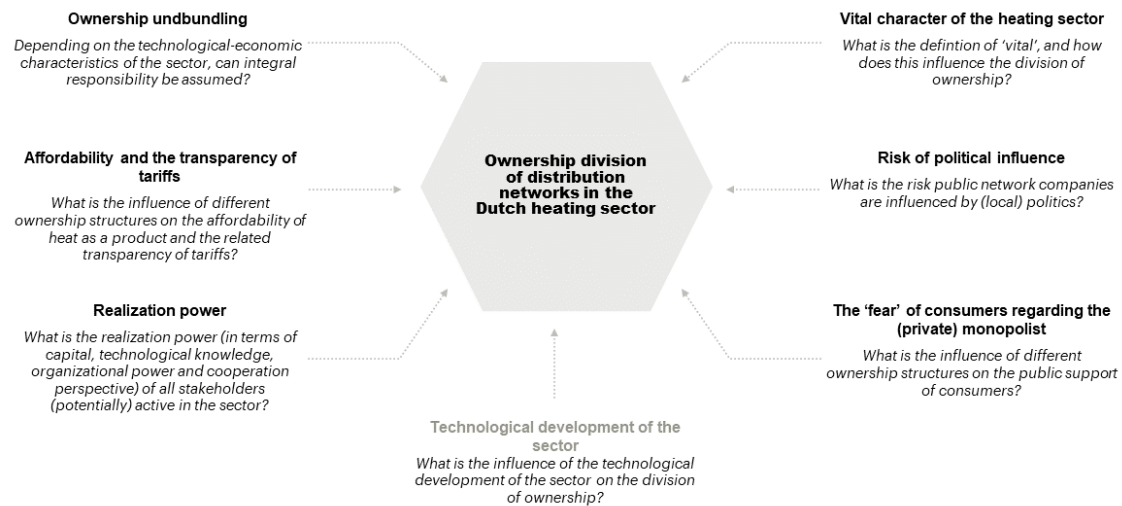


Figure 1: Identified issues relating to ownership division of distribution networks in the Dutch heating sector

Figure 2 maps these issues in terms of relations between (categories of) stakeholders. Table 7.1 shows the relations in terms of issues. Figure 2 illustrates the intricate and overlapping nature of the stakeholder field that needs to be addressed. Although Jetten attempted to categorize stakeholders, it is evident that these categories intersect, except for the transmission operator(s) and independent supervisor(s). The category of 'heat companies' encompasses a diverse range of entities. These include a municipality that owns and operates its own energy and heat company, a province actively engaged in heat distribution, heat companies with responsibilities spanning heat production, distribution, and delivery across different regions.

Relating to affordability, the transparency of tariffs, ownership unbundling and realization power, there are significant differences in viewpoints between municipalities and heat companies (R1 in Figure 2). Municipalities support the new ownership division design, as it provides more control mechanisms for them in order to fulfill their directing role (documented in the Dutch Climate Agreement), enabling them to steer towards assuring public values and justice for consumers. Conversely, heat companies question the effectiveness of the proposed ownership design from a perspective on affordability. Municipalities assert that they possess realization power, due to the current available government capital used for private sector investment through subsidies. They argue that the capital invested in the private sector does not benefit society directly but goes to shareholders. They view the proposed ownership division as a means to increase realization power, but they emphasize public values take precedence over realization power. Heat companies challenge this, arguing the realization power, specifically the organization of a heat company, is underestimated by public stakeholders (referring to cases of the 'Rekenkamer Rotterdam' and 'AEB Amsterdam'). In addition, they suggest public realization power was explored after the decision regarding a public majority interest relating to the infrastructure was already taken.

This relation (R1 in Figure 2) represents the sole identified issue between stakeholder categories, as other potential issues are obscured by internal issues within categories (the other relations described within Figure 2). Issues between categories are only assumed when these issues exist between all stakeholders of the pertaining categories.

Among provinces, disagreements center around affordability, tariff transparency, realization power, ownership unbundling and the risk of political influence (R2, R3, and R4 in Figure 2). Disagreements exist on how realization power was considered, with suggestions for more research or emphasizing the role of independent supervision. Moreover, there exists disparity in the potential risk of political influence. One province contends that some stakeholders have an unjustified fear of political influence, emphasizing the role of the independent supervisor in this context. Another province acknowledges the potential influence but suggests external organization of heat companies by municipalities to mitigate its effect. Moreover, conflicts exist whether public ownership is the right solution to reach an affordable system with a transparent price structure. Lastly, ownership unbundling is under debate, in the sense one province argues competition on the network is possible, depending on the technological characteristics of the region.

Within municipalities, differences arise on the risk of political influence and concerns of consumers about private monopolies (R5 and R6 in Figure 2). Some dismiss political influence fears, others propose external organization to mitigate it. Opinions vary on public ownership alignment with consumer preferences. Furthermore, two municipalities endorse public ownership because it aligns with consumer preferences, while another critiques this approach, arguing the ownership structure needs to be based on public values.

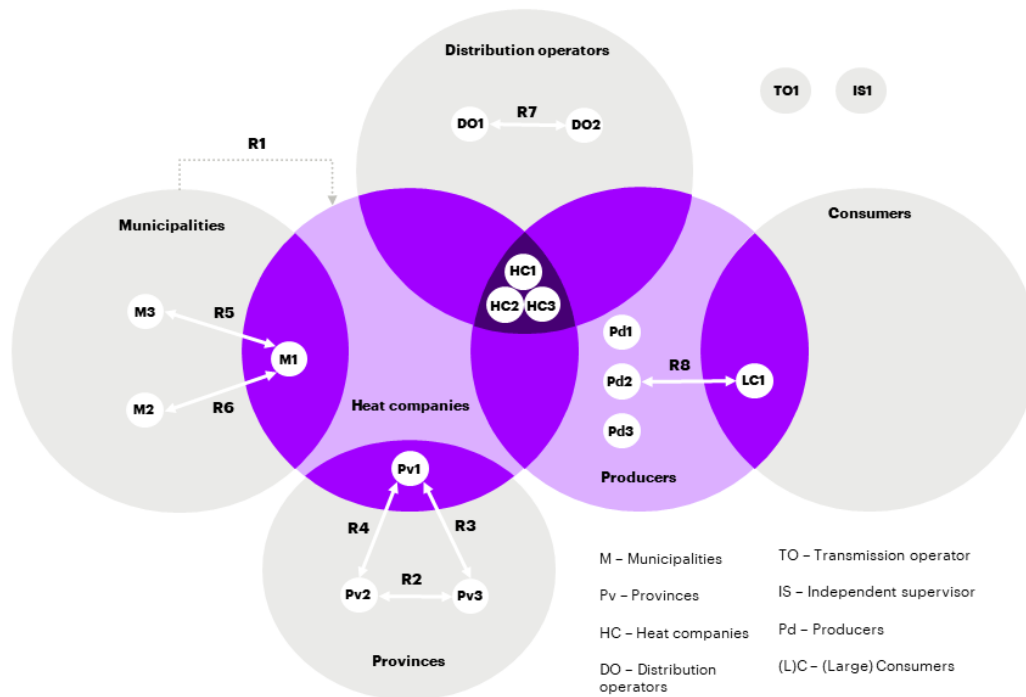


Figure 2: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector

Table 1: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector

	R1	R2	R3	R4	R5	R6	R7	R8
Ownership unbundling			X	X				
Affordability and transparency of tariffs	X		X	X				
Realization power	X	X	X	X				
Vital character of the heating sector								
Risk of political influence				X	X		X	X
'Fear' consumers regarding (private) monopolist					X	X		

Network operators lack consensus on political influence (R7 in Figure 2). Some argue politics only influence decisions during the decision-making process, while others assert political influence effects future decisions of public heat companies, such as network extensions and exploitation of new networks. Producers and large consumers also have varying opinions on this matter (R8 in Figure 2). Some argue, based on experience, politics do not influence public network companies, while others claim is highly relevant to consider.

Notably, no issues are present among heat companies. In addition, the transmission operators and independent supervisor do not have any relationships in this diagram. The transmission operators did not feel themselves, and did not want to be, very involved in the process. The independent supervisor has issues with stakeholders on its own, but not their categories.

Finally, it is interesting to see most issues exist between the stakeholders who are ought to cooperate with each other in the new Wcw (heat companies and municipalities). It is the question to what extent the identified issues hinder the collaborations between heat companies and municipalities.

The assurance of public values in network sectors: a shift to a more nationalization-driven approach?

As a result of the identified issues (see Figure 1), a couple of challenges for the Dutch heating sector can be identified. These challenges concern 'the heat transition as a social transition' (convincing the consumer to take part in the transition), 'the integration of district heating in the integral energy system' and 'the organization of heat companies' (see Figure 3). The first ('the heat transition as a social transition') and the last ('the organization of heat companies') appear to be linked to the evolution of a more nationalization-driven focus for assuring public values in network sectors. Nationalization of ownership can be viewed as a means to create justice for the consumer,

in order to involve consumers in the transition. The challenge related to the organization of heat companies is a result of the more nationalization-driven approach, which is acknowledged by all stakeholders in the field.

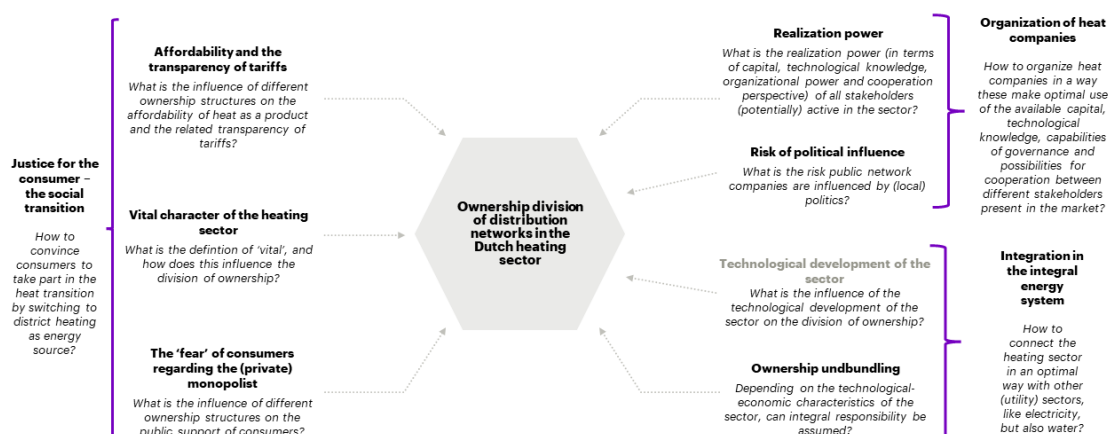


Figure 3: Challenges related to the identified issues

The identified issues highlight the change in discussion on how to assure public values in network sectors, shifting from a privatization/liberalization-driven to a more nationalization-driven approach. As a result, the perspective, including the assessment framework, introduced by Jorritsma-Lebbink (2000) (Figure 6.3), appears unsuitable for restructuring the heating sector (due to the current market organization). Given its private nature, a different assessment framework seems to be required to determine the desirability of nationalizing various elements of the value chain (while still prioritizing the assurance of public values as objective). Further research on this is necessary.

Recommendations for policy

The results of this research have shown there exist many differences in perspectives, resulting in conflicts relating to alternative models for ownership division of distribution networks in the Dutch heating sector. These differences in perspectives are a result of different perceptions stakeholders have, based on different assumptions and knowledge claims. The lack of varying objective and scientific research regarding various topics results in these assumptions and knowledge claims. Summarizing, based on the findings of this research, the scientific basis for the proposed decision by Jetten can be considered very minor. There is few research known regarding the impact of this decision. Public entities make a valid point by arguing their governance role needs to be reinstated within the Wcw. However, the question arises as to the extent to which public ownership is the appropriate solution, and whether it may potentially limit the sector's opportunities. The suggested ownership division model could be overly rigid. Currently, various ownership structure models exist, tailored to regional characteristics. Some regions favor integral responsibility, while others allow competition in delivery and production. The proposed model appears to be quite generic, assuming uniform characteristics for all regions, despite potential variations. For instance, some areas may have access to multiple energy sources, while others do not.

As a result of the conclusions of this research, an overarching research regarding the to be solved problem, alternative models for ownership structure, and the impact of these alternatives, is recommended. The conflicts between stakeholders, identified in this research, might be used as a start. This research does not necessarily need to result in a different model for ownership division, however will probably result more clarity regarding alternative models for ownership structure and their impact. Hopefully, this results in less conflicts between stakeholders, and more willingness to collaborate, which is important for realizing the climate goals. This research is likely to result in a delay in the heat transition in the short term. However, the benefits it offers in terms of the long term outweigh this.

Furthermore, in light of the findings from this study and other methodologies outlined, there arises a question regarding the desirability of involving stakeholders in the legislative decision-making process. For future processes regarding ownership division (in network sectors), it is advisable to establish a preliminary phase wherein existing conflicts among stakeholders are examined, serving as a foundation for problem definition and the exploration of various alternative models.

Moreover, this research concluded the most conflicts exist between public stakeholders and private heat companies, who are expected to collaborate under the conditions set by the proposed ownership structure in the Wcw. Observing this before the decision-making process, and taking measures to mitigate this alignment could potentially facilitate the advancement of the process, which concerns another recommendation for further decision making processes.

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Definitions and abbreviations

Collective heating system	A system where one or more heat sources are connected by making use of heat networks in order to deliver heat to consumers
Market ordering	Institutional design including regulations regarding degree of competition and division of ownership relating the different parts of the value chain of the heating sector
Value chain of the heating sector	The technical tasks of production, transmission, distribution and delivery
Public majority interest ("publiek meerderheidsbelang")	Public parties having more than 50% share or more than 50% decisive control (over the decisions taken at management level) in the company
Issue	Conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria, and are considered conflicts when stakeholders agree on the attached relevance <i>or</i> perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.
Wcw	"Wet collectieve warmtevoorziening"/ "Warmtewet 2.0"

1

Introduction

Since the early 1990s, there has been an ongoing discussion regarding efficient and effective assurance of public values within Dutch network sectors, based on the perspective of EU member states striving to establish a European internal market (from 1987 on) (Jorritsma-Lebbink, 2000; Kuiper, 2012; Stellinga, 2012). The Dutch national government aims to realize the assurance of these public values (effective) using the lowest possible amount of means (efficient). Network sectors are sectors where suppliers deliver products and services via infrastructures to customers (de Pree, 2008; van Gent et al., 2004). In the past, this discussion related to the Dutch electricity, gas, water, railway and telecommunications sector (Jorritsma-Lebbink, 2000). Nowadays, this debate is ongoing in the heating sector as well, partly due to the planned growth of the sector (Wiebes, 2020b). The Dutch government aims at doubling the number of sustainable heat connections of households by 2030 (from 0.5 to 1 million), finally reaching 2.5 million connections by the end of 2050 (Jetten, 2022b). The current laws and regulations for the Dutch heating sector are considered a bottleneck for the speed of this heat transition. Rules organizing the market in terms of ownership and competition are missing (Dieperink, 2022). The proposed institutional design described within the new Heat Act ("Wet collectieve warmtevoorziening (Wcw)" or "Warmtewet 2.0") tries to be a catalyst for the transition. Around 2000, the discussion regarding the assurance of public values in network sectors focused on privatization and liberalization, and the related degree of competition. Markets were expected to regulate themselves, by stimulating competition controlled by governmental organizations on the sideline (Jorritsma-Lebbink, 2000). Nowadays, nationalization and public ownership seems to play a more prominent role again, in other European countries as well (see for example Fay (2023) for discussion regarding nationalization of public transport in France). People criticize the self-regulating capabilities of markets, and ask for more control from public parties. The previous results in a shift of the discussion regarding the assurance of public values in these network sectors, specifically relating to ownership division. This chapter will, after elaborating in more detail on the discussion regarding the assurance of public values in network sectors (Section 1.1), introduce the Wcw and its institutional design (Section 1.2) in the light of this discussion, resulting in the research question (Section 1.3).

1.1. The assurance of public values in Dutch network sectors

In 2000 the (former) Ministry of Economic Affairs published its perspective regarding the assurance of public values in network sectors. Five steps were distinguished in order to reach effective and efficient assurance (Jorritsma-Lebbink, 2000):

1. Inventory of the public values relevant for the analysed network sector
2. Translation of the public values in constraints for production and distribution in the form of contracts or regulations
3. Organization of a controlling mechanism who controls the compliance with regulations
4. The effectiveness of different forms of competition
5. The division of ownership, where the government prefers to privatize governmental companies within a competitive market

The Cabinet elaborates on the process of liberalizing and privatizing in the light of contributing to the assurance of public values. The introduction of competition results in acceleration of innovation, rising productivity and more choice of freedom for consumers. Public ownership was not considered necessarily the best instrument in order to assure public values. Clear regulations and control are seen as better solutions. Public ownership is discussed as a solution, but however only considered temporarily as a transition instrument working towards privatization (when the controlling mechanism needs time in order to work properly). Furthermore, the Cabinet emphasizes the low effectiveness of corporate governance (governmental shareholding in companies) and the preference for assuring public values by regulations (regarding market organization and control) or concessions (Jorritsma-Lebbink, 2000).

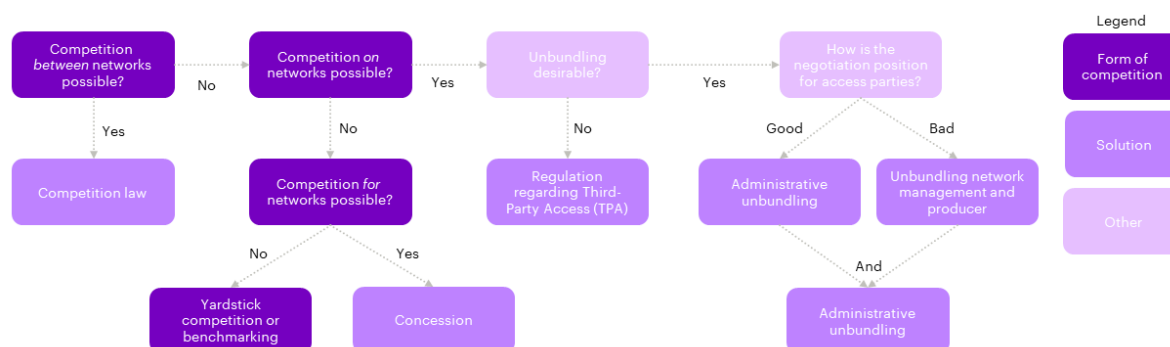


Figure 1.1: Assessment framework for market organization in network sector introduced by the Ministry of Economic Affairs (Jorritsma-Lebbink, 2000)

This perspective included an assessment framework for market ordering/ organization (see Figure 1.1) (Jorritsma-Lebbink, 2000). This framework is (partly) based on the 'policy theory' described by Klein (1996), and elaboration from Sweder van Wijnbergen (Alberts & Berkhout, 1999). Klein (1996) states the introduction of competition in network sectors is complicated due to the existence of complex transport and communication networks. For this reason, debate regarding the way of introducing competition is heated. In short, there are four different forms of competition in network sectors (Klein, 1996; Jorritsma-Lebbink, 2000; van Gent et al., 2004; de Pree, 2008) (see Figure 1.2 for different network sectors in relation to their institutional design):

- Competition between infrastructures (telecommunications sector)
- Competition on infrastructures (electricity and gas sector)
- Competition for the market (railway sector)
- Yardstick competition and benchmarking (drinking water sector)

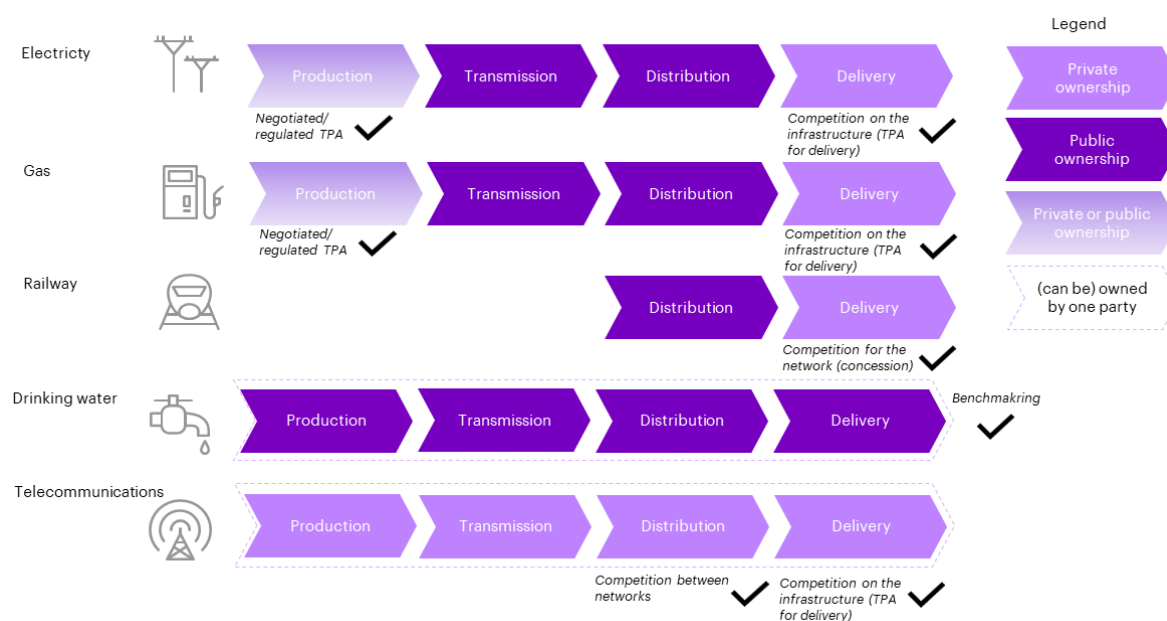


Figure 1.2: Simplified representation of institutional designs for market ordering (ownership division and degree of competition) in different Dutch network sectors (Jorritsma-Lebbink, 2000; PwC, 2023; ACM, 2018; Andersson Elffers Felix, 2017; Stellinga, 2012)

The former Ministry of Economic Affairs described different types of competition with a certain prioritization. When economically viable, competition between infrastructures may be introduced (like in the telecommunications sector). In case this lacks viability, the technical possibilities for competition on the infrastructure need to be researched, where different users make use of the same infrastructure to deliver their product (electricity and gas

sector). This means that it must be prevented that the owner of the infrastructure abuses his economic dominant position by, for example, demanding unreasonable rates or conditions for granting access. The Competition Act prohibits this abuse. In segments where such a competitive form is not possible, public-private cooperation provides a solution. It is preferable in such cases to conduct periodic public tenders (competition for the market) as much as possible (railway sector). When competition for the infrastructure is not possible either because ownership, management, and use of the network are so closely interconnected that tendering is not feasible or undesirable, benchmark competition can be chosen (water sector). In this competitive modality, 'benchmarks' are established for the performance of the producer, and the regulator creates a mechanism through which the performance can be assessed based on these benchmarks, for example, by setting a maximum price (Jorritsma-Lebbink, 2000).

In order to support their statements, the former Ministry of Economic Affairs referred to the success of privatization in the Dutch telecommunications sector (making it approximately 30% cheaper than before privatization), the electricity sectors of the UK, Sweden and Germany (where the prices decreased with 15-50%), urban and regional transport in the Netherlands (a test in the Dutch province "Limburg" resulted in 30% increase of transport) and in Sweden (concession resulted in a 20% decrease of costs), and the comparison with the water sector in the UK ('benchmarking' with the UK water sector can raise the efficiency from 6,2% to 15% (Jorritsma-Lebbink, 2000)

Summarizing, the policy of privatization and liberalization that took shape from the 1990s was developed in response to or in anticipation of the changes emerging in the economy, society, and government. New frameworks of thought, developed in economics and public administration, were a significant source of inspiration for the direction of these changes. Although the policy was often pragmatic and implemented incrementally, there was a strong confidence in the expectations of the policy changes' effects and the ease with which policy changes would lead to desired outcomes. Despite occasional criticism from society or controlling or advisory government bodies (such as the WRR, the 'Algemene Rekenkamer', the Council of State, or temporary committees), and disappointing results and unintended consequences, as seen in the case of the NS (Dutch Railways), the postal service, and the taxi branch, the policy was rationalized and refined but never significantly deviated from the path of privatization and liberalization that had been set (Stellinga, 2012).

The central question now is whether the government and Parliament adequately considered all relevant aspects during privatization. This concerns attention to public interests and the necessity of market oversight. Subsequently, the focus on public interests after 2000 is again a complement to the market-oriented policy that, in hindsight, did not sufficiently consider these aspects (Kuiper, 2012; Stellinga, 2012).

1.2. The new Heat Act ("Wcw")

1.2.1. Public values and the Wcw

The public values affordability, reliability and sustainability ought to be assured within Dutch energy sectors. Regarding affordability, specific governmental intervention is required. The market power of the network operator might have consequences for the affordability of energy. In terms of reliability, central coordination (network operation) is required to optimize security of supply. Thirdly, sustainability needs to be assured with financial incentives resulting in decreasing carbon dioxide emissions (Mulder & Willems, 2009).

The assurance of public values is incorporated in the new Heat Act ("Wet collectieve warmtevoorziening" or "Warmtewet 2.0", from now on "Wcw") (Wiebes, 2020b). Jetten, the current Dutch Minister of Climate & Energy, aims to create an affordable, reliable and sustainable alternative (for gas) by setting new regulations for the heating sector. The Wcw focuses on four main subjects (relating to the relevant public values for the heating sector) (Wiebes, 2019b, 2020a,b; Jetten, 2022a):

1. Institutional design for market ordering (related to affordability and reliability): prescribes regulations regarding the degree of competition and ownership division in relation to the distribution and transmission system. More specifically, it focuses on a municipal directing role in terms of determining lots and assigning an integral responsible heat company for these lots. In addition, heat companies' and transmission operators' rights and obligations need clarification.
2. Transparent tariff regulation (related to affordability): cost-based tariffs and removing the "Niet-meer-dan-anders-principe" (no relation to the gas price anymore).
3. Better assurance of sustainability (related to sustainability): performance-based norms regarding pollution and elaboration on the retention right ("ophaalrecht") regarding waste heat (allows heat companies to 'collect' heat against minimum costs).
4. Better assurance of security of supply (related to reliability): integral responsibility (for all tasks of value chain (excluding transmission); see Figure 1.4 for explanation).

1.2.2. Legislative decision-making process

Figure 1.3 shows the legislative process of the Wcw, which starts in 2000 when the former Dutch Ministry of Economic Affairs presented its perspective on how to assure public values in Dutch network sectors, focusing on

privatization and liberalization. In 2016 the old Heat Act has been evaluated, while various stakeholders were experiencing bottlenecks during execution of these laws and regulations (Haffner et al., 2016; Kamp, 2016). The letters to the House of Representatives in 2019, can be considered the start of the Wcw process, which is still ongoing (Wiebes, 2019a,b). In October 2022, the discussion relating to ownership division of the infrastructure started (Jetten, 2022b). Some more than a half year later (in the beginning of July 2023), the last letter has been published, in which Jetten (2023) describes the most relevant modifications for the Wcw compared to the Heat Act (see Figure 1.3 as well). Hopefully, after approval by the Council of Ministers ("Ministerraad"), the proposal will after the summer period be sent to the Council of State ("Raad van State") for advice, where after it will be proposed to the House of Representatives ("Tweede Kamer") for a voting (Jetten, 2023). Due to the fall of the Cabinet, this timeline will probably be extended.



Figure 1.3: Legislative process of the new Heat Act ("Warmtewet 2.0/ Wet collectieve warmtevoorziening (Wcw)"), focusing on the design for market ordering (Jorritsma-Lebbink, 2000; Kamp, 2016; Wiebes, 2019a,b, 2020c,a; Pels Rijcken, 2021; Yeşilgöz-Zegerius, 2021; Jetten, 2022a,b, 2023)

The number of replies on the internet consultation (112) shows the interest of stakeholders, and the high degree of importance according to them. In general, more than half of the internet consultations results in five replies or

lower, where the average is 17 (Broek et al., 2016). The majority of replies on the internet consultation focused on the institutional design (Wiebes, 2020a), and more specifically the ownership division, which is characterized by the content of the last letter as well (Jetten, 2022b, 2023). In addition, the number of published reports and researches shows the relevance and potential impact for stakeholders (PwC, 2022; Netbeheer Nederland, 2022; Ministerie van EZK, 2022; Energie Nederland, 2022; ACM, 2021).

1.2.3. The proposed institutional design for market ordering

The value chain of the Dutch Heating sector

The proposal describes a difference between local distribution systems and regional transport (transmission) systems. Distribution systems exist of local production, distribution and delivery. Transmission systems contain transmission infrastructures, and connect regional sources with different distribution systems (see Figure 1.4).

There are three roles related to the ownership of this transmission system. First of all, the network manager (control & maintenance) focuses on the construction and exploitation of the network. In addition, economical ownership of the network relates to integral management of the network. Thirdly, bare (legal) ownership refers to the legal title or ownership of a property or asset held by one party, while the benefits, rights, and use associated with that property or asset are held by another party, known as the beneficial owner (Wiebes, 2020b).

On distribution level, the Wcw states municipalities have the competence to assign an integral responsible heat company with a public majority interest ("publiek meerderheidsbelang") for every lot (see conclusion in Figure 1.3 as well). The heat company is responsible for constructing, managing and exploiting the infrastructure as well as the purchase and delivery of heat in that area (Jetten, 2022b, 2023). The essence of this integral responsibility is based on different researches conducted on behalf of Wiebes (2019a,b). Tieben & Van Benthem (2018) researched the desirability of unbundling within the Dutch heating sector. Unbundling entails unbundling the construction, management and exploitation of the network from the production and delivery activities. Currently, in the majority of the situations (in the Dutch heating sector), all these activities are executed by one party. Tieben & Van Benthem (2018) conclude there are more disadvantages than advantages regarding unbundling, mostly due to the technical-economic characteristics of heat (networks). The relatively high loss of transport and complex relation between production and delivery negatively influences the possibility for competition on the network.

Institutional design for market ordering

Figure 1.4 visualises the value chain in relation to the proposed institutional design for market ordering (degree of competition and division of ownership).

In terms of competition, due to the infrastructural character of the sector, competition between infrastructures is not desirable. The municipality has the competence to assign an integral responsible heat company for every lot, according to the concept of competition for the infrastructure (concession). The same holds for the transmission network, where the Minister assigns a public network manager. On the delivery side, competition on the network (third party access (TPA)) is not desired. Contrary, on the production side (negotiated or regulated) TPA is possible, while different producers might offer their heat. However, the integral responsible heat company is responsible for purchasing this heat. The requirements under which TPA for producers is possible are mostly determined by the technical characteristics of the local heat network. For this reason, the proposal does not prescribe obligatory TPA for producers (Jorritsma-Lebbink, 2000; van Damme & Hancher, 2000; Nillesen, 2015; Wiebes, 2019b, 2020b).

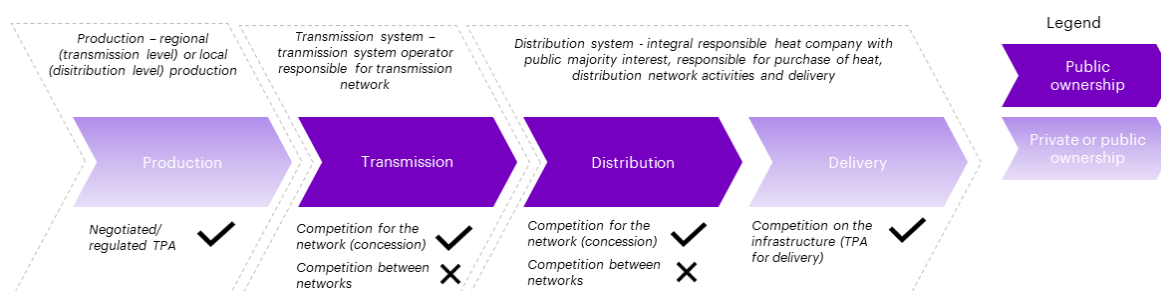


Figure 1.4: The value chain of the Dutch heating sector in relation to the institutional design for market ordering described in the Wcw (Ministerie van EZK, 2020; Wiebes, 2020b)

In terms of ownership, on distribution level, one or more public parties are required having a majority interest in the (integral responsible) heat company, either by a major share (50% +1 share) or by having decisive control (more than 50%). Such a heat company can also take the form of a Joint Venture (JV), consisting of a delivery-

and network company. The network company with a public majority interest within the heat JV must have more than 50% of the control or at least 50% + 1 share in the heat JV (see Figure 1.5 for visualization of the different alternatives). On transmission level, the infrastructure is required to be under public control (public majority interest) as well. The ownership of production and delivery can be under public as well as private control (see Figure 1.4). The integral responsible heat company can execute production, distribution and delivery themselves, but outsourcing (one of these) is a possibility as well. The same holds for the tasks described for the transmission operator (Wiebes, 2019b, 2020b; Jetten, 2023).

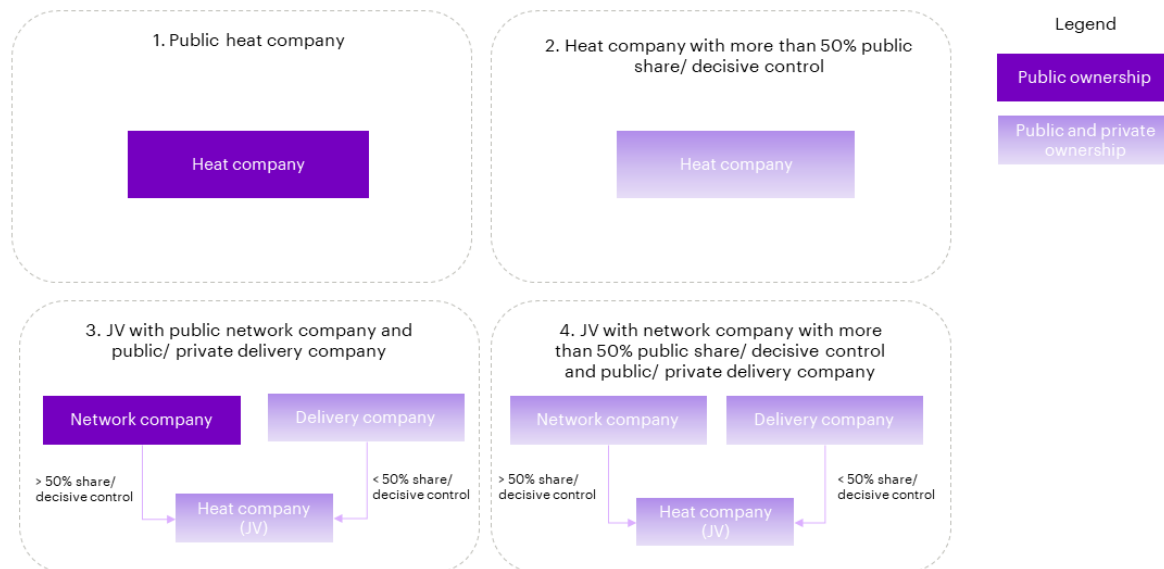


Figure 1.5: Different models for ownership division of the integral responsible heat company (based on de Boer (2023), Jetten (2022b) and Jetten (2023))

Multi-actor perspective

Jetten involved stakeholders in the legislative process described in Figure 1.3 (municipalities, provinces, heat companies and network operators and the independent regulator) (Jetten, 2022a, 2023). Municipalities (united in VNG: "Vereniging voor Nederlandse Gemeenten") state it is necessary to get competences for carrying out their 'directing' role. Municipalities ask for more controlling instruments regarding the desired organizational model. Involvement of public parties (in terms of infrastructure ownership) will result in public support and trust in the heating sector. Provinces (united in IPO: "Interprovinciaal Overleg") agree with the statements made by municipalities. Moreover, provinces are proposing a 'grow-model' where the infrastructure will be in hands of public parties on the long run. Heat companies (united in "Energie-Nederland"), endorse the relevance of more public control in the built environment. In stead of aiming for more involvement of public parties, the assurance of public values is ought to be the focus area. Considering financial and operational risks, integral responsibility is an essential characteristic for heat companies. This results in the utilization of the realization power and investing capacity of all necessary stakeholders. Public and regional network operators (united in "Netbeheer Nederland") state they have capacity to take care of public ownership of collective district heating systems. In order to reach successful development of the heating sector, some essential conditions are required regarding financing, knowledge and laws & regulations.

1.3. Research question

Section 1.1 described an assessment framework for the market organization of network sectors, aiming to effectively and efficiently assure public values in these sectors (see Figure 1.1). During the time of construction of this framework, privatization and liberalization was seen as the main solution for assuring public values in network sectors, resulting in privatization and liberalization of different parts of the value chain of the Dutch electricity, gas, railway and telecommunication sector (see Figure 1.2). Governmental authorities were expected to act on the sideline as (independent) supervisors, while markets regulated themselves (Klein, 1996; Alberts & Berkhout, 1999; Jorritsma-Lebbink, 2000; van Damme & Hancher, 2000).

From the 1990s on, privatization and liberalization policy developed in response to economic, societal, and governmental changes, drawing inspiration from new frameworks in economics and public administration. Despite occasional criticism and disappointing outcomes, the policy remained largely unchanged. The current concern

revolves around whether the government adequately considered public interests and market oversight during privatization, as a complement to the market-oriented policy that initially lacked such considerations (Kuiper, 2012; Stellinga, 2012).

This is validated by the proposed institutional design for market ordering of the Dutch heating sector described with the new Heat Act ("Wet collectieve warmtevoorziening/ Wcw"). Section 1.2 described the most relevant aspects of the proposed institutional design for market ordering for the Dutch heating sector, which highlights the discussion regarding private or public ownership of distribution networks. A public majority interest in distribution companies will probably be incorporated in the Wcw (see Figure 1.3 and Figure 1.4).

Moreover, the perspective introduced by the former Dutch Ministry of Economic Affairs does not seem applicable anymore. When applying the assessment framework described in Section 1.1 to the Dutch heating sector, it is interesting to see the framework seems to focus on prescribing a certain form of competition, however lacks prescribing a division of ownership (see Figure 1.6). This assessment framework seems to use public ownership as a starting point, investigating the possibilities for privatization and liberalization. It is not designed for investigating possibilities for nationalization, using private ownership as a starting point.

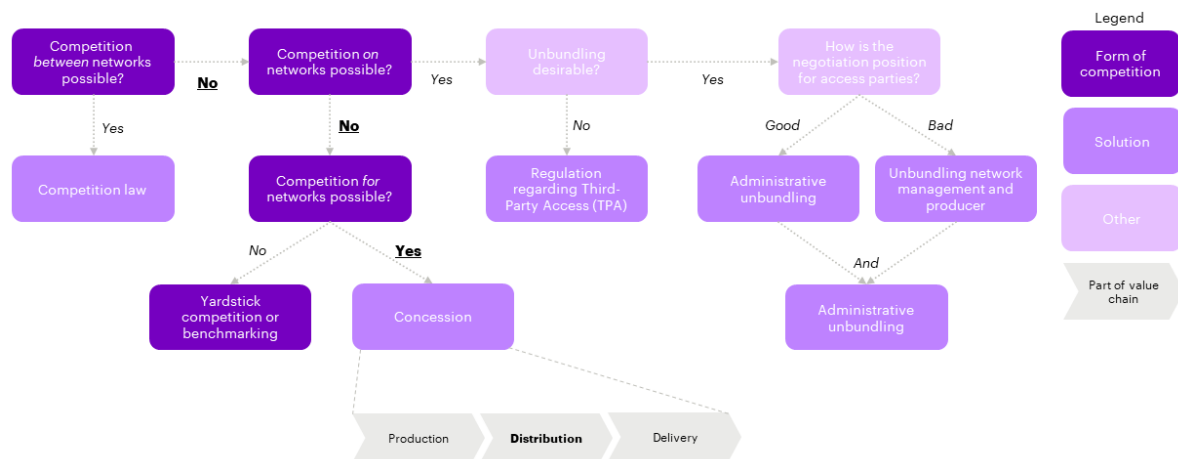


Figure 1.6: Assessment framework for market organization in network sector introduced by the Ministry of Economic Affairs applied to the Dutch heating sector (Jorritsma-Lebbink, 2000)

As described in Subsection 1.2.3, Jetten approached the issue of ownership division of the distribution networks, in line with the procedural requirements for legislative processes, from a multi-actor perspective, involving key stakeholders in the (legislative) decision-making process (Rijksoverheid, 2023). The Dutch Minister of Climate has gathered the perspectives of stakeholders during this process, and tried to design an ownership division in line with the interests of the key stakeholders. This however resulted in more discussion and conflicts than consensus between stakeholders (see for example Energie Nederland (2022) and Netbeheer Nederland (2022)). Given the fact these perspectives of stakeholders have been considered during the decision-making process, which apparently resulted in issues between stakeholders, it is interesting to research the nature of these issues and what these are able to conclude regarding the (shift of the) discussion regarding ownership division of distribution networks (in network sectors). The previous results in the following (main) research question:

What issues are playing a role regarding ownership division of distribution networks within the Dutch heating sector?

2

Research definition

This chapter will first shortly describe the core concepts and research objective (Section 2.1). After elaborating on the research approach and subquestions (Section 2.2), the research method and data analysis will be explained (Section 2.3). In addition, the scientific and societal relevance will be described (Section 2.4). Finally, the structure of the research will be presented (Section 2.5).

2.1. Core concepts and research objective

The institutional design described within the Wcw is intended to take care of the assurance of public values within the Dutch heating sector, specifically stimulating the growth of collective heating systems (Wiebes, 2019b; Jetten, 2022a). Collective heating systems are systems where one or more heat sources are connected by making use of heat networks in order to deliver heat to consumers (Ministerie van EZK, 2020). The institutional design focuses on a certain degree of competition and division of ownership in relation to the different tasks of the value chain (see Figure 1.4 as well).

This research focuses on (the problem of) researching what issues play a role regarding ownership division of distribution networks, using the Dutch heating sector as a case study. An analysis of the decision-making process from a multi-actor perspective, including the criteria being considered relevant regarding this process, are used as means for researching these issues present between (categories of) stakeholders.

Issues are in this research defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria, and are considered conflicts when stakeholders agree on the attached relevance or perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.

This research analyses a decision-making process regarding (part of) an institutional design within a complex socio-technical environment, considering a multi-actor perspective. In order to analyse the process, an interdisciplinary approach will be used, considering the technical, institutional-economic and process context of the sector. Interdisciplinary research within a socio-technical environment, is typical for a CoSEM thesis.

2.2. Research approach and subquestions

2.2.1. Criteria for a decision-making process for institutional design in a complex technological multi-actor system

According to Koppenjan & Groenewegen (2005), complex technological systems like energy infrastructures are subject to institutional (re)design; they can be influenced by both market forces and governmental regulation. In addition, these systems are considered multi-actor systems, involving private as well as public parties, who's interests are influenced by the functioning of the system. The authors argue that efficient and effective institutions are ought to be designed in order to structure behaviour in such a way that socially desired objectives are realised. Moreover, they state the to be settled aspects by institutional design mostly follow from the specific technological characteristics of the system, and differ for every network sector. These technological and institutional designs are created in interactive process between stakeholders: the process design. The process design is concerned with designing the design process and entails the whole of agreements and provisions focusing on the organization and course of the design process (Koppenjan & Groenewegen, 2005).

This research focuses on analyzing a decision-making process (process design) regarding an institutional design of a complex technical multi-actor system. The interdisciplinary approach described by Koppenjan & Groenewegen (2005), which refers to the theory regarding process design of De Bruijn et al. (2010), offers foundation for researching a decision-making process related to institutional design in a complex technical multi-actor system. It is important to note this theory of Koppenjan & Groenewegen (2005) is not a recipe for this research, however

can be considered useful to use as foundation for the research approach.

Koppenjan & Groenewegen (2005) acknowledge literature does not offer a clear method for designing institutions for these complex technical multi-actor systems. The approaches mainly focus on the nature of institutions and their impact. Koppenjan & Groenewegen (2005) propose using a design framework derived from design approaches in technological domains as a heuristic tool to structure the complexity of relevant activities within a (physical) design process. They characterize designing as selecting an instance in the design space which meets the objectives and constraints. Those design objectives and design constraints are based on the design goals. Objectives are design goals which have to be optimized, whereas constraints are design goals which should be met, however not optimized. According to Koppenjan & Groenewegen (2005), these design goals (which are also called requirements) are naturally designed in consultation with stakeholders. The authors however do not further specify what this consultation specifically entails. De Bruijn et al. (2010) acknowledge the involvement of relevant stakeholders from the beginning is important, in order to make the theoretical development useful. It is necessary stakeholders agree with (most of) the requirements for the decision-making process.

Koppenjan & Groenewegen (2005) state this consultation of stakeholders is informed by an analysis of the design problem and stakeholders context. The design problem contains mapping the nature of the cooperation problem, influenced by the technological context, and the institutional-economic context. The cooperation problem involves the challenge how mutually dependent actors must cooperate to establish and maintain a facility (see Subsection 3.1.2 for more explanation).

In this research, the design problem has been determined already; the design of ownership division of distribution networks within the Dutch heating sector. Exploring and understanding the (technological, institutional-economic and stakeholder) context regarding the design problem might however help designing criteria and discussing these with stakeholders. Elaborating on the cooperation problem, allows understanding the technological context, which emphasizes the essence of the institutional design regarding ownership division. The same holds for the institutional-economic context. Economic characteristics of collective heating systems and relevant institutions playing a role regarding these, need to be understood before designing criteria for the design of ownership division. This research will therefore include an analysis of the context of the design problem.

According to De Bruijn et al. (2010), there are four core elements of a decision-making process:

1. Openness: the initiator (Minister Jetten in this situation) is intended to adopt an open attitude, and does not take unilateral decisions. Stakeholders have the opportunity to influence the decision-making process and the agenda.
2. Protection of core values: stakeholders who commit themselves to the process need to be offered protection, in the sense they are able to express their needs and desires.
3. Progress: the process needs to show sufficient momentum and progress.
4. Substance: involvement of relevant substantive input (based on stakeholders' and experts' perspectives) in order to successfully reach a well-substantiated decision.

The first three elements focus on keeping the process going, while the fourth focuses on the reasoning behind the decision. More elaboration on these four elements will follow in Subsection 4.1.

2.2.2. Analysis of issues between (categories of) stakeholders

Koppenjan & Groenewegen (2005) and De Bruijn et al. (2010) emphasize the essence and relevance of involving and consulting stakeholders in the decision-making process. Bryson (2004) proves this by referring to a research analysing 400 strategic decisions, where half of the decisions 'failed' due to decision-makers failing to attend the interests and information held by (relevant) stakeholders. Moreover, stakeholder analysis has become increasingly more important due to the changing interconnected nature of the world. Within this shared world no specific stakeholder is fully in charge of the problem. In stead a variety of stakeholders (different individuals, groups, organizations) are involved and affected by the decisions taken by decision-makers. Carrying out stakeholder analysis carefully is a crucial aspect of problem solving. It is hardly possible to manage relationships without making use of these analyses.

Bryson (2004) discusses the relevance (for managers/ decision-makers) of using stakeholder identification and analysis techniques in order to help (their organizations) fulfill their missions and create public value. Wise use of the results of these techniques helps framing solvable issues, which are technically feasible, politically acceptable and advance the common good. The techniques specifically focus on helping public managers in creating an 'authorizing environment' which will indirectly improve the performance of the organization (for example related to decision-making protocols). In addition, there is a focus on the overriding purpose of public organization of creating public value. Stakeholder analyses help public decision-makers figuring out who relevant stakeholders are and how to satisfy them. Producing well-substantiated decisions, which create public value and advance the

common good, requires four focus points of stakeholder analyses (Bryson, 2004):

1. Organizing participation: the stakeholder analyses described within this category is intended to guide the choices concerning who to involve in the analysis and how. According to Bryson (2004), it is necessary to involve stakeholders when they have information which cannot be gained otherwise or if their involvement is required for assuring successful implementation.
2. Creating ideas for strategic interventions: this category contains formulating the problem and searching for solutions, which is dependent on political feasibility as well. An effective formulation of the problem depends on a clear understanding of stakeholders and their interests, separately as well as in relation to each other.
3. Building a winning coalition around proposal development, review and adoption: techniques described within this category help developing proposals that can garner adequate support.
4. Implementing, monitoring and evaluating strategic interventions: all of the techniques discussed within the first three categories are important regarding the implementation of policy. The analysis technique described here helps developing actions tapping stakeholders' interests and resources.

This research makes use of the analysis techniques described within the first two categories, while the last two categories are more solution-oriented. This research focuses on analyzing the issues present between (categories of) stakeholders, and does not aim to give an advice based on this. This might be something for further research. In this research, a power versus interest grid and a stakeholder influence diagram will be used in order to categorize the involved stakeholders, select relevant stakeholders for consultation, and describe their relations (first category: organize participation). Power versus interest grids help to identify which players' interests and power are advisable to consider when addressing the problem at hand. The stakeholder influence diagram helps indicating how these power and interests of different stakeholders influence each other. Moreover, it helps identifying the most influential or central stakeholders. In the second category, the 'stakeholder-issue interrelationship diagram' is helpful for identifying which stakeholders have an interest in different issues, and how stakeholders might be related to through other stakeholders through their relationships with the issues. This diagram helps structuring the problem area, where the potential areas of cooperation or conflict may become apparent. This diagram is based on the power versus interest grid and stakeholder influence diagram (Bryson, 2004).

2.2.3. Research approach and subquestions

In the introduction, the following main question has been introduced:

What issues are playing a role regarding ownership division of distribution networks within the Dutch heating sector?

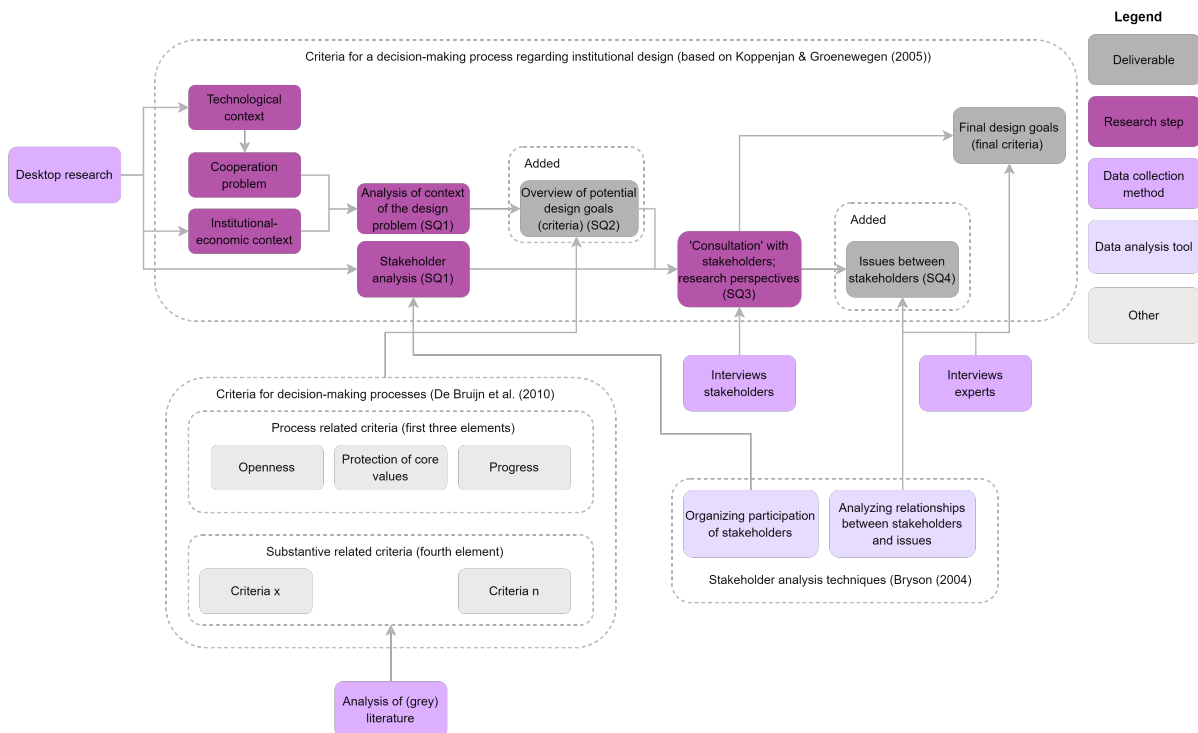


Figure 2.1: Research approach and methodology (using Koppenjan & Groenewegen (2005), De Bruijn et al. (2010) and Bryson (2004))

Figure 2.1 visualises the research approach and methodology. This research consults stakeholders, in the form of interviews, regarding the criteria for the decision-making process for the institutional of distribution networks within the Dutch heating sector. Based on Koppenjan & Groenewegen (2005), a 'stakeholder analysis' and a solid 'analysis of the context of the design problem' (requiring analyses of the 'technological context', 'cooperation problem' and 'institutional-economic context') will be conducted (see Figure 2.1), resulting in the first subquestion.

Considering the analysis of the context of design problem, the process criteria described by De Bruijn et al. (2010) and substantive criteria based on an analysis of (grey) literature, an 'overview of potential design goals (criteria)' will be created ((see Figure 2.1; subquestion 2).

Creating this overview of potential design goals is not part of the approach described by Koppenjan & Groenewegen (2005). Creating this overview aims to enable focus on gathering different perspectives during the interviews with stakeholders (subquestion 3), rather than validating these criteria in order to define final design goals (which is the '(sub)goal' described by Koppenjan & Groenewegen (2005)).

Issues will be identified by analyzing the differences in perspectives, in terms of relevance and interpretation, regarding the criteria discussed (see Section 2.1 for definition of issue). The stakeholder-issue analysis techniques described by Bryson (2004) will be used to get an overview of the 'issues between (categories of) stakeholders', which will be validated and discussed with experts (subquestion 4). As this research focuses on the issues related to ownership division, and uses the design goals (criteria) as a means for researching these issues (main deliverable), the 'final design goals' (see Figure 2.1) can be considered a sort of side-deliverable.

Summarizing, the following subquestions will be answered in order to answer the main question:

1. Which stakeholders are involved in the decision-making process, what are their relations and what is the context of the design problem?
2. What are the potential criteria for the decision-making process regarding ownership division for distribution networks in the Dutch heating sector?
3. What are stakeholders' perspectives regarding these criteria, focusing on stakeholders' interpretation and relevance they attach to these criteria?
4. Considering these perspectives, what issues can be identified between (categories of) stakeholders?

2.3. Research method and data collection

2.3.1. Research method

The case study of the Dutch heating sector will be used to research issues between stakeholders regarding ownership division. Through case study methods, researchers transcend mere quantitative statistical findings and instead grasp behavioral dynamics from the perspective of the actors involved. The essence of case studies involves in-depth scrutiny of contemporary real-life occurrences. This entails detailed contextual analysis of a limited number of events or conditions along with their interrelations (Zainal, 2007). The rich qualitative insights derived from case studies not only help explore and depict real-life data but also explain the complexities that experimental or survey research might overlook (Yin, 2009).

Yin (2009) distinguishes three categories: exploratory, descriptive, and explanatory case studies. Exploratory studies aim to investigate data points of interest, opening doors for further scrutiny ('Are there issues present between stakeholders?'). They might involve preliminary fieldwork and data collection before formal research questions and hypotheses are established. Descriptive case studies, on the other hand, aim to portray natural phenomena within the data. Their goal is to describe data as they unfold ('What issues are present between stakeholders?'). Explanatory case studies closely analyze data at both surface and profound levels to elucidate underlying phenomena ('Why are these issues present between stakeholders?').

In addition, Stake (1995) discerns three case study approaches. An intrinsic case study is pursued for its unique significance rather than its contribution to general understanding. An instrumental case study serves purposes beyond understanding the case itself. When multiple cases are studied instrumentally for broader implications, it becomes a collective case study.

This research has an intrinsic and instrumental character, however more intrinsic than instrumental. It investigates the Dutch heating sector as a case while relating it to broader context, though generalization isn't the aim. In intrinsic case studies, understanding the case takes precedence. In addition, this research balances between an exploratory and descriptive research, though more descriptive than exploratory. The research tries to identify possible issues present between stakeholders, and tries to describe these issues from a multi-actor perspective. In this sense, it explores the presence of issues and tries to describe these, from different perspectives, at the same time.

Case study research has its limitations as well. Performing case study research is particularly challenging due to its lack of standardized procedures. Researchers must navigate procedural uncertainties while possessing qualities like the ability to ask good questions, 'listen' carefully, adaptability, unbiasedness, and a deep understanding of the subject matter (Yin, 2009). In addition, the method offers limited grounds for scientific generalization due to small subject pools, sometimes involving just one subject. Critics ask how one can generalize from a solitary case.

Lastly, case studies can be perceived as lengthy, intricate to conduct, and generating extensive documentation (Zainal, 2007).

In order to tackle these challenges, the understanding of the problem context will be deepened in Chapter 3, an interview protocol containing goals relating to the questions will be constructed, there will be carefully listened to respondents and leave space for adapting the interview structure to the answers given by respondents (focus on some criteria/ concepts in more detail when this is interesting according to respondents).

2.3.2. Data collection and analysis

Conducting interviews (with stakeholders and experts), analysis of (grey) literature and desktop research are the methods of data collection used in this research (see Figure 2.1 and 2.2).

Stakeholder analyses techniques described by Bryson (2004) are used for stakeholder identification. The design problem is described by making use of the adjusted four-layer scheme (for the I-E context; described by Koppenjan & Groenewegen (2005)) and the technical context is described by presenting the technical system of interest. Interviews with a variety of stakeholders (selection based on stakeholder analysis from Bryson (2004) derived from subquestion 1) are used to answer subquestion 3. Stakeholder analysis techniques explained by Bryson (2004) are used to map the issues in terms of relations between stakeholders, which are validated with experts in interviews.

The principles of good market governance are, after a short literature review, considered to be the most appropriate as input for the substantial criteria, mostly due to the focus on institutional requirements in network sectors (Hancher et al., 2003). According to Hancher et al. (2003) principles for good market governance will contribute to a good functioning regulatory framework enhancing (business) confidence and producing stability necessary for long-term investment to take place. The authors focused on analyzing experiences regarding market governance in network industries. An extensive literature review, considering research within different EU countries, resulted in the construction of the principles. Section 4.2 elaborates more on the content of the principles.

The interviews with stakeholders focus on gathering perspectives of stakeholders in terms of interpretation and relevance regarding the criteria. Discussing stakeholders' prioritization (using a certain division of points), whether criteria are objectives or constraints and which criteria have been used and should be used, are means for gathering these perspectives (see Appendix B.1 for interview protocol). Due to the focus on interpretation, there has been chosen for a semi-structured qualitative interview. Applying a quantitative method would be able to give insights in the prioritization in the sense of significant relative differences and the coherence between different criteria. Despite this might be interesting as well, this does not match with the goal of the research. This research focuses on analyzing the perspectives, using an overview of criteria as means, rather than providing a prioritized overview of these criteria.

2.4. Scientific and societal relevance

To repeat, the objective of this research is researching what issues play a role regarding ownership division of distribution networks, using the Dutch heating sector as a case study. An analysis of the decision-making process from a multi-actor perspective, including the criteria being considered relevant regarding this process, are used as means for researching these issues present between (categories of) stakeholders.

In the end, the results of the case study 'ownership division in the Dutch heating sector' are tried to be interpreted in the light of the broader (scientific and societal) discussion regarding ownership division of distribution infrastructures in network sectors. In this sense, this research seeks to make a contribution to the academic discussion surrounding ownership in network sectors by employing the Dutch heating sector as a case study. Since the debate on ownership distribution in the heat sector has only recently gained momentum, there has not been much written in the literature about the issues regarding ownership distribution within this sector. Additionally, it is interesting to connect and interpret the identified issues in the context of the broader discussion on ownership division of distribution networks in network sectors.

Moreover, this research includes a methodological challenge. The theory for institutional design in complex technological systems from Koppenjan & Groenewegen (2005) has been presented as underlying approach. This research tries to add an analytical part to this design theory, by analyzing issues between stakeholders based on a set of criteria. Koppenjan & Groenewegen (2005) seem to assume conflicts between stakeholders do not exist, and consider these stakeholders able to help designing criteria for institutional design.

In addition, the issues are explored from a multi-actor perspective, by considering stakeholders perspectives. In literature, there is no research considering the issues regarding ownership division from a stakeholder perspective. By describing the issues in terms of relations between different (categories of) stakeholders, this research furthermore partly entails an application and deepening of some of the techniques explained by Bryson (2004).

Lastly, an overview of criteria regarding the decision-making process will be created as a means to research the issues. This overview might be able to contribute to the scientific field as well, and might be a start for creating institutional requirements for design of ownership division (with the Dutch heating sector as a case study), to test institutional designs on. Creating this overview is however not the main focus of the research, though can be an

interesting side-deliverable.

In terms of societal contribution, the research evaluates the decision-making process (regarding ownership division in the Dutch heating sector) by describing the underlying issues present between stakeholders, trying to clarify the differences in perspectives. This research might create new insights on how to tackle (and maybe avoid) differences in perspectives in future decision-making processes.

2.5. Research structure

In the introduction (Chapter 1) the problem has been defined, which resulted in the main research question. This chapter (Chapter 2) discussed the research definition, including the approach, methodology and subquestions. Figure 2.2 visualizes the (further) research structure, relating to the subquestions, research method and data analysis methods. The next chapter (Chapter 3) presents a stakeholder analysis and analysis of the context of the design problem, and thereby answers the first subquestion. Chapter 4 gives an overview of potential criteria relevant for the decision-making process (answer to the second subquestion). Perspectives of stakeholders regarding these criteria will be gathered (subquestion 3), in order to identify issues, which will be validated and discussed with experts (subquestion 4) (see Chapter 5). Chapter 6 provides a discussion, which is, together with the results of Chapter 5, used to give an answer to the main question in Chapter 7.

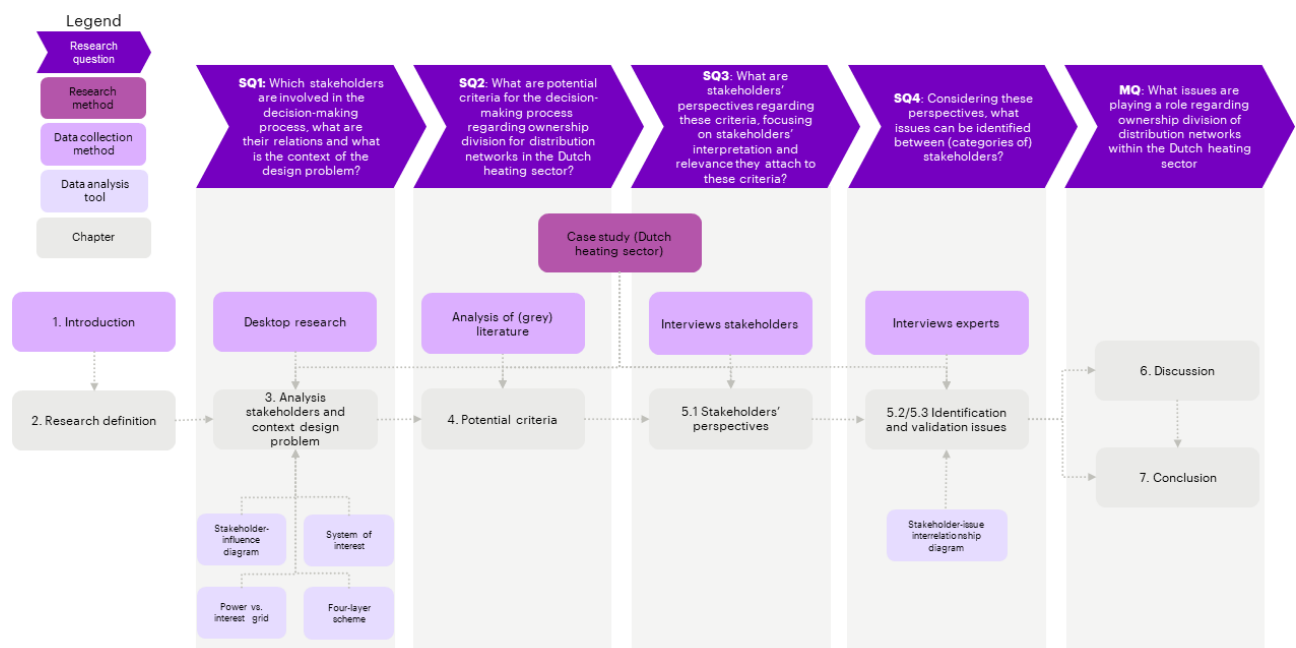


Figure 2.2: Visualization of research structure

3

Stakeholder analysis and design problem

As described in Chapter 2, an analysis of the design problem and a stakeholder analysis are, according to Koppenjan & Groenewegen (2005), considered necessary before 'consulting' stakeholders regarding the criteria, resulting in subquestion 1 - 'Which stakeholders are involved in the decision-making process, what are their relations and what is the context of the design problem?' These analyses are a deepening of the technological, institutional-economic and stakeholder context of the Dutch heating sector, useful before designing and analyzing the criteria. In this research the design problem is already determined (the ownership division of distribution networks). A deepening and overview of the context of the design problem, might help with designing the criteria for the decision-making process and discussing these with stakeholders.

This chapter starts with a description of the technological context (see Subsection 3.1.1), influencing the cooperation problem, followed by an analysis of the institutional-economic context (see Subsection 3.1.3) and a stakeholder analysis (see Section 3.2).

3.1. Context of design problem

Koppenjan & Groenewegen (2005) state the analysis of the design problem contains mapping the nature of the cooperation problem and the institutions that play a role at various analytical levels. As said, in this research, the design problem actually has been determined already; the design of ownership division of distribution networks within the Dutch heating sector.

The cooperation problem develops in the socio-technically complex system of heating sector, and collective heating systems in more specific. Describing the technological context of collective heating is a relevant step to describe the cooperation problem in more detail Koppenjan & Groenewegen (2005). The description of the cooperation problem emphasizes the essence of the institutional design regarding ownership division. Elaborating on this, allows understanding the technical context which influences the necessity for ownership division design. The same holds for the institutional-economic context. Economic characteristics of collective heating systems and relevant institutions playing a role regarding these, need to be understood before designing the institution of ownership division regarding these collective heating systems.

3.1.1. Technological context

As described earlier, the new institutional design described within the Wcw prescribes regulations for collective heating systems. A collective heating system can be defined as a system where (sustainable) sources of heat are unlocked by making use of a heating network, which supplies heat to consumers (Ministerie van EZK, 2020). Currently, most of the sources are of fossil nature (often gas). In the future, a shift to sustainable sources is required (geothermal energy, aquathermal energy, biomass or residual heat). The network exists of transmission and distribution networks, including heat transfer stations, which physically connect demand and supply. According the conceptual version of the Wcw, the transmission network exists of 100,000 housing equivalents at minimum, and will only be constructed when necessary to connect different sources of heat. In terms of distribution, there is made a distinction between distribution networks of less than 500 and more than 500 housing equivalents. The laws and regulations regarding ownership division of distribution networks do not apply to networks with a capacity below 500 housing equivalents. The exemption for such a small system is expected to have significant adverse effects on the feasibility of constructing and operating the collective. (Ministerie van EZK, 2020; Wiebes, 2020b).

Heat itself is a relative complex product to transfer due to its quality parameters (temperature, flow rate and pressure), and therefore has high loss of transport. Managing the flow is way more complex than electricity or gas flows, partly because heat can only be transferred in one way. Moreover, it is not possible to connect a source at

any point with the network. All connected sources and sinks (consumers) influence the quality of the transferred heat and network. The complex management of the flow in combination with relatively high losses of transport result in the local characters of heat networks. In this regard, the heating system is different from the electricity and gas sector, due to its local character (ECW, 2022; Wiebes, 2019a,b; Tieben & Van Benthem, 2018).

Figure 3.1 shows the different generations of district heating systems, related to the temperature level and efficiency. The first generation used steam as heat carrier, where the second was characterized by high pressure warm water networks (with a temperature between 100 and 200 degree Celsius). From the 1970s on, the third generation evolved. These system still has pressurized water as heat carrier, with maximum temperature of 100 degree Celsius. For this reason, the source is a high temperature source like residual heat from electricity power plants, waste incineration plants, industry or biomass plants. The trend throughout these generations has been towards lower distribution temperatures, leading to a fourth generation. The fourth generation networks are able to transport water of medium and low temperature (between 30 and 75 degree Celsius). These networks are supplied by heat from renewable sources (geothermal, aquathermal) or residual heat from data centers (Lund et al., 2014). Lund et al. (2021) describes the following requirements for a fourth generation network to be able of fulfilling its role in future sustainable energy systems:

- Supplying existing, renovated and new buildings with district heating of low temperature
- Distributing heat in networks with low grid losses
- Recycling heat from renewable heat sources (geothermal, solar) and low-temperature waste sources
- Being an integrated part of the smart energy system, by helping to partly solve the intermittency problem
- Ensuring suitable planning, cost and incentive structures relating to the operation

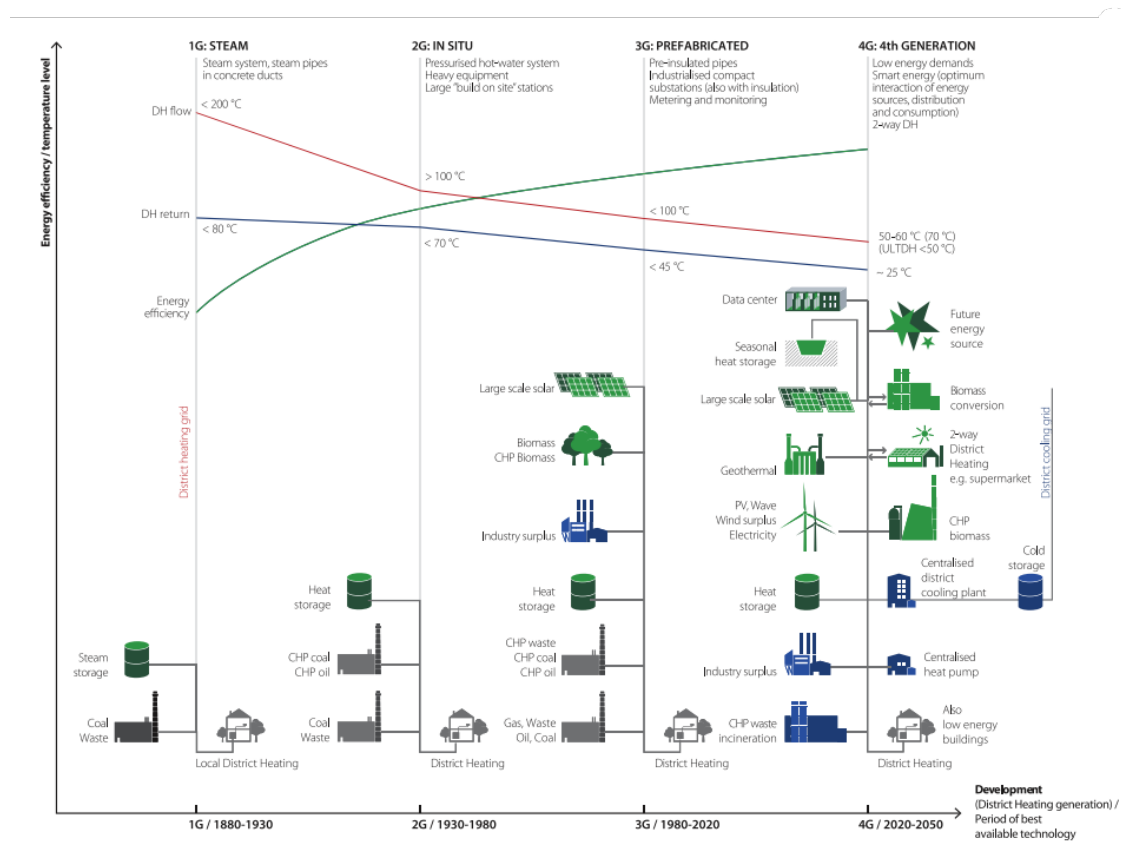


Figure 3.1: Development of district heating (and cooling) technology (Lund et al., 2021)

In the last couples of years, there has been done various research regarding the fifth generation and its role in the future energy system. The fifth generation networks differs from the fourth in the sense that production and consumption takes place at a decentralized level. The energy does not flow from A to B, but is based on a circular energy exchange system. The temperature of the system is somewhere between 30 and 40 degree Celsius and makes a demand-driven approach possible. By making use of intelligent aspects of the system and the addition of storage facilities, peak demand can be decreased. The fifth generation can be a promising technology with its own merits, however is seen as a complementary technology coexisting next to fourth generation technologies as

well. The five abilities described above can be identified as typical abilities for the fifth generation of district heating as well. However, some additional considerations need elaboration. The fifth generation allows to easily achieve low grid losses. In addition, integration with smart energy systems might become harder due to the strong focus on local harmonisation of combined heating and cooling in 5GDHC systems (Lund et al., 2021).

A lot of existing networks in the Netherlands are third generation systems. New networks, or extension of existing network, are often fourth generation. Currently, there exists only one fifth generation network in the Netherlands (Heerlen-Brunssum) (ECW, 2022). The type of heating network is interrelated with the sources. Currently, there is a shift towards fourth (and even fifth) generation networks in the Netherlands. Figure 3.2 shows a simplified technical system of a currently existing network in the Netherlands, combining the third and fourth generation. This research focuses on the distribution system. However, neglecting the transmission system would be inappropriate, due to the influence it has on the distribution system.

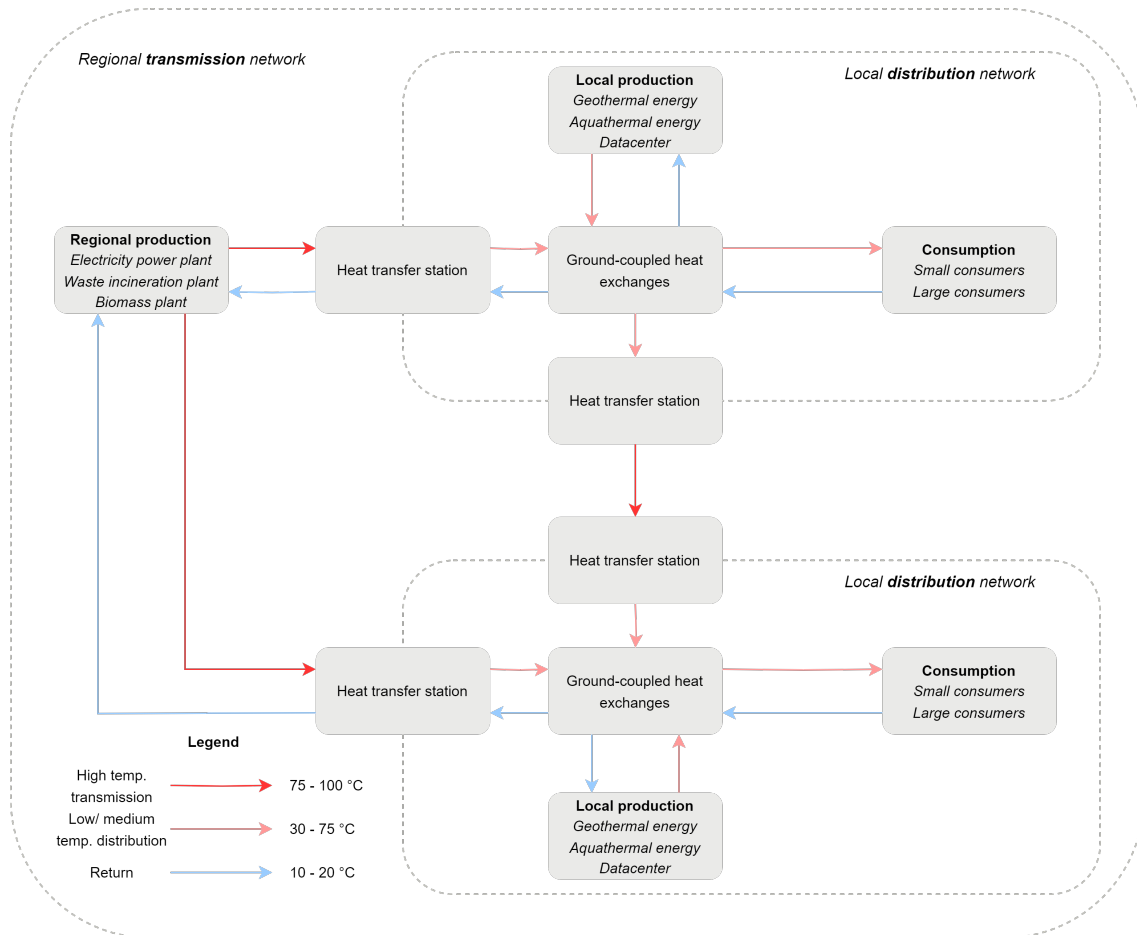


Figure 3.2: Technical system of interest (based on information from ECW (2022); Lund et al. (2014, 2021); Wiebes (2020b))

3.1.2. Cooperation problem

As described in Subsection 2.2.1, theoretically, the cooperation problem involves the challenge how mutually dependent actors (see Section 3.2) must cooperate to establish and maintain maintain a facility. The facility, the technical system of collective heating systems described in Subsection 3.1.1, is often characterized by the common good aspects. Common pool resources by their nature, involve shared access and use, which can lead to competition and potential overuse. This creates a cooperation problem where individuals or groups must work together to ensure the (sustainable) management of the resource (Koppenjan & Groenewegen, 2005). It seems that within (energy) infrastructures, four crucial functions can be pinpointed (system management, capacity management, interconnection of different (energy) networks, and interoperability) that have strong connections to common pool resource challenges. Given the critical role these functions play in the technical operation of infrastructures, there must exist organizational mechanisms to facilitate and ensure their effectiveness (Künneke & Finger, 2009). Formal and informal arrangements are necessary to regulate this, in order to prevent overuse or depletion of the resource. Those arrangement are called institutions, aiming to tackle the cooperation problem (Koppenjan

& Groenewegen, 2005). The system can only function when the operations of the involved actors are somehow aligned (system management). In addition, institutions regulating which stakeholders are allowed to use the infrastructures and scope are required (capacity management). Moreover, rules regarding interconnections of different heat networks, but also relating to sector connection, are necessary. Lastly, regulations might be necessary in order to enable interactions between networks elements to facilitate the systems' complementary (interoperability) (Künneke & Finger, 2009).

According to Koppenjan & Groenewegen (2005), in case of lacking laws and regulations, cooperation between stakeholders might be hindered by strategic uncertainty. All stakeholders have their own reason(s) for participating and everyone makes calculations for pursuing their own interests, considerable costs and risks exist in the decision to join. In order to stimulate the development and functioning of complex technical systems, like collective heating systems, coordination mechanisms (institutions) tuning stakeholders' behaviour are necessary. These institutions limit strategic uncertainty regarding risks and transaction costs (Koppenjan & Groenewegen, 2005). One may raise doubts about the applicability of the theory outlined by Koppenjan & Groenewegen (2005) to emerging technological systems that involve various technologies. Nevertheless, given the theory's abstract nature, it can serve as a foundational framework for contextualizing design problems. It is important to reiterate that the theory is not a step-by-step guide but can be a valuable tool.

The Dutch Minister of Economic Affairs and Climate Policy tries to tackle the cooperation problem by laws and regulations regarding ownership division, aiming to stimulate the growth of collective heating systems in an affordable, sustainable and reliable way (Jetten, 2022a). Understanding the context of the described cooperation problem is important for designing the criteria in Chapter 4. Moreover, it emphasizes the relevance of analyzing the stakeholder context (see Section 3.2).

3.1.3. Institutional-economic context

Economical characteristics of collective heating systems

As described earlier, the Dutch heating sector can be considered a network industry like other energy infrastructure sectors. Network industries are characterized by high sunk costs, network externalities, scale and synergy advantages and limited availability of resources (Jorritsma-Lebbink, 2000; van Gent et al., 2004). High sunk costs are represented by the large investments to be done regarding the exploitation of networks. These networks may only be used for the purpose of transporting and distributing hot (and cold) water, which makes the costs sunk. Network externalities contain the increase in value of the network due to more producers and consumers connecting themselves to the network. As a result, the costs of the network are shared over a larger amount of consumers, which decreases the average price. In addition, this offers a larger distribution market for distributors. Scale and synergy advantages entail large producers mostly have high upfront investments and low operational costs (due to operational efficiencies), resulting in lower average costs compared with small producers. Lastly, the heating sectors exists of limited amount of resources. Heat sources need to be of adequate capacity, temperature and have a convenient geographical location van Gent et al. (2004).

Those four characteristics, together with the (currently) local character of (district) heating, determines the vertical integration of the value chain. In addition, this explains why the distribution networks can be characterized as natural monopolies. It would be economically inefficient to have more than one network exploited in the same area, which makes competition for the network undesirable (van Gent et al., 2004).

Furthermore, it is important to note collective heating systems differ from electricity and gas, relating to their technical-economic characteristics. The already described local character, relatively high loss of transport and complexity of heat as a product result in different economical characteristics. More specifically, this results in preferring integral responsibility of the value chain. Unbundling of the production, network (operation) and delivery is not considered to be beneficial (Wiebes, 2019b; Tieben & Van Benthem, 2018).

Institutional context

Koppenjan & Groenewegen (2005) describe institutions as a set of rules which regulate the interaction between parties involved in the functioning of a (technological) system. In order to specify this further, four levels of analysis (and design) regarding the functioning of complex (technical) systems are distinguished, which are inspired by the four layer model of Williamson (1998). The following layers are relevant:

1. Actors and games in socio-technical systems (layer 1): individual actors consist of an internal structure which coordinates the transactions inside their hierarchy.
2. Formal and informal institutional arrangements of socio-technical systems (layer 2): institutional arrangements, often called governance structures, are designed in order to coordinate specific transactions between multiple stakeholders regarding labour, capital, intermediate goods and information.
3. Formal institutional environment of socio-technical systems (layer 3): these formal rules of the game determine the legal positions of the stakeholders and the mechanisms to coordinate transactions.

4. Informal institutional environment of socio-technical systems (layer 4): the informal rules of the game, which influence the mindset of stakeholders relating to layer 1. This layer affects the perceptions of stakeholders relating to issues they identify and solutions they consider feasible.

This four-layer model is relevant for analyzing institutions, while it distinguishes between different types of institutions and is able to specify the relations between various levels as well. A reciprocal vertical relation exists, where the higher level constraints and shapes the lower one and the lower one influences the development of the higher one. Institutional arrangements (including the institutional design for ownership division) are not functioning in a vacuum, but embedded in a larger context. Institutions therefore need to be congruent with institutions at other layers in order to function properly (Koppenjan & Groenewegen, 2005).

Figure 3.3 presents the four-layer model applied to the institutional design regarding ownership division within the Wcw. The Wcw can be considered part of layer 3, and is shaped and constrained by the societal discussion regarding the efficient assurance of public values within network sectors. As a result of this discussion, the Ministry of Economic Affairs proposed a new design regarding ownership division for the heating sector (see layer 4 and action arena 3-4 in Figure 3.3), which is influenced by European and national laws and regulations (see layer 4 in Figure 3.3).

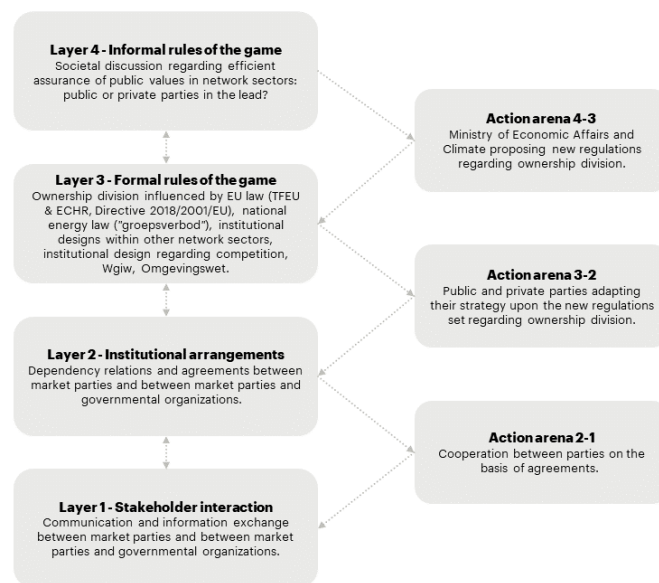


Figure 3.3: Four-layer model for analyzing institutions combined with action arena applied to institutional design for ownership division (based on Koppenjan & Groenewegen (2005))

On **European level**, the ownership division is influenced by European laws and regulations relating to ownership rights and the role for heat communities.

The earlier proposed competence of the municipality of defining requirements for the design of cooperation and ownership regarding future heat companies was considered to be inconsistent with European laws and regulations (Pels Rijcken, 2021; Jetten, 2022a). Both requirements (form of cooperation and ownership) are limited by the freedom of establishment and free movement of capital within the European Union (laid down in respectively article 49 and 63 TFEU). A containment of these principles of freedom is only allowed in case of a non-discriminatory measure, if the measure is justified due to general interest, if the measure aims reaching its goal and complies with the principle of subsidiarity. According to Pels Rijcken (2021), the proposal did not comply with the last three requirements. As a response to this, Jetten (2022b) decided to require a public majority interest regarding integral responsible heat companies in the Wcw.

Klapwijk & Pustjens (2023) argue this decision to be contrary with the protection of property (article 1 first protocol of the European Convention of Human Rights): "Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law." In more specific, the proposed ownership division is insufficiently foreseeable (1), does not comply with the principle of subsidiarity (2), does not provide sufficient (financial) compensation (3), nor a transition mechanism offering heat companies the possibility of taking damage controlling measures (4) and neither a hardship clause (5). This possible infringement is discussed in the last letter to the House of Representatives. Jetten (2023) states the state attorney argues there is interference of the right of ownership, which can however be justified due to the compliance with the requirements

formulated by article 1. The proposed transition period of minimal 14 years and maximal 30 years together with the compensation for the transfer of the network, results in a fair balance.

In terms of the role for heat communities, an European directive (2018/2001/EU) assures the right of autonomy for participators of energy co-operations active in sustainable energy. Based on this directive, the Netherlands is obliged to provide access to the energy market for these energy (including heat) communities (Jetten, 2023).

On **national level**, laws and regulations relating to the "Groepsverbod" (Electricity and Gas Act), the institutional design for competition and institutional designs for other networks sector influence the ownership division.

Network operators are not allowed to execute activities related to production or distribution of electricity and gas (including having shares in companies executing these activities) ("Groepsverbod"). This means networks operators can not operate as integral responsible heat company or cooperate with electricity and gas companies (Netbeheer Nederland, 2022; Heeger & DN, 2007). In order for network operators to play a significant role in the heat transition, adjustment of these laws and regulations is necessary. This adjustment has been proposed by Jetten (2023) in the last letter to the House of Representatives. The prohibition however holds to other way around as well. Electricity and gas companies are not allowed to work together or be part of an organization which includes a network operator as well (having shares is the same as begin 'part of'). The adjustment described by Jetten (2023) does not change this part of the "Groepsverbod", meaning electricity and gas companies are not allowed to operate in an organization together with (sisters of) network operators. On the flip side, heat companies are theoretically able to collaborate with network operators. Nevertheless, the majority of heat companies also engage in electricity and gas operations, rendering such collaborations seemingly unattainable. Abolishing the "Groepsverbod" for both network operators and electricity/gas companies creates opportunities for both stakeholders to collaborate. However, the proportionality and subsidiarity of implementing such a measure might raise valid concerns.

Furthermore, consistency with the institutional design regarding competition for the heating sector might play a role (see Haffner et al. (2016) where 'access for heat producers' and 'competition distribution and delivery' are used by the researchers as criteria for evaluating ownership division for distribution networks).

In addition, the institutional designs for other Dutch network sectors with vital infrastructures might be considered as examples in terms of consistency, where electricity and gas might be the most straightforward and applicable network sectors to consider (Jetten, 2022b; Jorritsma-Lebbink, 2000).

Lastly, the coherence with the "Wet gemeentelijke instrumenten warmtetransitie" (Wgiw) and "Omgevingswet" can be considered. The ownership division will influence these laws and regulations (Jetten, 2023).

These European and (some) national laws and regulations shape, constrain and influence the ownership division design within the third layer. In addition, it shapes, constrains and influences other national laws and regulations itself as well. The design for ownership division results in stakeholders adapting their strategies, resulting in new agreements and contacts set between different stakeholders in the sector (see action arena 3-2 and layer 2 in 3.3). Based on those agreements, stakeholders cooperate, communicate and exchange information (see layer 1 and action arena 2-1 in 3.3).

3.2. Organizing the 'consultation' of stakeholders

As described in Subsection 2.2.2, the power-interest diagram will be created in order to determine which stakeholder to involve in the 'consultation' (in this research the interviews). A stakeholder-influence diagram will present the relations between stakeholders, which is used for giving an overview of the issues in terms of relations later on. As said, an analysis of the decision-making process (relating to the ownership division of distribution networks) will be used as a means for identifying and analyzing the issues present between stakeholders. Therefore, this section will be based on the stakeholders playing a role in this decision-making process. The involved stakeholders by Jetten will be used as a starting point (see Subsection 3.2.1), evaluating this, resulting in addition of stakeholders (see Subsection 3.2.2).

3.2.1. Stakeholders involved by Jetten

In July 2022, Jetten (2022a) discussed the proposed division of ownership with four main stakeholders (municipalities (united in "VNG": "Vereniging voor Nederlandse Gemeenten"), provinces (united in "IPO": "Interprovinciaal Overleg"), heat companies (united in "Energie-Nederland") and network operators (united in "Netbeheer Nederland")). In June 2023 the independent regulator was consulted as well, executing an enforcement test ("UHT"/"Uitvoerings- en Handhaadbaarheidstoets") (Jetten, 2023).

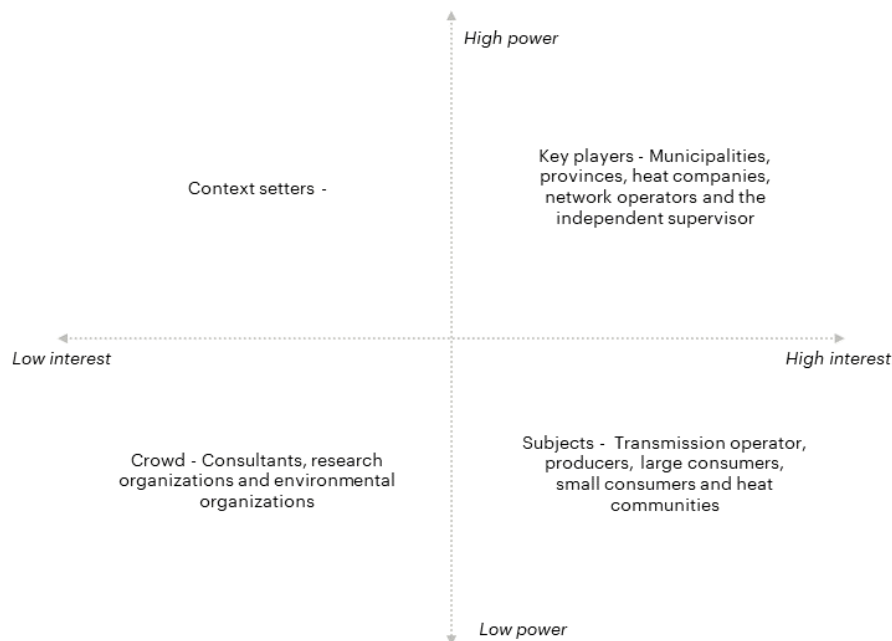
3.2.2. What about other stakeholders?

Apart from these stakeholders, there are more stakeholders who can be considered involved or affected by the decision regarding ownership division. In Table 3.1, an overview is given of all stakeholders potentially involved in the decision-making process, including their power and interest regarding the new ownership division design.

Table 3.1: Conclusions interviews stakeholders and issues to discuss with experts

Group of stakeholders	Explanation	Power	Interest
Provinces	All twelve provinces of the Netherlands (represented by "Interprovinciaal Overleg (IPO)")	High	High
Municipalities	All municipalities in the Netherlands (represented by "Vereniging voor Nederlandse Gemeenten (VNG)")	High	High
Independent supervisor	The "Autoriteit Consument en Markt (ACM)" regulates the current Dutch heating market	High	High
Heat companies	All heat companies the ACM has given a permit based on article 10 of the Heat Act (part of them represented by "Energie-Nederland")	High	High
Producers	Owners of different sources of (sustainable) heat (see Subsection 3.1.1 for sources) (part of them represented by "Energie-Nederland")	Low	High
Distribution operators	All organization represented by "Netbeheer Nederland"	High	High
Transmission operators	Currently, there is one existing transmission network: WarmtelinQ	Low	High
Large consumers	Consumers with connection with a min. capacity of G25 and permeability of 40 m3/ hour	Low	High
Small consumers	Consumers with connection with a max. capacity of G25 and permeability of 40 m3/ hour	Low	High
Heat communities	Local communities developing and manage their own local heat systems.	Low	High
Consultants	Stakeholders giving advice to business related and governmental organizations regarding strategy and implementation.	Low	Low
Research institutions	Organizations conducting research on different aspects of the heat transition.	Low	Low
Environmental organizations	Organizations lobbying for a better environment	Low	Low

Power versus interest grids help determine which players' interest and power bases are relevant for a credible evaluation. A high lever of power indicates stakeholders have important resources to influence the situation (in this case the ownership division). A high level of interest indicates stakeholders have high interest in the outcome of the situation, often due to dependency on the decision. Considering these two axes, there are four quadrants a stakeholder can be categorized in. Stakeholders belonging to the "crowd" are necessary to monitor with minimal effort. "Subjects" need to be informed with some more effort. "Context setters" are intended to be kept satisfied, handled with care meeting their needs. The "key players" ought to be managed closely due to their high power and interest (Enserink et al., 2022; Bryson, 2004). A high level of power is assumed when the stakeholder is involved in the decision-making process by Jetten. Contrary, a low level is assumed in case of a lack of involvement. The level of interest is based on the replies regarding the internet consultation Wiebes (2020c). (categories of) Stakeholders are assumed having high interest when there is a high amount of replies on this consultation, and low interest in case of a low amount of replies.

**Figure 3.4:** Power-Interest grid

Based on the involvement of stakeholders by Jetten (2022a, 2023), municipalities, provinces, heat companies, network operators and the independent regulator can be considered key players (see Figure 3.4). These stakeholders are able to influence the decision-making process regarding the division of ownership, and have high interest in the outcome of the process as well (see their comments in letters which represents their high level of interest Wiebes (2020c)). Municipalities, provinces, heat companies and network operators can be considered a

cluster due to their involvement in the process at the same time by Jetten. The independent supervisor has been involved at a later moment, therefore assuming a lower level of power than the cluster. The ministry of Economic Affairs and Climate themselves is not taken into account, while this stakeholder is considered to be the process leader. Transmission operators, producers, consumers (large and small) and heat communities are considered "subjects". They have high interest in the result of the process (see replies on internet consultation (MijnOverheid, 2020)), however do not have a chance to influence the decision-making. Consultants, research institutions and environmental organizations are crowd, having low power and interest (Wiebes, 2020c; MijnOverheid, 2020; Jetten, 2022a, 2023).

3.2.3. Relations between stakeholders

A stakeholder influence diagram is a helpful tool for indicating how (the power and interests of) different stakeholders influence each other, and moreover helps identifying the most influential or central stakeholder(s). According to Bryson (2004), this is important for researching and getting a clear overview of the issues (related to ownership division) present between stakeholders.

Figure 3.5 shows a simplified representation of the current situations in terms of relations between stakeholders in the heating sector, lacking rules and regulations regarding the degree of competition and ownership division (described within the Wcw). Producers, transmission operators and distribution operators are surrounded by dotted boxes in Figure 3.5. These stakeholders are not always involved in the value chain of heat (production, (transmission), distribution, delivery). In various situations there is one (public or private) heat company responsible for production, distribution and delivery. In addition, only in case of possible connection of different distribution networks, due to the size of the source, a transmission network is constructed, operated by the transmission operator.

The institutional design proposed in the Wcw (see Subsection 1.2.3 for details) prescribed a public majority interest for distribution infrastructures. This will probably change the roles of the involved stakeholders, influencing their relations in terms of issues as well. Under current regulation, heat companies, distribution operators, heat communities, provinces and municipalities are able to act as owner of the distribution network.

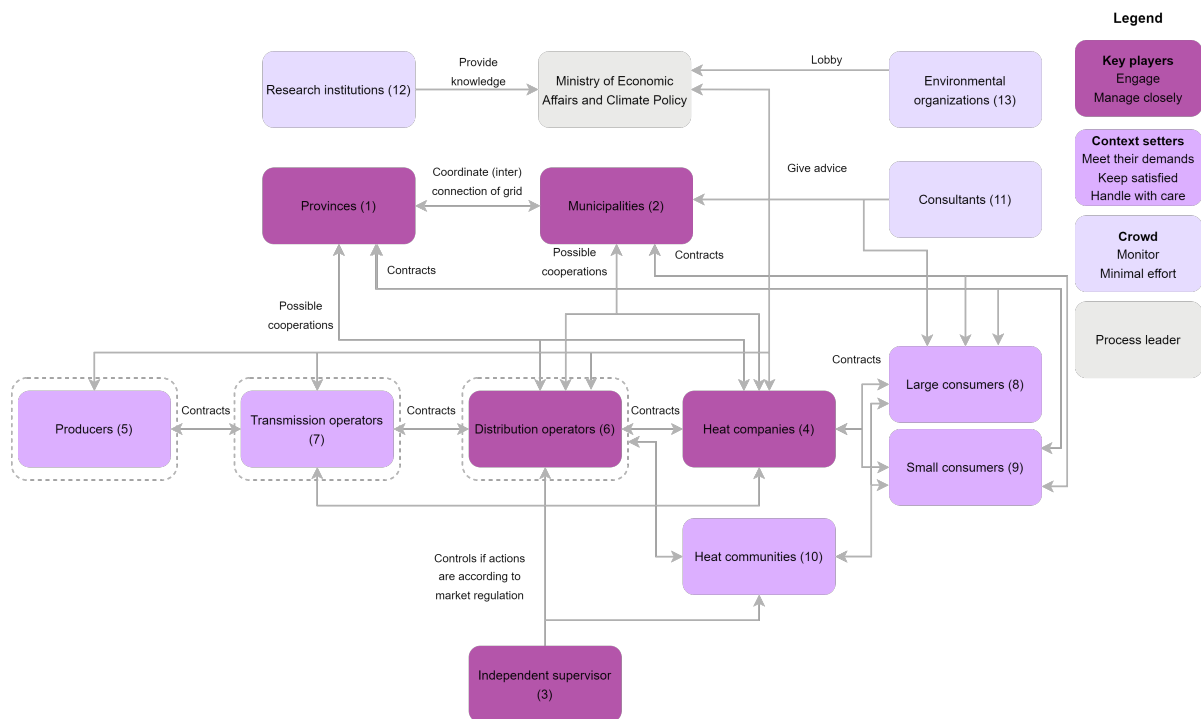


Figure 3.5: Stakeholder-influence diagram

3.2.4. Relevant stakeholders for 'consultation'

Jetten (2022a, 2023) seems to have, consciously or unconsciously, categorized some stakeholders as key players by involving them in the decision-making process (municipalities, provinces, heat companies, distribution operators and the independent supervisor). The other stakeholders, some having a high level of interest as well (base on the internet consultation (Wiebes, 2020c)), are not involved by Jetten. Producers, transmission operators and consumers are dependent on the stakeholder owning the distribution infrastructure, probably resulting in a high

level of interest in the result. For the interview with stakeholders, all stakeholders with high interest (key players and subjects) are considered, assuming issues exist between stakeholders having high interest in the problem (relating to the design of ownership division).

3.3. Conclusion

Summarizing, this chapter has a strong theoretical nature, whereas this research places a significant emphasis on practical aspects of the design problem (ownership division of distribution networks in the Dutch heating sector). The theoretical description of the technological and institutional-economic context will be used as input for the design of potential criteria in the next chapter (see Chapter 4). Chapter 5 discusses these criteria with stakeholders in order to identify issues, and in this sense evaluates the theoretical descriptions of this chapter.

Relating to the technological context, the different generations of district heating, and other technological characteristics of heat as a product (more local oriented, have relatively high loss of transport and transport a complex product), are relevant to consider for the design of criteria.

Furthermore, distribution networks within the Dutch heating sector are characterized by economic characteristics like high sunk costs, network externalities, scale and synergy advantages and limited availability of resource.

In terms of institutional context, national and European regulations are influencing the (possibilities for) institutional design for ownership structure in the Dutch heating sector. On national level, institutions regarding competition and market ordering (in general, and related to other network sectors) and the Electricity and Gas Act influence play a role ("Groepsverbod"). In addition, European laws and regulations, relating to the freedom of establishment and free movement, the right of ownership and directives regarding the role of heat communities, influence the design for ownership division. The design for ownership itself, described within the Wcw, shapes other laws and regulations as well ("Wgiw" and "Omgevingswet"), and influences the contractual environment for stakeholders to act within. The 'fit' with these other laws and regulations is important to consider for the design of the ownership structure.

In the following chapters, an overview of potential design goal (criteria) will be created (see Chapter 4), partly using the analyses in this chapter as input. Based on a stakeholder analysis, provinces, municipalities, heat companies, distribution operators, the independent supervisor, producers, transmission operators and consumers will be 'consulted' for discussing the overview of potential criteria, and researching their interpretations and reasoning in order to identify underlying issues (present between these stakeholders) (see Chapter 5).

4

Potential criteria decision-making process

This chapter gives an overview of potential criteria playing a role within the decision-making process for ownership division of distribution networks, and thereby answers the second subquestion - What are the potential criteria for the decision-making process regarding ownership division for distribution networks in the Dutch heating sector? At first, the design principles for process design from De Bruijn et al. (2010) and the principles for good market governance from Hancher et al. (2003) will be described (see Section 4.1 and 4.2). Next, Section 4.3 gives an overview of the potential criteria, based on these design principles, the conclusion of Chapter 3 and available grey literature regarding ownership division of distribution networks within the Dutch heating sector.

4.1. Design principles of a decision-making process

As described earlier, according to De Bruijn et al. (2010) there are four core elements of a decision-making process: openness, protection of core values, progress of the process and relevant substance. Table 4.1 shows the subcriteria of the elements.

Table 4.1: Design principles of process design described by De Bruijn et al. (2010)

Openness
All relevant parties are involved in the decision-making process
No substantive choices made prior to the process
Both process design and process management are transparent
Protection of core values
The core values of parties are protected
Parties commit to the process rather than the result
Parties are not asked to commit to subdecisions during the process
The process has exit rules
Progress
Stimulate early participation of all relevant parties
The process carries a prospect of gain
There are quick wins
The process is heavily staffed
Conflicts are addressed in the periphery of the process
Tolerance towards ambiguity
Command and control are used to maintain momentum
Substance
Substantive insights are used for facilitation, using the roles of experts and stakeholders
The process proceeds from substantive variety to selection

In an **open** process all relevant parties are involved, there are made no substantive choices prior to the process and the process (management) is transparent. At first, the key question here is who the relevant parties are. There is tendency to invite only large parties which have productive power (parties with the means to implement an initiative) and support the initiative. Other parties, who are not invited, might join forces opposing the initiative. Parties with obstructive power (parties who are in a position to obstruct the initiative) are necessary to involve in the decision-making process as well. Involving them, may prevent them from using their obstructive power. This does however not mean everyone has to be invited per definition. The total of parties is intended to represent the interested parties in an accurate way. Inviting representative organizations for a large group of parties might be a way to fulfill this criterion. In addition, there are different options for involving a variety of parties within the process in different phases. Some parties may be invited from the beginning, while others are involved later on in the process. Lastly, (weaker) parties may involved due to moral arguments (De Bruijn et al., 2010).

A second design principle is the minimization of the amount of substantive choices made prior to the process. These substantive choices are transformed into process agreements (De Bruijn et al., 2010).

Thirdly, the principle of transparency relates to the integrity of the process and entails it is clear to stakeholders how the process will take place, in what way their interests are protected, which rules apply and which parties will be involved in the process. Moreover, the role of the process manager must be transparent (independent facilitator) as well (De Bruijn et al., 2010). The principles of transparency described by Hancher et al. (2003) touches upon the previous as well (see Table 4.2 for more explanation).

Parties need be prevented from thinking they are trapped in a process, where the decision already has been taken and their participation contributed to their justification. **Protection of the core values** of the involved stakeholder contributes to the prevention of the previous. In this way parties are convinced of not making any choices against their will. In addition, parties are only asked to make a prior commitment to the process rather than the results. Moreover, commitment to subdecisions are advisable to avoid. Nothing is decided until everything is decided. Finally, a 'good' process has exit rules, which aim to reduce the risk of participation for individual stakeholders (De Bruijn et al., 2010).

Due to the lack of prior commitment to the results and subdecisions, the process might lack **progress**. In order to stimulate the process, early participation of relevant parties needs to be stimulated. Involving all stakeholders at early stage, all being in agreement and ready to start will be difficult to organize. However, achieving this early participation will pay off during the rest of the process. In addition, parties have to be convinced the process is sufficiently appealing to them. There needs to be a prospect of gain for all parties, which does not pay off too soon. Moreover, quick wins are important for stakeholders not leaving the process. Ensuring heavily staffing of the process is another important design principle regarding the progress. The representatives of parties need to have high positions within their organizations. Positive effects of conflict are considered as a design principle relating to progress as well. This may help steering stakeholders in the decision-making. The use of constructive ambiguity may also contribute to stimulation of progress, while this can create a feel-good connotation (use terms as 'quality', 'future-proof' and 'efficient'). Lastly, the use of command and control is considered to stimulate progress. Consulting all relevant parties is important. However, in case of no consensus after a certain amount of time, the process leader is expected to take a decision (De Bruijn et al., 2010).

The previous three described criteria pay little attention to the **substance** of the process. The process have to be designed in such way it allows addressing relevant substantive ideas, which eventually contributes to a better substantive decision-making. There needs to be a substantive role for stakeholders as well as experts in the process. Secondly, the principle of variety and selection is relevant to consider. A large variety of substantive ideas will be introduced at the beginning, from which some insights will be selected (De Bruijn et al., 2010).

4.2. Principles of good market governance

Table 4.2 shows an overview of the (legal) principles of good market governance forming the basis of market legislation and supervision.

Transparency is considered to be a fundamental principle for good market governance and protects the interest of all affected parties. It is important prior to the process as well as during and following the decision-making. The requirement of a **clear legislative mandate** is strongly related to transparency regarding the execution of powers of regulatory agencies. In addition, the agency is not ought having limited powers only. **Flexible powers** might be called for in case of touching upon a dynamic sector, where the sector is evolving more than legislature is able to act (which is the case for the Dutch heating sector). The combination of clear mandate with flexible powers would seem to ward off against the risk of the authority going off on a direction of its own, without means of control.

Proportionality requires regulatory action to be appropriate to achieve their goals and the measure to be proportionate to the objectives. The regulation through interference must be kept at a minimum. This principle has both a substantive and a procedural element and is strongly related to the principles of flexible powers, consistency and predictability. The principle of **independent supervision of the market** is of high relevance for network industries and is linked to the principles of **consistency** and **predictability**. The principle of **accountability** has to be respected by all governmental authorities and protects the interest of regulated firms, citizens and the legislature or executive.

Lastly, respect for **general principles of competition policy, EU law and effective cooperation with and within the EU** are necessary to consider when designing market institutions and governance. Regulatory measures might conflict with general principles of general competition law, while it is likely actions of regulatory agencies, and the laws themselves, affect competition. In addition, national authorities are meant to work together in a network.

Table 4.2: Principles of good market governance described by Hancher et al. (2003)

Transparency
Three-folded: (1) prior to decision-making, the rules governing the process are known for all parties. Moreover, the minister will not operate behind closed doors and will issue reasons for decisions. (2) in the course of decision-making, addressees of legislation (those whose legal position is affected) must be aware of their obligations and given time to comply. In addition, legislation intends to describe clearly who is responsible for what. (3) following decision-making, requires the minister to be open regarding the objectives, processes, record and decisions, including explanation of the rationales of decisions.
Independent supervision of the market
Is linked to principles of consistency and predictability. Economic regulation may not be an instrument of macro-economic policies. Agencies only make economic decisions relating to giving effect to political choices.
Clear legislative mandate
Strongly linked to the principle of transparency. The legislative mandate (of the regulatory agency) needs to be formulated as a set of objectives against which the agency needs to test the exercise of its powers.
Flexible powers
The regulatory agency does not only have well-delineated and limited powers.
Proportionality
All governmental action needs to be proportionate to the goal, substantive as well as procedural. It is not only related to limiting the substance and scope of regulatory measures, but it also forces executives and agencies to follow transparent procedures.
Consistency
Relates to the consistency of treatment across different utility sectors.
Predictability
Essential requirement for stakeholders to be able to plan with confidence for the future regarding investments.
Accountability
Strongly related to transparency. Regulatory authorities are accountable to politicians through political control instruments, to citizens by explaining and publishing policies, to interested parties through public consultation and to the judiciary through legal procedures.
Respect of general principles of competition policy
Is the substance of the regulatory measures in line with the general competition law regime?
Respect for EC law and cooperation with and within the EU
Regulatory activities at Member State level comply with EU law. In addition, national authorities of EU countries are meant to work together.

4.3. Overview of potential criteria

Table 4.4 shows an overview of the potential criteria to consider regarding the decision-making process for ownership division of distribution networks within the Dutch heating sector. This overview is based on the process criteria by De Bruijn et al. (2010) (see Table 4.1), stakeholders' perspectives (base on an analysis of 'grey' literature), the principles of good market governance by Hancher et al. (2003) (see Table 4.2) and the analyses regarding the context of the design problem (Chapter 3) (see Figure 2.1 for methodology). Table 5.3 gives an overview of the references for the formulated potential criteria.

4.3.1. Process criteria

The first three criteria are process-related, and mostly derived from De Bruijn et al. (2010) (see **openness**, **protection of core values** and **progress of the process** in Table 4.4 and description of criteria in Section 4.1). The principle of transparency relating the the decision-making process (and implementation) described by Hancher et al. (2003) touches the criterion of openness, leading to the following combined definition of transparency relating to the process: rules governing the process are known beforehand, the decision-maker does not operate behind closed doors, the decision is easily accessible and stakeholders know which parties are involved (and why) and how their interests are protected. Moreover, Hancher et al. (2003) described the process needs to be proportionate: executives and agencies follow transparent and efficient procedures.

4.3.2. Substantive criteria

As described by De Bruijn et al. (2010), the substance of the decision-making process needs to represent the perspectives from stakeholders and experts. In order to involve stakeholders' perspectives, all relevant published documents regarding ownership division for distribution networks have been researched. The principles of Hancher et al. (2003) are used to complement those perspectives.

The criterion of **efficient assurance of public values** is fully based on the researched publications. The public values include affordability, sustainability, reliability and security (ACM, 2021; Haffner et al., 2016; Wiebes, 2020b). The ownership division needs to take care of a better assurance of public values, focusing on the short as well as long term (Energie Nederland, 2022; Jetten, 2022b). Affordability can be interpreted in two different ways: an affordable price for the consumer or an affordable system to invest in for the investor (or a combination of both) (Haffner et al., 2016; Ecorys, 2019; Wiebes, 2020b). Reliability is mostly interpreted as security of supply and

operationalized in quality of supply and number of outages (Haffner et al., 2016; Ecorys, 2019). Sustainability is seen in line with the sustainability goals set: 1 million connections by 2030 and 2.5 million by 2050. To this extent the sustainability criterion is attached to time pressure. In addition, sources need to fulfill certain sustainability requirements (Jetten, 2022b; Wiebes, 2020b). Security of the system is considered to be the fourth public value. The system needs to fulfill certain security requirements described in law (Haffner et al., 2016).

Table 4.3: Potential criteria and the reference(s) these are based on

Criterion	Conceptualization (see Chapter 3)	Grey literature	De Bruijn et al. (2010) (see Table 4.1)	Hancher et al. (2003) (see Table 4.2)
Openness			Openness	Transparency
Protection of core values			Protection of core values	
Progress of the process			Progress of the process	
Efficient assurance of public values		ACM (2021), Haffner et al. (2016), Wiebes (2020a), Energie Nederland (2022), Jetten (2022b), Ecorys (2019)		
Realization power	Technological development (see Subsection 3.1.1), economical context (see Subsubsection 3.1.3)	Energie Nederland (2022), Haffner et al. (2016), Ministerie van EZK (2022), Jetten (2022b), Netbeheer Nederland (2022), PwC (2022), ACM (2021),		Independent supervision, flexible powers, accountability
Relation ('fit') with other laws and regulations	Institutional context (see Subsubsection 3.1.3)	PwC (2022), Netbeheer Nederland (2022), Wiebes (2020a), Jorritsma-Lebbink (2000), ACM (2021), Jetten (2022b)		Consistency, general principles of competition policy, EC law and cooperation with and within the EU
Future perspective stakeholders	Economical context (see Subsubsection 3.1.3)	Energie Nederland (2022), ACM (2021), PwC (2022), Netbeheer Nederland (2022)		Proportionality, predictability, clear legislative mandate, transparency
Risk profile		Ministerie van EZK (2022), Ecorys (2019)		
Network- and sector connection		Ecorys (2019)		
Political influence		ACM (2021)		
Public support		Netbeheer Nederland (2022), Energie Nederland (2022), Jetten (2022b)		

Realization power is considered to be a relevant criterion in different researches, and is formulated as a balance between capital (including willingness to invest), technological knowledge, capability of governance and willingness to cooperate. The key question here is: Is there enough realization power, based on the current organization of the sector? Where is capital, knowledge, governance and cooperation currently allocated, and is it easy to reallocate (Energie Nederland, 2022; Haffner et al., 2016)? When choosing for a certain market ordering, the existence/ potential of enough realization power is relevant (Ministerie van EZK, 2022; Jetten, 2022b). In relation to *capital*, a public-dominant ownership division results in a necessary shift of capital from the private to the public sector (PwC, 2022). In addition, extra investment will be required from the public sector (Netbeheer Nederland, 2022). According to (Haffner et al., 2016), involvement of public parties within heating companies might increase the certainty of investment due to their investment possibilities. In contrast, When there is a realistic positive business case, private parties are expected to invest. Secondly, the new ownership division might result in required expansion of *knowledge* for certain stakeholders (PwC, 2022). The allocation of capability and possibilities of *governance* within organizations is another sub-criterion regarding realization power (Haffner et al., 2016; ACM, 2021). The governance entails the internal governance of the future integral responsible heat company as well as the external governance of the market by an independent regulatory authority. The principle of independent supervision of the market, and the related flexible powers and accountability of the authority touches upon this, and relates to the governance of the market (see principles of Hancher et al. (2003) in Table 4.2). Finally, *willingness* to cooperate between different stakeholder can be taken into account, which touches upon the public support discussed later (Netbeheer Nederland, 2022; Energie Nederland, 2022; Jetten, 2022b).

Table 4.4: Potential criteria for the decision-making process regarding ownership division of distribution networks in the Dutch heating sector, based on grey literature (PwC, 2022; Netbeheer Nederland, 2022; ACM, 2021; Energie Nederland, 2022; Haffner et al., 2016; van Benthem & Tieben, 2020; Wiebes, 2020b) and relevant selected literature regarding decision-making processes (De Bruijn et al., 2010) and good market governance (Hancher et al., 2003)

1	Openness Are all <i>relevant parties</i> involved in the decision-making process? Are there made any <i>contently related choices</i> prior to the decision-making process? Is the decision-making process <i>transparent</i> ?
2	Protection of core values Were all relevant parties able to influence the decision-making process, by expressing their <i>interests</i> ?
3	Progress of the process Is <i>early participation</i> of all relevant parties stimulated? Are the representatives of the organizations within the decision-making process the ones with <i>high positions within their organization</i> ? Are <i>positive effects of conflicts</i> used for the decision-making? Are constructive <i>ambiguous terms</i> used within the decision-making process, in order to stimulate progress? Is <i>command and control</i> used by the minister?
4	Efficient assurance of public values Is the public values of <i>affordability</i> efficiently assured? Is the public value of <i>reliability</i> efficiently assured? Is the public value of <i>sustainability</i> efficiently assured? Is the public value of <i>security</i> efficiently assured?
5	Realization power Where is the most <i>capital</i> and the most <i>willingness to invest</i> allocated? What is the most efficient allocation for this, keeping transaction costs in mind? Is it easy to reallocate this, keeping transaction costs in mind? Where is the most <i>technological knowledge</i> allocated? What is the most efficient allocation for this? Is it easy to reallocate this? Where is the most <i>capability of governance</i> allocated? What is the most efficient allocation for this? Is it easy to reallocate this? Where is the most <i>willingness to cooperate</i> allocated? What is the most efficient allocation for this? Is it easy to reallocate this?
6	Relation ('fit') with other laws and regulations What is the 'fit' with laws and regulations regarding <i>competition and market ordering in general</i> , and for the Dutch heating sector specifically? What is the 'fit' with <i>European laws and regulations</i> ? What is the 'fit' with laws and regulations regarding <i>other network sectors</i> (gas, electricity, railway, telecommunications, water)? What is the 'fit' with laws and regulations regarding collective heating systems (or network sectors) in <i>other European countries</i> ?
7	Future perspective stakeholders Are the effects of the ownership division <i>proportional</i> with respect to the goal (efficient assurance of public values), taking into account the positions of stakeholders? To what extent does the ownership division result in a <i>predictable</i> future for stakeholders?
8	Risk profile Which <i>risks</i> are relevant to take into account? To what extent are agreements regarding these risks <i>possible and necessary</i> ?
9	Network- and sector connection To what extent does the ownership division offer possibility and security for the connection of different <i>heating networks</i> ? To what extent does the ownership division offer possibility and security for the connection of different <i>sectors</i> ?
10	Political influence To what extent does <i>political influence</i> play a role regarding decision made within future heat companies?
11	Public support What is the relation between <i>public support</i> and the different alternatives for ownership division?

The **relation ('fit') with other laws and regulations** is split up into four subcategories. First, laws and regulations regarding competition and market ordering need to be considered. As described earlier, network companies are, according to law, currently not allowed to execute any delivery activities (PwC, 2022; Netbeheer Nederland, 2022). Moreover, the ownership division needs to be aligned with the institutional design for competition regarding collective heating systems (PwC, 2022; Wiebes, 2020b; Jorritsma-Lebbink, 2000) (see Haffner et al. (2016) as well where 'access for heat producers' and 'competition distribution and delivery' are used as criteria for evaluating ownership division). According to Hancher et al. (2003), respecting the general principles of competition policy is relevant as well. Secondly, the design for ownership division is required to be in line with European laws and regulations. Rules regarding procurement and regulations related to network sectors apply (ACM, 2021; Jetten, 2022b). Furthermore, the laws and regulations used within other Dutch network sectors (electricity, gas, railway, telecommunications, water) might play a role when determining the ownership division for the Dutch heating sector, which is in line with the principle of consistency, described by Hancher et al. (2003). By stimulating consistency, confidence in the regulatory regime is improved. Lastly, cooperation with and within the EU needs to be stimulated on regulatory level (another principle described by Hancher et al. (2003)).

The **future perspective of stakeholders** is two-folded. Regulatory measures need to be *proportionate* and offer a *predictable* future for stakeholders (both formulated by Hancher et al. (2003) as well), which is necessary for investors to be able to plan their investments with confidence. In terms of proportionality, the effects of ownership division (for stakeholders) are to be proportional to the goal (efficient assurance of public values). A fair and equal playing field for all relevant stakeholders needs to be assured (Energie Nederland, 2022; ACM, 2021). Considering

the influence of new regulation on existing networks is relevant in this regard. In terms of predictability, stakeholders need to be able of making estimates of their future costs and benefits (PwC, 2022; Energie Nederland, 2022; Netbeheer Nederland, 2022). The legislative aspect of the principle of transparency from Hancher et al. (2003) touches upon the predictability as well. Stakeholders have to be made aware of their obligations and given time to adjust and comply with the new legislation. These new institutions intend to clearly indicate responsibilities as well. Regarding the role of the independent regulatory agency, the requirement of clear legislative mandate clarifies in what way the regulatory authority is expected to test the exercise of its powers.

The **risk profile** entails to what extent agreements regarding potential risks are necessary and possible. Different ownership divisions will result in different sets of necessary and possible risk agreements. Normally, every existing risk needs to be assured within contracts. Usually, the more (links between) parties the more existing risks, which need to be incorporated within the contracts (Ministerie van EZK, 2022; Ecorys, 2019). Those risks can be of different nature. The extent to which **connection between different networks and sectors** is possible, as a result of the ownership division, can be a criterion as well. This relates to connecting different heat networks as well as different sectors, considering the integral energy system (Ecorys, 2019). **Political influence**, relating to the decision made within future heat companies, might also influence the design for ownership division. Public-dominant heat companies might enjoy more political influence than private heat companies. If this is desired, is under debate (ACM, 2021). Lastly, the different alternatives for ownership division all enjoy a different **public support**. Different stakeholders are in favor of different alternatives (Netbeheer Nederland, 2022; Energie Nederland, 2022; Jetten, 2022b).

4.4. Conclusion

This chapter has given an overview of the criteria potentially playing a role within the decision-making process for ownership division of distribution networks in the heating sector (see Table 4.4 for overview and Table 5.3 for the references). These formulated criteria will be used as input for interviews with stakeholders, in order to identify issues present between (categories) of stakeholders (see Chapter 5). As stated in Subsection 2.2.3, creating this overview beforehand, aims to enable focus on analyzing different perspectives during the consultation of stakeholders, rather than focusing on validating the criteria.

5

Identification of issues

Within this chapter, issues related to ownership division of distribution networks in the Dutch heating sector are identified, by making use of the overview of potential criteria created in Chapter 4. Stakeholders' perspectives will be explained by describing their (differences in) perspectives in terms of interpretation and relevance regarding the formulated criteria (Section 5.1). This answers the third subquestion - What are stakeholders' perspectives regarding these criteria, focusing on stakeholders' interpretation and relevance they attach to these criteria? (see Subsection 5.2 for answer). Analyzing these perspectives, issues will be identified, which will be validated with experts (Section 5.3). This answers the last subquestion - Considering these perspectives, what issues can be identified between (categories of) stakeholders (see Section 5.4 for answer)? As stated earlier, issues are in this research defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria, and are considered conflicts when stakeholders agree on the attached relevance or perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.

5.1. Stakeholders' perspectives

Subsection 5.1.1 explains the selection of respondents and the method used during the interviews, which is slightly adjusted as a result of the first interviews. Subsection 5.1.2 and 5.1.3 describe the perspectives of stakeholders regarding respectively the process (first three in Table 4.4) and substantive criteria (criteria 4-11 in Table 4.4).

5.1.1. Interview goal and method

In total, seventeen different stakeholders were interviewed, after reaching out to approximately forty potential stakeholders, based on the different identified categories in Section 3.2. Three municipalities (of which one 'owns' an energy- and heat company as well), three provinces (of which one related to the organization of a heat company as well), three parties related to energy (including heat) delivery activities, three producers owning different sources (residual, aquathermal and geothermal heat), two parties related to distribution operation, one transmission operator and one party representing large consumers (of whom the majority produces as well). Unfortunately, small consumers and energy/ heat communities were not interviewed, due to lack of contact. Regarding all these stakeholders, attempts were made to get in touch with employees who have been (indirectly) involved in the (lobbying of the) decision-making process regarding the distribution of ownership. For most parties, this was successful, but for a few parties, it was not.

Stakeholders were queried about their viewpoints on the process aspects of the decision-making process (first three in Table 4.4). Subsequently, the discussion shifted to the content-related criteria (criteria 4-11 in Table 4.4), with a particular emphasis on the relevance and their interpretations. For the questions posed during the semi-structured interview, see Appendix B.1. Additionally, Appendix C provides a concise summary of all the conducted interviews. The findings from these interviews are presented below and examined in relation to each criterion. Table 5.1 shows an overview of the stakeholders interviewed, related to the in text reference used, which relates to the Appendices including the summaries as well.

Initially, the comprehensiveness of the overview, the prioritization of criteria (including dividing a certain number of points), categorizing criteria as objectives (criteria which need to be optimized) and constraints (criteria which should be met, however not optimized) and discussion which criteria have been used/ should have been used according to stakeholders, were used as means for researching stakeholders' perspectives regarding the criteria.

However, during the first couple of interviews (see C.1 and C.13 as the best examples), respondents experienced difficulties comparing the process and content related criteria, prioritizing the criteria (using a number of points) and categorizing the criteria as objectives and constraints. For this reason, it has been decided, for the remaining interviews, to split the interview in two main parts (process and substantive related; this is also the reason

for splitting these in this chapter (see Subsection 5.1.2 and 4.3.2)), and focus in lower sense on the prioritization and categorization of criteria as objectives and constraints. Stakeholders were encouraged to draw overarching conclusions about what they deemed most crucial and articulate their reasoning behind it. These adjustments led to a (slightly) different focus in the subsequent interviews compared to the earlier ones.

Table 5.1: Interviewed stakeholders and their in text reference (which refers to summary)

Stakeholder	Reference
Municipality 1	C.1
Municipality 2	C.2
Municipality 3	C.3
Province 1	C.4
Province 2	C.5
Province 3	C.6
Heat company 1	C.7
Heat company 2	C.8
Heat company 3	C.9
Distribution operator 1	C.10
Distribution operator 2/ Heat-infrastructure company 1	C.11
Transmission operator 1	C.12
Producer 1	C.13
Producer 2	C.14
Producer 3	C.15
Large consumers	C.16
Independent supervisor	C.17

5.1.2. Process criteria

In February 2019, the former minister Eric Wiebes apprised the House of Representatives about the Wcw process, which encompassed the distribution system's ownership division and the consultation with stakeholders on its content (Wiebes, 2019a). This moment is considered by various stakeholders as the initiation of the new Wcw process. However, it wasn't until October 2022, prompted by a significant number of responses during an internet consultation in June 2020, that the ownership division of the infrastructure was formally introduced as detailed in Jetten (2022b).

In short, partly as a result of the interviews, the decision-making process can be split up into two main phases:

1. February 2019 - June 2020: the start of the process regarding the Wcw, resulting in a conceptual version to which stakeholders were able to respond via an internet consultation (Wiebes, 2020c; Ministerie van EZK, 2020). The institutional design of this conceptual version was mainly based on the current situation, allowing more competition and not making a decision regarding ownership division.
2. Dec 2020 - now: the (results of the) internet consultation (Wiebes, 2020a), 'translated' to the decision including an obligatory public majority interest regarding distribution infrastructures (Jetten, 2022b), eventually resulting in a public majority interest of the integral responsible heat company (Jetten, 2023).

In general, the consensus among nearly all stakeholders is that the process (Feb 2019 - now) lacked transparency in certain aspects, particularly concerning the line of reasoning (e.g. the basis of decisions and the existence of predefined criteria at the outset) and the inclusion of all relevant parties. Only some municipalities seem to disagree on this (see C.1, C.2), and one network operator argues transparency is assured well (see C.10).

The first phase (Feb 2019 - June 2020) has been intransparent from a municipal and provincial perspective. The first draft of the Wcw (related to ownership division) was based on the existing situation, where private parties were 'dominating' the market. Municipalities (represented by the VNG) were completely surprised by the conceptual version, due to the low level of controlling mechanisms and competences incorporated in this version of the Wcw. Based on the Climate Agreement, municipalities have a directing role regarding the heat transition. According to municipalities, the conceptual version of the Wcw was not in line with the directing role. Tools making it able to execute this directing role were missing. The results of the internet consultation seemed to have 'surprised' the ministry of Economic Affairs and Climate Policy. In stead of following the 'normal' procedure (sending the draft version to the Council of State and House of Representatives after consultation), challenges (of conflict) had increased (end of first phase). As a result of the consultation (mostly relating to the support from municipalities), after consulting the state attorney, (Jetten, 2022b) decided distribution infrastructures will be owned by a party with a public majority interest.

The second phase of the decision-making process has been intransparent (relating to the line of reasoning), mainly for private parties like heat companies. A lot of stakeholders, public and private, agree the public support at municipalities has been decisive for the decision taken by Jetten (C.6, C.7, C.8, C.9, C.11, C.15). For this reason, (mainly) heat companies characterize the process as highly political, while they feel municipalities and provinces had a lot more influence on the decision (C.7, C.8, C.9, C.15).

Regarding the **openness** of the process, varying stakeholder argue the process is lacking transparency in terms of reasoning and involving all relevant parties at the right moment. The first conceptual version was based on the existing situation, where private parties are 'dominating' the market. Some municipalities and provinces did not feel themselves involved in the first phase (Feb 2019 - June 2020) (C.2, C.4). Some others in the second phase (C.5, C.7, C.8, C.9, C.17), arguing this decision is based on the political support by municipalities and provinces.

A couple of these stakeholders argue there has been made a relevant substantive choice prior to the process. Integral responsibility and ownership division of the infrastructure are considered separately, however combined in the end of the process (public majority interest in the integral responsible heat company).

As a result of the lack in openness, stakeholders do not feel themselves involved enough in the process, which indirectly gives them the feeling there is a low **protection of their core values**. In addition, as described, not all (relevant) parties were stimulated to participate at early stage, which, according to some stakeholders, may have resulted in slowing down the **progress**. Furthermore, some stakeholders emphasize the political influence on the process, as a result of changing positions of ministers, which negatively influenced the progress of the process according to them. The use of ambiguous terms might have (negatively) influenced the process as well. The definitions of (ownership of the) infrastructure and integral responsibility could have been defined more clearly, which might have resulted in a lower level of discussion between stakeholders. Lastly, the decisiveness of Jetten results in a lot of different stakeholder perspectives. Some compliment Jetten (C.1, C.2, C.5), others argue the proposed decision has been made too late (C.4, C.13), while others state the decision is made with too few knowledge and should have been extended therefore (C.8, C.9).

All in all, to conclude, stakeholders seem to agree the process lacked openness, mainly in terms of transparency regarding the line of reasoning and involving all parties at the right moment. In addition, there is discussion if there are made content related choices prior to the process (integral responsibility).

5.1.3. Substantive criteria

Overall, the overview is considered relatively complete according to most stakeholders. A more **technological criterion** might be added. The technological possibilities of the future system as a whole are necessary to consider when designing the ownership division. One producer argues the proposed decision potentially excludes a lot of technological possibilities, is too risk averse, and in this sense slows down the heat transition (C.13). Another producer partly agrees with this statement, stating the laws and regulation are too focused on high temperature networks, while it is necessary to be prepared for low temperature networks as well (C.14).

The relevance of **efficient assurance of public values** is considered to be the most important by all stakeholders, directly or indirectly. Affordability is mostly related to the consumer, and the (in)transparency of tariffs. Reliability connects with the security of supply. Sustainability relates to the sustainability of sources as well as to achieving climate goals. There is significant difference in interpretation on how to take into account these public values, and the way public values have been considered as line of reasoning for the proposal for ownership division.

Most municipalities and provinces agree the new design for ownership division creates more controlling mechanisms for municipalities to fulfill their 'directing role', which make them able to steer on the assurance of public values (C.1, C.2, C.6). This eventually results in a more affordable price for the consumer, partly while the network is in this case accessible for a variety of producers who produce sustainable (C.4). Another municipality argues the transition to be a social one, and states justice (for the consumer) to be the most relevant public value (C.3). One province, related to the organization of a heat company, doubts the assurance of public values under the new model. Affordability is under pressure, and sustainability is not definitely assured as well. At the moment an integral responsible heat company is assigned to a lot, it has the competence itself to decide which sources to connect (C.5).

Distribution operators agree there currently is a too low level of control over the market, which influences the affordability (due to the low level of transparency) (C.10, C.11). This statement is emphasized by the supervisor as well. The current market for collective heating systems can be considered intransparent to some extent and requires more regulation (C.17).

The heat companies state the decision needs to focus on the assurance of public values (with a focus on affordability), combined with the goals set by the Climate Agreement. According to them, it is not proved the proposed design for ownership division efficiently assures these public values, on short as well on the long term. The decision taken is of political nature in stead of derived from and based on content related arguments (C.7, C.8,

C.9). Large consumers, partly including producers, state there needs to be a focus on the consumer in terms of affordability (how efficient is the new ownership division) and reliability. The proposed model does not assure these two public values. As argumentation for lacking argumentation for the assurance of affordability under public ownership, stakeholders refer to a report of the 'Rekenkamer Rotterdam' (Hofstra, 2019), the case of 'AEB Amsterdam' (Cordeiro et al., 2019) and 'Stadsverwarming Purmerend' (Wijmenga, 2018), where the costs raised (as a result of the ownership structure), eventually resulting in financial problems (C.7, C.9, C.16).

In terms of **realization power** there is division in perspectives, related to the relevance and the way this criterion is considered in the decision-making process. This can be considered remarkable, especially while Jetten formulated this as one of the two criteria for the design of ownership division (Ministerie van EZK, 2022).

Two provinces agree this criterion to be highly relevant (C.5, C.6), while the third argues it has been considered too heavily in the decision-making process (C.4). The two provinces agreeing on the relevance, however seem to disagree on the way how the realization power is considered. One states the realization power is taken into account in the wrong way, while research regarding the realization power of the whole sector (private and public) might have helped and lowered the level of discussion (C.6).

Municipalities state they have realization power, due to the available capital at the government. Currently, the government invests a lot in the private sector by subsidizing. This capital does not flow back into society, however goes to shareholders (C.2). In addition, the proposed ownership division is seen as a means for increasing the realization power. Most capital is allocated in the private sector, however the speed of the transition is too low (C.3). Municipalities state realization power to be important, however not as important as (steering mechanisms for achieving) public values (C.1). Some others stakeholders agree (see C.8).

Infrastructure related parties state realization power to be relatively less important. The availability of capital is a general issue according to stakeholders, which holds for the availability of workforce as well. In this sense, it does not matter whether a public or private party operates the distribution system (C.10, C.11, C.12).

In addition, the external governance (by the independent supervisor) does not influence the ownership division. In all potential models, governance is required. It is not expected there is a huge difference in the amount of required governance between the models (C.17).

Regarding the internal governance, there are some concerns whether the organizational challenge is underestimated by public authorities, especially while it is not their core competence. The same holds for the technological knowledge, and the allocation of this (C.7, C.8, C.9, C.16). All these parties, heat companies and a representative of large consumers/ producers, agree the realization power is considered in the wrong way, and refer to the research of PwC (2022) and examples of the 'Rekenkamer Rotterdam'/'AEB Amsterdam' to support their arguments (Hofstra, 2019; Cordeiro et al., 2019). Moreover, they argue the public realization power is only researched after the decision regarding a public majority interest regarding the infrastructure had been taken (C.9).

Regarding the **'fit' with other laws and regulations**, stakeholders agree, laws and regulations on European level have influenced the decision (see Subsection 3.1.3 as well for analysis). Opinions however differ on the extent to which the European institutions have been applied in the right way. The conclusions and consequences drawn by Jetten from the advice given by the state attorney are doubted; To what extent were/ are other models possible under the conditions set by European regulations (C.5)? heat companies doubt the extent to which the expropriation of ownership is justifiable under European regulations (C.8, C.9). One producer emphasized the lack of considering regulations relating to the ETS, relating to the proposition of disconnection of residual heat by producers (C.13).

Furthermore, there seems to be a discussion on how to consider the heating sector as a vital infrastructure in the line of reasoning. Some municipalities and provinces agree this, in combination with electricity and gas being vital infrastructures as well, to be an essential argument for public ownership of the infrastructure (C.1, C.4). However, some provinces state evaluating the differences between the sectors, and the consequences this has for the market ordering of the heating sector, is relevant to consider as well (C.5, C.6). Having some form of control as a public parties (over vital infrastructures) is important, while private parties have the possibility to sell their company to a foreign investor (C.5). heat companies state the argument of heating sector as a vital infrastructure has been taken into account too heavily and wrongly (C.7, C.9). Various other stakeholders (distribution operators, producers/ consumers) consider comparison with other Dutch network sectors of relatively low importance, due to the differences between the sectors (C.10, C.12, C.16). According to the independent supervisor, there exists a cluttered web of laws and regulations which influence each other in various ways, and is of high relevance to consider when designing the ownership division (C.17).

Relating to the **future perspective of stakeholders**, various stakeholders agree uncertainty regarding investments and responsibilities results in slowing down the transition. On some aspects, this could have been formulated better, especially during the decision-making process (C.13, C.15, C.16, C.17, C.4, C.5). In terms of proportionality of the decision, there is lots of discussion, probably related to the interests of stakeholders as well. heat companies consider the decision as disproportional (C.7, C.8, C.9), while there are other/ better means to

reach the same goal (tariff regulation). One province agrees, stating the current institutional design is formulated too narrow. Allowing more models gives more stakeholders the possibility of investing and playing a role in the heat transition (C.5). In contrast, a municipality considers the (narrow) scope to be proportional as it creates clarity in the market (C.3).

In terms of the **risk profile**, there is discussion whether public parties are able to take and carry more risk, which might be an argument supporting public ownership. According to some stakeholders, public stakeholders are able to take more risk, take other investment decisions and divide the risk more proportionate (C.13, C.10, C.1, C.2, C.4). Two other provinces state the division of risk is hard to predict under the new model (C.5, C.6). Heat companies argue the potential risk is expected to be the same for private and public parties, while this represents a vast amount of the yield (C.7, C.9). When public parties determine a lower yield requirement, the party is subsidizing (C.9).

Municipalities and provinces agree the **connection with other distribution networks and sectors** to a relevant argument in favor of public ownership, sometimes referring to 'cherry picking' by private parties (private parties only exploiting the profitable networks) as an argument (C.2, C.3, C.4, C.5). Heat companies slightly agree public ownership might be beneficial in case of the connection of networks (C.7, C.8), however is not proven. In addition, private parties have the expertise to connect sectors and innovate on technological level (C.8). 'Cherry picking' can be overcome by demarcating the lots in a smart way, so the lots include profitable and less/ none-profitable areas (C.9).

According to network operators, the connection of different networks is important as well, and intends play a significant role in the division of ownership too. Efficient connection of networks is important for the future integral energy system to work properly (C.10, C.11). Big consumers/ producers are divided in their perspectives. Some see the criterion of connection as important relating to the higher strategic goal (integral energy system in 2050) (C.14), while others agree this criterion does not influence the ownership division. Municipalities have a political incentive to connect networks with each other, due to the division of risk. This does not necessarily result in the most efficient connection of networks (C.16).

Regarding the potential **political influence**, perspectives differ hugely, within categories of stakeholders as well. Some municipalities and provinces state there is an unjustified fear of some stakeholders relating to this political influence, amongst others stating the independent supervisor has an important role in this (C.1, C.4). Other municipalities and provinces acknowledge the potential influence, arguing external organization of heat companies to mitigate this effect (C.3, C.5). At the same time, the Wcw leaves space for municipalities to organize this internally, which can be considered a risk (C.5, C.6). More and better regulation on this might be necessary (C.6).

Under network operators, there is some division of perspectives. Some argue politics only influence the decision during the decision-making process (C.10), while others argue politics influence the decisions of future public heat companies in terms of extension of existing networks and exploitation of new networks (C.11). Producers and large consumers have different opinions on this as well. Some argue, from experience, politics do not influence public network companies (C.14). Others state this criterion is highly relevant to consider, and is wrongly/ not taken into account when the decision was taken (C.16). The independent supervisor is hesitant regarding the political influence, states this might be a potential issue and argues it should have been considered more seriously (C.17). Some heat companies are hesitant as well, and refer to historic examples from the 'Rekenkamer Rotterdam', 'AEB Amsterdam' and 'Stadsverwarming Purmerend', where the management refused to increase the tariffs after financial setbacks, eventually resulting in socializing the costs along all the inhabitants of the municipality, or almost reaching bankruptcy (in case of AEB Amsterdam en Warmtebedrijf Rotterdam) (C.9, C.8) (Cordeiro et al., 2019; Wijmenga, 2018; Hofstra, 2019).

In terms of **public support**, some public stakeholders agree public ownership is justifiable when considering the public support at the consumer side. Consumers favor public ownership (C.1, C.2, C.4). On this perspective, there is criticism from other stakeholders, including a municipality (C.3). In their view, rationally, the ownership division needs to be decided based on the efficient assurance of public values. The independent supervisor agrees in the sense it argues this criterion is taken into account wrongly (C.17). In addition, heat companies argue there is no evidence stating there is more public support for a public-dominant ownership division than for other models. Society currently is suspicious, and consumers have 'fear', regarding private monopolists, which results in a low level of public support under consumers. Public ownership (which is a monopolist as well) does not necessarily result in a more affordable heat price (C.7, C.8, C.9). One network operator slightly agrees by stating the public steering role is more important than the eventual construction (public, private or public-private hybrid) (C.10).

5.2. Identification of issues

5.2.1. Issues based on stakeholders' perspectives

Table 5.2 gives an overview of the identified issues (between stakeholders), based on stakeholders' perspectives described in the previous Sections (Section 5.1.2 and 5.1.3). Issues have been defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria, and are considered conflicts when stakeholders agree on the attached relevance or perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.

As can be derived from Table 5.2, there has been identified only one issue related to ownership division by making use of the process criteria (based on '*openness*' and '*progress*'). Furthermore, the process criteria were able to address many differences in perspectives related to the political process, which however is not the focus of this research. The identified issue relates to the **unbundling of ownership**. As a result of the interviews, there seem to be differences in perspectives whether or not to assume integral responsibility of the heat chain. This issue pertains to whether the discussion revolves around the 'ownership division of the integral responsible heat company' or the 'ownership division of the infrastructure'.

In contrast to the procedural criteria, it comes as no surprise that the substantive criteria proved to be more adept at addressing varying perspectives concerning the matter of ownership allocation. A consensus among most stakeholders is evident regarding the significance of **affordability** in assessing public value, and they align this viewpoint with arguments highlighting the present lack of **transparency in tariff structures**. Nevertheless, disparities emerge in the approaches to ensure affordability and enhance tariff transparency. Moreover, some stakeholders emphasize the importance of **realization power**, while others contend that this aspect has been excessively considered, due to capital and workforce constraints serving as general bottlenecks, irrespective of the ownership division model. The criterion of risk profile has been added to the issue of realization power, due to the strong connection. Public entities assert that they are able to take more risk, which positively influences the realization power. Concerning the *interconnection of distribution networks*, there is a prevailing consensus among various stakeholders regarding the role of public entities in this domain, which is therefore not taken into account as issue. In terms of the relation ('fit') with other laws and regulations, a debate ensues regarding the classification of the **heating sector as a vital infrastructure** and how this needs to be factored into the ownership division equation. Although there is general accord on the vital status of the heating sector, discord arises regarding its integration into the institutional design of the Wcw. The varying perspectives surrounding the (potential) **risk of political influence** in terms of interpretation and relevance identify this as an issue. Finally, the interpretation and delineation of "public support" and its consideration in the context of the ownership division decision diverge significantly among stakeholders. This primarily concerns the '**fear**' that **consumers** have for the **private monopolist**.

Table 5.2: Conclusions interviews stakeholders and issues to discuss with experts

Identified issue	Based on criteria
Ownership unbundling	Openness, specifically 'contently related choices made prior to the process' Progress, specifically 'the use of ambiguous terms'
Affordability and (in)transparency of tariffs	Efficient assurance of public values, specifically 'affordability'
Realization power	Realization power Risk profile
Vital character of the heating sector	Relation ('fit') with other laws and regulations
Risk of political influence	Political influence
'Fear' of the consumer regarding the private monopolist	Public support

5.2.2. Issues between (categories of) stakeholders

Figure 5.1 shows the relations between stakeholders in terms of issues (see Table 5.2 for overview of issues) present between them. This diagram is based on Bryson (2004), assuming categories of stakeholders, and issues present between those categories of stakeholders, or within these categories. Bryson (2004) assumes lack of relations between stakeholders within different categories, which result in a simplification. The categories of stakeholders represent the categories described in Section 3.2: municipalities (represented by 'VNG'), provinces (represented by 'IPO'), energy/ heat companies (represented by 'Energie-Nederland'), network operators (represented by 'Netbeheer-Nederland'), the independent supervisor, producers, transmission operators and consumers.

Figure 5.1 illustrates the intricate and overlapping nature of the stakeholder field that needs to be addressed. Although Jetten attempted to categorize stakeholders, it is evident that these categories intersect, except for the

transmission operator(s) and independent supervisor(s). The category of heat companies includes one municipality with ownership of its own energy and heat company, one province engaged in heat delivery activities and heat companies responsible for heat production, distribution, and delivery in various areas.

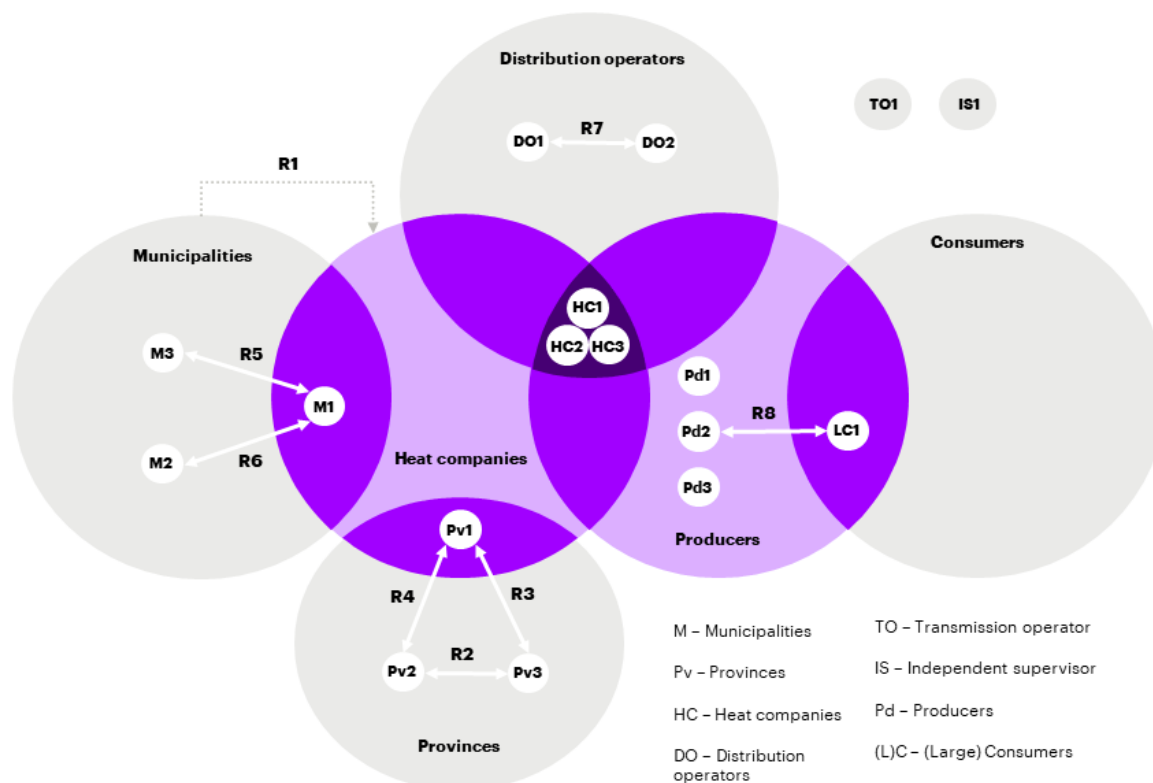


Figure 5.1: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector (based on Bryson (2004))

Table 5.3: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector

	R1	R2	R3	R4	R5	R6	R7	R8
Ownership unbundling			X	X				
Affordability and transparency of tariffs	X		X	X				
Realization power	X	X	X	X				
Vital character of the heating sector								
Risk of political influence				X	X		X	X
'Fear' consumers regarding (private) monopolist					X	X		

Regarding the assurance of affordability, transparency of tariffs, and realization power (R1 in Figure 5.1), municipalities and heat companies hold differing views.

Municipalities support the new ownership division design, as it provides more control mechanisms for fulfilling their directing role, enabling them to steer towards assuring public values and justice for consumers (C.1, C.2, C.3). In contrast, heat companies argue that decisions need to be based on public values, particularly affordability, aligned with the Climate Agreement goals. They question whether the proposed ownership design effectively guarantees these public values in the short and long term, expressing concerns that political considerations rather than content-related arguments influenced the decision (C.7, C.8, C.9).

In terms of realization power, municipalities assert that they possess it due to the current available government capital used for private sector investment through subsidies. They argue that the capital invested in the private sector does not benefit society directly but goes to shareholders. (C.2). They view the proposed ownership division as a means to increase realization power, but they emphasize that public values take precedence over realization power. Heat companies contend that the concept of realization power is misunderstood and cite research by PwC

(2022) and examples from 'Rekenkamer Rotterdam'/'AEB Amsterdam to support their viewpoint (Cordeiro et al., 2019; Hofstra, 2019). In addition, they suggest public realization power was explored after the decision regarding a public majority interest relating to the infrastructure was already taken (C.7, C.8, C.9).

The above-mentioned disparity (R1 in Figure 5.1) represents the sole identified issue between stakeholder categories, as other potential issues are obscured by internal issues within each category (other relations in Figure 5.1). Issues between categories are only assumed when these issues exist between all stakeholders of the two categories.

Concerning provinces, disagreements arise regarding the assurance of affordability, transparency of tariffs, realization power and ownership unbundling (R2, R3, and R4 in Figure 5.1). Additionally, two provinces differ in their perspective on the importance of realization power. While two provinces consider it highly relevant (C.5, C.6), the third province argues that it received excessive consideration during the decision-making process (C.4). The two provinces agreeing on the relevance, however, have differing views on how realization power was considered. One province suggests that it was not adequately taken into account, proposing that research on the realization power of the entire sector (private and public) could have fostered a more constructive discussion (C.6). The third province contends that some stakeholders have an unjustified fear of political influence, emphasizing the role of the independent supervisor in this context (C.4). Another province acknowledges the potential influence but suggests external organization of heat companies by municipalities to mitigate its effect (C.5). Lastly, ownership unbundling is under debate, in the sense one province argues competition on the network is possible, depending on the technological characteristics of the region.

Within the municipalities' category, differences also exist concerning the risk of political influence and consumer concerns related to private monopolies (R5 and R6 in Figure 5.1). One municipality dismisses fears of political influence and highlights the independent supervisor's role in mitigating such concerns (C.1). In contrast, another municipality acknowledges the potential influence but proposes external organization of heat companies to address it (C.3). Moreover, two municipalities support public ownership, as it aligns with consumer preferences (C.1, C.2), while others criticize this approach, arguing that decisions need to be based on efficiently assuring public values.

Among network operators, there is a lack of consensus regarding the risk of political influence (R7 in Figure 5.1). Some argue that politics only influence decisions during the decision-making process (C.10), while others assert that political influence extends to decisions of future public heat companies, such as network extensions and exploitation of new networks (C.11). Producers and large consumers also have varying opinions on this matter (R8 in Figure 5.1). Some argue, based on experience, that politics do not influence public network companies (C.13), while others claim that this criterion is highly relevant but was inadequately or not considered during the decision-making process (C.15).

It is interesting to see there are no issues present between the different heat companies. In addition, the transmission operators and independent supervisor do not have any relationships in this diagram. For the transmission operators this can be declared by the fact they did not feel themselves, and did not want to be, very involved in the process (C.12). Regarding the independent supervisor, there are some issues present between her and other stakeholders, however not between her and categories of stakeholders.

Finally, in chapter 3, a stakeholder influence diagram has been presented (see Figure 3.5). It is interesting to see most issues exist between the stakeholder who are ought to cooperate with each other in the new Wcw. It is the question to what extent these issues hinder these collaborations.

5.3. Validation of identified issues

5.3.1. Interview goal and method

As the perspectives of stakeholders are probably influenced by their interests, interviews with experts ought to help validating the issues (listed in Table 5.2). Moreover, experts may help evaluate which issues are not addressed, and why. In order to reach this goal, experts were queried regarding the notability of the identified issues present between stakeholders. In addition, experts were asked regarding their perspectives about issues not addressed by stakeholders, including reasons for this (see B.2 for interview protocol).

In total eight different experts have been consulted, with varying backgrounds and relations with the heating sector. Depending on their background, some issues were discussed in more detail than others. Due to the variety in background (political/ policy, (socio-)technical, business and academical), discussion of all issues has been covered. Appendix D shows an overview of the summaries of the interviews with experts.

5.3.2. Discussion of issues

Ownership of the integral responsible heat company and infrastructure

During interviews with stakeholders, various stakeholders mentioned the differences and relations between two different concepts: ownership of integral responsible heat company and ownership of the (distribution) infrastructure. According to an expert, the integral responsibility of the heat chain was the focus area of the discussion in the beginning of the decision-making process (2019). The discussion in terms of ownership division is introduced by the VNG and IPO, supported by the network operators, after the internet consultation in June 2020. Furthermore, this experts questions if the discussion regarding ownership division has been started too late in the heating sector. It might have been more fitting to initiate this discussions during the liberalization of the electricity and gas sectors already. (D.6). Experts agree these (ownership of integral responsible heat company and ownership of the (distribution) infrastructure) are two different concepts, however have a certain overlap and influence on each other, meaning they can not be considered completely apart from each other (D.5). The lack of clarity regarding these two concepts might have resulted in stakeholders characterizing the decision as badly argued (D.1).

Experts question the amount of research done regarding ownership division of the integral responsible heat company, also when connecting this to the historical perspective of the ministry of Economic Affairs and Climate Policy preferring liberalization and privatization in network sectors. It is interesting to research if, and why, the ministry reconsiders this view, and concludes unbundling of the heat chain and introducing competition does not work, assuming requirements for ownership division are necessary (D.3, D.4, D.7).

Affordability and the intransparency of tariffs

As described in subsection 5.1.3, most stakeholders agree the affordability of heat as a product is essential to consider when designing the ownership division. How to assure this affordability is however under debate, due to difference in perspectives. In addition, various stakeholders relate the affordability to the (in)transparency of tariffs, and agree the current tariff system needs to be more transparent.

Experts question the necessity of obliged public ownership of the infrastructure as a solution to solve the intransparency of tariffs within the current market. It is unclear to what extent the new tariff system (the cost+ model) takes care of more and enough transparency (D.4, D.5, D.6, D.7). Moreover, research is lacking on the effect of public ownership of the infrastructure on the affordability (read: price) of heat, and the way municipalities will tackle rising costs (D.5, D.7). Will these costs be passed on to consumers, or will these be subsidized (influenced by politics) (D.5)? In addition, currently, the tariffs enforced by heat companies are not transcending the borders set by the independent supervisor, and in most cases even far below these borders (D.7: see 'rendementsmonitor ACM'). This is confirmed by the independent supervisor themselves as well (ACM, 2023a).

Theoretically, private and public parties are expected to have the same cost structure. Practically, this is however different. Currently, the government does not have direct influence on the tariffs, which is characterized by the just payed out energy allowance to consumers. Consumers are able to use this for a different purpose. In case of public ownership of the integral responsible heat company, public authorities are able to influence the tariffs in a direct way (D.2).

Realization power

In terms of realization power, stakeholders differ in their perspectives, maybe relating to the lack of research regarding the realization power of the whole sector (public and private) as well.

According to one expert, it is interesting to see most municipalities and provinces involved in (setting up) a heat company are in favor of the model presented in the conceptual version of June 2020. The ambition of municipalities of playing a more prominent role in the transition is not necessarily bad, however they are overestimating themselves in terms of realization power, especially relating to technological knowledge (D.1). The ministry of Economic Affairs and Climate Policy executed a couple of 'crash tests' (see Ministerie van EZK (2022)), which are executed under high (time) pressure. The assessment criteria were not defined beforehand. In addition, the legal aspects were emphasized, forgetting to highlight the more technical aspects. The extent to which this research is biased can be questioned. On some aspects it seems the conclusion (public ownership of the infrastructure) had been predetermined, and could not be changed anymore by the results of the research (D.2).

Another expert states the perspective of a willing government may have played a role in terms of realization power, and the fact only research is done to public realization power (D.3).

Small municipalities are not considered to be capable of realizing the transition. The complexity of this challenge is underestimated, especially regarding the potential role these municipalities are intended to have within integral responsible heat companies. The difference between ownership of the infrastructure and ownership of an integral responsible heat company is hugely underestimated. A role for larger public companies (like EBN, Gasunie) is seen as a solution here (D.4).

Another expert agrees there is a risk municipalities are not capable of realizing the transition. Wrong utilization of expertise and knowledge is considered to be another risk. The transition from public to private ownership is a huge challenge, and brings a high amount of costs, without clear advantages. In this sense, a clear analysis of the market, its potential realization power, and the problem public ownership solves, is lacking (D.5).

Furthermore, municipalities, provinces and network operators themselves, see an important role for the network operators as owner of the distribution networks. The realization power of these network operators is overestimated according to an expert. Considering the current problem with net congestion in the electricity sector, network operators do not have the workforce to play this important role (D.6).

Heating sector as a vital infrastructural sector

Stakeholders generally agree the Dutch heating sector is a vital infrastructural sector, like the electricity and gas-sector. Perspectives on the consequences of this for the ownership division however differ.

Some experts agree collectives heating as a vital infrastructure, is an understandable argument for public ownership of the infrastructure, also when considering the success of privatization within other network sectors. Only the privatization of the telecommunication sectors can be considered as highly successful (D.1). The perspective of the VNG, emphasizing the directing role for public parties/ municipalities, connects with experiences from other network sectors. Within these network sectors there are positive experiences with public ownership of the networks (D.3).

Some other experts agree with this vitality as well, however argue heat is technical-economically seen very different and way more complex than the electricity and gas sector. Therefore, integral responsibility of the value chain is required. The extent to which public ownership of the network, which thus implicitly means public ownership of the integral responsible heat company as well, is the best means to achieve the assurance of the heating sector as a vital infrastructure, can be doubted (D.4, D.6).

Risk of political influence

Under stakeholders there is division in perspective regarding the risk of political influence on the management of the network owner (or integral responsible heat company). When municipalities are the owner of/ have the majority of shares within the network company (or integral responsible company), local politics could influence the decisions taken in the management.

According to an expert, there is a risk of municipalities using their private task for organizing their public task. Various aldermen or alderwomen are not aware of this. In contrast, arguing in favor of public ownership, when the alderman/ alderwomen influence the decision in the 'right' way, this can offer long term security. In this regard, the extent to which they have the efficacy to take long term decisions (rather than short term political decisions) relating to investments, will be key for success. Local elections and political decision-making may heavily influence the management decisions (D.2).

Another expert agrees there is a risk public parties use the ownership of the infrastructure as a political instrument. In order to support this argument, the expert refers to the case of 'AEB Amsterdam', where various idealistic political ideas influenced the decision-making. The viewpoint of certain stakeholders asserting that politics have no role is highly idealistic. Nevertheless, the question remains as to what extent politics might exert a negative influence (D.3).

In addition, another expert emphasizes the risk of not rising the price as a result of increase in costs, due to (local) political influence. Mitigating this risk might become a legal challenge. This risk is considered to be a potential issue relating to the cost+ model (price equals the costs plus a certain margin). In some areas the cost+ model may result in higher prices than consumers were used to when connected to gas networks. There is a risk of municipalities deciding not to charge this gap in costs to consumers, however finance this in some other way. Generally, people are not aware the cost+ model will result in more variation of costs under consumers (D.4).

'Fear' of consumers regarding private monopolists

Some stakeholders argue public ownership of the network will result in more public support. According to these stakeholders, there currently is a low level of support, caused by the 'fear' of consumers for private monopolists. Public ownership of networks intends to solve this problem, and increase the public support, creating an incentive for citizens to connect themselves to the network.

According to different experts, it is a fact citizens distrust private monopolists/ heat companies, which results in a low level of public support in the current situation (D.1, D.4). This 'fear' of the consumer is understandable as well to some extent, partly due to the historical background (D.5). Rationally seen, this is however unjustifiable, while the independent supervisor determined the price and protects the consumer in this sense. In addition, it is not proven public ownership results in more public support. Public ownership will, in this case, not change anything to the company being a monopolist (D.1). In this regard, research regarding the extent to which public ownership is the best solution to increase this public support is lacking (D.4, D.5, D.6).

In defence of public ownership as a solution, it must be noted that strict regulation in combination with informing consumers does not work properly as a means for increasing public support. According to an expert, this can be concluded from a couple of practical examples the expert experienced during work. This is remarkable, while private heat companies objectively comply with the regulations set by the independent supervisor (which are based on a certain reasonable maximum profit margin). Consumers have, without a well-argued reason, the feeling they pay too much, which is maybe related to the lack of freedom of choice as well. Consumers are used to this freedom

of choice, due to the existence of this in the electricity and gas sector. Convincing consumers of private monopolists offering an affordable price is thus not seen as a solution. Application of the Danish model, where local citizens are involved in the decision-making of the heat companies, is seen as a possible solution for increasing public support (D.2).

The reasonable maximum profit margins, resulting in maximum tariffs, are based on data supplied by heat companies themselves, which gives the heat companies the opportunity to 'play' with the supply of data. This possibility probably partly results in distrust consumers have relating to private companies. This distrust may result in consumers not willing to connect to district heating under private ownership of the network, which has negative consequences for the business case. Increase of transparency from the side of private companies may offer opportunities of positively influencing the public support, which are seen back in the business case as well. Due to the complexity of the heating sector, the increase of this transparency might however be difficult to reach (D.7).

Other issues

According to some experts, it is remarkable to some extent there is no issue addressed relating to the **technological development** of the sector. For gas and electricity, it is reasonably possible to determine the pressure and voltages at which the system is expected to operate. In the case of heat, the sources and consumers vary, making it more challenging to incorporate future expansions. Technically, heat is quite different (D.2, D.3, D.4). Sources can be utilized most efficiently when they are also under the control of the party responsible for integration (including sector coupling). An integrated heat company can meet the technical requirements for delivery (temperature, flow rate) but lacks flexibility to make the sources function effectively as a business case. It is easier to align supply and demand when one party owns the entire chain. The developments in the technical field should not be underestimated, along with their implications for the party with integral responsibility (D.2).

The heat infrastructure is dynamic and is expected to undergo technical advancements in the near future. The distinctiveness of the heat sector warrants contemplation. Is it feasible to develop heat networks capable of accommodating a broad spectrum of heat inputs? Public ownership, to a certain degree, diminishes the incentives for investments from the private sector. Incentives for innovation tend to be more pronounced within the private sector than in the public realm (D.3).

Secondly, it is, according to an expert, noteworthy less importance is attached to **investment security** (related to the criterion of 'future perspective of stakeholders'), especially by private parties. Parties may assume that they will be compensated if the ownership distribution changes. This is also evident in the current discussion surrounding coal-fired power plants, where the government is accommodating investors (D.3).

Lastly, experts emphasize the overall lack of an accurate **analysis of** the specific **problem** which is aimed to be solved by obliging public ownership, **and the different alternatives** to solve this problem. The discussion seems to have made little progress since 2016, and a lack of clarity is leading to miscommunication between parties (D.5, D.7). Various solutions are actually being developed as a result of a 'poorly thought-out decision'. The proposed decision seems to have been made too hastily, without a thorough consideration of the impact (for example the "Groepsverbod" which needed modification) and available alternative models for ownership structure (D.4).

5.4. Conclusion

In this chapter, the overview of potential criteria created in Chapter 4 has been used as input for the interviews with stakeholders, in order to get insights in their perspectives regarding these criteria in terms of relevance and interpretation. Based on these perspectives, issues relating to ownership division of distribution network have been identified (issues in black bold font in Figure 5.2). The interviews with experts focused on validating these issues by giving more context, and in addition discussed some missing issues (issues in grey bold font in Figure 5.2). Figure 5.2 moreover shows an explanation of the issues in the form of a question to be answered.

Among the criteria discussed with stakeholders, not all of them were taken into consideration for addressing the issues at hand. Furthermore, some criteria are combined under one overarching issue (realization power and risk profile). The criteria that exhibit a high level of divergence in perspectives, in terms of relevance or interpretation, are the ones highlighted and considered. Consequently, certain (sub)criteria are not included. Their exclusion does not imply these (sub)criteria are unimportant for the ownership division design. It simply indicates stakeholders agree on a low relevance or there is no significant discrepancy in perspectives (in terms of relevance and/or interpretation) regarding these particular criteria. This holds for the criteria 'future perspective of stakeholders' and 'connection of different networks'.

It is interesting that affordability is the sole public value highlighted as an issue. This emphasis on affordability, along with the related (in)transparency of tariffs, might be driving the discussion on ownership division (i.e., whether

it is better assured under public or private ownership). In contrast, this discussion appears to be less prevalent in relation to the other public values of reliability and sustainability.

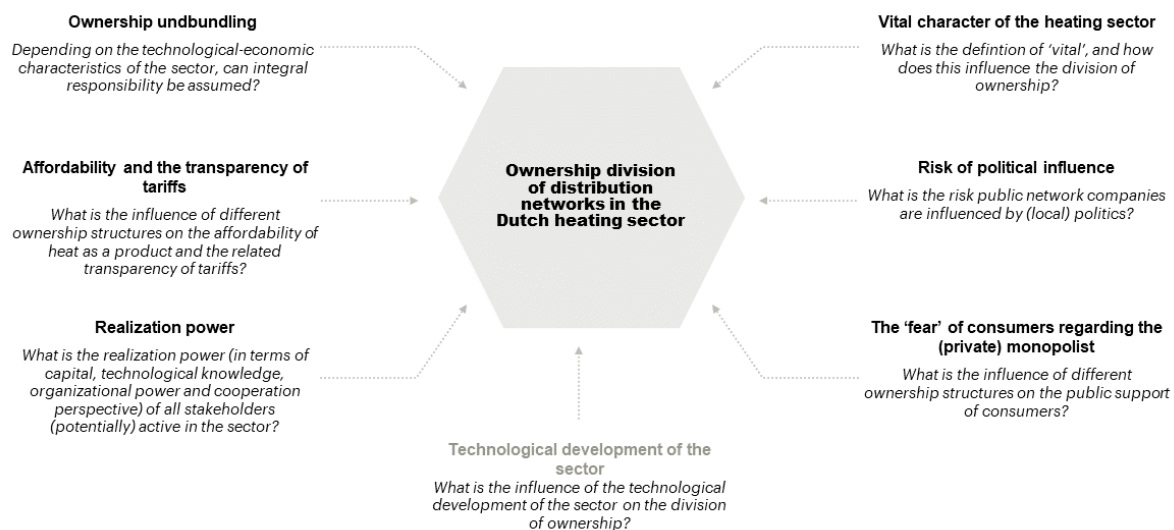


Figure 5.2: Identified issues relating to ownership division of distribution networks in the Dutch heating sector

To some extent, it is noteworthy that the security of investment, categorized under the 'future perspective of stakeholders,' is not heavily debated among stakeholders, particularly private companies currently owning the distribution networks. Stakeholders appear to prioritize the efficiency of public ownership, focusing on the assurance of public values. This lack of emphasis on security of investment might be attributed to stakeholders trusting the government to compensate them for their investments, as seen in the Dutch government's actions regarding coal plants (see D.3).

The limited variation in perspectives concerning the technological criterion is more intriguing, based on the validation sessions with experts. Only a few stakeholders mentioned this as a relevant criterion, possibly due to insufficient research in this area. Although researching the technological aspect could be vital in determining an appropriate ownership division, it is not addressed by various stakeholders. This issue regarding the technological development of the sector is therefore considered in Figure 5.2 as an additional one, partly as a result of the validation round with experts.

Finally, the analysis of the problem to be solved and the available alternatives for the ownership structure has been emphasized by various experts as potential issue. Despite the fact this is important to do, and perspectives may differ regarding this, this is not considered as an issue specifically related to ownership division of distribution networks. Independent of the problem at hand, an analysis of the problem and inventory of the possible alternatives is always required.

6

Discussion

This chapter, first discusses the identified issues, by describing challenges for the Dutch heating sector (Subsection 6.1.1), elaborating on the results in the light of the discussion regarding the assurance of public values in network sectors (Subsection 6.1), and interpreting these issues in terms of multi-actor decision-making (Subsection 6.1.3 and 6.1.4). In addition, there will be elaborated on the criteria for the decision-making processes regarding institutional design for ownership division of distribution networks (Subsection 6.2). Next, an evaluation and reflection of the methodology will follow (Section 6.3). The chapter will close off with a conclusion, including an overview of limitations of this research (Section 6.4). Figure 6.3 provides an overview of the sections where different aspects of the approach and methodology are discussed.

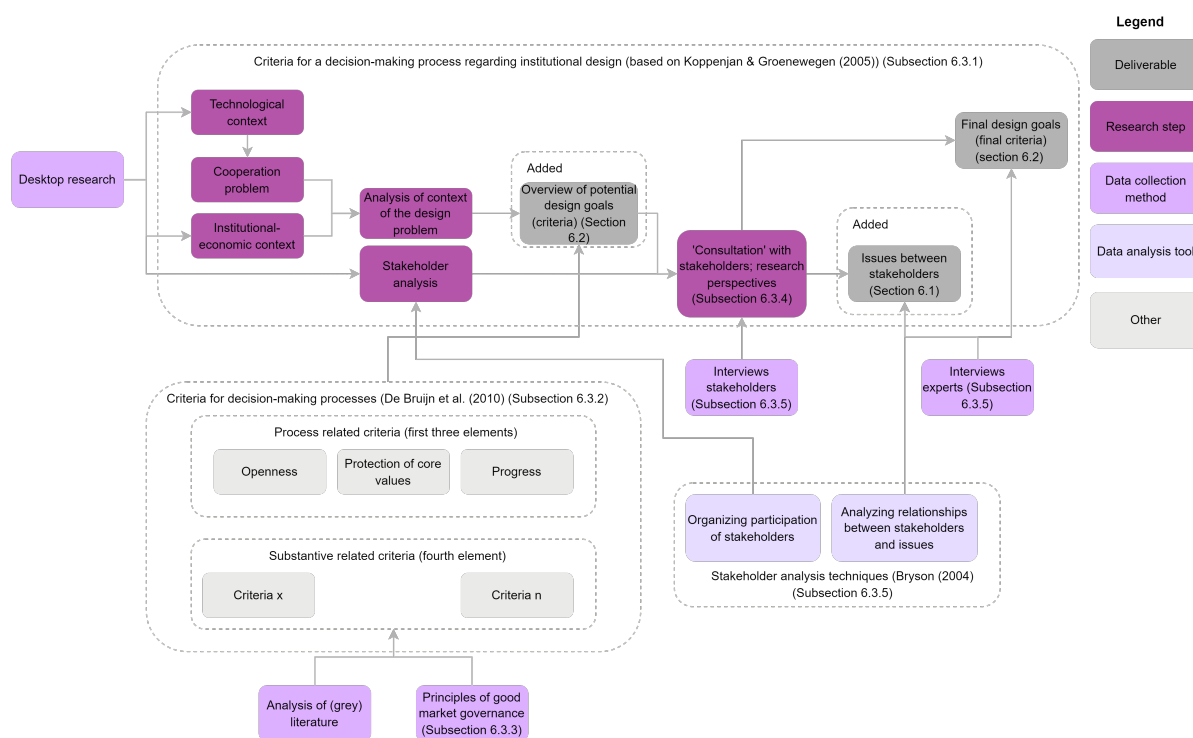


Figure 6.1: Discussion of results, research approach and methodology

6.1. Interpretation of issues

6.1.1. Challenges for the Dutch heating sector

Considering the identified issues in Section 5.4 and Figure 5.2, a couple of overarching topics can be identified.

The issues of 'affordability and transparency of tariffs', 'vital character of the heating sector' and 'the fear of consumers regarding the (private) monopolist' are strongly connected to the issue of **justice for the consumer**. Cuppen (2022) also emphasizes sustainability transitions come with the social values of justice, which was seen back as well in the validation round with stakeholders (see Appendix E). The present stakeholders emphasized the relevance of an affordable vital product, with a transparent price structure, hopefully resulting in less 'fear'

of the consumer regarding the (private) monopolist. Affordability and transparency are considered necessary in order to increase the level of public support and convince consumers to take part in the heat transition. Experts see a relation between the transparency of tariffs and public support for private monopolists as well (D.7). The reasonable maximum profit margins, resulting in maximum tariffs, are currently based on data supplied by energy companies themselves, which gives the energy companies the opportunity to 'play' with the supply of data (ACM, 2023a). This possibility probably partly results in distrust consumers have relating to private companies.

The issues of 'realization power' and 'risk of political influence' are both related with the **organization of future heat companies**. As a result of the interviews, realization power can be defined as the (optimal) balance between capital (including willingness to invest), technological knowledge, capability of governance and willingness to cooperate between different stakeholders. The risk of political influence appears to have a connection with the capability of governance. In order to mitigate the risk of political influence, external organization and governance of future heat companies is suggested.

The issues of 'Ownership unbundling' and 'technological development of the sector' are influenced by the **(developing) technological characteristics** of the sector. In the heating sector, the desirability of ownership unbundling is questioned due to the complexity of flow management and relatively high losses of transport. Because of this increase in complexity, ownership unbundling might result in issues regarding the security of supply. In addition, as described in Subsection 3.1.1, different generations of district heating have evolved in the last couple of decades. These generational shifts are driven, in part, by changes in available energy sources. Approximately 100 years ago, the primary sources were limited to steam and coal. In contrast, the fourth and fifth generations are striving to incorporate electricity sources such as solar, wave, and wind. Additionally, these newer generations prioritize energy storage and intelligent utilization (as illustrated in Figure 3.1). The integration of these diverse energy sources and innovations could potentially further complicate the management of energy flows, and impact the desirability of ownership unbundling.

These overarching topics result in a couple of challenges for the Dutch heating sector (see Figure 7.3 for visualization):

- The heat transition as a social transition; how to convince consumers to take part in the heat transition by switching to district heating as energy source?
- The integration of district heating in the Dutch energy and utility system; how to connect the heating sector in an optimal way with other (utility) sectors, like electricity, but also water?
- The organization of future heat companies; how to organize heat companies in a way these make optimal use of the available capital, technological knowledge, capabilities of governance and possibilities for cooperation between different stakeholders present in the market?

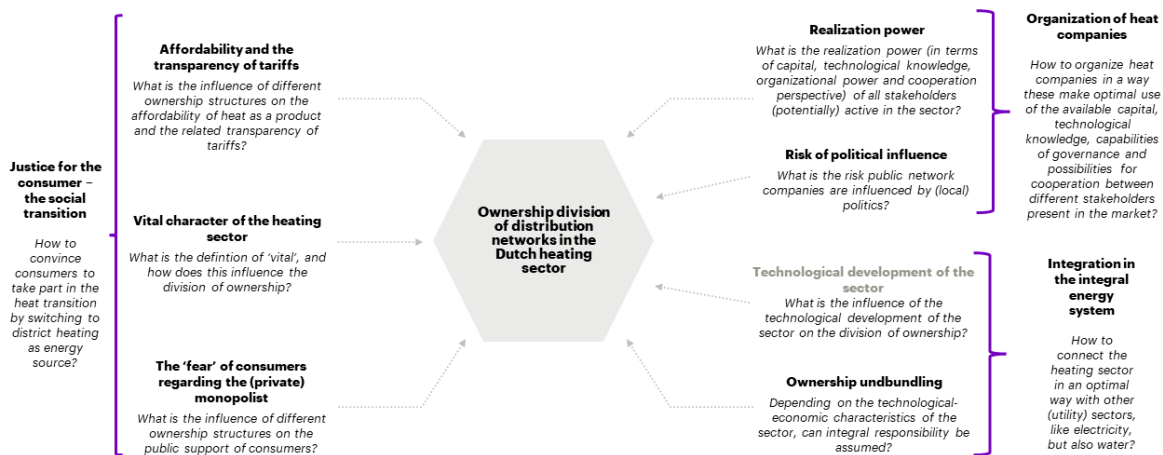


Figure 6.2: Challenges related to the identified issues

Because the challenges are defined based on topics where stakeholders have conflicts, this overview may not cover all possible challenges. Interviews have revealed that the availability of a workforce for the construction of district heating networks and access to capital are also considered challenges. Importantly, these challenges exist independently of the proposed ownership structure design.

6.1.2. Changing debate regarding assurance of public values in Dutch network sectors

New issues and challenges as a result of a more nationalization-driven approach?

In this research, the Dutch heating sector has been utilized as a case study to explore issues at play concerning the division of ownership in distribution networks, based on varying perspectives of stakeholders. It is of interest to analyze how these issues and the associated challenges (introduced in Subsection 6.1.1) are connected to the broader debate on ensuring public values in Dutch network sectors, including the assessment framework introduced by the Dutch Ministry of Economic Affairs in 2000. Did these issues and challenges have an impact on the discussion surrounding privatization and liberalization several decades ago? Alternatively, did new issues and challenges arise as a consequence of experiences privatization and liberalization in these network sectors?

The primary motivation behind privatization of different parts in network sectors was to achieve increased efficiency, reduced prices, enhanced quality, and greater innovation within the different network sectors, with the aim of fostering higher economic growth on a macroeconomic scale (Jorritsma-Lebbink, 2000). Technological progress enabled market competition and privatization in sectors where it initially seemed impossible, particularly in network sectors such as telecommunications and energy (Stellinga, 2012).

The expected increase in affordability was one of the reasons for privatization. The former Ministry of Economic Affairs referred to the success of privatization in the Dutch telecommunications sector (making it approximately 30% cheaper), the electricity sectors of the UK, Sweden and Germany (where the prices decreased with 15-50%), urban and regional transport in the Netherlands (a test in Limburg resulting in 30% increase in more transport) and in Sweden (concession resulted in a 20% decrease of costs), and the comparison with the water sector in the UK ('benchmarking' with the UK water sector can raise the efficiency from 6,2% to 15% (Jorritsma-Lebbink, 2000).

The transparency of tariffs seems to be an issue which has evolved since privatization of different parts in different sectors (see for example ACM (2023b) where the ACM argues delivery companies to be more transparent in their price structures). The 'fear' of the consumer regarding the private monopolist seems to be something specific relating to the heating sector, acknowledged by experts (D.2). In addition, experts see a relation between the transparency of tariffs and public support for private monopolists (D.7). The reasonable maximum profit margins, resulting in maximum tariffs, are currently based on data supplied by energy companies themselves, which gives the energy companies the opportunity to 'play' with the supply of data (ACM, 2023a). This possibility probably partly results in distrust consumers have relating to private companies. This distrust may result in consumers not willing to connect to district heating under private ownership of the network, which has negative consequences for the business cases of constructing networks (D.2). Increase of transparency from the side of private companies may offer opportunities of positively influencing public support and business cases (D.7).

The vital character of network sectors was acknowledged by the Ministry of Economic Affairs as well, arguing the delivering company needs to be able to ensure the supply of water, electricity, gas, etc. under foreseeable circumstances (failures, emergencies). The importance of this is evident: it concerns vital production factors of the economy, without which other business activities are impossible, and citizens (sometimes literally) are left out in the cold (Jorritsma-Lebbink, 2000). Despite the vital character of network sectors has been mentioned by Jorritsma-Lebbink (2000), this issue seemed to have evolved later in relation to ownership division. This observation is supported by Stellinga (2012), who asserts that privatization can result in the government losing control mechanisms, a situation that can be deemed perilous given the vital nature of the sector.

The ongoing debate in the heating sector partly revolves around the concept of realization power and the risk of political influence on the management decisions taken in future public heat companies. Various stakeholders are challenging the idea of public ownership because they perceive a low expected implementation capacity within the public sector, along with associated risks of political interference. These concerns were not in the spotlight two decades ago when the emphasis was primarily on privatization and liberalization.

Taking into account the historical evolution of institutional design in other network sectors (see Subsubsection 6.1.2 for more elaboration), the issue of ownership unbundling has also played a role in those sectors. The value chain of the electricity, gas, and railway sectors has undergone (partial) unbundling to facilitate competition among private entities. In contrast, the unique characteristics of the drinking water sector have led to a preference for maintaining an integrated responsibility throughout the value chain rather than pursuing unbundling (Jorritsma-Lebbink, 2000; Stellinga, 2012).

The development of the technology in network sectors did play a role for considering privatization and liberalization as options. As highlighted earlier, creating a higher level of innovation was one of the reasons the Ministry argued privatization of some parts of the value chain in different sectors (Jorritsma-Lebbink, 2000; Stellinga, 2012).

In conclusion, stakeholders address various issues which have not been considered by the Dutch Ministry of Economic Affairs around 2000 when publishing their perspective on how to assure public values in network sectors. These issues entail the 'transparency of tariffs', 'fear of the consumer regarding the (private) monopolist', the 'vital character of the sector', 'realization power' and the 'risk of political influence'. These issues relate to earlier described challenges of 'justice for the consumer' and the 'organization of future heat companies' (see Subsection

6.1.1, including Figure 7.3). Both challenges seem to (have) evolve(d) as a result of a more nationalization-driven approach on assuring public values in network sectors. This observation highlights the shift in public debate, in terms of criticism relating to privatization/ liberalization of network sectors and the more prominent role of public stakeholders. However, it's important to recognize this study pertains to the division of ownership in distribution networks, while the assessment framework from Jorritsma-Lebbink (2000) concentrates on the market structure of the entire value chain (encompassing competition level and ownership structures). As a result, certain identified issues and challenges (described in Figure 7.3) may vary or not apply when considering the market structure of other segments (other than distribution) of the value chain.

A different assessment framework for introducing nationalization of ownership?

This research started with addressing the discussion on how to assure public values in network sectors. Around 2000, the former ministry of Economic Affairs published a perspective regarding this, focusing on privatization and liberalization of different parts of the value chain in various network sectors. In essence, four different modalities for competition were introduced (Jorritsma-Lebbink, 2000) (see Section 1.1 and Figure 6.3 for a more detailed explanation). Different networks sectors (gas, electricity, railway, drinking water and telecommunications) were discussed as examples, in relation to their market organization (see Figure 6.4).

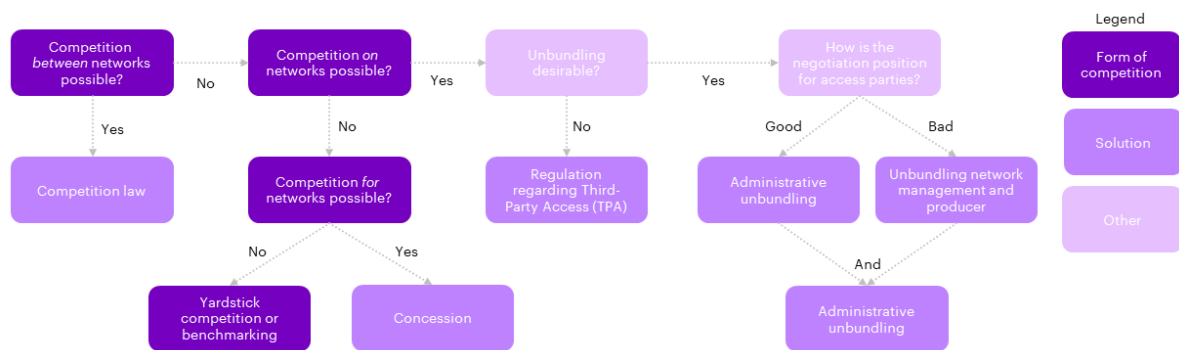


Figure 6.3: Assessment framework for market organization in network sector introduced by the Ministry of Economic Affairs (Jorritsma-Lebbink, 2000)

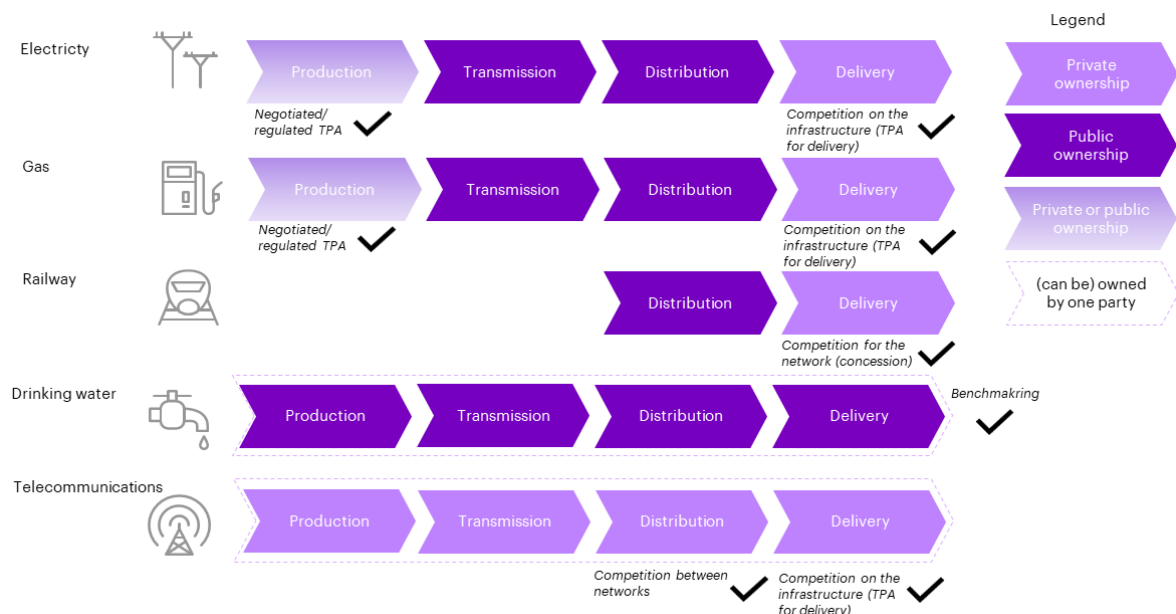


Figure 6.4: Simplified representation of institutional designs for market ordering (ownership division and degree of competition) in different Dutch network sectors (Jorritsma-Lebbink, 2000; PwC, 2023; ACM, 2018; Andersson Elfers Felix, 2017; Stellinga, 2012)

The heating sector seems to be an unique case, due to its current (lack of) market organization. Currently, 90% of the district heating networks is owned by private stakeholders (Netbeheer Nederland, 2022; PwC, 2022). Jetten put forth a proposal for a shift towards public ownership, which stands in contrast to the historical market transformations seen in other network sectors. While Jetten's policy primarily emphasizes the nationalization of private companies, historical trends in network sectors have predominantly centered on the privatization of government-owned enterprises. From 1998 onward, the promotion of market competition, including sectoral reforms and the introduction of the Competition Act (1998), became a policy priority, driven by European policy striving to establish a European internal market (Stellinga, 2012).

The activities of the value chain of the gas and electricity sector have been in public ownership, until the delivery side was privatized and liberalized officially in 2004. Ownership unbundling, privatization and liberalization resulted in competition on the networks and competition between different producers, while the distribution networks remained in public ownership (PwC, 2023; Stellinga, 2012). Ownership has been unbundled in the railway sector as well (between 1995 and 2002), where ProRail is currently responsible for the infrastructure and other (private) parties deliver their (train) service on the infrastructure in the form of regional concessions. However, more than 85% of the train services is provided by one party (NS) (ACM, 2018; Stellinga, 2012). The integral chain of the drinking water industry has been owned by public parties since the beginning of the 20th century (Andersson Elffers Felix, 2017). The telecommunications sectors has been privatized and liberalized around 1990, resulting in competition between and on these networks (Stellinga, 2012).

Summarizing, some decades ago, the institutional designs for these different network sectors have been reconsidered, investigating the possibilities for ownership unbundling, stimulating privatization and liberalization. In terms of ownership division of (distribution) networks, this only resulted in privatization of networks in the telecommunication sector. In other network sectors, public ownership of networks seemed to be preferred over privatization. The perspective, including the assessment framework, introduced by Jorritsma-Lebbink (2000) (Figure 6.3), appears unsuitable for restructuring the heating sector due to the current market organization. Given its private nature, a different assessment framework seems to be required to determine the desirability of nationalizing various elements of the value chain, while prioritizing the preservation of public values as the objective. Future research on this is necessary.

6.1.3. The individualistic nature of the identified issues

Perspectives of stakeholders differ regarding the definition of the problem and the extent to which public ownership of the distribution network is the right solution to this problem.

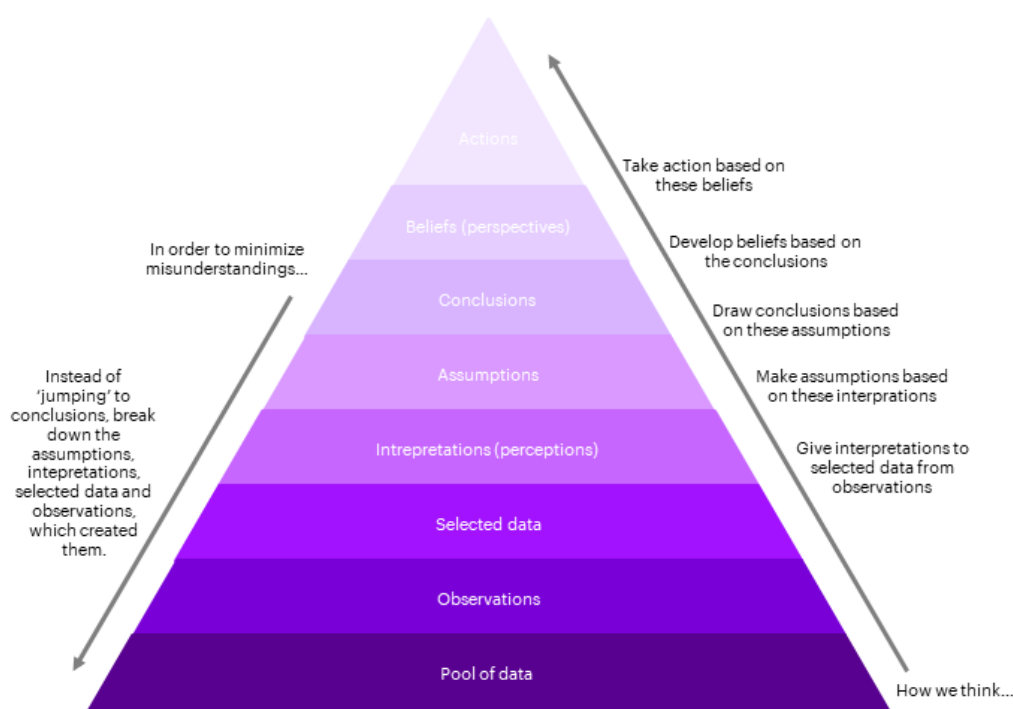


Figure 6.5: Ladder of inference (based on Ross (1994) and Argyris (1982))

The perspectives of stakeholders are probably influenced by their perception regarding the 'problem(s)' public ownership aim(s) to solve. As Ross (1994) states, stakeholders have different perspectives based on their perceptions, resulting in conflicts and stakeholders avoiding the dialogue with each other. Generally, conflicts often evolve as a result of difference in perceptions. Stakeholders base their actions on their beliefs, develop beliefs based on their conclusions, draw conclusions based on their assumptions and make assumptions based on a meaning of selected data they observed from a (probably subjective) pool of data (Ross, 1994).

As a result of this research, stakeholders' perspectives seem to differ a lot regarding the criteria in terms of relevance and interpretation, resulting in conflicts. The lack of objective perspectives (research) regarding different issues can be a clarification for this. Stakeholders draw their own conclusions, based on their interpretations. Assuming, interpretations of stakeholders influence their perspectives (beliefs in Figure 6.5), strengthening the 'pool of data' by objective research would probably lower the level of difference in interpretations between stakeholders.

In this research, the issues have been approached in an individualistic manner, involving the collection and comparison of perspectives from individual stakeholders. The ladder of inference demonstrates how stakeholders may form their reasoning, resulting in their unique viewpoints. Identifying these individual perspectives and the associated issues can serve as a starting point for multi-actor decision making aimed at addressing these concerns. The next section will elaborate on how these issues might be managed in multi-actor decision making, where they can be used to structure the problem definition and generate different alternatives (Subsection 6.1.4).

6.1.4. Managing the issues in multi-actor decision-making

Constructive use of conflicts in multi-actor decision making

Cuppen (2022) highlights the existence of divergent perspectives concerning strategies for addressing sustainable transitions, the suitable pace, and the allocation of responsibility for this endeavor. Generally, these perspectives evolve around wicked problems: policy dilemmas characterized by uncertainty in both the understanding of how solutions will unfold and in the values, that is, the policy objectives. Disagreement about which problem to solve precisely, how to solve it, and by whom are inherent characteristic of sustainability transitions. The perspectives from ? are validated by the results of this research, which highlights numerous disparities in viewpoints among stakeholders regarding the wicked problem of ownership division of distribution networks in the Dutch heating sector.

Moreover, Cuppen (2022) elaborates on the essence of conflict in order to structure and define sustainability related issues in a better way. In this regard, the author developed a participatory method for dialogues (called Constructive Conflict Methodology (CCM)), intended to render various ideas, knowledge, and perspectives productive. In other words, the method allows utilizing diversity in a way that leads to learning about what the problem exactly is and which solutions are desirable and feasible (Cuppen, 2010). The method focuses on the creation of constraints under which conflict between stakeholder perspectives in a dialogue can be constructive. The method has been applied to dialogues regarding sustainable biomass, hydrogen and the role of gas in the future energy system (Cuppen, 2022). The perspectives were discovered to be beneficial for participants in grasping the complexity of the biomass issue and comprehending how individuals with varying viewpoints reach divergent conclusions concerning biomass chains (Cuppen, 2010).

Furthermore, the author argues that, especially from the perspective of constructive conflict, it is curious to observe that many processes are structured with the aim of reaching consensus. Alternatively, they appear to be grounded in the assumption that by entrusting challenging decisions to citizens and stakeholders, they will consequently converge in their viewpoints. In stead of using participation to avoid conflicts, it might be more valuable to use conflict itself as a form of participation (Cuppen, 2022).

By using the methodology described by Cuppen (2010), stakeholders can be confronted with presumptions and knowledge claims. Discussions focus on particular technological or policy options and engaging in a confrontation based on knowledge claims rather than differing perspectives. Confronting perspectives alone does not lead to productive dialogue; perspectives cannot be disproven since they represent individuals' interpretive frameworks for understanding social reality. Engaging in perspective-based confrontation typically results in conflict, but not necessarily constructive conflict. Instead, it tends to lead to a standstill, as no one perspective can be deemed 'superior' or 'more truthful' than another. Confronting perspectives often results in value-based (emotional) conflict.

Due to the similarities with the methodology used for this research, it is interesting to describe the steps of the CCM in more detail, in order to compare and evaluate the methodology used and see if and how the results of this research might be used for further research. The Constructive Conflict Methodology contains four steps: stakeholder identification & selection, articulation of divergent perspectives, confrontation of divergent claims and synthesis (see Figure 6.6).

At first, both methodologies identify and select stakeholders. The selection procedure from Cuppen (2010) is based on empirical analysis of the diversity in perspectives, where the selection of this research is based on actor types, which seemed to have interest in the problem of ownership division of distribution networks. As Cuppen

(2010) argues, in literature, it is rarely clear which criteria are used to judge whether a selection procedure is representative. Cuppen (2010) states the selection of stakeholders should aim for representativeness, ensuring that a wide range of perspectives, including those on the margins, are included in a balanced manner. The selection approach used in this research assumes that having a variety of actor types automatically ensures a variety of perspectives. It's important to note that while there may be strong correlations between specific actor types and particular perspectives, it remains an empirical question whether actor type effectively represents perspective (Cuppen, 2010). This pattern is also reflected in the findings of this research, as it identified several issues among stakeholders within the same category.

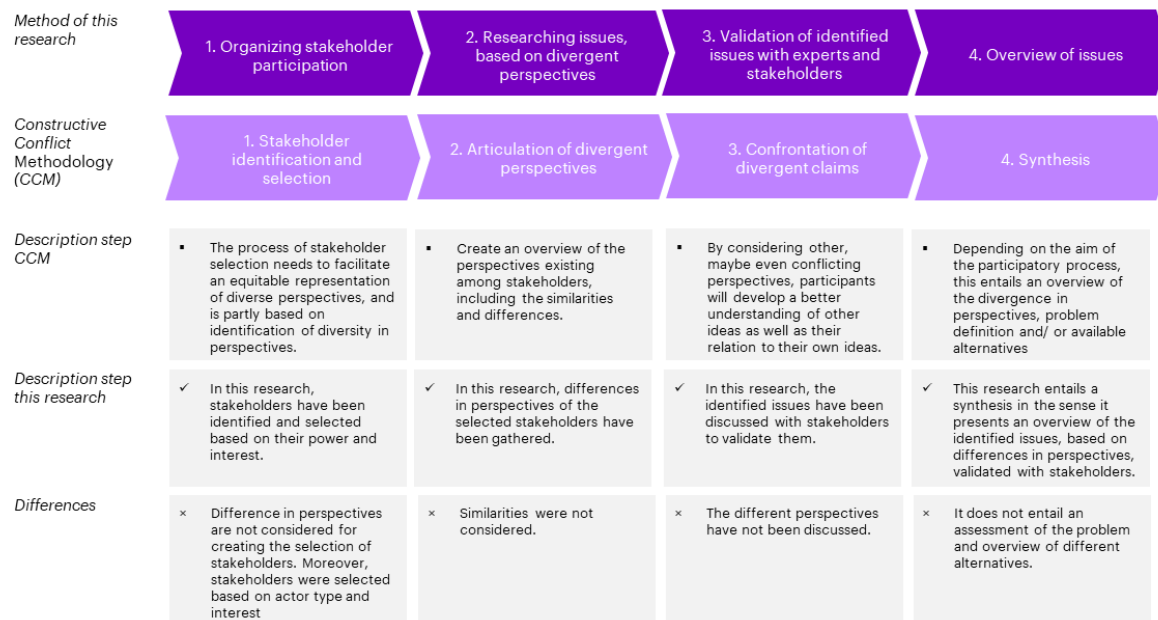


Figure 6.6: Comparison of research methodology of this research and the Constructive Conflict methodology designed by Cuppen (2010)

Based on the differences in stakeholders' perspectives, this research has identified issues (phase 2 in Figure 6.6). Expert sessions and a validation session with some stakeholders, including those interviewed in phase 1 (phase 3 in Figure 6.6), were employed to seek validation of the identified issues (phase 4 in Figure 6.6). The overview of the identified issues is the final deliverable of this research.

By using the CCM, differences in perspectives are used to come up with a description of the problem, and possible alternatives. The constructive conflict evolves in phase three of the CCM, where stakeholders are confronted with each others perspectives, focusing on competing claims. Cuppen (2022) states stakeholders frequently lack awareness of their own viewpoints, and their actions are frequently influenced by unspoken, implicit, or unquestioned beliefs and assumptions. The assumption is that when participants are encouraged to contemplate alternative, potentially conflicting perspectives, they will enhance their comprehension of different concepts and their connections to their own ideas. This process can either reinforce or alter their own viewpoints (Cuppen, 2010).

Two key discoveries from the study by Cuppen (2010) hold particular significance for sustainability planning and policy. First, it underscores the importance of situational learning in problem structuring, rooted in underlying perspectives. Second, it highlights the impact of excessive 'cognitive distance' on the process of understanding problems and their potential solutions.

However, the use of constructive can may pose downsides as well. In case stakeholders are not willing to evaluate the conflicting information, and regard it as untrue, cognitive conflict might turn into affective conflict. The risk that cognitive conflict turns into affective conflict may be especially high for stakeholders with vested interests who may not be willing to give up their position. There seems to be no clear-cut recipe for preventing that cognitive conflict turns into affective conflict. Including people who can bridge disparate perspectives, is suggested as a solution (Cuppen, 2010).

As a result of comparing the methodology with the CCM, the engagement of stakeholders in a dialogue that highlights both the issues and diverse perspectives, with a particular emphasis on conflicting knowledge claims, is intriguing. The results of this research can be used as a start for this dialogue with stakeholders. In this way stakeholders may foster improved mutual understanding, potentially alleviating issues, refining the problem's definition, and fostering the development of alternative designs.

Organization of a multi-actor decision making process

De Bruijn et al. (2010) argue each process will have a finite capacity to handle conflict; an excessive amount of conflict can jeopardize the mutual relationships to the extent that it becomes a risk to the process. The authors argue conflicts can have positive outcomes as well, such as providing additional information and improving the steering group members' understanding of contrasting viewpoints, which can aid in their decision-making process. Moreover, De Bruijn et al. (2010) state the organization of the process may be used to reduce conflicts. There will consistently be a group of stakeholders constituting the central part of the process, while others will find themselves situated closer to the outer edges of the process. The process manager can avert conflicts within a process from becoming focal points by presenting them in a manner that eliminates the necessity for resolution by the central parties of the process. De Bruijn et al. (2010) propose the following options for managing conflicts: shaping conflicts in a manner necessitating resolution outside the process, structuring conflicts to require resolution in the outer shell of the process, framing conflicts in a way that mandates resolution beyond the process, and configuring conflicts to ensure that the alliances of supporters and opponents are continually changing.

Legislative process of Wcw

In the legislative process of the Wcw, Jetten seemed to have selected stakeholders, gathered their perspectives, and used these perspectives as input for the institutional design. However, no attention has been paid to the confrontation of divergent perspectives, focusing on competing claims made by stakeholders. This interaction could potentially lead to a more precise problem definition, enhanced mutual understanding among stakeholders, the mitigation of issues, and the generation of alternative designs.

Secondly, it is intriguing to observe, as previously described, that the identified issues predominantly arise between the categories of stakeholders who are expected to collaborate in future heat companies (i.e., heat companies and municipalities; see Figure 5.1 as well). The alignment of supporters and opponents remains consistent across various issues. Taking measures to mitigate this alignment could potentially facilitate the advancement of the process, as suggested by De Bruijn et al. (2010).

Although Jetten could have employed more effective approach in line with multi-actor decision-making, the extent to which stakeholder and process management can reasonably be expected from a minister is a separate matter for discussion. Generally, the minister's responsibility lies in the acquisition of comprehensive information, consideration of advantages and disadvantages, and the subsequent formulation of a well-considered decision.

6.2. Criteria for a decision-making process regarding institutional design

6.2.1. Criteria legislative process

This research has tried to analyse the decision-making process regarding ownership division of distribution networks in the heating sector. This process is part of a larger decision-making process; the legislative decision-making process of the Wcw, which needs to fulfill some certain procedural requirements. The creation of a legislative proposal is the first of the eight steps in a legislative process. Subsequently, it requires consideration in the Council of Ministers, after which the Council of State provides advice. Following deliberation in the First and Second chambers, it is signed by the King and the minister. The law comes into effect on the date specified in the law. This research has analysed part of the phase of creating the legislative proposal for the Wcw.

According to the requirements for a legislative process, parties having interest in the proposal are intended to be included in the process of creation of the legislative proposal. An explanation on how to include these parties, and what procedural requirements are required, is however lacking (Rijksoverheid, 2023). As a result of the interviews with stakeholders, some procedural requirements can be considered relevant for future processes, specifically relating to the transparency of the process.

Stakeholders emphasize the relevance of transparency of the process, and ask for a clearly outlined process with predetermined criteria that are clearly defined on beforehand. As a result of the interviews, stakeholder seem to understand the following definition of transparent: transparency implies that it is clear to parties how the process will take place, how their interests will be protected, which decision-making rules will apply, who will be involved at which moment in the process, and what decision(s) will be taken during the process (and which decisions will be taken before the process).

Additionally, in light of the findings from this study and the research and methodologies outlined by Cuppen (2010, 2022), there arises a question regarding the desirability of involving stakeholders in the legislative decision-making process. It is advisable to establish a preliminary phase wherein existing conflicts among stakeholders are examined, serving as a foundation for problem definition and the exploration of various alternative models.

6.2.2. Criteria institutional design of ownership division

In addition to the procedural criteria, this research has provided an overview of the substantive criteria to consider when designing ownership division for distribution networks in the Dutch heating sector (see last seven requirements in Table 4.4). As said before, these requirements have been used for discussing stakeholders' perspectives in order to identify issues. Validating the overview of criteria was not the focus of the interviews with stakeholders.

Therefore, it is hard to draw conclusions and present an overview of 'final' criteria. The qualitative character of the interviews makes this even harder. In first instance, stakeholders were asked to divide a certain amount of points amongst the criteria, in order to investigate the value stakeholders added to the criteria. Respondents experienced difficulties in this, and were only able to address the criteria which were highly relevant according to them.

6.3. Evaluation of methodology

The theory regarding institutional design for complex technological systems from Koppenjan & Groenewegen (2005) has been used as foundation for the research approach. In addition, the design principles described by De Bruijn et al. (2010) and Hancher et al. (2003) were used for formulating criteria regarding the decision-making process of distribution networks in the Dutch heating sector (see Table 4.4). Based on this set of criteria, stakeholders' perspectives were gathered in order to identify issues present between these stakeholders. Bryson (2004) has been used for a first stakeholder analysis and helped mapping the relations between stakeholders in terms of issues. An evaluation of the previous will follow in this section.

6.3.1. The role of stakeholders regarding institutional design within a complex technological system

Koppenjan & Groenewegen (2005) describe a methodology for institutional design in complex technological systems. The authors argue the requirements (design goals) for institutional design need to be formulated in 'consultation' with stakeholders, after performing a solid analysis of the design problem and stakeholder field (see Figure 6.7).

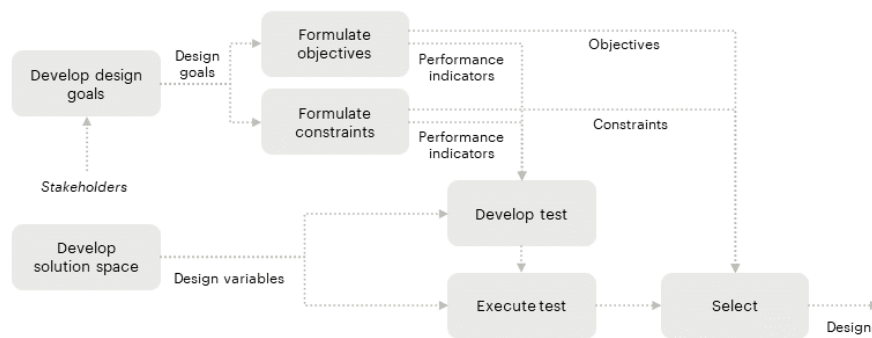


Figure 6.7: The theory of institutional design in complex technological systems described by Koppenjan & Groenewegen (2005)

Koppenjan & Groenewegen (2005) however do not define how to consult these stakeholders, and how this results in an overview of final design goals. This research has given substance to 'consultation with stakeholders' (see *focus of this research* in Figure 6.8). Koppenjan & Groenewegen (2005) seem to assume conflicts between stakeholders do not exist. The approach presented by Koppenjan & Groenewegen (2005) has a design nature, where this research is rather analytical. This research has tried to add an analytical part to the design theory of Koppenjan & Groenewegen (2005), which might make it easier to design requirements and solutions, using stakeholders' perspectives. Figure 6.8 proposes a framework for institutional design, where perspectives and conflicts are used in a constructive way (partly based on (Cuppen, 2010, 2022)).

This study has revealed that stakeholders encounter challenges when it comes to prioritizing criteria. Furthermore, the presence of conflicts likely adds complexity to the collaborative development of criteria. It is probable that stakeholders do not unanimously agree on which criteria are considered relevant. As elaborated on in Subsection 6.1.4, leveraging these divergent perspectives and the resulting conflicts as a starting point for discussions, could potentially facilitate the exploration and formulation of alternative models and requirements. In this manner, the differences in perspectives and the conflicts that arise can be used to yield productive outcomes for different knowledge, claims, and ideas.

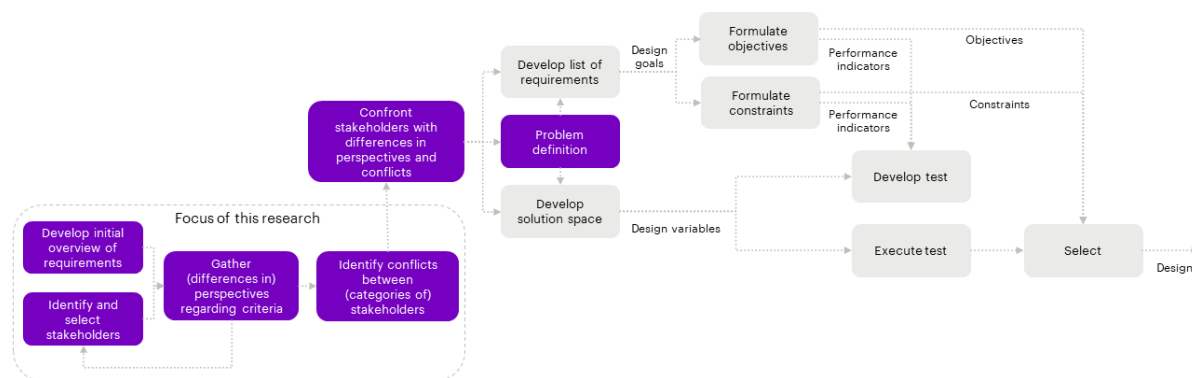


Figure 6.8: Additional value of this research to the approach for institutional design in complex technological systems described by Koppenjan & Groenewegen (2005)

6.3.2. Principles for process design

As said, the use of the process principles described by De Bruijn et al. (2010) did not result in a lot of useful conclusions in terms of issues related to ownership division, rather regarding perspectives of stakeholders relating to the political (character of the) process. Only the (sub)principle of 'no substantive choices made prior to the process' resulted in the identification of an issue (see Table 5.2). As a result of discussing this principle with stakeholders, varying perspectives regarding the issue of ownership unbundling were gathered. Hence, the applicability of these principles for process design in this research is relatively limited. Given that these principles prioritize maintaining the process and thus possess a broad, generic scope, this outcome is not unexpected. The inclusion of these process principles can be deemed inefficient, from an analytical perspective.

Throughout the interviews, respondents primarily discussed issues pertaining to the design principle of 'openness,' with a particular focus on transparency. According to stakeholders, transparency seems to be strongly related and connected with the 'involvement of relevant parties' (subcriterion of 'openness'), 'choices made prior to the process' (subcriterion of 'openness'), 'stimulating early participation' (subcriterion of 'progress'), and 'protection of core values' (one of the three criteria for process design).

According to De Bruijn et al. (2010), transparency is a subcriterion of 'openness', and implies that it is clear to parties how the process will take place, how their interests will be protected, which decision-making rules will apply, and - of course - who will be involved in the process. As a result of the interviews, stakeholders seem to define transparency in a different way. According to them, transparency implies that it is clear to parties how the process will take place, how their interests will be protected, which decision-making rules will apply, who will be involved at which moment in the process, and what decision(s) will be taken during the process (and which decisions will be taken before the process).

6.3.3. Principles of good market governance

The principles of Hancher et al. (2003) have a strong legal character. It assesses the fundamental principles that underpin market regulations and oversight, as well as the manner in which these principles should be integrated into the legal framework. It explores the extent to which the law can contribute to establishing a specific order within the market, and focuses on the legal requirements rather than institutional requirements. This is seen back as well in the role the principles played in the identification of issues. The principle of 'consistency' somehow influenced the identification of the issue related to the vital character of distribution networks in the heating sector. The rest, due to the legal character, has had mere influence on the identification of issues.

6.3.4. Gathering perspectives and identification of issues

Gathering perspectives

This research used interviews as data collection method for gathering different perspectives of stakeholders. A total of twenty-four interviews were carried out: seventeen with diverse stakeholders in the heating sector and seven with experts from various backgrounds related to this sector (see Appendices C and D). Furthermore, a validation session was held with select (three) stakeholders to verify the identified issues (see Appendix E). Stakeholders have been categorized in seven different categories. In order to be able to draw conclusions, different stakeholders within these categories have been interviewed. Within four categories (municipalities, provinces, heat companies and producers) three or more stakeholders have been interviewed. In addition, two distribution operators, one transmission operator, one independent supervisor and one consumer have been interviewed. Re-

lating to the category of transmission operators and the independent supervisor, there exists only one stakeholder. Within the category of consumers, only large consumers have been interviewed, due to lack of contact with small consumers. Interviewing small consumers might have been interesting, because of the identified issue regarding the (in)transparency of tariffs and 'fear' of the consumer regarding the private monopolist. Both are strongly related to consumers, which therefore might have resulted in new insights.

These interviews had a semi-structured nature, and used the created set of criteria (see Table 4.4) as a means for gather these perspectives. Respondents were asked to prioritize these criteria and elaborate on whether these criteria have been used/ should be used in the decision-making process, focusing on their reasoning. Using this approach, different perspectives were gathered. Evaluating the employed method for gathering perspectives could be beneficial for comprehending the worth of the findings and potentially proposing avenues for future research applications. Cuppen (2010) suggests two methods that help bring implicit elements of perspectives to the forefront, such as assumptions, values, and arguments: policy Delphi and dialectical methodology. Additionally, these methods involve the confrontation of competing viewpoints.

A Policy Delphi method differs from the classical Delphi in that it does not primarily focus on achieving consensus or agreement on judgments; instead, its emphasis lies on exploring the underlying assumptions and arguments that lead to divergent judgments. This method is effective in establishing or developing a spectrum of potential alternatives and delving into the core assumptions or information that drive varying judgments. Its primary objective is to elicit the most robust opposing viewpoints regarding potential resolutions for a significant policy issue, which is closely tied to the inherent diversity among participants. In a series of sequential rounds, participants anonymously provide their assessments of the likelihood of a specific event occurring, accompanied by brief justifications for their assessments. Following each round, divergent assessments are reviewed and discussed by the participants, allowing them to revise their initial assessments. This process is repeated multiple times. The Policy Delphi serves as a valuable tool for uncovering concealed assumptions and, in doing so, facilitates the articulation of divergent perspectives. It achieves this by confronting differing assessments of the event's likelihood, thereby generating a spectrum of viewpoints on alternative problem-solving directions, which can be interpreted as a form of synthesis (Cuppen, 2010).

The dialectical methodology was created with the aim of encouraging individuals to question underlying assumptions. This approach seeks to harness conflict as an effective strategy for problem formulation when dealing with complex and ill-structured problems. Initially, the existing strategic plan or option is identified, serving as the thesis. Subsequently, a counterplan, known as the antithesis, is identified, built upon assumptions that contradict those of the thesis. Deliberation is then conducted to bring to light and evaluate the assumptions underlying strategic planning (Cuppen, 2010).

Both proposed methodologies focus on identifying different alternatives for the problem, where after the reasoning, including assumptions, to choose for these alternatives is investigated. In this sense, the methodology of this research is somehow in line with this. The major distinction lies in the fact that Policy Delphi and dialectical methodology employ alternative models as tools for exploring stakeholders' viewpoints, while this research utilized criteria (for these alternative models) as its approach. This choice of emphasis was deliberate, driven by the presence of strategic uncertainty and sensitivity in the context. Some stakeholders were anticipated to refrain from discussing or disclosing various alternative models for ownership structure, primarily for strategic considerations.

The definition of issue

At the beginning of this research, issues have been defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria, and are considered conflicts when stakeholders agree on the attached relevance or perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.

This definition led to the exclusion of concepts where stakeholders either reached a consensus on interpretation or deemed them of low relevance. However, this doesn't imply that these issues are unworthy of discussion. For example, the perspectives of stakeholders were somehow in line regarding the connection of different distribution networks and sectors. For instance, stakeholders shared similar views on the interconnection of various distribution networks and sectors. Several stakeholders, including private entities, argued that public ownership of the distribution networks could potentially offer advantages in terms of network and sector integration.

The role of experts

The sessions with experts aimed to validate the identified issues, and to gain more insights on these issues and the relating perspectives of stakeholders. In this way, these sessions helped to interpret perspectives, including knowledge claims and assumptions, from stakeholders. As holds for the interviews with stakeholders, the semi-structured qualitative approach has been experienced successfully for the interviews with experts. The use of this approached offered, depending on the background of experts, the possibility to zoom in on some issues in more detail.

6.3.5. Stakeholder analysis techniques

The stakeholders analysis techniques of Bryson (2004) have been used for conducting a first stakeholder analysis (power versus interest grid and stakeholder influence diagram) and analyzing the issues present between stakeholders (stakeholder-issue interrelationship diagram). As Bryson (2004) states these techniques can be used for showing which stakeholders have an interest in different issues, and how the stakeholders might be related to other stakeholders through their relationships with the issues. In addition, it helps providing some important structuring to the problem area, in which a number of actual or potential areas for cooperation or conflict may become apparent. This analysis technique assumes stakeholders presenting themselves in groups, which is assumed by Jetten as well (Jetten, 2022a,b). The perspectives of municipalities (represented by the 'Vereniging voor Nederlandse Gemeenten (VNG)'), provinces (represented by 'Interprovinciaal Overleg (IPO)'), heat companies (represented by 'Energie-Nederland'), distribution operators (represented by 'Netbeheer Nederland') and the independent supervisor ('Autoriteit Consument en Markt (ACM)') were considered Jetten (2023). This research considers, apart from these five categories, three additional ones: producers, transmission operators and consumers.

Power versus interest grid

In Section 3.2 the power-interest grid has been used for the identification and selection of stakeholders (see Figure 3.4). In the end, the power interest grid has been useful for getting a first overview of the categorization in terms of power and interest. However, apart from providing an overview, it has not been of added value for this research. The selection of stakeholders for the interviews could have been made without using the power interest grid as well, while this is solely based on the level of interest stakeholders showed during the internet consultation.

The five categories of stakeholders considered by Jetten were characterized as key players, due to their level of power regarding the decision-making process and their interest in the outcome. Producers, transmission operators and consumers were considered as subjects in the decision-making process. These stakeholders are not considered by Jetten (thus were considered having lack of power), however might have an interest in the outcome of the process due to their high level of interest assumed on the internet consultation (MijnOverheid, 2020).

Jetten seemed, probably unconsciously, to have given the five key players the feeling they could influence the decision-making process. In the end, some stakeholders seemed to have had more influence on the process than others. Especially the VNG and IPO influenced the process, and might therefore characterize themselves as key players as well. In contrast, Energie-Nederland has the feeling they were not able to influence the process, and would probably classify themselves as subject in terms of power. Energie-Nederland might have had the impression they were classified as key player due to the involvement of their perspectives in the discussion, however Jetten might only have meant to gather their perspective in order to determine the best solution. In conclusion, clear communication from the minister regarding the role different stakeholders are expected to play is recommended.

Stakeholder influence diagram

A stakeholder influence diagram has been constructed in Section 3.2, in order to map the relations between the present stakeholders (see Figure 3.5). The aim of the stakeholder influence diagrams is to indicate how stakeholders influence each other, identify the most influential stakeholders, and using this as input for the stakeholder-issue interrelationship diagram.

Drawing conclusions about the most influential stakeholders based on the stakeholder influence diagram was challenging. Furthermore, it appeared that the diagram, regarding this research, was not a prerequisite for creating the stakeholder-issue interrelationship diagram. Nevertheless, it did provide a comprehensive overview of the relationships among stakeholders, aiding in gaining a clear understanding of the stakeholder landscape. Furthermore, it led to the intriguing observation that most issues arise among stakeholders who are expected to collaborate within future heat companies. The question remains as to what extent these issues impede these collaborations.

Stakeholder-issue interrelationship diagram

Finally, a stakeholder-issue interrelationship diagram has been constructed, mapping the different issues in terms of relations between (categories of) stakeholders. Bryson (2004) assumes issues present between categories of stakeholders, or within these categories. Relations between stakeholders within different categories do however not exist.

For this research, a relation between categories is assumed only when all stakeholders within the two categories argue the issue to be present. As can be seen in Figure 5.1, eight different relations are described. Relations (or some of them) between stakeholders within different categories might however be worth discussing as well. In this way there can be drawn conclusions regarding the tackling of issues between individual stakeholders, instead of only between categories (and within these categories). However, this way of visualizing positively influences the clarity of the diagram.

Furthermore, (Bryson, 2004) does not specify the definition of an issue. In this sense, this research has given context to 'issue' as a concept in terms of stakeholder relations. Subsection 6.3.4 elaborated and evaluated on the the definition of issue in this research.

Application of other categories described by Bryson

Subsection 2.2.2 described the different categories of stakeholder analysis techniques described by Bryson (2004). Bryson (2004) aims to organize participation of stakeholders (first category), create ideas for strategic interventions (second category), building a winning coalition around proposal development (third category) and implementing, monitoring and evaluating these strategic interventions (fourth category). The stakeholder-issue interrelationship diagram is part of the second category. However, Bryson (2004) does not elaborate on how to manage these issues in relation to the proposal for a winning coalition. For this reason, the techniques in the third and fourth category are left out of discussion.

6.4. Conclusions and limitations

This research has focused on (the problem of) researching the issues playing a role regarding ownership division of distribution networks, using the Dutch heating sector as a case study. An analysis of the decision-making process from a multi-actor perspective, including the criteria being relevant regarding this process, are used as means for researching these issues present between (categories of) stakeholders.

6.4.1. Interpretation of results

As a result of the identified issues (see Figure 5.2), a couple of challenges for the Dutch heating sector can be identified. These challenges concern 'the heat transition as a social transition' (convincing the consumer to take part in the transition), 'the integration of district heating in the integral energy system' and 'the organization of heat companies' (see Figure 7.3). The first ('the heat transition as a social transition') and the last ('the organization of heat companies') challenge appear to be linked to the evolution of a more nationalization-driven focus for assuring public values in network sectors. Nationalization of ownership can be viewed as a means to create justice for the consumer, in order to involve consumers in the transition. The organization of heat companies is a challenge as a result of nationalization, which is acknowledged by all stakeholders in the field.

The issues thus highlight the change in discussion on how to assure public values in network sectors, shifting from a privatization/liberalization-driven to a more nationalization-driven approach. As a result, the perspective, including the assessment framework, introduced by Jorritsma-Lebbink (2000) (Figure 6.3), appears unsuitable for restructuring the heating sector due to its current market organization. Given its private nature, a different assessment framework seems to be required to determine the desirability of nationalizing various elements of the value chain, while prioritizing the assurance of public values as the objective.

6.4.2. Evaluation of methodology

Despite the theory described by Koppenjan & Groenewegen (2005) is of a design nature, and this research is more of analytical nature, it has been useful as foundation for this research. The analysis of the design problem and stakeholder context have been useful input for the design of criteria, discussed in interviews with stakeholders in order to identify issues. However, Koppenjan & Groenewegen (2005) do not define how to consult these stakeholders, and how this results in an overview of final design goals. This research has given context to this by gathering perspectives and identifying issues based on these perspectives. These issues might be used as a start of a conversation between stakeholders in order to get a better definition of the problem, define criteria and different alternative model for ownership structure (see Figure 6.8).

The usability of the principles for process design (De Bruijn et al., 2010) were concluded to be low in relation to the research goal, due to their procedural rather than substantive focus. The same holds for the principles of good market governance described by Hancher et al. (2003), while those have a strong legal character. Both might have limited the comprehensiveness of the overview of potential criteria, which was partly designed based on these principles.

The techniques described by Bryson (2004) aimed to analyze the stakeholder field, its relations in terms of issues and consequences. The theory however leaves space for the definition of the concept 'issue', which is a core element in this research. The techniques from Bryson et al. (2002) can be considered usable for mapping the issues between (categories of) stakeholders, however did not help in identifying issues.

6.4.3. Limitations of research

As previously mentioned (in Section 2.4 and Subsection 6.3.1), this research encountered a methodological challenge. It relied on the theoretical framework put forth by Koppenjan & Groenewegen (2005) as the foundation for its approach. However, the approach proposed by Koppenjan & Groenewegen (2005) is design-oriented, whereas this research leaned more towards analytical methods. In this sense, the definition of an issue was constructed, to research diverging perspectives of stakeholders. A better methodological foundation for researching these perspectives might have resulted in a more structured research process (see Subsection 6.3.4).

To repeat, issues are in this research defined as conflicts between (categories of) stakeholders related to ownership division of distribution networks in the Dutch heating sector. These issues are based on a set of criteria,

and are considered conflicts when stakeholders agree on the attached relevance *or* perspectives of stakeholders differ in terms of relevance (1) and perspectives differ in terms of interpretation (2) on how to consider these relating to ownership division of distribution networks.

It is hard to draw conclusions on the extensiveness of the identified overview of issues, while these issues are based on conflicts evolving as a result of differences in stakeholders' perspectives. The discussion concerning (public) ownership of distribution raises a sensitive issue, intertwined with organizational strategies of organizations. As a result, some stakeholders declined participation in interviews due to the sensitive nature of the topic. Other organizations might have limited their shared information. Both might have (negatively) influenced the identification of issues.

Moreover, as described in Subsection 6.1.3, the issues have been approached in an individualistic manner, involving the collection and comparison of perspectives from individual stakeholders. This matches with the goal of the research, however is not able to draw conclusions in terms of multi-actor decision making processes. Identifying these individual perspectives and the associated issues can serve as a starting point for multi-actor decision making aimed at addressing these concerns (see Subsection 6.1.4).

7

Conclusions and recommendations

This research has focused on (the problem of) researching the issues playing a role regarding ownership division of distribution networks, using the Dutch heating sector as a case study. An analysis of the decision-making process from a multi-actor perspective, including the criteria being relevant regarding this process, are used as means for researching these issues present between (categories of) stakeholders. At the beginning of this research, the following main research question has been formulated:

What issues are playing a role regarding ownership division of distribution networks within the Dutch heating sector?

Section 7.1 gives an overview of the answer to the main question, including an interpretation and discussion. Section 7.2 and 7.3 respectively describe policy recommendations and recommendations for further research, based on the results, conclusions and discussion.

7.1. Main conclusions

7.1.1. Identified issues

As a result of this research, seven issues have been identified. Figure 7.1 visualises the identified issues (including an explanation in the form of a question) as a result of the interviews with stakeholders (black bold font), validated with various experts, resulting in the addition of one extra issue (grey bold font).

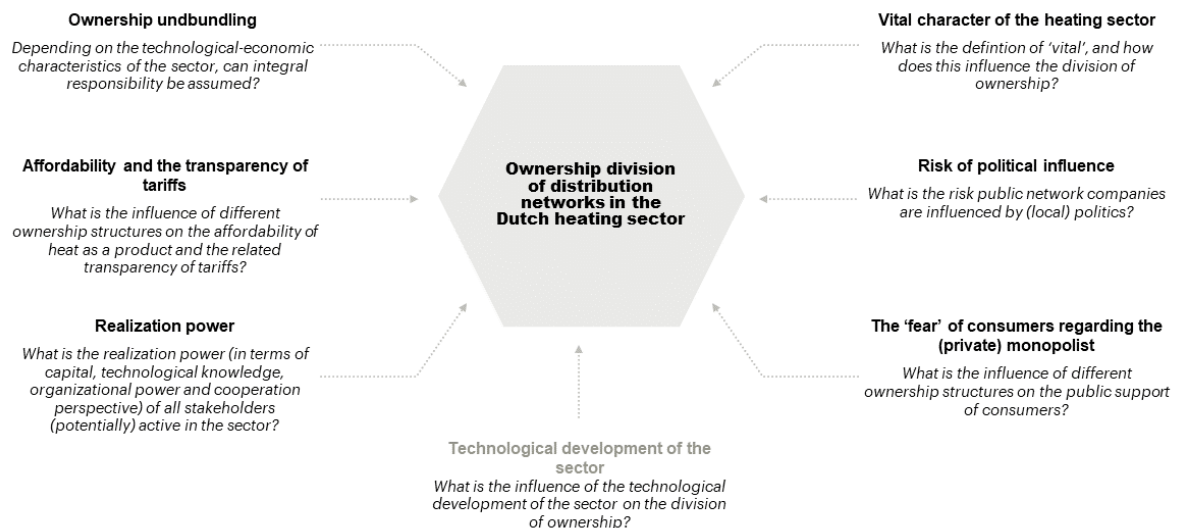


Figure 7.1: Identified issues relating to ownership division of distribution networks in the Dutch heating sector

It is interesting that affordability is the sole public value highlighted as an issue. This emphasis on affordability, along with the related (in)transparency of tariffs, might be driving the discussion on ownership division (i.e., whether it is better assured under public or private ownership). In contrast, this discussion appears to be less prevalent in relation to the other public values of reliability and sustainability.

To some extent, it is noteworthy that security of investment is not heavily debated among stakeholders, particularly private companies currently owning the distribution networks. Stakeholders appear to prioritize the efficiency of public ownership, focusing on the assurance of public values. This lack of emphasis on security of investment might be attributed to stakeholders trusting the government to compensate them for their investments (as seen in the Dutch government's actions regarding coal plants).

The limited variation in stakeholders' perspectives concerning the technological criterion is intriguing as well, based on the validation sessions with experts. Only a few stakeholders mentioned this as a relevant criterion, possibly due to insufficient research in this area. Although researching the technological aspect could be vital in determining an appropriate ownership division, it is not addressed by various stakeholders. This issue regarding the technological development of the sector is therefore considered in Figure 7.1 as an additional one, partly as a result of the validation round with experts.

7.1.2. Issues in terms of relations between (categories of) stakeholders

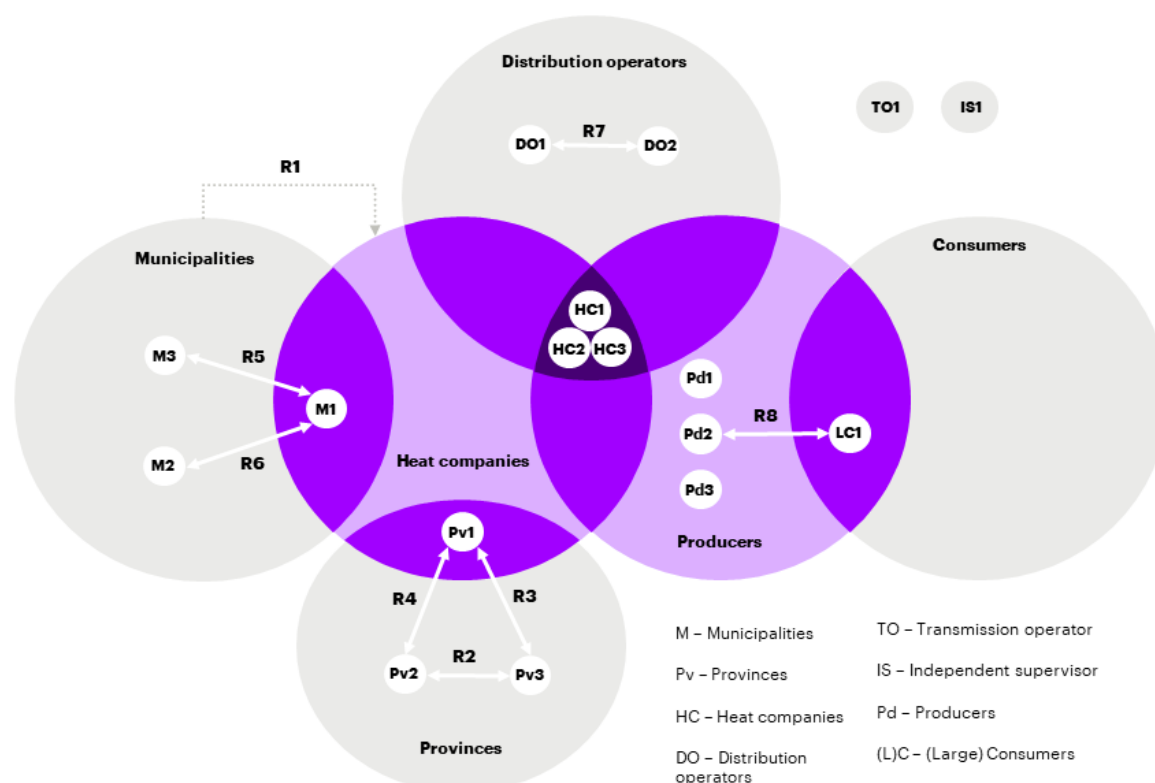


Figure 7.2: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector (based on Bryson (2004))

Table 7.1: Relations between (categories of) stakeholders in terms of issues regarding ownership division of distribution networks in the Dutch heating sector

	R1	R2	R3	R4	R5	R6	R7	R8
Ownership unbundling			X	X				
Affordability and transparency of tariffs	X		X	X				
Realization power	X	X	X	X				
Vital character of the heating sector								
Risk of political influence				X	X		X	X
'Fear' consumers regarding (private) monopolist					X	X		

Figure 7.2 maps these issues in terms of relations between (categories of) stakeholders. Table 7.1 shows the relations in terms of issues. Figure 7.2 illustrates the intricate and overlapping nature of the stakeholder field that

needs to be addressed. Although Jetten attempted to categorize stakeholders, it is evident that these categories intersect, except for the transmission operator(s) and independent supervisor(s). The category of 'heat companies' encompasses a diverse range of entities. These include a municipality that owns and operates its own energy and heat company, a province actively engaged in heat distribution, heat companies with responsibilities spanning heat production, distribution, and delivery across different regions.

Relating to affordability, the transparency of tariffs and realization power, there are significant differences in viewpoints between municipalities and heat companies (R1 in Figure 7.2). Municipalities support the new ownership division design, as it provides more control mechanisms for fulfilling their directing role, enabling them to steer towards assuring public values and justice for consumers. Conversely, heat companies question the effectiveness of the proposed ownership design on affordability. In terms of realization power, municipalities assert that they possess this due to the current available government capital used for private sector investment through subsidies. They argue that the capital invested in the private sector does not benefit society directly but goes to shareholders. They view the proposed ownership division as a means to increase realization power, but they emphasize that public values take precedence over realization power. Heat companies challenge this, arguing the realization power, specifically the organization of a heat company, is underestimated by public stakeholders (referring to cases of the 'Rekenkamer Rotterdam' and 'AEB Amsterdam'). In addition, they suggest public realization power was explored after the decision regarding a public majority interest relating to the infrastructure was already taken.

This relation (R1 in Figure 7.2) represents the sole identified issue between stakeholder categories, as other potential issues between categories are obscured by internal issues within these categories (the other relations described within Figure 7.2). Issues between categories are only assumed when these issues exist between all stakeholders of the pertaining categories.

Among provinces, disagreements center around affordability, tariff transparency, realization power, ownership unbundling and the risk of political influence (R2, R3, and R4 in Figure 7.2). Disagreements exist on how realization power was considered, with suggestions for more research or emphasizing the role of independent supervision. Moreover, there exists disparity in the potential risk of political influence. One province contends that some stakeholders have an unjustified fear of political influence, emphasizing the role of the independent supervisor in this context. Another province acknowledges the potential influence but suggests external organization of heat companies by municipalities to mitigate its effect. Moreover, conflicts exist whether public ownership is the right solution to reach an affordable system with a transparent price structure. Lastly, ownership unbundling is under debate, in the sense one province argues competition on the network is possible, depending on the technological characteristics of the region.

Within municipalities, differences arise on the risk of political influence and concerns of consumers about private monopolies (R5 and R6 in Figure 7.2). Some dismiss political influence fears, others propose external organization to mitigate it. Opinions vary on public ownership alignment with consumer preferences. Furthermore, two municipalities endorse public ownership because it aligns with consumer preferences, while another critiques this approach, arguing the ownership structure needs to be based on public values.

Network operators lack consensus on political influence (R7 in Figure 7.2). Some argue politics only influence decisions during the decision-making process, while others assert political influence affects future decisions of public heat companies, such as network extensions and exploitation of new networks. Producers and large consumers also have varying opinions on this matter (R8 in Figure 7.2). Some argue, based on experience, politics do not influence public network companies, while others claim is highly relevant to consider.

Notably, no issues are present among heat companies. In addition, the transmission operators and independent supervisor do not have any relationships in this diagram. The transmission operators did not feel themselves, and did not want to be, very involved in the process. The independent supervisor has issues with stakeholders on its own, but not their categories.

Finally, it is interesting to see most issues exist between the stakeholders who are ought to cooperate with each other in the new Wcw (heat companies and municipalities). It is the question to what extent the identified issues hinder the collaborations between heat companies and municipalities.

7.1.3. Assurance of public values in Dutch network sectors

As a result of the identified issues (see Figure 5.2), a couple of challenges for the Dutch heating sector can be identified. These challenges concern 'the heat transition as a social transition' (convincing the consumer to take part in the transition), 'the integration of district heating in the integral energy system' and 'the organization of heat companies' (see Figure 7.3). The first ('the heat transition as a social transition') and the last ('the organization of heat companies') appear to be linked to the evolution of a more nationalization-driven focus for assuring public values in network sectors. Nationalization of ownership can be viewed as a means to create justice for the consumer, in order to involve consumers in the transition. The challenge related to the organization of heat companies is a result of the more nationalization-driven approach, which is acknowledged by all stakeholders in the field.

The identified issues highlight the change in discussion on how to assure public values in network sectors, shifting from a privatization/liberalization-driven to a more nationalization-driven approach. As a result, the perspective, including the assessment framework, introduced by Jorritsma-Lebbink (2000) (Figure 6.3), appears unsuitable for restructuring the heating sector (due to the current market organization). Given its private nature, a different assessment framework seems to be required to determine the desirability of nationalizing various elements of the value chain (while still prioritizing the assurance of public values as objective).

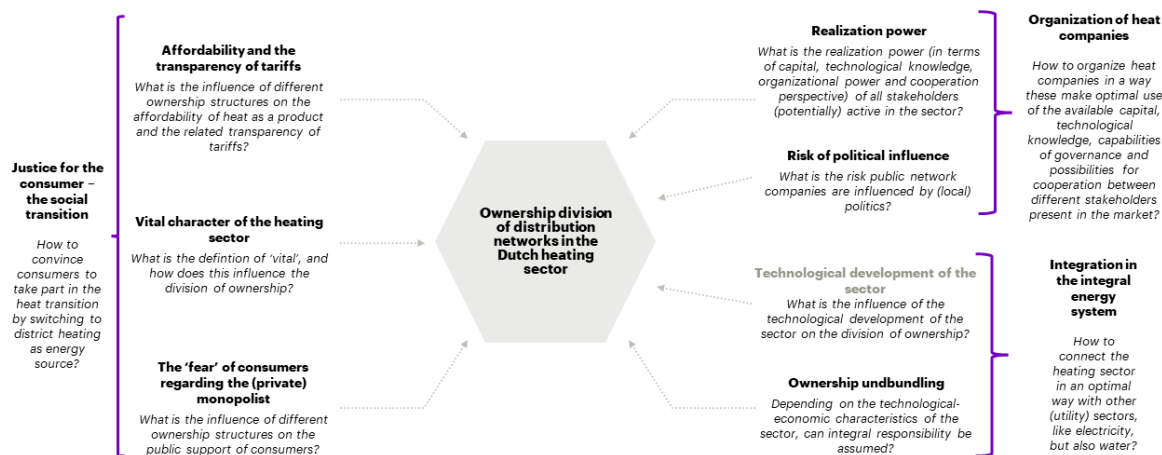


Figure 7.3: Challenges related to the identified issues

7.1.4. What to do with these issues?

As described in Subsection 6.1.3, the issues have been approached in an individualistic manner, involving the collection and comparison of perspectives from individual stakeholders. Identifying these individual perspectives and the associated issues can serve as a starting point for multi-actor decision making aimed at addressing these concerns. The engagement of stakeholders in a dialogue that highlights both the issues and diverse perspectives, with a particular emphasis on conflicting knowledge claims, is intriguing. The results of this research can be used as a start for this dialogue with stakeholders. In this way stakeholders may foster improved mutual understanding, potentially alleviating issues, refining the problem's definition, and fostering the development of alternative designs.

7.2. Policy recommendations

The results of this research have shown there exist many differences in perspectives, resulting in conflicts relating to alternative models for ownership division of distribution networks in the Dutch heating sector. These differences in perspectives are a result of different perceptions stakeholders have, based on different assumptions and knowledge claims. The lack of varying objective and scientific research regarding various topics results in these assumptions and knowledge claims. Summarizing, based on the findings of this research, the scientific basis for the proposed decision by Jetten can be considered very minor. There is few research known regarding the impact of this decision. Public entities make a valid point by arguing their governance role needs to be reinstated within the Wcw. However, the question arises as to the extent to which public ownership is the appropriate solution, and whether it may potentially limit the sector's opportunities. The suggested ownership division model could be overly rigid. Currently, various ownership structure models exist, tailored to regional characteristics. Some regions favor integral responsibility, while others allow competition in delivery and production. The proposed model appears to be quite generic, assuming uniform characteristics for all regions, despite potential variations. For instance, some areas may have access to multiple energy sources, while others do not.

As a result of the conclusions of this research, an overarching research regarding the to be solved problem, alternative models for ownership structure, and the impact of these alternatives, is recommended. The conflicts between stakeholders, identified in this research, might be used as a start. This research does not necessarily need to result in a different model for ownership division, however will probably result more clarity regarding alternative models for ownership structure and their impact. Hopefully, this results in less conflicts between stakeholders, and more willingness to collaborate, which is important for realizing the climate goals. This research is likely to result in a delay in the heat transition in the short term. However, the benefits it offers in terms of the long term outweigh this.

Furthermore, in light of the findings from this study and other methodologies outlined in Subsection 6.1.4, there arises a question regarding the desirability of involving stakeholders in the legislative decision-making process. For future processes regarding ownership division (in network sectors), it is advisable to establish a preliminary

phase wherein existing conflicts among stakeholders are examined, serving as a foundation for problem definition and the exploration of various alternative models.

Moreover, this research concluded the most conflicts exist between public stakeholders and private heat companies, who are expected to collaborate under the conditions set by the proposed ownership structure in the Wcw. Observing this before the decision-making process, and taking measures to mitigate this alignment could potentially facilitate the advancement of the process, which concerns another recommendation for further decision making processes.

7.3. Recommendations for further research

As a result of the conclusion and discussion of this research, some recommendations for further research can be made.

7.3.1. Researching the issues from another approach than a multi-actor perspective

This research has researched the issues, using an analysis of the decision-making process from a multi-actor perspective, including the criteria being considered relevant regarding this process, as a means. Exploring ownership division issues from a different perspective could be intriguing. For instance, a literature-driven approach could involve comparing the Dutch heating sector with other Dutch network sectors or examining heating/network sectors in different countries.

7.3.2. Alternative models and their impact

This research primarily focused on identifying issues rather than discussing alternative models for the ownership structure of distribution networks and their consequences. As previously mentioned, based on the research findings, the scientific foundation for the proposed policy decision appears to be quite limited, with limited known research on its impact. Conducting research on alternative ownership structure models and their effects would be beneficial. The challenge lies in how to operationalize the impact of these alternative models. The criteria outlined for ownership division (refer to Table 4.4) can serve as a valuable input for this endeavor.

7.3.3. The role of stakeholders regarding institutional design within complex technological systems

As stated before (Section 2.4 and 6.3.1), this research contained a methodological challenge by using the theory of Koppenjan & Groenewegen (2005) as foundation for the research approach. Koppenjan & Groenewegen (2005) seem to assume conflicts between stakeholders do not exist. The approach presented by Koppenjan & Groenewegen (2005) has a design nature, where this research is rather analytical. This research has tried to add an analytical part to the design theory of Koppenjan & Groenewegen (2005), which might make it easier to design requirements and solutions, using stakeholders' perspectives.

Figure 6.8 proposes a framework for institutional design, where perspectives and conflicts are used in a constructive way (partly based on (Cuppen, 2010, 2022)). Leveraging these divergent perspectives and the resulting conflicts as a starting point for discussions, could potentially facilitate the exploration and formulation of alternative models and requirements. In this manner, the differences in perspectives and the conflicts that arise can be used to yield productive outcomes for different knowledge, claims, and ideas. Using the approach described in Figure 6.8 to define the 'best' alternative model for ownership structure is something interesting for further research.

7.3.4. New assessment framework for assurance of public values in network sectors

As described in Subsection 6.1.2, the results of this research acknowledge the more nationalization-driven approach on how to assure public values in network sectors. As a result, the perspective, including the assessment framework, introduced by Jorritsma-Lebbink (2000) (Figure 1.1), appears unsuitable for restructuring the heating sector due to the current market organization. Given its private nature, a different assessment framework seems to be required to determine the desirability of nationalizing various elements of the value chain (while prioritizing the assurance of public values as the objective). Future research on the design of an assessment framework relating to the assurance of public values in network sectors, with a more nationalization-driven approach, is necessary.

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Value chain in relation to ownership and competition

Integral responsibility & publicly owned infrastructure on distribution level

“Alles afwegende heb ik besloten om in het wetsvoorstel Wcw te bepalen dat gemeenten alleen warmtebedrijven voor een nieuw warmtekavel kunnen aanwijzen waarbij de infrastructuur in handen is van een of meerdere publieke partijen of waarbij een of meerdere publieke partijen door een meerderheidsaandeel in het warmtebedrijf doorslaggevende zeggenschap hebben over de infrastructuur... Verder blijf ik, in overeenstemming met de visie van gemeenten, provincies en warmtebedrijven, vasthouden aan een ander centraal uitgangspunt in de Wcw: de integrale (eind)verantwoordelijkheid van een aangewezen warmtebedrijf voor zowel aanleg en beheer van de infrastructuur als voor de warmtelevering en productie of inkoop van warmte. Ik sta met andere woorden geen zogenaamd ‘gesplitst model’ voor, waarbij de verantwoordelijkheid voor de productie en levering van warmte en voor de infrastructuur bij twee aparte bedrijven belegd zijn.” (Jetten, 2022b) (p.2-5)

Production & delivery

“Het toelaten van externe warmtebedrijven om warmte te leveren aan eindgebruikers is onwenselijk. Door het beperkte aanbod van concurrerende warmtebronnen in een lokaal warmtesysteem is het niet waarschijnlijk dat er een effectieve marktwerking zal ontstaan, waardoor keuze voor de consument zou kunnen leiden tot een betere warmtelevering. Om een goede warmtelevering aan de gebruiker zeker te stellen, wordt daarom in dit wetsvoorstel duidelijk geregeld wie hierop aanspreekbaar is: het aangewezen warmtebedrijf heeft het exclusieve recht op levering aan gebruikers in een warmtekavel, met bijhorende rechten en plichten... Toegang voor warmteproducenten tot het collectief warmtesysteem is daarentegen wenselijk. De voorwaarden waaronder derdentoegang mogelijk is, worden in belangrijke mate bepaald door de technische eigenschappen van een lokaal collectief warmtesysteem. In dit wetsvoorstel wordt daarom niet voorzien in verplichte derdentoegang voor warmtebedrijven.” (Wiebes, 2020b) (p.40)

Transmission

“Warmtesystemen zijn doorgaans te typeren als lokale systemen... De regulering van collectieve warmtesystemen is ook gericht op het lokale karakter van deze systemen. Maar er zijn uitzonderingen mogelijk. Dit betreft de situatie waarbij in een gebied dermate grootschalige en relatief goedkope duurzame warmtebronnen (in potentie) voorhanden zijn, dat deze de lokale warmtebehoefte overstijgen. In dat geval kan het wenselijk zijn deze bronnen met behulp van een warmtetransportsysteem beschikbaar te maken voor meerdere warmtedistributiesystemen en andere grootschalige afnemers (zoals de glastuinbouw of bedrijven) in de regio... In dit wetsvoorstel zijn met het oog op het voorgaande bijzondere regels opgenomen voor regionale warmtetransportnetten. Er spelen meerdere overwegingen in het voorwaarden stellen aan het eigendom van de warmtetransportbeheerder en de warmtetransportnetten. Hierin is onderscheid te maken tussen het eigendom van de warmtetransportbeheerder (artikel 5.14), het economisch eigendom van de warmtetransportnetten en het bloot eigendom van de warmtetransportnetten (artikel 5.15).

Allereerst het eigendom van de warmtetransportbeheerder zoals voorgesteld in artikel 5.14... De warmtetransportbeheerder zal zelf afwegingen moeten maken over waar wél en waar geen transportleidingen aangelegd worden, wanneer deze er komen, etc. Binnen deze context ligt publiek eigendom van de warmtetransportbeheerder voor de hand.

De vervolgvraag is dan welke voorwaarden er gelden voor het eigendom van het warmtetransportnet. Een warmtetransportnet is een samenhangend geheel en moet, om tot efficiënte inrichting en exploitatie te kunnen komen, integraal beheerd kunnen worden. Om diezelfde reden zijn de taken van zowel netbeheer, systeemoperatie

en marktmeester bij de warmtetransportbeheerder belegd. Dit betekent ook dat de warmtetransportbeheerder volledige zeggenschap moet hebben over het gebruik van het warmtetransportnet. Het economisch eigendom van het warmtetransportnet zal dus in alle gevallen bij de warmtetransportbeheerder moeten liggen.

De laatste vraag die dan over blijft is of het bloot eigendom van de warmtetransportnetten ook te allen tijde bij de warmtetransportbeheerder moet liggen... Dit wetsvoorstel wil hiervoor ruimte laten en de mogelijkheid laten bestaan dat ook, naast de warmtetransportbeheerder, ook andere partijen – mits direct of indirect in publiek eigendom – (gedeeld) eigenaar te laten zijn van onderdelen van het warmtetransportnet.” (Wiebes, 2020b) (p.58-59)

Different organizational forms for the integral responsible heat company

“Daartoe worden in dit wetsvoorstel op hoofdlijnen drie samenwerkingsvormen voor een aangewezen warmtebedrijf mogelijk gemaakt (Wiebes, 2020a) (p.2-3):

1. Het integraal verantwoordelijke warmtebedrijf, dat zelf beschikt over het economisch eigendom van het warmtenet en eventueel werkzaamheden zoals productie van warmte uitbesteed aan derden. Deze samenwerkingsvorm was reeds opgenomen in het geconsulteerde wetsvoorstel.
2. Het integraal verantwoordelijke warmtebedrijf, dat samenwerkt met een warmtenetbedrijf dat beschikt over het economisch eigendom van het warmtenet en de werkzaamheden die zien op aanleg, onderhoud en beheer van het warmtenet of het transport van warmte voor zijn rekening neemt. Daarbij kan het warmtebedrijf eventueel ook andere werkzaamheden uitbesteden aan derden.
3. Het integraal verantwoordelijke warmtebedrijf, dat is vormgegeven als een warmte joint-venture waarbinnen een warmteleveringsbedrijf en een warmtenetbedrijf samenwerken. Het warmtenetbedrijf beschikt over het economisch eigendom van het warmtenet. Naast een warmteleveringsbedrijf en een warmtenetbedrijf kunnen ook andere partijen onderdeel uitmaken van de warmte joint-venture. Ook de warmte joint-venture kan eventueel werkzaamheden uitbesteden aan derden.

B

Interview protocol

B.1. Interview protocol stakeholder session

Interview Protocol for Interviews (60 minutes) *Objective/End Product: Gain insight into the importance parties attach to specific criteria, with a focus on the interpretation and reasoning of the parties.*

Introduction (10 minutes)

Objective: Gather information about the role of the interviewee

- Brief introduction and explanation of the research objective (5 minutes)
- What is your role within your organization, and how is this related to (the decision-making process regarding) ownership allocation for distribution networks in the heat sector? (5 minutes)

Exhaustiveness of List and Importance (20 minutes)

Objective: Gather information about criteria

- Do you consider the list to be exhaustive? If yes, why? If not, which criteria do you believe are missing? Can we categorize these additional criteria, or do you think a new criterion is necessary? (5 minutes)
- Which criteria do you consider most important, and why?

Used Criteria/ Criteria to be Used (10 minutes)

Objective: Gather information about criteria used and to be used in the decision-making process

- According to you, which criteria have been used in the decision-making process, and why?
- According to you, which criteria should be used in the decision-making process, and why?

Objectives/ Constraints (10 minutes)

Objective: Gather information about respondents' preferences within main themes, does this differ per respondent?

- Among these themes, which ones do you believe need to be optimized, and which ones only need to meet a minimum threshold? What is your reasoning behind this?

Conclusion, extra Questions, and Follow-up (10 minutes)

Objective: Brief conclusion and explanation of next steps

- Brief summary from my side
- Explanation of the next steps

B.2. Interview protocol expert session

Interview Protocol Expert Session (60 min)

Objective: Interpret conclusions of stakeholders in the broader context

Introduction (10 min)

Objective: Gather information about the interviewee's role

- Brief introduction and explanation of the research objective (5 min)
- What is your role within your organization, and how is it related to (the decision-making process regarding) ownership allocation for distribution networks in the heat sector? (5 min)

Interview Conclusions (15 min)

Objective: Provide experts with insight into the gathered information during the interviews

- Share conclusions from the interview round with stakeholders, focusing on the various perspectives of stakeholders, including reasoning and interpretation (15 min)

Identifying Underlying Issues (30 min)

Objective: Gather information about the underlying rationale of stakeholders' perspectives

- Are there notable perspectives, reasoning, and interpretations? What might be the underlying reason for these? (15 min)
- Are there perspectives that haven't been discussed but were expected? What might be the underlying reason for this? (15 min)

Conclusion, extra Questions, and Follow-up (10 minutes)

Objective: Brief conclusion and explanation of next steps

- Brief summary from my side
- Explanation of the next steps



Summary interviews stakeholders

C.1. Interview municipality 1 (M1)

Date: 06/09/2023

Overzicht

Rangorde	Thema	Focus	Objective/ constraint	Gebruikt/ niet gebruikt
1	Maatschappelijk draagvlak	Consument	Objective	Gebruikt
	Efficiente waarborging publieke waarden	Consument	Objective	Gebruikt
2	Realisatiekracht	Balans	Objective	Gebruikt
3	Risico profiel	Overgangsregeling	Constraint	Niet gebruikt
	Toekomstperspectief stakeholders	Overgangsregeling	Constraint	Niet gebruikt
4	Netwerk- en sectorkoppeling	Sectorvergelijking (incl. Buitenland)	Constraint	Gebruikt
5	Verhouding met andere wet- en regelgeving	Andere sectoren met vitale infrastructuur	Constraint	Gebruikt
6	Politieke druk		Constraint	Niet gebruikt
-	Procescriteria	Betrekken relevante partijen en transparantie	Constraint	Gebruikt

Uitputtendheid overzicht

Tijdens het doorlopen van alle voorafgaand opgestelde criteria blijkt een iets andere interpretatie van het begrip 'duurzaamheid' onder het thema 'efficiënte waarborging publieke waarden'. Dit begrip was gedefinieerd als het behalen van de duurzaamheidsdoelen: 1 miljoen warmteansluitingen in 2030, 2,5 miljoen in 2050. Volgens de geïnterviewde heeft duurzaamheid vooral betrekking op de duurzaamheid van de bron. Het behalen van de aansluitingen is een lange termijn doel, en is meer gerelateerd aan de realisatiekracht. Indien er balans is binnen de realisatiekracht (kapitaal, technologische kennis, governance, samenwerking) worden deze doelen behaald. Verder is de lijst redelijk compleet en sluiten de definities goed aan op de begrippen.

Waardering thema's

Maatschappelijk draagvlak wordt samen met de efficiënte waarborging publieke waarden als meest belangrijk geacht, waarbij er een focus ligt op de consument. De warmte-infrastructuur is een vitale infrastructuur. Dit is ook de reden dat er gekozen is voor publiek eigendom. Een goed wat voor de consument betaalbaar en beschikbaar moet zijn, moet een publieke infrastructuur zijn. Bij warmte is het ook per definitie een monopolie, wat nog meer reden geeft voor een publieke infrastructuur (net zoals binnen andere netwerksectoren). Het draagvlak van de consument staat hierbij centraal.

Wanneer er overeenstemming is bereikt over de manier waarop de eigendomsverdeling moet worden ingevuld (het doel), moeten daarna de condities worden gecreëerd waarop dat goed kan (realisatiekracht). Dit is dus een belangrijk thema voor na de besluitvorming, maar moet tevens worden meegenomen tijdens de besluitvorming.

Verder is het lastig om de proces- en inhoudelijke criteria met elkaar te vergelijken. De procescriteria zijn op een hele andere manier van belang, en moeten allemaal een bepaalde ondergrens halen. Om tot een succesvol product te komen moet iedereen meegenomen worden.

Met betrekking tot het risicoprofiel is een goede kosten+ methodiek en restwaardemethodiek van belang. Dit heeft dan vooral betrekking op de risico's met betrekking tot de overgangsregeling, welke samenhangen met het toekomstperspectief van stakeholders.

Politieke druk wordt als minst belangrijk gezien. Door warmtebedrijven wordt dit criterium erg negatief benaderd, en is er waarschijnlijk 'angst' voor politieke druk. Vanuit de geïnterviewde is deze er niet.

Verder wordt benadrukt dat er van andere sectoren geleerd kan worden als deze vergeleken worden met de warmtesector (netwerk- en sectorkoppeling). Gas- en elektriciteit hebben daarnaast directe relatie met warmte.

Met deze gedachte is het ook nog een optie om het gehele systeem bij één partij neer te leggen. Dit is wel de vraag of dit realistisch is, maar sectorkoppeling is zeker van belang. Verder kan er ook veel kennis op worden gedaan in het buitenland.

Verhouding met andere wet- en regelgeving is belangrijk en moet een ondergrens halen. Dit thema wordt vooral van belang geacht met betrekking tot andere netwerksectoren, wat aansluit op het vorige. Daarnaast zegt Europese wet- en regelgeving dat vitale infrastructuur in publieke handen moet zijn.

'Objectives' en 'constraints'

De procescriteria worden als constraints beschouwd, aangezien deze allemaal een bepaalde ondergrens moeten halen.

Maatschappelijk draagvlak en efficiënte waarborging publieke waarden zijn objectives, met de gedachte dat warmtelevering een publiek goed is, waar de consument altijd een betrouwbare en betaalbare voorziening van moeten hebben. Daarnaast wordt realisatiekracht als objective beschouwd, gezien de balans tussen kapitaal, technologische kennis, governance en samenwerking geoptimaliseerd moet worden om tot een succesvolle uitkomst te leiden. Echter zijn maatschappelijk draagvlak en publieke waarden belangrijker, aangezien deze betrekking hebben op het doel. De realisatiekracht is gerelateerd aan de hoe-vraag. De rest wordt beschouwd als constraint.

Evaluatie besluitvormingsproces 51%-verplichting

De argumentatie van het huidige besluit heeft betrekking op de vitaliteit van de infrastructuur (gerelateerd aan publieke waarden en maatschappelijk draagvlak). Het toekomstperspectief stakeholders speelt hierbij geen rol. Netwerk- en sectorkoppeling en verhouding met andere wet- en regelgeving is wel gebruikt, vooral de ervaringen binnen andere netwerksectoren (ook naar het buitenland gekeken). De realisatiekracht is ook meegenomen in de besluitvorming, door middel van een aantal onderzoeken.

De procescriteria zijn allemaal gebruikt. Iedereen wordt betrokken en meegenomen in een transparant besluitvormingsproces.

C.2. Interview municipality 2 (M2)

Date: 06/15/23

Het overzicht wordt als compleet beschouwd.

Procescriteria

De discussie omtrent eigendomsverdeling vindt vooral plaats tussen gemeenten, warmtebedrijven, netbeheerders en provincies. De eindgebruiker is eigenlijk helemaal niet betrokken bij deze discussie. Wel lastig om deze te betrekken natuurlijk. Als gemeente sta je natuurlijk voor de belangen van de burger, maar hier zit ook een hele politieke laag op. Bewoners kunnen meer betrokken worden door middel van woningcorporaties. Echter houden zij zich ook vaak redelijk afzijdig als ze betrokken worden in het proces. Concluderend, zijn de partijen die nu betrokken zijn dan misschien wel de relevante partijen voor de besluitvorming.

Voorafgaand aan de internetconsultatie was er al een inhoudelijke discussie rondom de marktordening van warmte. Het is de vraag wanneer het besluitvormingsproces begonnen is. Het proces is verder redelijk transparant, behalve dat het proces voorafgaand duidelijker neergezet had kunnen worden. Verder zijn alle relevante partijen vroeg betrokken bij het proces. Met betrekking tot de vertegenwoordiging is het lastig, aangezien binnen de besluitvorming niet alle partijen direct betrokken zijn. Dit gaat veelal via vertegenwoordigers. Tot slot, complimenten aan Jetten: er is een knoop doorgehakt (command & control).

De procescriteria worden allemaal ongeveer van hetzelfde belang geacht, en zijn allemaal redelijk meegenomen. Het enige minpunt is dat het proces voorafgaand duidelijker geschetst had mogen worden.

Inhoudelijke criteria

Onder betaalbaarheid verstaan wij het realiseren van het energiesysteem onder laagst maatschappelijke kosten en de betaalbaarheid voor de eindgebruiker. Commerciële partijen hebben een minimum rendementseis. Publieke partijen hebben dit niet. In deze zin heeft betaalbaarheid voor de investeerder invloed op de eigendomsverdeling. Bij een overheid hebben maatschappelijke baten ook waarden. Bij een private partij niet.

Onder betrouwbaarheid wordt voorzieningszekerheid/ robuustheid en veiligheid gezien. Private partijen kijken alleen naar hun eigen belangen en hun eigen systeem. Het liefst wil je een onafhankelijke partij die het systeem beheert, om zo efficiënt systemen met elkaar te verbinden (raakt sectorkoppeling). Daarnaast is een efficiënte sectorkoppeling ook voor betaalbaarheid van belang, aangezien de tarieven hierdoor (in positieve zin) kunnen veranderen.

De ambities met betrekking tot duurzaamheid kunnen op gespannen voet komen te staan met het ondernemingsbelang (bij private partijen). Dit is natuurlijk ook heel logisch, aangezien het per project wordt afgewogen waarin wordt geïnvesteerd.

Met betrekking tot al deze publieke belangen, is het lastig om te sturen aangezien deze lastig contracteerbaar zijn. De concessies die lang geleden zijn vastgelegd, kunnen niet zomaar worden gewijzigd. Een instrument waarbij meer sturing gaandeweg de rit mogelijk is, wordt gevraagd; hoe organiseer je de sturing op de publieke belangen, ook gaandeweg het traject.

Verder kan een publieke eigenaar anders omgaan met risico's, vanwege de sturingsinstrumenten op projecten (raakt het risicoprofiel). Private partijen rekenen meer risico's door naar andere partijen (bijv. gebouweigenaren).

Publieke sturingsmogelijkheden zijn noodzakelijk, zie voorbeeld: gebied naast warmtebedrijf moet aangesloten worden op net. Voldoende capaciteit in netwerk beschikbaar, alleen bedrijf wil niet vanwege risico's en wellicht onrendabele top. In dit geval zijn er geen mogelijkheden om te sturen.

Met betrekking tot de realisatiekracht zit eigenlijk het meeste geld bij het rijk, aangezien veel wordt gefinancierd met subsidies. Met rijksmiddelen wordt dan geïnvesteerd, maar dit vloeit niet terug in de maatschappij (alleen een CO2-reductie). Verder zit bij de private partijen wel het startkapitaal, in tegenstelling tot gemeenten. In deze zin moet hier wel rekening mee worden gehouden voor het besluit voor eigendomsverdeling. EZK is ook bezig met onderzoek doen naar de publieke realisatiekracht, en welke partijen hier een mogelijke rol in kunnen spelen. Verder zit de meeste technologische kennis bij partijen die worden ingehuurd. Publieke partijen hebben veel kennis van bewoners, private partijen weten hoe je een uitvoeringsorganisatie aanstuurt. De combinatie van beide geeft dus de beste sturing, waardoor governance in deze zin een rol speelt bij de eigendomsverdeling.

De realisatiekracht van gemeenten is niet onderzocht. Het meest spannende deel is het meekrijgen van de bewoner, niet de leiding in de grond krijgen. Bij de realisatiekracht is dit deel niet meegenomen. Voor de transitie zijn publieke en private partijen nodig, aangezien er op een andere manier realisatiekracht aanwezig is bij de verschillende partijen.

Maatschappelijk draagvlak wordt als belangrijk gezien, met een focus op de eindgebruiker. Warmte is de goedkoopste optie, maar dan zit je als eindgebruiker wel vast aan een monopolist. Een meer publieke rol kan in het draagvlak helpen. Een consument heeft meer 'angst' voor een private monopolist dan voor een publieke netbeheerder.

Wanneer we kijken naar de verhouding met andere wet- en regelgeving met betrekking tot andere sectoren, is het van belang warmte in lijn te brengen met deze sectoren. Warmte werd niet perse gezien als een vitale

infrastructuur, vanwege het lokale karakter. Hierdoor wordt het niet echt vergeleken, en heeft het weinig invloed gehad om het besluit. Echter werk je naar een toekomstige situatie toe (integraal energiesysteem), waarbij dit wel van belang kan zijn.

Conclusie

Concluderend, wordt de sturing op het efficiënt waarborgen van publieke waarden als meest belangrijk geacht, in verhouding met het maatschappelijk draagvlak van de consument.

C.3. Interview municipality 3 (M3)

Date: 6/22/23

Procescriteria

Alle relevante partijen zijn betrokken geweest. Wel hebben een aantal partijen moeten vechten voor hun rol, zoals netbeheerders, gemeenten, provincies. Verder is het proces vanaf het begin behoorlijk transparant ingestoken. Echter is er voorafgaand geen rekening gehouden dat de perspectieven van partijen zo uiteen zouden lopen bij het consulteren. Dit heeft het proces minder transparant gemaakt. Na het consulteren van partijen gaan de deuren weer dicht. Het duurt dan redelijk lang voordat de deuren weer open gaan. Dit heeft echter niet veel invloed gehad op het uiteindelijke besluit. De minister spreekt zich op momenten in de tijd duidelijk uit, en neemt in deze zin controle over het proces.

Inhoudelijke criteria

Over het algemeen wordt het overzicht als redelijk compleet beschouwd. Voor een publiek warmtebedrijf zijn er twee opties; organisatie binnen of buiten de gemeente (gemeente als aandeelhouder). Wanneer dit extern georganiseerd wordt, staat de politiek op redelijke afstand (minder politieke invloed). In deze zin heeft dit criterium invloed op het uiteindelijke besluit voor eigendomsverdeling.

Met betrekking tot de publieke waarden is vooral rechtvaardigheid van belang. Dit is de onderliggende reden om als publieke organisatie hier mee aan de slag te gaan, om zo iedereen de voordelen te bieden van de energietransitie. Het is een sociale transitie. Dit is indirect gerelateerd aan de betaalbaarheid. Wanneer bewoners de gasaansluiting verliezen, moet er wel een betaalbaar alternatief komen. Private bedrijven hebben de transitie alleen opgepakt in gebieden waar winst kan worden gemaakt. Met deze achtergrond wordt het Deense model gehanteerd: tarieven socialiseren, zodat je rendabele projecten kan afwisselen met minder rendabele projecten. Deze betaalbaarheid is vooral gericht op de betaalbaarheid voor de consument. De consumenten moeten mee kunnen doen aan deze transitie.

In het 'oude' model werden de risico's disproportioneel verdeeld. Gemeenten draaiden uiteindelijk op voor de meest grote opgaven uitgevoerd door private partijen. Onafhankelijk van de eigendomsverdeling, dragen gemeenten de meeste risico's. Met deze gedachte in het achterhoofd is het logisch om gemeentes formeel zeggenschap te geven. Het geld vloeit op deze manier de maatschappij in, in plaats van naar de aandeelhouders.

De realisatiekracht is klein voor kleinere gemeenten. Grotere gemeenten hebben kapitaal en staan open voor samenwerking met private partijen, op voorwaarde dat netwerken worden gerealiseerd. De hoop is dat een andere eigendomsverdeling tot meer realisatiekracht leidt, in de zin van groei van het aantal warmtenetten. Wanneer het nu beoordeeld wordt hebben private partijen meer realisatiekracht, maar dit gebeurt niet. Verder moet de governance van de markt door het ACM geen invloed kunnen hebben op het besluit omtrent eigendomsverdeling.

Verhouding met wet- en regelgeving met betrekking tot andere sectoren wordt van belang geacht met het integrale energiesysteem in het achterhoofd. Wanneer de verschillende energiesectoren gelijksoortig georganiseerd zijn, kan dit integrale systeem efficiënt(er) ingericht worden (raakt ook netwerk- en sectorkoppeling).

Het besluit wat er nu ligt is proportioneel (ten opzichte van de publieke waarden) en creëert eindelijk duidelijkheid in de markt (toekomstperspectief stakeholders). Dit is een belangrijk criterium voor het besluit. De vorige versie van het besluit leidde tot (te) veel mogelijke modellen, die uitmondde in discussie. Nu is het duidelijker gedefinieerd, en is er een minder groot grijs gebied.

Wanneer alle (private) projectontwikkelaars hun gang gaan, is er niet voldoende energie in de bodem om het netwerk efficiënt te voeden en te organiseren. Met dit in het achterhoofd, is het heel reëel om dit collectief publiek te organiseren.

Het maatschappelijk draagvlak vanuit de consument wordt (rationeel gezien) als relatief minder belangrijk geacht. De publieke waarden staan voorop, aangezien dit het draagvlak zou moeten zijn. De eigendomsverdeling moet rationeel bekeken worden. In tegenstelling, is het draagvlak wel nodig om de warmtenetten te realiseren en organiseren.

Alle bovenstaande thema's zijn meegenomen en (goed) afgewogen bij de besluitvorming. Publieke waarden staan voorop, maar ook ruimte voor de realisatiekracht (waar partijen anders moeten gaan nadenken).

Conclusie

Geconcluderend, een illustrerende rangorde:

1. Publieke waarden, focus op rechtvaardigheid (in combinatie met betaalbaarheid)
2. Realisatiekracht, focus op mentale transitie
3. Netwerk- en sectorkoppeling, focus op het integrale systeem
4. Verhouding met andere wet- en regelgeving, focus op andere sectoren (hangt samen met netwerk- en sectorkoppeling)
5. Maatschappelijk draagvlak, die rationeel gezien moet volgen uit de publieke waarden
6. Toekomstperspectief, risicoprofiel, politieke druk

C.4. Interview province 1 (Prov1)

Date: 06/20/23

Inleidend

De lijst wordt op het eerste gezicht als compleet beschouwd.

Procescriteria

Met betrekking tot de procescriteria had er meer aandacht besteed kunnen worden aan de openheid van het proces. Het proces had transparanter gekund. Daarnaast zijn er in principe inhoudelijke keuze gemaakt voordat alle relevante partijen zijn betrokken. Vooral voor provincies en gemeenten was het echt een 'black box'. De eerste wettekst in 2020 is alleen geschreven in samenspraak met de warmtebedrijven. Vanuit het perspectief van gemeenten en provincies is dit raar; er ligt veel regie bij deze instanties (vanuit het klimaatakkoord), maar er worden geen instrumenten geboden om te sturen. Een meer open en transparant proces had de voortgang van het proces kunnen bevorderen. Partijen hadden meer de kans moeten kunnen krijgen om hun belangen te presenteren, om zo te concluderen welke onderliggende argumenten het meest belangrijk zijn. Het heeft nu vrij lang geduurd. Er is een soort achterhoedegevecht geweest in de lobby: er werd niet eerlijk richting partijen uitgesproken wat er speelde. Er werden verkeerde verwachtingen gecreeërd. De minister had hier strenger op moeten zijn (command & control).

Verder was er eerst een focus op het lokale karakter van warmtenetwerken. Nu is met de tekst van de Wcw 2023 ook het regionale en bovenregionale karakter van warmtenetwerken benadrukt. In deze zin is het nu meer gelijkgetrokken met andere energiesectoren met netwerken.

Intern binnen het IPO en VNG is er consistentie.

Inhoudelijke criteria

Duurzaamheid wordt gerelateerd aan het zo snel mogelijk (gerelateerd aan de beleidsdoelen) duurzame bronnen op warmtenetten aansluiten. Betaalbaarheid is de betaalbaarheid voor de consument. Betrouwbaarheid en veiligheid worden relatief minder belangrijk geacht. Vooral de betaalbaarheid en duurzaamheid speelt bij de eigendomsverdeling een rol. Publieke organisaties hebben hier veel meer grip op. Publieke partijen hebben geen winstoogmerk en kunnen over een langere tijd afschrijven (dus ook wel betaalbaarheid voor het systeem, wat uiteindelijk weer doorwerkt voor de consument). Wanneer het publiek is, kan het net voor meer producenten worden opengesteld, die duurzaam produceren.

Verder kunnen overheden ook andere investeringsbeslissingen nemen vanwege het andere risicoprofiel. Er kan tegen betere voorwaarden worden geleend.

De realisatiekracht is het onderwerp geweest waarom het besluit zo lang heeft geduurd. Het onderwerp waar de private partijen op hebben ingezet. Echter moet dit niet zo zwaar worden meegewogen. Gemeente gaan niet zelf een warmtebedrijf runnen. Bijvoorbeeld netbeheerders kunnen hier een rol in gaan spelen. De realisatiekracht is in deze zin te zwaar meegewogen bij het besluit. Private partijen hebben meer realisatiekracht met betrekking tot warmte, maar publieke partijen hebben ook ervaring met betrekking tot investeringen in andere infrastructuur.

Elektriciteit en gas zijn vitale infrastructuur. Warmte wordt ook als vitaal gezien in de nieuwe WCW (verhouding met andere netwerksectoren). Verder is het met het integrale energiesysteem in het achterhoofd ook van groot belang (sectorkoppeling). Het toekomstperspectief is een pijnpunt. De voorspelbaarheid had duidelijker gekund tijdens het proces. Nu is het wel enigszins duidelijk welke kant het op gaat, ook met betrekking tot bestaande netwerken. Wel belangrijk om rekening mee te houden voor de eigendomsverdeling, vooral ook tijdens het proces.

Het risicoprofiel heeft niet zo veel invloed op de eigendomsverdeling, gerelateerd aan de afspraken die er moeten worden gemaakt. Dit moet altijd worden vastgelegd.

Netwerk- en sectorkoppeling speelt een grote rol in de eigendomsverdeling. Koppeling tussen verschillende netwerken en sectoren is makkelijker wanneer dit in publieke handen is. Private netten leiden tot cherry picking. Daarnaast kan er efficiënter met de bronnen om worden gegaan, wanneer het in publieke handen is. Ook is de koppeling tussen energiesectoren efficiënter.

Aan politieke druk/ invloed wordt minder belang gehecht, aangezien de eigendomsverdeling goed gereguleerd wordt (door ACM). De politiek kan wel iets vinden, maar dit wordt begrensd door regels gehandhaafd door het ACM. Het ACM gaat naar verwachting ook een grotere rol krijgen (wellicht nieuw thema/ criterium).

Maatschappelijk draagvlak voor bewoners is groot voor een publiek-dominant warmtebedrijf. Bewoners zijn 'bang' voor een private monopolist. Verder heeft het maatschappelijk draagvlak onder provincies en gemeenten ook een grote invloed gehad. Deze partijen zijn nodig, aangezien deze de regie krijgen.

Conclusie

Concluderend, een illustratieve rangorde:

1. Maatschappelijk draagvlak (consument, gemeenten, provincies), netwerk- en sectorkoppeling, betaalbaarheid duurzaamheid. Realisatiekracht volgt, na het besluit.

2. Verhouding met wet- en regelgeving met betrekking tot andere netwerksectoren
3. Toekomstperspectief
4. Risicoprofiel/ politieke druk: bepaalde ondergrens

C.5. Interview province 2 (Prov2)

Date: 07/07/23

Inleidend

Het doel, vanuit de provincie, is om de realisatie van warmtenetten te versnellen. Het realiseren van een portfolio aan projecten op provinciaal niveau draagt hier aan bij. Zo kunnen risico's worden gespreid. Wanneer één warmtenet niet slaagt, wordt dit opgevangen met een ander (meer rendabel) net. Drie publieke waarden zijn essentieel: betrouwbaarheid (op sociaal vlak vanuit de consument), leveringszekerheid, duurzaamheid en betaalbaarheid. Vanaf het begin is gekozen voor het gesplitste model: levering, bron en infra los van elkaar, waarbij publieke partijen eigenaar zijn van het netwerk. Elke bron en leverancier mag aansluiten onder dezelfde voorwaarden. Dit is niet het uitgangspunt van de Wcw, waarbij integrale verantwoordelijkheid geldt. Echter heeft de provincie haar model hier nu op aangepast.

Procescriteria

2019 wordt beschouwd als de start van het besluitvormingsproces. De wet die in 2020 ter consultatie is neergelegd is erg opgehangen aan het bestaande systeem, waar private partijen een grote rol spelen. VNG en IPO vonden dit onwenselijk, met de regierol van de gemeenten als reden/ achtergrond. Vanaf de consultatie hebben alle stakeholders wel een plek gekregen in het proces IPO en VNG zijn pas echt volwaardige gesprekspartners geworden op het moment dat gekozen werd voor een meer publieke ordening in de warmtewet.

De integrale verantwoordelijk is als uitgangspunt beschouwd, en heeft tijdens het proces niet ter discussie gestaan. In deze zin is er dus een inhoudelijke keuze gemaakt voorafgaand aan het besluitvormingsproces. Met de ontwikkelingen van de afgelopen jaren in het achterhoofd, en het ontstaan van steeds meer partijen die een rol spelen, zou dit meer ter discussie moeten staan. Er is een opgave waarbij we alle partijen nodig hebben.

Met betrekking tot transparantie, hebben alle partijen aan de voorkant de kans gekregen om input te leveren. Deze belangen worden vervolgens ook beschermd. Echter wordt de wet achter gesloten deuren gemaakt, en vervolgens openbaar gemaakt. Dit had inhoudelijk transparanter gekund.

Vroege deelname van alle partijen is gestimuleerd en de vertegenwoordigers van partijen hebben zeggenschap binnen hun organisatie. Rationeel gezien is er te weinig voortgang. Tegelijkertijd, is de voortgang redelijk, aangezien Jetten nu een keuze heeft gemaakt (command & control).

Inhoudelijke criteria

Het is belangrijk dat het systeem vanuit de afnemer(s) wordt benaderd in plaats van vanuit de bron(nen). Draagvlak op het lokaal niveau moet worden gewaarborgd, door de bewoners echt (maar dan ook echt) mee te nemen in het proces. Maak de bewoners onderdeel van dit proces, en leg overwegingen voor bepaalde keuzes uit. Onderzoek de rol van energiecoöperaties, en geef ze de kans om mee te doen. Maak gezamenlijk de keuze voor de beste bron en de beste governance structuur. Dit draagvlak is nu erg beperkt, maar is enorm belangrijk voor het toekomstige model (vanuit het perspectief van de provincie).

Verder is het van belang dat vitale infrastructuur in publieke handen zijn (verhouding met andere wet- en regelgeving met betrekking tot andere netwerksectoren). Private partijen hebben de optie om hun bedrijf te verkopen aan een buitenlandse partij. Als lokale partij wil je invloed kunnen uitoefenen op de lokale energievoorziening.

De betaalbaarheid van warmtenetten staat gigantisch onder druk, aangezien alle kosten voor een warmtenet in dat losse project terugverdiend moeten worden. Dit in tegenstelling tot veel andere duurzame alternatieven. Zo geldt voor uitrol van warmtepompen dat het elektriciteitsnet moet worden verzwakt. De kosten van deze verzwaring rusten echter niet op de businesscase maar worden gesocialiseerd. Dus betaalbaarheid slaat op de kosten voor de individuele afnemer. Die zijn hoog doordat alles binnen de businesscase moet worden terugverdiend.

Het nieuwe model is niet bevorderend voor de betaalbaarheid van de warmtenetten. Betaalbaarheid is een essentieel criterium om rekening mee te houden, aangezien dit gerelateerd is aan het draagvlak. Betrouwbaarheid scoort nog hoger. Duurzaamheid is in de Wcw onvoldoende geborgd. Gemeenten mogen zich niet bemoeien met de warmtebron die gebruikt wordt door het warmtebedrijf. Aan de voorkant kunnen eisen worden gesteld, maar op het moment dat een bedrijf is aangewezen kunnen nieuwe bronnen niet verplicht worden (aangesloten). Dit is een keuze van het warmtebedrijf zelf. Hetzelfde geldt voor de uitbreiding van het netwerk. Met de ontwikkelingen van de bronnen in het achterhoofd (in de toekomst meer aqua/geothermie), kan dit zorgelijk zijn. Het is spannend hoe het risicoprofiel er uit gaat zien, aangezien de mogelijke modellen nog niet concreet beschreven zijn.

Binnen het warmtebedrijf wordt de politiek losgekoppeld van de business case. Dit voorkomt dat politieke bemoeienis leidt tot onrendabele businesscases. Tegelijkertijd laat de wet de kans om een andere keuze te maken. Dit kan een risico zijn.

De realisatiekracht is erg belangrijk om mee te nemen bij het besluit. Er moet publieke realisatiekracht zijn, waarbij samenwerking centraal staat.

In Denemarken wordt een model gehanteerd, wat volgens EZK niet werkt, waarbij wordt gerefereerd naar de toelichting van de landsadvocaat. Is hier de juiste vraag neergelegd, en de juiste conclusie getrokken door Jetten? (Europese wet- en regelgeving).

De eigendomsverdeling biedt geen voorspelbare toekomst voor de partijen in de markt. Het besluit wordt als proportioneel beschouwd (het doel wordt gediend), maar is erg eng geformuleerd. Een ruimer model had hoger gescoord op de proportionaliteit. De voorspelbaarheid is belangrijk om rekening mee te houden.

Gevoelsmatig staan private warmtebedrijven minder open voor koppeling van warmtenetwerken. Dit is publieke handen makkelijker. Zeker in het geval van een gesplitst model.

Conclusie

Betaalbaarheid en betrouwbaarheid, in combinatie met het maatschappelijk draagvlak, staan voorop. Het maatschappelijk draagvlak moet op een breder niveau (dan lokaal) worden georganiseerd. Bij voorkeur op provinciaal niveau. Nationaal niveau is wellicht te groot, aangezien de afstand tussen partijen dan te groot kan worden. Hetzelfde geldt voor de publieke realisatiekracht; zorg dat dit op het juiste niveau wordt georganiseerd.

C.6. Interview province 3 (Prov3)

Date: 07/06/23

Rol binnen organisatie: manager team gebouwde omgeving warmte

Inleidend

Het team heeft de rol om de warmtetransitie zo goed mogelijk te laten slagen. De provincie probeert om toegevoegde waarde te bieden bij gemeentelijke samenwerkingen, en dit in goede banen te leiden. Hierbij wordt een ondersteunende rol aangenomen.

Procescriteria

EZK lijkt zelf verrast door het verloop van het proces. Normaal gesproken wordt in veel gevallen op basis van een consultatie een wetsvoorstel naar de RvS en de kamer gestuurd. In dit geval hadden veel partijen veel moeite met het voorstel, en zijn zij actie gaan ondernemen om de vervolgstappen te beïnvloeden.

Vroege consultatie van alle relevante partijen had deze discussie wellicht kunnen voorkomen. Het is waarschijnlijk te lichtvaardig geweest om alleen op basis van één consultatie een wet te maken. Dit is een onderschatting geweest. Een transparanter proces had inhoudelijk tot een ander besluit kunnen leiden. Het model had ruimer geformuleerd kunnen worden.

Inhoudelijke criteria

Het overzicht wordt als redelijk compleet beschouwd. Publieke waarden moeten als sturend worden gehanteerd. Alle partijen zijn het hier mee eens. Deze publieke waarden spelen breder in het wetsvoorstel. Er is een evidente zorg richting private partijen met betrekking tot transparantie (van tarieven) (betaalbaarheid). Dit heeft meegespeeld in het besluit. Dit raakt het vertrouwen vanuit de consument en de maatschappij (maatschappelijk draagvlak). De mogelijkheid tot ruime invulling van de warmtetransitie heeft geleid tot een bepaalde maatschappelijke kijk op de warmtebedrijven. Echter is ook een publiek bedrijf een monopolist, aangezien concurrentie op netwerken niet mogelijk is. Verder is het besluit beïnvloed door de politieke opinie (en draagvlak) van gemeenten.

De politieke invloed op toekomstige warmtebedrijven kan niet ontkent worden. Met de Wcw komt er meer binding tussen publieke partijen en warmtebedrijven. Het is goed dat de samenwerking op basis van vertrouwen een meer zakelijke context krijgt, maar dit resulteert wel in een risico met betrekking tot politieke invloed. Het is hierbij van belang dit goed te reguleren.

Realisatiekracht is een criterium waar op getoetst moet worden. Dit is een van de grootste belangen en een criteria om naar te kijken. Wanneer hier eerder in het proces goede gesprekken over waren gevoerd, had veel 'ellende' voorkomen kunnen worden. In dit geval had (misschien) overeenstemming met elkaar bereikt kunnen worden. Waarschijnlijk was een combinatie van de private en publieke realisatiekracht de conclusie geweest. EZK heeft alleen onderzoek gedaan naar de publieke realisatiekracht, en niet naar de gehele realisatiekracht van de sector.

Het is lastig om verschillende leveranciers op één net toe te laten. In deze zin laat het zich niet vergelijken met gas en elektriciteit. Het is wel goed om naar de bruikbare elementen te kijken, maar dit moet wel vertaald worden naar de (on)mogelijkheden voor warmte. Op transmissieniveau kunnen er wel meerdere bronnen worden toegelaten op het netwerk, waar de vergelijking met gas en elektriciteit mogelijkheden biedt. Op lokaal distributieniveau is dit anders. Warmte is, net zoals gas en elektriciteit, wel een vitale infrastructuur. Dit argument heeft meegespeeld.

EZK heeft binnen het proces veel aandacht besteed aan de voorspelbaarheid en proportionaliteit voor alle partijen in de markt. De ingroeiperiode en overgangstermijn weerspiegelen deze aandacht. Het is spannend of de gekozen constructie zorgt voor een zo krachtig mogelijke publiek-private samenwerking. De dominante insteek van integrale verantwoordelijkheid helpt bij het indammen van het risicoprofiel. De manier om hier te komen is nog spannend. De wet laat nog redelijk veel ruimte voor mogelijke modellen. Voor private partijen kan het ingewikkeld zijn om risico te nemen, terwijl zij niet de zeggenschap hebben. Dit is echter juist de kracht van de private partijen; dat is ondernemen. Het is de vraag in hoeverre de ondernemingsruimte weg wordt genomen.

De redelijk strakke regulering met betrekking tot kavels is spannend. Het is de vraag in hoeverre dit ruimte biedt voor koppeling van netwerken. Dit had beter meegenomen kunnen/ moeten worden. Een geografische afbakening is goed, maar de huidige is erg nauw. Deze is erg lokaal gericht. Het regionale aspect had hier meer/ beter bij betrokken kunnen worden. De rol van de transportbeheerder is namelijk nauwelijks toepasbaar buiten Zuid-Holland. Daarnaast kan de transportbeheerder alleen de koppeling maken tussen een bron en een kavel, en niet tussen kavels. Het is dan ook niet te verwachten dat een transportbeheerder deze rol gaat vervullen.

Conclusie

Concluderend, is te lichtvaardig over het proces gedacht. Het proces verliep anders dan een standaard proces. EZK is een beetje overvallen door de gehele situatie. Voorafgaand evenwichting onderzoek naar het vraagstuk rondom realisatiekracht had veel discussie en vertraging kunnen voorkomen. Dit hangt samen met het toekomstperspectief van alle partijen. Verder is het maatschappelijk draagvlak van belang, in samenhang met de betaalbaarheid (en de transparantie van tarieven).

C.7. Interview heat company 1 (EC1)

Date: 06/30/23

Inleidend

In de kamerbrief uit oktober 2022 lag de nadruk op een publieke 50%+1aandeel-verplichting met betrekking tot de infrastructuur. Inmiddels is de UHT-versie van het wetsvoorstel naar ACM en Ministerie van JenV gegaan (per 1 juni), waar in staat dat het integraal verantwoordelijke warmtebedrijf voor minimaal 50% + 1 aandeel in publieke handen moet zijn of de zeggenschap moet bij een publieke entiteit (waaronder een warmtegemeenschap valt) liggen. Bedrijven met publieke zeggenschap en privaat aandeelhouderschap zullen waarschijnlijk niet veel voorkomen, aangezien de meeste private partijen niet bereid zullen zijn veel kapitaal in te brengen terwijl zij (bijna) geen zeggenschap hebben (Zie bijvoorbeeld persbericht van PGM over belang van zeggenschap: <https://www.pggm.nl/blogs/geplande-warmtewet-vertraagt-de-energietransitie/>). Redenatie EZK om dat aan te passen in de UHT-versie: om de integrale verantwoordelijkheid overeind te houden (en het kunnen aanspreken van een warmtebedrijf op onder meer betaalbaarheid, leveringszekerheid en verduurzaming), moet dit gehele bedrijf in publiek-dominante handen zijn.

Procescriteria

In 2017 is het proces voor de nieuwe wet gestart, in 2018 werden onderwerpen rondom de marktordening besproken in klimaatakkoord. De discussie over de marktordening heeft lang geduurd. Minister heeft met de Kamerbrief van oktober 2022 een besluit genomen, waarbij veel partijen inspraak hebben gehad. Het besluit is logisch: na het aantreden van het kabinet in januari 2022 lag dossier 'marktordening warmte' op bureau minister: "Rob, je moet een knoop doorhakken. Daarbij maak je of VNG boos of je eigen ambtenaren en de warmtesector." De oorlog in Oekraïne heeft vermoedelijk gemaakt dat de minister de knoop heeft doorgehakt, zonder het complexiteit van het vraagstuk echt te doorleven en te doorgronden. Alle partijen zijn (vroeg) betrokken geweest bij het besluitvormingsproces, en hebben (in principe) de kans gehad om hun belangen kenbaar te maken. In de kamerbrief van 2019 staat het een en ander beschreven met betrekking tot de inhoudelijke uitgangspunten voor de warmtewet (goede kamerbrief).

Het proces wordt als niet transparant beschouwd in de zin dat het uiteindelijke besluit niet transparant is genomen. Er is door Jetten in de Kamerbrief van oktober 2022 geconstateerd dat er meer draagvlak is voor publieke partijen dan voor private partijen, de warmteinfrastructuur vitaal is en publieke belangen (betaalbaarheid, betrouwbaarheid, duurzaamheid) beter worden geborgd. Argumentatie hier voor ontbreekt in de Kamerbrief. Het is zelfs zo dat er duidelijke inhoudelijke rapportages zijn gemaakt op verzoek van de minister (o.a. door PwC, augustus 2022) waarin juist helder onderbouwd is dat de keuze van de minister voor verplicht publiek eigendom zou leiden tot vertraging van de warmtetransitie.

Rationeel gezien had het besluit sneller genomen kunnen worden. Door politieke verandering en ontwikkeling (val kabinet, verschillende ministers) is dit vertraagd.

Inhoudelijke criteria

De minister heeft een politieke keuze gemaakt, en geen inhoudelijke keuze. De relatie met de VNG heeft hierbij zwaar meegewogen. De VNG heeft uitgesproken dat zij altijd de keuzevrijheid willen bieden aan gemeenten om niet met een private partij in zee te hoeven. In het selectieproces met betrekking tot het integrale warmtebedrijf wilden gemeenten op voorhaand de voorkeur voor een warmtemodel kunnen uitspreken. Dit geeft gemeenten de mogelijkheid om private partijen uit te sluiten. Deze mogelijkheid is verworpen door de landsadvocaat (mei 2021), als in strijd met het EU-recht. Als reactie hier op, heeft Jetten in oktober 2022 besloten om de publieke 50%+1aandeel-verplichting voor infrastructuur in te voeren. Dit (gemeenten/ VNG die er voor zijn gaan liggen) is de kern van discussie. Slechte ervaringen uit het verleden, en de hier op gebaseerde emotie, is hier de achterliggende reden voor. Gegeven de beoogde groei van warmtenetten om de klimaatdoelen te kunnen halen is het verbazingwekkend dat de minister gevoelig is gebleken voor deze argumentatie.

In de wet stonden drie publieke waarden: betaalbaarheid, betrouwbaarheid, duurzaamheid. Maatschappelijk draagvlak kan hier aan worden toegevoegd (zie kamerbrief oktober 2022). Met betrekking tot betaalbaarheid is er geen enkele reden om aan te nemen dat een publiek bedrijf goedkoper kan opereren dan een privaat bedrijf. Dat staat overigens ook in het eerdergenoemde PwC-rapport. Het zou zelfs zo kunnen zijn dat private bedrijven efficiënter zijn. Ook de transparantie van tarieven biedt geen reden voor een publieke voorkeur: publieke en private bedrijven hebben beide te maken met dezelfde eisen vanuit de Wcw en vanuit de toezichthouder ACM. De publieke waarden zijn belangrijk om af te wegen, maar zijn "misbruikt" in de besluitvorming. D.w.z.: de minister beweert in de Kamerbrief zonder enige onderbouwing dat de publieke belangen beter geborgd zouden zijn. Zie ook artikel van Van Doorne (februari 2023). Dit heeft niet heel veel effect op de eigendomsverdeling/ aandeelhouderschap. Verder is het risicoprofiel voor publieke en private partijen redelijk hetzelfde, en heeft dit potentieel weinig invloed op de eigendomsverdeling.

Los van de discussie over de marktordening, is er ook een issue rond kapitaal. Kapitaal is door de renteontwikkelingen duurder geworden. En de toezichthouder ACM is bovendien voornemens om een zeer lage

WACC (Weighted Average Cost of Capital) van ca. 4,3% te gaan vaststellen in september. Bedrijven doen nu (her)financieringen van vreemd vermogen van 5,1%. Dit betekent dat geen enkel bedrijf, noch privaat, noch publiek nog zal kunnen en willen investeren. Publiek kapitaal is momenteel niet sneller, makkelijker of in grotere mate beschikbaar dan privaat kapitaal. Algemeen gezien is het wel een issue, aangezien er veel geïnvesteerd moet worden.

Het huidige besluit leidt er toe dat de transitie wordt vertraagd (aan de eerste voorwaarde uit kamerbrief juli 2022 wordt dus niet voldaan). Daarnaast is er momenteel niet genoeg publieke realisatiekracht (er is dus ook niet aan de tweede voorwaarde uit kamerbrief juli 2022 voldaan). Dit bevestigt dat er een politieke beslissing is genomen, in plaats dat deze is gebaseerd op inhoudelijke argumenten. Het argument dat de infrastructuur vitaal is heeft zwaar gewogen bij het besluit (verhouding wet- en regelgeving andere netwerksectoren). Echter is dit inhoudelijk niet consistent met de kamerbrief van 2019.

Het genomen besluit dient het doel van het borgen van de publieke belangen niet en brengt de klimaatdoelen niet dichterbij (en is niet proportioneel). De proportionaliteit is niet meegenomen bij het besluit.

Wanneer regionaal bronnen toegewezen moeten worden aan verschillende distributienetwerken, kan publiek eigendom voordelen bieden. Sectorkoppeling is heel belangrijk, maar het is de vraag of dit besluit daar voor nodig is. Dit met het advies van de RvS met betrekking tot de Energiewet in het achterhoofd. Binnen de energiewet zijn de electriciteitswet en gaswet bij elkaar gevoegd. Volgens de RvS was het behouden van 2 aparte wetten voor elektriciteit en gas duidelijker geweest.

De minister/ VNG tracht door de verankering van de publieke dominantie de regierol van gemeenten te waarborgen. Veel kapitaal en kennis inbrengen vraagt heel veel, wat veel gemeenten zelf ook toegeven. Zie hiervoor ook het rapport van de rekenkamer over de gemeente Rotterdam.

Tot slot, is er geen bewijs voor meer draagvlak voor publieke partijen dan voor private partijen. Netbeheer Nederland heeft een rapport gepubliceerd (september 2022, analyse van McKinsey, aanvullingen van NBNL zelf), waarin één voorbeeld van een onderzoek naar draagvlak voor publieke partijen beschreven staat (in Hamburg). Wanneer er meer onderzoeken waren geweest, was dit wel aangegeven in dit rapport. Dit overtuigt niet als je beweert dat er meer draagvlak voor publieke partijen is.

Conclusie

Concluderend, is het van (algemeen) belang dat het besluit voor eigendomsverdeling gebaseerd wordt op waarborging van publieke waarden en klimaatdoelen. Met dit besluit wordt aan beide criteria niet voldaan.

C.8. Interview heat company 2 (EC2)

Date: 07/11/23

Inleidend

Het besluit met betrekking tot publiek eigendom is voor het eerst op tafel gekomen in maart 2021. Dit wordt, vanuit de geïnterviewde, beschouwd als het begin van het proces. EZK heeft in maart 2021 een memo gedeeld, waarbij onder bepaalde voorwaarden publiek eigendom van infrastructuur werd voorgesteld. Een ingesteld onderzoek concludeerde dat invoering van dit voorstel tot vertraging van de transitie zou leiden (zie onderzoek PwC; publieke realisatiekracht). Daarnaast werd geconstateerd dat er een tekort aan financiële middelen in de publieke sector is om publiek eigendom te realiseren. In augustus heeft een overleg plaatsgevonden, met het vinden van een 'tussenoplossing' als doel. Minister Jetten gaf aan niet door te gaan met publiek eigendom, maar een oplossing te zoeken die de publieke sturing versterkt door onderscheid te maken tussen juridisch en economisch eigendom. Publieke partijen zijn hierbij juridisch eigenaar, private partijen economisch. In deze oplossing konden sommige betrokken stakeholders (VNG en Netbeheerder Nederland) zich niet vinden, waardoor alsnog gekozen is voor verplicht publiek eigendom van de infrastructuur. Hier is de kamerbrief in oktober 2021 uit voort gekomen. Dit is een bijzonder proces geweest.

Procescriteria

Alle relevante partijen zijn bij het proces betrokken geweest. Daarnaast zijn er wel inhoudelijke keuzes gemaakt voorafgaand aan het besluitvormingsproces, met betrekking tot publieke sturing. Publiek eigendom is een middel voor de publieke sturing. Er is veel discussie (geweest) over de manier van waarborging van deze publieke sturing in de Wcw. De manier van meewegen van deze publieke sturing is een inhoudelijke keuze, die invloed heeft gehad op het besluit. Het proces wordt als intransparant beschouwd vanuit de kant van EZK. EZK gaf vaak geen antwoord op inhoudelijke vragen. Verder gaf EZK weinig doorkijk in het besluitvormingsproces, met betrekking tot de mijlpalen, verwachtingen, posities van stakeholders (gekoppeld aan investeringsbereidheid/ investeringszekerheid) en de uiteindelijke inhoudelijke keuze(s). Ook werden agenda's voor de bestuurlijke overleggen redelijk kort vantevoren gedeeld. Alle partijen hebben de kans gekregen om hun belangen te presenteren. Echter zijn inhoudelijke punten vanuit de leverancierskant onvoldoende meegenomen. Voornamelijk perspectieven van VNG en Netbeheer Nederland werden meegenomen, met de achtergrond van de regierol van gemeenten. VNG, IPO, Netbeheer Nederland, Energie-Nederland zijn betrokken geweest bij het (eerste) bestuurlijk overleg.

De begrippen infrastructuur en integraliteit zijn redelijk vaag gedefinieerd vanaf het begin. Daarnaast zijn deze begrippen later gekoppeld, en praten we nu over eigendom van een integraal bedrijf in plaats van de infrastructuur. Jetten heeft uiteindelijk een besluit genomen, waarbij niet aan de twee eerder genoemde voorwaarden (geen vertraging van de transitie en publieke realisatiekracht) voldaan kan worden. Hier is fundamenteel een verkeerde keuze in gemaakt. Dit besluit had uitgesteld moeten worden, om de tijd te nemen voor beter en uitgebreider onderzoek.

Inhoudelijke criteria

De Wcw stoelt op de publieke waarden. Echter is er geen botsproef geweest om de waarborging van deze publieke waarden bij publiek eigendom te onderzoeken. Daarnaast moet/ kan het hoofdstuk van de Wcw met betrekking tot de tariefregulering de betaalbaarheid borgen, ongeacht de eigendomsverdeling. De realisatiekracht moet invloed hebben op het besluit, met de doelstelling in het achterhoofd (1 miljoen aansluitingen in 2030). Warmtekennis ligt vooral bij warmteleveranciers, en is lastig om opnieuw 'toe te wijzen' (naar de publieke sector). Gemeenten zijn daarnaast vrij onderbezet in het personeelschap, wat invloed heeft op de toekomstige capaciteit voor governance. Verwacht wordt dat onderzoek naar de gehele realisatiekracht (in plaats van alleen de publieke realisatiekracht) het besluit en het proces ten goede was gekomen.

De warmte-infrastructuur is heel anders dan de gas- en electra-infrastructuur. Warmte is lokaal en complexer op het gebied van invoeding. Warmte is vitaal, maar niet landelijk dekkend. Vitaal kan een argument zijn voor publiek eigendom van de infrastructuur, echter alleen wanneer netbeheer en levering worden losgekoppeld.

Verder is het de vraag of/ in hoeverre publiek eigendom van de infrastructuur een proportionele inbreuk is op het vrij verkeer van kapitaal/ vestiging op Europees niveau. Dit staat los van de inbreuk op onteigening, die ook onderzocht is en aangehaald wordt door Jetten in de laatste kamerbrief (07/23). Concurrentie en marktwerking is niet meer aanwezig nu het integraal verantwoordelijke warmtebedrijf in publiek meerderheidsaandeel is.

Het besluit breekt in op een goed werkende markt. Door meer sturing te geven op de publieke waarden kan de markt beter werken. Publiek eigendom is echter niet het juiste middel, wat het besluit disproportioneel maakt. Het besluit is politiek, in de zin dat de minister een bepaalde kant op wilde, gedragen door gemeenten.

Het risicomanagement (kunnen risico onder bepaalde eigendomsmodellen beter gedragen/ verdeeld worden?) heeft weinig invloed gehad op het besluit voor eigendomsverdeling.

Het is van belang om warmtekavels te koppelen waar mogelijk. Hier is rekening mee gehouden bij het besluit. Echter is de Wcw niet voorbereid op innovatieve warmtesystemen, waarbij EV, PV en batterijen in het systeem worden meegenomen. "Oude" netten worden gereguleerd door de Wcw, maar aandacht voor sectorkoppeling

ontbreekt. In hoeverre koppeling van verschillende netwerken makkelijker is in publiek of privaat eigendom, durft de geïnterviewde niet te zeggen.

De mate van politieke invloed op toekomstige warmtebedrijven is niet besproken tijdens het proces. Deze invloed kan een risico zijn, aangezien een prikkel voor aanleg/ uitbreiding van een netwerk bij de wethouder kan vervagen wanneer netten duurder/ te duur worden.

Maatschappelijk draagvlak is een van de kernwaardes geweest voor het besluit. Draagvlak (van de consument) wordt (voornamelijk) beïnvloed door leveringszekerheid en betaalbaarheid. Echter is niet aangetoond dat publieke partijen per definitie een lagere prijs voor betrouwbare warmte kunnen garanderen.

Conclusie

Het besluit voor eigendomsverdeling voor de infrastructuur moet allereerst voldoen aan wet- en regelgeving. Betaalbaarheid staat daarna voorop (vóór betrouwbaarheid en duurzaamheid, welke echter ook belangrijk zijn), in combinatie met de realisatiekracht. De huidige markt(werking) moet worden onderzocht, waarbij marktfalen wordt aangepakt. De huidige tariefsystematiek moet transparanter, maar dit moet niet de prikkel tot investeren wegnemen.

C.9. Interview heat company 3 (EC3)

Date: 07/19/23

Inleidend

Het onderwerp marktordening speelt al vrij lang in de warmtesector (ongeveer sinds 2016). In 2019 is het Klimaatkoord gesloten, waar in ook gesproken is over waarborging van deze marktordening. Een apart traject bleek noodzakelijk, na analyse van de toenmalige minister. Dit wordt beschouwd als de start van het proces.

Dit dossier is geen standaard dossier. De minister is gedurende het traject qua inhoudelijke koers 180 graden gedraaid, en heeft hierbij niet aan zijn eigen gestelde voorwaarden voldaan (geen vertraging transitie en voldoende publieke realisatiekracht). Uiteindelijk is om politieke redenen (politiek draagvlak bij gemeenten, provincies en sommige politieke partijen) toch gekozen voor verplicht publiek eigendom. Politiek draagvlak is belangrijk voor de minister, maar hij moet niet blind zijn voor de inhoud. De huidige argumentatie is erg mager.

Procescriteria

VNG, IPO, Netbeheer Nederland en Energie-Nederland zijn nauw betrokken geweest bij de besluitvorming. Daarentegen hebben bijvoorbeeld vertegenwoordigers van consumenten niet aan tafel gezeten. Het is de vraag in hoeverre dit erg is, ook aangezien gemeenten hun bewoners (consumenten) vertegenwoordigen. Alle (relevante) partijen hebben toegang gehad tot het proces, en hebben hun belangen kunnen presenteren. Echter bestaat het gevoel dat sommige partijen (VNG en IPO) meer invloed hebben kunnen uitoefenen dan anderen.

Er zijn geen inhoudelijke keuzes gemaakt voorafgaand aan het besluitvormingsproces. Het besluit omtrent integrale verantwoordelijkheid is gedurende het proces genomen. Warmtebedrijven hebben benadrukt dat de warmteketen anders werkt (in vergelijking met elektriciteit en gas). De discussie met betrekking tot integraliteit en eigendom (van de infrastructuur) zijn twee verschillende discussies. Het debat rondom eigendomsverdeling van de infra is pas met een Kamerbrief in oktober 2022 openbaar geworden. Dit heeft zich bij EZK doorgeëvalueerd naar eigendomsverdeling van een integraal warmtebedrijf.

De laatste maanden heeft snelheid de boventoon gevoerd, en zijn er steken gevallen op zorgvuldigheid. Dat is zorgelijk. Wanneer meer tijd nodig is om de Wcw te maken, moet deze tijd genomen worden.

Inhoudelijke criteria

Efficiënte waarborging van publieke waarden (het maatschappelijk belang) staat voorop. Je moet dus sturen op publieke belangen als betaalbaarheid, betrouwbaarheid en duurzaamheid. De mogelijke modellen voor marktordening moeten getoetst worden aan deze publieke belangen. Publiek eigendom is hier een middel. Het middel (publiek eigendom) is nu echter het doel geworden. De publieke belangen kunnen prima gewaarborgd worden door middel van regulering en toezicht, wat het besluit proportioneler maakt. De regierol van gemeenten kan ook wettelijk verankerd worden. Door de kavelsystematiek krijgen gemeenten al een veel grotere (regie)rol. Publiek eigendom is geen vereiste voor het kunnen hebben van een regierol.

Een warmtebedrijf moet niet een speelbal worden van de lokale politiek. Wanneer de politiek (burger) om lagere tarieven vraagt, kan dit negatief uitwerken (in financiële zin) op de bestaanszekerheid van het warmtebedrijf. Zie hiervoor ervaringen met het AEB Amsterdam, welke op omvallen stond, onder andere als gevolg van politieke keuzes en verkeerd management. Hetzelfde geldt voor het warmtebedrijf Rotterdam (WBR). SVP illustreert een recenter voorbeeld. Problemen met de (biomassa)bron resulteerden in financiële onzekerheid. Uiteindelijk is besloten om de tarieven in stand te houden en eventuele verliezen voor het warmtebedrijf te accepteren, waardoor de kosten worden gedragen door de gemeente als aandeelhouder. Deze verliezen worden gesocialiseerd onder alle bewoners in plaats van enkel de op warmte aangesloten bewoners. Deze voorbeelden tonen aan dat bedrijven niet te veel onder politieke invloed moeten staan, aangezien dit financiële risico's met zich meebrengt. Deze politieke invloed wordt/ is onderschat.

Maatschappelijk draagvlak is belangrijk, maar ook een lastig thema. Het 'angstige' gevoel voor een private monopolist is begrijpelijk. Helaas leven we in een tijd waar veel wantrouwen is richting private partijen en marktwerking. Echter moet ook het eerlijke verhaal worden verteld; het is niet (per definitie) zo dat een publieke monopolist een beter/ betaalbaarder alternatief biedt. Momenteel concureren publieke en private partijen met elkaar onder een gelijk speelveld. Warmte wordt niet goedkoper, duurzamer en betrouwbaarder wanneer dit in publiek eigendom komt.

Het oorspronkelijke doel van de wet was om de groei en verduurzaming van warmtenetten te versnellen. Het is de vraag in hoeverre verplicht publiek eigendom bijdraagt aan deze versnelling. Sterker nog, er is een groot risico op vertraging. Daarnaast is het oorspronkelijke probleem onduidelijk gedefinieerd. Aan het begin van het besluitvormingsproces, bestond er een groot financieel gat tussen warmte en gas. Inmiddels is er wel naar dit probleem gekeken, en zijn er oplossingen gekomen. Publiek eigendom draagt niet bij aan het oplossen van dit probleem.

Op dit moment is ongeveer 90% van de markt in private handen. Op het moment dat de sector enorm moet groeien en investeren, wordt nu 90% van het kapitaal uitgesloten. Partijen moeten niet uitgesloten worden, samen-

werking staat voorop. De sector moet ongeveer vervijfvoudigen richting 2050. De publieke realisatiekracht is pas onderzocht toen het besluit al genomen was.

Energievoorziening is een eerste levensbehoefte. Regulering is een passend middel om het doel te bereiken. Publiek eigendom is niet nodig. Verplicht publiek eigendom is dan ook niet proportioneel ten opzichte van het doel. Er zijn andere middelen die minder ingrijpend zijn. Daarnaast is vergelijking met andere sectoren niet altijd passend. Dit moet per sector bekeken worden. Warmte is heel anders in dit perspectief. Verder moet nog blijken of verplicht publiek eigendom alle wettelijke toetsen doorstaat. Het is de vraag in hoeverre de inbreuk op onteigening gerechtvaardigd is (zie EVRM). Daarnaast heeft Nederland momenteel al een relatief sterke/ strakke regulering ten opzichte van andere (Europese) landen. Dit moet niet doorslaan. Er moet genoeg ruimte blijven voor partijen om te kunnen opereren en ondernemen.

Concurrentie om de markt wordt als meest geschikte oplossing gezien, waar private en publieke partijen met elkaar concurreren. Verplicht publiek eigendom schakelt concurrentie uit. 'Cherry picking' moet voorkomen worden door het slim afbakenen van de kavels (het combineren van rendabele en minder rendabele gebieden).

Risico's in de markt zijn voor publieke en private partijen hetzelfde. De rendementseis zou een afspiegeling moeten zijn van de risico's in de markt. Wanneer een publieke aandeelhouder een lagere rendementseis bepaalt, is deze partij eigenlijk aan het subsidiëren (wat marktverstoring is).

Conclusie

Sturing op publieke belangen staat voorop, en moet doorslaggevend zijn bij de keuze. Wanneer dan voor verplicht publiek eigendom gekozen wordt, moet dit alternatief ook op orde zijn. Momenteel wordt dit pas uitgezocht nadat de keuze al is gemaakt. Het politiek draagvlak is doorslaggevend geweest bij de keuze, met te weinig aandacht voor de inhoud/ratio. De transitie wordt vertraagd, waardoor de klimaatdoelen in gevaar komen.

C.10. Interview distribution operator 1 (DO1)

Date: 06/15/2023

Inleidend

Wanneer een publieke route bekend wordt gemaakt, zijn netbeheerders een goede partij om daar in te stappen, maar niet exclusief. Netbeheerders zijn een natuurlijke partner van veel partijen in de sector. Dit is vanuit onze organisatie het vertrekpunt geweest met betrekking tot het besluitvormingsproces voor de nieuwe eigendomsverdeling van warmtenetten.

Netbeheerders mogen/ kunnen momenteel geen juridische entiteit vormen met bedrijven die iets met elektriciteits- of gasproductie te maken hebben. Bijna alle warmte wordt nu opgewekt met behulp van gecombineerde opwekstations, waardoor netbeheerders hier geen afspraken mee kunnen maken. Een andere indirect publieke partij mag wel afspraken maken met deze bedrijven. Wanneer netwerkbedrijven een rol moeten gaan spelen is verandering van (deze) wettelijke kaders een vereiste. Niet alleen met betrekking tot bovenstaande, maar ook gerelateerd aan wet- en regelgeving omtrent leveringsactiviteiten.

Criteria

Over het algemeen wordt het overzicht als compleet beschouwd.

Het efficiënt waarborgen van publieke waarden wordt als hoofddoel beschouwd. De hele discussie rondom de WCW is gericht op de publieke waarden. Er is momenteel weinig grip op de markt. Partijen hebben op het moment absolute macht en de prijs is alleen gekoppeld aan de gasprijs. Dit raakt de publieke waarden betaalbaarheid en duurzaamheid op de lange termijn. Met de groeiambitie in het achterhoofd neemt het belang van de publieke waarden toe met betrekking tot betrouwbaarheid en transparantie binnen de tarieven. Warmte wordt een groot onderdeel van het gehele integrale systeem (raakt sectorkoppeling; wordt als belangrijk geacht). Betrouwbaarheid heeft betrekking op leveringszekerheid: de kwaliteit en continuïteit moet geborgd zijn, en wie is er verantwoordelijk als er iets fout gaat. De publieke waarde betaalbaarheid heeft hier vooral betrekking op de consument, en verhoudt zich tot transparantie van tarieven. Duurzaamheid heeft zowel betrekking op de bron als de tijdsdoelen die gesteld worden (stip aan horizon is belangrijk).

Realisatiekracht wordt van minder groot belang geacht tijdens het besluitvormingsproces. Wie het ook doet, er is tekort aan geld (onrendabele top blijft bestaan) en arbeidskrachten. Er moet worden geïnvesteerd in publieke realisatiekracht, op het gebied van wetgeving en uitvoering. In het begin vraagt dit om extra effort, om daarna te kunnen versnellen. Publieke partijen zien nog potentie om te investeren in deze projecten. Met betrekking tot samenwerking is het zo dat alle partijen nodig zijn om de doelen te bewerkstelligen. De publieke sector kan het niet alleen.

Met betrekking tot de verhouding met andere wet- en regelgeving moeten we onszelf niet afhankelijk opstellen van die wetten (behalve dan Europese wet- en regelgeving), aangezien wetten veranderd kunnen worden. Verder is aandacht voor vergelijking met andere sectoren belangrijk, maar is het wel nog steeds afhankelijk van de context. Een warmteketen is anders dan een elektriciteits- of gasketen. Uiteindelijk is eerlijkheid ten opzichte van andere sectoren ook een uitgangspunt. Wanneer de verschillen in eigendomsverdeling tussen sectoren groot zijn, moet dit wel onderbouwd kunnen worden.

Het risico profiel wordt aan de voorkant op verschillende manieren geborgd, door hier in wet- en regelgeving afspraken over te maken. Verder kan beargumenteerd worden dat de regierol van gemeenten minder risico met zich meebrengt.

Met betrekking tot politieke druk moeten er voorafgaand goede afspraken worden gemaakt. Aan de voorkant (omtrekt kavelverdeling; wie wordt de integraal verantwoordelijke partij) kan het proces namelijk politiek worden. Met betrekking tot het 'runnen' van de business is de invloed vanuit de politiek vrij klein. Netbeheerders worden momenteel ook niet beïnvloed door de politiek. Onze investeringsbeslissingen staan niet onder politieke invloed.

Maatschappelijk draagvlak speelt een rol en raakt de publieke waarden, en is vooral gerelateerd aan de consument. Wanneer efficiënte waarborging van publieke waarden wordt nagestreeft, is er automatisch meer maatschappelijk draagvlak. Publieke sturing aan de voorkant is waarschijnlijk belangrijker, om maatschappelijk draagvlak te creëren, dan de precieze constructie (publiek, privaat of publiek-private samenwerking) van het warmtenet.

Conclusie

Alle inhoudelijke criteria zijn allemaal aan de orde gekomen. De procescriteria zijn goed gewaardborgd. Er was een open houding, grote betrokkenheid. De publieke waarden worden als uitgangspunt gezien voor een nieuwe eigendomsverdeling, de rest is een afgeleide daarvan. Aangezien op deze manier op maatschappelijk niveau wordt nagedacht, kan ook aandacht worden besteed aan de waarborging van sectorkoppeling.

C.11. Interview distribution operator 2/ heat infrastructure company (DO2/HIC1)

Date: 06/15/23

Inleidend

De betreffende organisatie valt onder een ander toezichtsregime dan de reguliere elektriciteits- en gasnetbeheerders. In deze zin verschilt de organisatie van de reguliere netbeheerders. Deze organisatie wordt niet gereguleerd. De geïnterviewde heeft zelf niet aan tafel gezeten met de minister, waardoor het lastig is om iets te zeggen over de gebruikte criteria. Hierdoor wordt er vooral ingezoomd op de uitputtendheid van het overzicht, de waardering, de interpretatie en de redenering hier achter.

Procescriteria

Met betrekking tot de procescriteria wordt vroege deelname/ betrokkenheid van alle relevante partijen als ommissie beschouwd. Netwerkbedrijven zijn (te) laat betrokken bij het besluitvormingsproces. Gemeenten wellicht ook, maar hier niet zeker van. In het begin bepaalde Energie-Nederland met EZK de dienst. Hier vloeiende de WCW internetconsultatie uit voort. Netbeheer Nederland en gemeenten schrokken van dit voorstel, aangezien hun mening/ belangen hier niet in meegenomen zijn. Daarna heeft de minister een ander besluit genomen/ moeten nemen, gerelateerd aan het maatschappelijk draagvlak. Hierbij betreft het vooral het maatschappelijk draagvlak onder gemeenten. Gemeenten hebben van het rijk de regie gekregen over de warmtetransitie. Gemeenten wil dat de WCW hun de ruimte geeft om de warmtetransitie in hun gemeenten vorm te geven zoals zij denken dat het nodig is. Wanneer alle relevante partijen vanaf het begin betrokken waren, was het besluit waarschijnlijk sneller genomen (relateerd aan de voortgang).

Inhoudelijke criteria

Onder veiligheid (efficiënte waarborging publieke waarden) is cyber security ook erg belangrijk. Dit kan een grote rol spelen bij de eigendomsverdeling, aangezien publieke regie/ controle hierbij van belang kan worden geacht. Warmte is een vitale infrastructuur, wat het maatschappelijk verkeer kan platliggen. Hierdoor is regie/ grip vanuit de overheid van belang. Dit criterium wordt alleen minder uitgesproken dan de andere publieke waarden. Het wil niet zeggen dat de overheid het per definitie beter doet dan private partijen, maar publieke grip is van belang.

Duurzaamheid wordt gewaardeerd in de wet, en wordt niet als een sterk argument beschouwd voor eigendomsverdeling. Toekomstige warmtebedrijven moeten aan bepaalde duurzaamheidscriteria voldoen.

Met betrekking tot betaalbaarheid wordt de transparantie van tarieven voor consumenten daarvan als relevant criterium gezien. Bij privaat eigendom is dit moeilijk(er) te controleren. Bij publiek eigendom is dit transparanter. Hierbij is ook weer publieke grip/ regie op de transparantie van belang. Dit geldt ook voor toekomstige winsten; wat gebeurt daar mee, hoe worden hier afspraken over gemaakt, en hoe krijgen we hier grip op?

De realisatiekracht betreft een balans tussen kapitaal en arbeidskrachten. De bottlenecks van de realisatiekracht zit in de 'handjes' (zie ook onderzoek McKinsey). De private en publieke partijen maken gebruik van dezelfde aannemers in de sector. In deze zin is het bijzonder dat alleen de publieke realisatiekracht is onderzocht en de private realisatiekracht niet. Hierdoor is de afweging maken lastig. Technologische kennis is kennis op een hoger niveau, en heeft meer betrekking op het aansturen van aannemers. Verder heeft McKinsey uitgerekend dat er in 2030 3 tot 5 miljard aan publiek kapitaal moet worden ingebracht om de doelstellingen te halen. Relatief gezien (23 miljard gereserveerd voor de prijsplafonds afgelopen jaar) moet die realistisch zijn. Verder is het belangrijk dat de WCW in verhouding is met de Energiewet (verhouding met andere wet- en regelgeving). Daarnaast is de paragraaf over de warmtecoöperaties afgeleid uit een EU-directive, wat regereelateerd is aan maatschappelijk draagvlak van de burger. Wanneer zij kunnen meedelen in de winst gaat het draagvlak de goede kant op. Ook heeft de EU-wetgeving omtrent aanbesteding invloed gehad op de WCW; wanneer netwerk- en leveringsactiviteiten losgekoppeld zijn, mag een publiek warmtebedrijf niet zomaar een privaat leveringsbedrijf aanwijzen als volledig verantwoordelijke voor levering (inbesteden mag niet). Oplossing vanuit Jetten: activiteiten koppelen en minimaal 51%. In deze zin is dit criterium wel bepalend geweest voor de eigendomsverdeling.

Sectorkoppeling is erg belangrijk, aangezien netten efficiënt op elkaar afgestemd dienen te worden. Op deze manier zorgt dit hopelijk voor de laagste mogelijke maatschappelijke kosten.

Politieke druk/ invloed is een thema om rekening mee te houden. Publieke warmtebedrijven worden beïnvloed door de politiek met betrekking tot uitbreiding van netten, transparantie van tarieven, onrendabele toppen. Dit is gerelateerd aan het maatschappelijk draagvlak bij gemeenten.

Het grootste risico als integraal warmtebedrijf is het wegvallen van de primaire bron (het exploitatierisico). Deze risico's moeten gemitigeerd worden. Dit criterium is relatief minder belangrijk dan de rest.

Verder moeten alle stakeholders perspectief worden geboden, aangezien er geen (private) partijen uit de markt worden gedrukt.

Conclusie

Concluderend, een illustratieve rangorde:

1. Politieke invloed in combinatie met maatschappelijk draagvlak, met een focus op publieke regie/ grip bij gemeenten
2. Efficiënt waarborging publieke waarden, met een focus op betrouwbaarheid (leveringszekerheid), betaalbaarheid voor de consument (en de transparantie van tarieven) en cyber security met betrekking tot veiligheid
3. Verhouding met wet- en regelgeving
4. Netwerk- en sectorkoppeling
5. Risicoprofiel en perspectief stakeholders

C.12. Interview transmission operator 1 (TO1)

Datum: 06/26/23

Inleidend

De organisatie staat, vanwege de rol als transportbeheerder, net iets verder af van het debat rondom de eigendomsverdeling van warmtenetten op distributieniveau. De rol van de organisatie is om duidelijk non-discriminatoire te zijn. Uiteindelijk raakt het besluit omtrent eigendomsverdeling wel de klanten, dus is de uitkomst wel interessant. Het is lastig voor de organisatie om een waardering aan de criteria te hechten, vanwege de (lage mate van) betrokkenheid bij het proces.

Procescriteria

De organisatie is bijna niet betrokken geweest bij het besluitvormingsproces. Dit is, naar eigen mening, de juiste mate van betrokkenheid. Uiteindelijk maakt het niet extreem veel uit wie de eigenaar van het netwerk is. Daarentegen is de organisatie wel gebaat bij duidelijkheid, aangezien dit invloed heeft op de investeringsbeslissingen van klanten. De voortgang van het proces heeft niet geholpen bij bijvoorbeeld het sluiten van contracten en het uitgeven van kavels.

Inhoudelijke criteria

De publieke waarden worden niet van extreem groot belang geacht voor het besluit. De onderliggende argumentatie van het besluit heeft betrekking op warmte als vitale infrastructuur. Warmte moet een basisrecht zijn (volgens de minister). Het besluit is in deze zin politiek gekleurd.

De organisatie had met beide varianten (publiek of privaat) kunnen leven. Er wordt non-discriminatoire gehandeld richting klanten. In deze zin maakt het niet veel uit wie dit zijn.

Onafhankelijk van het eigendomsmodel ligt de bottleneck bij de aannemers (aanleg van warmtenetwerken). De private al dan publieke realisatiekracht is daardoor minder belangrijk om rekening mee te houden bij het besluit. Nederland is uniek met betrekking tot het scheiden van de transport en distributie. In Nederland hebben we goede ervaring met dit model in de electriciteits- en gassector. Verder leent Nederland zich op sommige plekken goed voor het aanleggen van een transportnetwerk: grote bron en grote steden dicht bij elkaar. Dit maakt de business case sluitend.

Uiteindelijk kan het private systeem (in theorie) ook ingericht en gereguleerd worden, zo dat er publieke uitkomsten zijn. De ACM is verantwoordelijk voor de regulering. Het is niet de verwachting dat de mate van externe governance (regulering door ACM) een significante rol heeft gespeeld bij de besluitvorming voor eigendomsverdeling. In beide gevallen is significante regulering vanuit het ACM vereist.

C.13. Interview producer 1 (Prod1)

Date: 06/20/23

Inleidend

Alle modellen wijzen aan dat het gebruik van restwarmte de meest efficiënte bron is voor warmtenetten. Het is alleen de vraag hoe dit te organiseren.

Procescriteria

Het is toevallig dat de organisatie met de overheid in gesprek raakte met betrekking tot het gebruik van restwarmte. Dit initiatief is vanuit ons genomen. Hier is weinig ruimte geboden voor overleg vanuit (restwarmte)producenten. Dit is een gemiste kans. In deze zin is het niet geheel transparant geweest en zijn niet alle relevante partijen vanaf het begin betrokken om hun belangen af te wegen. Wanneer dit wel zo was geweest, had dit de voortgang positief beïnvloed. Verder hadden de posities van partijen anders kunnen zijn. In het buitenland wordt gebruik gemaakt van een uitkoppelingspropositie (genoemd in het ETS) van de producenten naar leveranciers. Hier wordt in Nederland geen gebruik van gemaakt. In deze zin creëer je een prikkel voor bedrijven om mee aan de gang te gaan. Verder had de minister eerder een knoop moeten doorhakken (command & control). Ieder jaar dat je wacht, wordt de restwarmte steeds geloosd. Dit is een gemiste kans. Verder was een kapitaalsintensievere investering mogelijk een aantal jaar geleden. Kapitaal is duurder geworden, ook een gemiste kans.

Inhoudelijke criteria

Met betrekking tot het risicoprofiel ontbreekt het acceptabele restrisico; welke risico moeten afgedekt worden en welke risico's worden geaccepteerd? Dit risicoprofiel heeft echter niet enorm veel invloed op de gewenste vorm van eigendomsverdeling. Het is hierbij wel zo dat de overheid meer risico's kan dragen dan private partijen. In deze zin kan het verstandig zijn om het net in publieke handen te brengen.

Met betrekking tot verhouding met andere wet- en regelgeving is de regelgeving omtrent het ETS systeem niet meegenomen. Hier wordt wel groot belang aan gehecht. Wanneer dit was meegenomen, had restwarmte efficiënter benut kunnen worden.

Er moet meer aandacht worden besteed aan de technische condities waar in de warmte wordt aangeleverd, ook met betrekking tot het risico. Wat gebeurt er als de temperatuur bijvoorbeeld van 60 naar 70 graden zakt? Is dat erg? Hier wordt nu heel zwart-wit naar gekeken; het voldoet of het voldoet niet. Deze technische condities kunnen invloed hebben op de eigendomsverdeling gerelateerd aan de locatie van buffers. Hoe groot is de overdimensionering om aan de piekvragen te kunnen voldoen?

Verder is het gedrag van mensen afhankelijk van de prijs die zij betalen voor warmte. Het ligt er aan waar het vandaag komt of je wilt dat consumenten hun gedrag aanpassen. Restwarmte moet altijd gebruikt worden.

Onder dit technisch criterium vallen de commerciële afspraken tussen partijen, de rechten en plichten, het gedrag dat daar uit voortvloeit en de wettelijke kaders die dit beschrijven. Het kan dus zijn dat de kaders die de consument proberen te beschermen het juist duurder maken voor de consument. De consument krijgt de vraag niet om een bepaald risicoprofiel te accepteren. Er is momenteel de neiging om de wettelijke kaders te veel dicht te timmeren. De samenleving is (te) risicoavers. Het besluit dat er nu ligt is vrij risicoavers. Dit had anders gekund, waardoor er meer gebruikt kan worden gemaakt van de technische mogelijkheden die de toekomst biedt. Dit had de transitie kunnen versnellen.

Op Europees vlak bestaat het 'just transition fund'; er zijn gebieden in Europa aangewezen die bovenmatig geraakt zullen worden door decarbonisatie van de samenleving. Innovatie, werkgelegenheid en infrastructuur zijn hier de centrale thema's. De infrastructuur mag ondersteund worden vanuit dit fund, mits de warmte groen is. Wordt restwarmte als groen beschouwd? Dit is gerelateerd aan het begrip duurzaamheid.

Een warmtenet kan helpen als collectief systeem waarbij bewoners ontzorgd worden, waardoor er minder focus/ verantwoordelijkheid ligt op/ bij de bewoner (individuele oplossingen). Een systeem met een publieke net-beheerder, waar private partijen op kunnen leveren geniet de voorkeur. Dit met de betrouwbaarheid / robuustheid van het systeem in het achterhoofd. Een netwerk is er altijd bij gebaat op zo veel mogelijk producenten en afnemers te hebben. Een private partij hoeft geen toegang tot het net te verlenen. Wanneer dit publiek is, kunnen er waarschijnlijk meerdere producenten (van restwarmte) leveren aan het net.

De realisatiekracht is van groot belang bij de eigendomsverdeling. Er wordt momenteel ingezet op het mobiliseren en informeren van de afnemers. Dit heeft geleid tot warmtevernijingen. Bedrijven willen graag meedoen, maar hebben wel duidelijkheid nodig om te beginnen. Ook met betrekking tot bepaalde begrippen zoals een ophaalrecht (het recht om de restwarmte te ontkoppelen).

C.14. Interview producer 2 (Prod2)

Date: 06/12/23

Overzicht

Rangorde	Thema	Focus	Objective/ constraint	Gebruikt/ niet gebruikt
1	Efficiente waarborging publieke waarden	Consument maatschappij	Objective	-
2	Maatschappelijk draagvlak		Constraint	-
3	Toekomstperspectief stakeholders	Samengang met strategisch doel	Constraint	-
	Verhouding met andere wet- en regelgeving	Samenhang met strategisch doel	Objective	-
4	Netwerk- en sectorkoppeling	Sectorkoppeling (o.a. electriciteit)	Constraint	-
5	Risicoprofiel		Constraint	-
6	Realisatiekracht	Pas na besluitvormingsproces	Constraint	-
7	Politieke druk		Constraint	-
-	Procescriteria		Constraint	Gebruikt

Uitputtendheid overzicht

Het overzicht ziet er redelijk compleet uit, op het eerste oog missen er geen relevante thema's. De verhouding tussen het strategische doel (de lange termijn visie) en wet- en regelgeving (in dit geval de eigendomsverdeling) is wel een aandachtspunt wat vaak niet naar voren komt in de maatschappelijke discussie (nieuw thema). In de opgestelde lange termijn visie voor het Nederlandse Energiesysteem in haar geheel (zie Energiesysteem 2050) staat bijvoorbeeld dat er in de toekomst meer focus komt te liggen op lage temperatuur warmte- en koude netten. Daarnaast wordt een koppeling tussen de warmte- en elektriciteitsnetten benadrukt (sluit aan op sectorkoppeling). Verder betreft hangt de strategische visie op de lange termijn ook samen met de financiering (landelijk, regionaal, per warmtekavel of per project, en de mate van kostensocialisatie) en marktmodel (inrichting warmteketen, en uitwisselbaarheid/ verhandelbaarheid thermische en elektrische energie).

Waardering thema's

Efficiente waarborging van publieke waarden wordt als meest van belang geacht, met een focus op de consument en maatschappij. Dit zijn de twee hoofdthema's die een rol moeten spelen bij een nieuwe eigendomsverdeling.

De procescriteria zijn moeilijk te vergelijken met de inhoudelijke criteria, en worden allemaal van even groot belang geacht.

Maatschappelijk draagvlak is naast efficiënte waarborging van publieke waarden ook erg van belang. Zonder maatschappelijk draagvlak is een succesvolle uitkomst niet realiseerbaar.

Verhouding met andere wet- en regelgeving en toekomstperspectief stakeholders worden als even belangrijk geacht. Dit hangt een beetje samen met de eerder genoemde strategische doelen: hoe hangt dit strategische doel samen met de wet- en regelgeving en hoe worden alle stakeholders meegenomen?

Realisatiekracht wordt als relatief onbelangrijk beschouwd, aangezien dit pas na het besluitvormingsproces van belang is, en omdat het creëren van realisatiekracht in het besluitvormingsproces meegenomen kan worden. Tijdens het besluitvormingsproces wordt onderzocht wat de beste vorm van eigendomsverdeling is op basis van/ in samenhang met de strategische doelen. Daarna wordt de balans tussen kapitaal, kennis, governance en samenwerking gecreëerd.

Politieke druk wordt als minst belangrijk beschreven, aangezien uit ervaring de politiek weinig invloed heeft op beslissingen die worden genomen binnen publieke netbedrijven.

'Objectives' (te optimaliseren) en 'constraints' (minimale ondergrens)

De procescriteria moeten een bepaalde ondergrens halen (constraints). De publieke waarden moeten geoptimaliseerd worden. Het maatschappelijk draagvlak moet een bepaalde ondergrens halen. Dit kan onmogelijk geoptimaliseerd worden naar een bepaald percentage, aangezien het niet objectief meetbaar is, er zo veel partijen betrokken zijn, en aangezien maatschappelijk draagvlak van zo veel onvoorspelbare factoren afhankelijk is. Verhouding met andere wet- en regelgeving moet geoptimaliseerd worden. Dit is makkelijker stuurbaar.

Politieke druk, risicoprofiel en toekomstperspectief stakeholders moeten een bepaalde ondergrens halen, dus kunnen als constraints beschouwd worden.

Realisatiekracht moet achteraf optimaal georganiseerd worden, maar kan tijdens de besluitvorming als constraint worden beschouwd.

De verhouding met strategische visie op de lange termijn is een criterium waarvoor een bepaalde ondergrens gehaald dient te worden, met als algemene ondergrens: "er mogen geen blokkades opgeworpen worden die de strategische visie belemmeren". Optimalisatie naar een bepaald doel is niet zinvol, aangezien de strategische visie ongetwijfeld nog vaak bijgesteld gaat worden.

Evaluatie besluitvormingsproces 51%-verplichting

De betreffende organisatie zou vanwege de (lage temperatuur) bronnen die zij beheert een redelijk goede positie moeten hebben binnen het besluitvormingsproces. Vanuit deze achtergrond heeft de organisatie geprobeerd mee te praten over de nieuwe warmtewet, aangezien deze onvoldoende uit de verf komt in de nieuwe warmtewet. Met betrekking tot de eigendomsverdeling wordt de organisatie niet gezien als zelfstandige partij, waardoor de organisatie niet betrokken is bij dit proces. De nieuwe warmtewet is erg toegeschreven op hoge temperatuur warmnetten (op één bron, een natuurlijk monopolie, één leverancier). In deze zin schuurt het met de lange termijn strategie.

Een warmtewet met integratie voor lage temperatuur en integratie voor andere sectoren bestaat nog niet. Hier had eigenlijk wel over nagedacht moeten worden bij het vernieuwen van de warmtewet. Indien dit het geval was geweest, had de organisatie betrokken willen worden. De geïnterviewde snapt dat zij momenteel niet betrokken zijn bij het huidige besluitvormingsproces voor de nieuwe warmtewet, waarbij de focus op hoge temperatuur ligt.

Vanuit deze achtergrond is het lastig te zeggen welke thema's wel en niet zijn meegenomen bij het besluitvormingsproces.

C.15. Interview producer 3 (Prod3)

Date: 06/30/23

Inleidend

Organisatie produceert elektriciteit en warmte voor warmtenetten van twee grote energiebedrijven. Daarnaast wordt restwarmte van de gascentrales gebruikt als restwarmtebron. Voor sommige netwerken is deze organisatie ook een soort netbeheerder.

Procescriteria

De organisatie is niet direct betrokken geweest bij de informele consultatie die nu op tafel ligt bij de relevante partijen (VNG, IPO, Netbeheer Nederland, Energie-Nederland). Indirect wel via Energie-Nederland. Echter heeft zij zelf ook nog opmerkingen ingediend, aangezien aan de vorige opmerkingen niet veel gehoor is gegeven (ook niet in de zin van argumentatie waarom niet).

Het besluitvormingsproces is politiek verlopen. Niet alles is/ wordt met de energiesector gecommuniceerd, waardoor het proces niet transparant verloopt. Het proces kan als redelijk gesloten worden beschouwd op sommige aspecten.

Het proces had sneller gekund wanneer het transparanter was geweest. De reden van vertraging is lastig te benoemen. Soms wordt er te snel een beslissing genomen om een bepaalde richting in te slaan, terwijl de huidige situatie nog niet/ slecht in kaart is gebracht.

Inhoudelijke criteria

Uiteindelijk heeft Jetten besloten om de koppeling te maken tussen de integrale verantwoordelijkheid en de 51%-verplichting van de infrastructuur. Gemeenten hebben zo niet alleen de regie, maar ook alle zeggenschap. Daarnaast biedt dit meer duidelijkheid dan de losse structuur (integrale verantwoordelijkheid en 51%-verplichting die los van elkaar bestaan). Het is geen moeilijke hybride vorm, maar brengt wel veel verplichtingen en taken voor publieke partijen met zich mee.

Investeringszekerheid is in het algemeen belangrijk voor bestaande en toekomstige private en publieke warmtebedrijven, zowel op korte als op lange termijn. Verder is het van belang dat de nieuwe eigendomsverdeling duidelijkheid biedt: Wat wordt er van bedrijven en andere organisaties verwacht en welke rol gaan zij spelen? Momenteel wordt veel met AMvB's gewerkt, wat veel onzekerheid biedt.

Voor de organisatie, vanuit het producentenbelang, is het belangrijk dat netten open blijven. Dit in het algemeen belang van de groei van netten. Het maakt in deze zin niet extreem veel uit of de netten in publieke of private handen zijn.

Op technologisch gebied is er veel discussie omtrent de ontwikkelingen van de bronnen (ook met betrekking tot de duurzaamheid). Op lange termijn zijn sommige bronnen niet meer beschikbaar, waardoor alternatieven noodzakelijk zijn. Restwarmte van andere industriële processen (bio-industrie, elektrolyzers) of lokale bronnen zoals geothermie of restwarmte van datacenters zijn de toekomstige alternatieven. Met deze ontwikkeling in het achterhoofd wordt niet altijd rekening gehouden bij de aanleg van nieuwe netwerken. Deze ontwikkeling hoeft niet veel invloed te hebben op het besluit voor eigendomsverdeling.

Conclusie

Concluderend, had een transparanter proces kunnen bijdragen aan de voortgang van het proces. Verder is vooral duidelijkheid omtrent de eigendomsverdeling van belang (toekomstperspectief stakeholders), in specifiek met betrekking tot de investeringszekerheid.

C.16. Interview large consumer 1 (LC1)

Date: 07/04/23

Procescriteria

Organisatie is niet bij het proces betrokken geweest. De reden hiervan is niet duidelijk; heeft de organisatie zelf iets gemist of zijn ze niet gevraagd? Vanuit hun belang had de organisatie wel betrokken willen worden. Tegelijkertijd biedt eerlijkheid te zeggen dat dit wellicht niet de hoogste prioriteit had gehad. Echter is dit lastig te zeggen, aangezien deze discussie niet op tafel heeft gelegen. Daarnaast wordt niet verwacht dat de betrokkenheid het uiteindelijke (inhoudelijke) besluit had beïnvloed. De organisatie is wel betrokken bij het (proces met betrekking tot het) ophaalrecht uitgewerkt in een AmvB.

Inhoudelijke criteria

De 51%-verplichting is in het leven geroepen om de transitie te versnellen. Projecten die niet van de grond kwamen moeten zo worden gerealiseerd. Dit besluit is redelijk kort door de bocht.

De publieke waarden worden niet beter geborgd wanneer de infrastructuur in publieke handen komt. Electriciteit en gas in acht nemend, heeft de liberalisering veel voordelen opgeleverd, zowel in betrouwbaarheid als betaalbaarheid. Daarnaast biedt publieke dominantie geen garantie voor succes: zie voorbeeld gemeentelijk warmtebedrijf Rotterdam, waar de rekenkamer van de gemeente aan de noodrem heeft getrokken. Het is belangrijk om rekening te houden met de betaalbaarheid en betrouwbaarheid. Deze twee waarden zijn echter verkeerd meegenomen in de besluitvorming.

Met het belang van duurzaamheid (en de gerelateerde klimaatdoelen) in het achterhoofd heeft de minister een keuze gemaakt. Het is een soort noodgreep. De consequenties zijn onvoldoende doordacht. Daarnaast gaat de minister voorbij aan de belangen van de betaalbaarheid en betrouwbaarheid. De kennis en expertise ontbreekt bij veel gemeenten om deze waarden goed te kunnen borgen. De vraag is hoe dit georganiseerd gaat worden (realisatiekracht); in hoeverre kunnen gemeenten dit op een doeltreffende en doelmatige (lees vooral: betaalbare) manier organiseren? Een goed werkende organisatie op poten zetten moet niet onderschat worden (governance aspect van realisatiekracht). Daarnaast wordt het bij gemeenten nooit hun kerncompetentie. De realisatiekracht is wel afgewogen bij het besluit, maar op een verkeerde manier.

Verder is warmte lokaal en in het 'beste' geval regionaal. Nationaal gaan warmtenetten niet ontwikkeld worden. Dit lokale karakter leidt tot politieke willekeur, beïnvloed door het college en haar opvatting van het belang van warmtenetten. Dit is een groot risico, ook mede gezien de lage mate aan kennis en expertise bij gemeenten. Deze mogelijke politieke invloed had meer meegenomen moeten worden bij het besluit.

Electriciteit en gas zijn nationaal georiënteerd, en overschrijden zelfs grenzen. Warmte is anders georganiseerd, vanwege het lokale karakter. Verder is er geen markt voor warmte. Dit is een logische reden om het anders te organiseren (dan electriciteit en gas): één netbeheerder die ook de levering verzorgt, en daarnaast vaak ook inkoopt.

De onduidelijk met betrekking tot investeringen werkt uiteindelijk door naar de consument. Dit is niet goed afgewogen bij het besluit.

Netwerk- en sectorkoppeling zou geen grote rol moeten spelen bij de eigendomsverdeling. Gemeenten kunnen een politieke prikkel hebben om netwerken op elkaar aan te sluiten, aangezien zij zo de risico's tussen gemeenten kunnen spreiden. Echter wordt dit risico niet groot geacht.

Maatschappelijk draagvlak is vaak gerelateerd aan de consument, maar eigenlijk omvat dit het draagvlak van alle relevante betrokken partijen. Dit wordt echter vaak benaderd vanuit het politieke proces, waardoor het gekoppeld wordt aan de consument. Het is de vraag in hoeverre de consument hier een sterke mening over heeft. Er is soms een zekere aversie tegen warmtenetten onder consumenten die al aangesloten zijn op een warmtenet, vanwege de praktische nadelen die hier momenteel aan kleven. Dit heeft echter niet met de eigendomsverdeling te maken, maar met de voorzieningszekerheid.

Conclusie

Concluderend, is het overzicht allesomvattend. De publieke waarden betaalbaarheid (doelmatigheid) en betrouwbaarheid staan voorop. Daarnaast is de realisatiekracht van belang; is er voldoende kennis/ expertise en vermogen om de organisatie goed op te bouwen? Het gaat momenteel niet 'fout' omdat de beoogde groei door de private sector niet serieus wordt genomen. Er is een krachtenveld qua organisatie, expertise en kennis wat er toe leidt dat er geen sluitende business case is (ook gerelateerd aan risico's). Verder wordt de politieke invloed op toekomstige warmtebedrijven onderschat.

C.17. Interview independent supervisor 1 (IS1)

Date: 06/30/23

Procescriteria

Het proces kan eigenlijk worden opgedeeld in twee fasen:

1. 2016 – juni 2020: proces met betrekking tot publicatie van de concept wet (toegeschreven naar de bestaande situatie, waar private partijen het grootste aandeel hebben, maar ook publiek eigendom mogelijk was). Warmtebedrijven konden hier goed mee leven. VNG had principiële bezwaren, cq. zag te weinig sturingsmogelijkheden voor gemeenten en voelde zich buitengesloten.
2. Juni 2020 – heden: proces met betrekking tot besluit voor de infrastructuur in publieke meerderheidshanden (en in combinatie met de integrale verantwoordelijkheid). Aangejaagd door VNG. Private warmtebedrijven niet tevreden, want vrezen de controle over eigen investeringen kwijt te raken.

Aan beide modellen kleven voor- en nadelen. Het is echter wel van belang dat een wetsvoorstel goed wordt onderbouwd en de warmtetransitie mogelijk maakt. Het eerste wetsvoorstel is in deze zin beter.

Niet alle partijen zijn bij het gehele proces betrokken, wat de transparantie niet ten goede komt. De eerste fase is niet transparant geweest voor VNG, de tweede niet voor warmtebedrijven. Ook de toezichthouder zelf is in het afgelopen jaar veel minder betrokken geweest dan in de jaren daarvoor. Een grotere betrokkenheid was gewenst geweest. De reden voor deze lage mate van betrokkenheid is onduidelijk.

Inhoudelijke criteria

De warmtemarkt wordt nu beperkt gereguleerd. Verwacht wordt dat, met het nieuwe beoogde model, opschaling van mankracht bij de toezichthouder noodzakelijk is. Daarnaast is het de vraag of de mate van deze mogelijke opschaling een rol moet spelen bij het besluit voor eigendomsverdeling. De bescherming van de consument en investeringszekerheid/ comfort voor investeerders (zowel publieke als private bedrijven) is, vanuit de toezichthouder, het uitgangspunt, onafhankelijk van het eigendomsmodel.

Momenteel is de markt intransparant. De maatschappij is heel wantrouwend naar warmteleveranciers, wat resulteert in weinig maatschappelijk draagvlak. De consument heeft vaak een 'angst' voor de private monopolist. Dit heeft meegespeeld in het besluit. Private warmteleveranciers vinden het moeilijk om transparantie te bieden, of vinden dat zij dit al doen, en dit daarnaast vooral een taak is van de toezichthouder. Momenteel zijn er niet veel tools vanuit de wetgeving om hier strenger op te reageren (door de toezichthouder).

Er is een aanzienlijk risico dat de politieke druk/ invloed op toekomstige warmtebedrijven groter wordt. Dit is een zorg die bestaat. Dit moet wel meewegen bij het besluit voor eigendomsverdeling. Dit criterium heeft waarschijnlijk niet zo hoog op de agenda gestaan.

Met het huidige wetsvoorstel is er een risico dat de publieke waarden op de korte termijn achteruit gaan. Met betrekking tot de lange termijn is er geen onderzoek bekend; is het zo dat publieke partijen minder rendement maken? Aan de investeringen kleeft een bepaald risicoprofiel. In hoeverre publieke partijen meer risico kunnen nemen en dragen is de vraag.

De koppeling met andere netwerken en sectoren kan makkelijker zijn, maar hoeft niet zwaar mee te wegen bij het besluit. Het is de vraag in hoeverre publieke partijen deze koppeling beter kunnen borgen.

Vanuit de private bedrijvenkant is er veel te veel onduidelijk (toekomstperspectief stakeholders); is er (nog) perspectief voor een commercieel warmtebedrijf? Daarnaast is ook vanuit de toezichthouder meer duidelijkheid gewenst; hoe gaan we de onteigening bepalen en regelen? Hoe zit dit contractueel? Het is momenteel onduidelijk wie waarvoor verantwoordelijk is.

Verder zijn er veel botsingen met Europese wet- en regelgeving (welke?). Daarnaast moet ook rekening worden gehouden met de Omgevingswet, Wet gemeentelijk instrumenten warmtetransitie, Energiewet etc. Het is soms onduidelijk hoe dit web van wetten zich tot elkaar verhoudt.

Conclusie

De efficiënte waarborging van publieke waarden (met een focus op betaalbaarheid voor zowel consument als markt, dit in samenhang met het risicoprofiel) en de verhouding met andere wet- en regelgeving worden van belang geacht bij het vraagstuk van publiek of privaat eigendom. Het maatschappelijk draagvlak speelt ook een rol bij een keuze voor publiek eigendom. Daarbij moet gewaakt worden voor politieke invloed op toekomstige (publieke) warmtebedrijven.

D

Summary interviews expert sessions

D.1. Interview Expert 1 (Ex1)

Background expert: political perspective

Date: 07/11/2023

Procescriteria

Wanneer een partij haar zin niet krijgt, beïnvloedt dit (waarschijnlijk) het gevoel van (in)transparantie voor de partij. Jetten wilden draagvlak creëren onder gemeenten, aangezien zij de regisseurs zijn van de warmtetransitie (volgens het klimaatakkoord). Het besluit is in deze zin politiek gekleurd, maar dit is niet erg. Het is de samenleving die een bepaalde marktordening moet vormgeven. Jetten meent dat de samenleving om meer borging van publieke belangen vraagt, met publiek eigendom als middel. Dit is echter ook hoe democratie werkt, aangezien dit besluit ook is afgestemd met de coalitie. Partijen vinden besluiten vaak 'politiek gekleurd', wat vaak een negatieve connotatie heeft. Partijen mogen hun belangen vertegenwoordigen, maar uiteindelijk is het laatste woord natuurlijk wel aan de politiek. Politiek is het afwegen van belangen (van partijen) om uiteindelijk een keuze te maken. Een omstreden besluit is per definitie politiek gekleurd. Dit kan niet anders. Het is niet mogelijk om uit te rekenen wat de beste oplossing is. Dit is een inschatting en een afweging. Daar zijn natuurlijk verschillende meningen over. Bedrijven/organisatie die bedrijven representeren willen nog wel eens de negatieve relatie leggen tussen ingrijpen in de markt en de politieke invloed. De markt is onderhevig aan politieke besluiten, en niet andersom.

Inhoudelijke criteria

Dat burgers private partijen wantrouwen is een feit. Dit is onterecht, aangezien de ACM de prijs bepaald. Rationeel gezien wordt de consument heel netjes beschermd. Private partijen kunnen niet vragen wat zij willen, en zaten in de afgelopen jaren vaak onder de tarieven die de ACM voorschreef. De draagvlak onder consumenten zorgt voor frustratie bij warmtebedrijven. Het is daarnaast geen zekerheid dat publieke partijen om meer draagvlak kunnen rekenen dan private partijen. Zo lang er maar één bron is, moet er altijd marktbescherming zijn vanuit de ACM. Over het algemeen hebben meer mensen vertrouwen in de overheid dan in private bedrijven.

Het is opvallend dat de meeste gemeenten die een warmtebedrijf hebben het 'oude' model wel prima vinden. De ambitie van gemeenten/ provincies is geen slecht idee. Echter onderschatten veel gemeenten de realisatiekracht op operationeel gebied, vooral met betrekking tot de technologische kennis. In deze zin is het ook opvallend dat gemeenten/ provincies het criterium van realisatiekracht van groot belang achten, terwijl het vooral marktpartijen zijn die deze netwerken hebben aangelegd.

Warmte als vitale infrastructuur is een begrijpelijk argument voor publiek eigendom. Verder zijn er niet veel voorbeelden van zeer geslaagde privatiseringsoperaties in netwerksectoren. Alleen binnen de telefonie is het veel goedkoper geworden.

Het combineren van een integraal verantwoordelijkheid warmtebedrijf met publiek eigendom van de infrastructuur heeft uiteindelijk geleid tot publiek eigendom van het integrale warmtebedrijf. Dit heeft EZK heel onhandig gecommuniceerd, en is pas voor de eerste keer duidelijk geworden in de brief van juli. Deze onduidelijkheid leidt er toe dat partijen denken dat het besluit niet weloverwogen genomen is. Wanneer de integrale verantwoordelijkheid en eigendomsverdeling samen beschouwd waren vanaf het begin, had dit mogelijk tot een ander model kunnen leiden.

D.2. Interview Expert 2 (Ex2)

Background expert: academical perspective

Date: 07/12/2023

Inleidend

Binnen de electriciteits- en gassector werkt marktwerking goed (op bepaalde aspecten). De warmtesector heeft zich historisch gezien heel anders ontwikkeld. De discussie rondom marktwerking is hier dan ook heel anders, ook aangezien verschillende partijen al stevig hebben geïnvesteerd. Het perspectief van VNG, waar de nadruk wordt gelegd op de regierol en het hieruit volgende publiek eigendom, sluit aan bij opgehaalde kennis uit andere sectoren. Binnen deze sectoren zijn vrij positieve ervaringen met publiek eigendom.

In de warmtesector wordt echter integrale verantwoordelijkheid aangenomen. De warmtesector is dan ook fundamenteel anders dan de gas- en electra sector. De technische coördinatie moet aansluiten bij de institutionele coördinatie. De geïnterviewde heeft zelf te weinig onderzoek gedaan naar de mate waarin een publieke partij integraal verantwoordelijk moet zijn. De vraag naar meer onderzoek kan een interessante uitkomst zijn van het onderzoek (ook gekoppeld aan de historische achtergrond van privatisering/ liberalisering vanuit EZK). Is EZK hier op teruggekomen door de conclusie te trekken dat loskoppeling en concurrentie niet werkt in de warmtesector? En hoe verhoudt dit zich tot de eigendomsverdeling?

Inhoudelijke criteria

Het zo snel mogelijk realiseren van warmtenetten is (grotendeels) een publieke taak. Consumenten moeten geprikkeld worden om zichzelf hier op aan te sluiten. Wanneer deze taak/ verantwoordelijkheid bij de private sector wordt neergelegd bestaat het risico op cherry picking.

De huidige markt is moeilijk te reguleren. Een van de drijfveren van de liberalisering (binnen de gas en electra) was de prikkel voor publieke bedrijven om efficiënter te worden. Het is alleen de vraag in hoeverre dit toegepast kan worden in de warmtesector. Het beeld van een welwillende overheid kan een rol hebben gespeeld bij de realisatiekracht. Er is namelijk geen onderzoek gedaan naar de gehele realisatiekracht, alleen naar de publieke realisatiekracht.

De warmte-infrastructuur is dynamisch, en zal zich op technisch gebied ontwikkelen in de komende tijd. In publiek eigendom kan het systeem beter 'kneedbaar' zijn. Het is de vraag hoe ver we hier in willen gaan. Hoe anders is de warmtesector? Kunnen warmtenetten worden gemaakt die met een breed scala aan invoer van warmte kunnen omgaan? Bij publiek eigendom, worden in zekere mate de prikkels weggenomen voor bedrijven om te investeren. De prikkel voor innovatie is in private sector groter dan in de publieke sector. Het is niet verstandig om de publieke sector op voorhand uit te sluiten.

Het is opvallend dat er minder waarde wordt gehecht aan de investeringszekerheid en proportionaliteit, vooral door private partijen. Partijen gaan er wellicht van uit dat ze gecompenseerd worden indien de eigendomsverdeling verandert. Dit is ook terug te zien in de huidige discussie omtrent kolencentrales, waar de overheid investeerders tegemoet komt.

Wanneer de infrastructuur in publieke handen is, is er een risico dat dit wordt gebruikt als politiek instrument (zie bijvoorbeeld de afvalverbranding in Amsterdam, waar allerlei idealistische doelen in de politiek een rol speelde). Het perspectief (van gemeenten/ provincies) dat dit geen rol speelt is vrij idealistisch. Echter is deze rol niet per definitie negatief.

Conclusie

Het losstaand beschouwen van integrale verantwoordelijkheid en publiek eigendom is interessant. Het is echter wel de vraag in hoeverre een middenweg/ andere modellen mogelijk zijn, met de technische karakteristieken van de warmtesector in het achterhoofd. Is er goed nagedacht over de gevolgen van de technische situatie en ontwikkeling voor de invulling van de warmtewet? Hoe kunnen prikkels voor innovatie op de lange termijn worden ingebouwd? Het risico bestaat dat we straks vastzitten aan een monopolistisch (publiek) model. Wellicht hebben beleidsmakers onvoldoende inzicht in deze technologische ontwikkelingen. Meer inzicht in deze ontwikkelingen kan een aanbeveling zijn voor vervolgonderzoek. Echter moet wel vermeld worden dat het probleem erg complex is, en niet alles voorzien kan worden.

D.3. Interview Expert 3 (Ex3)

Background expert: socio-technical and policy perspective

Date: 07/13/2023

Inleidend & procescriteria

De val van het huidige kabinet wordt door sommige partijen als strategische kans gebruikt om de Wcw alsnog ter discussie te stellen. Verder is, met betrekking tot het eerdere verloop van de besluitvorming, veel discussie geweest binnen het ministerie van EZK. Ambtenaren en politiek verantwoordelijken verschilden van mening. Ambtenaren binnen EZK lijken een grote(re) voorkeur voor de markt te hebben. Historisch besef schijnt bij iedereen een beetje afwezig te zijn. Daarnaast is een ongelooflijk krachtige lobby geweest vanuit VNG en IPO. Voornamelijk als gevolg van deze lobby, is het proces niet transparant verlopen.

Inhoudelijke criteria

Realisatiekracht

Het is logisch dat gemeenten momenteel geen publieke realisatiekracht hebben. Botsproeven zijn uitgevoerd ter onderzoek naar deze realisatiekracht. Deze botsproeven zijn onder hoge druk uitgevoerd. De toetsingscriteria zijn vooraf niet duidelijk geformuleerd. De meeste nadruk lag op de juridische kant, terwijl de technische kant onderbelicht is geweest. Het is de vraag in hoeverre naar een gewenste uitkomst toegeschreven is.

Technische karakteristieken, en vergelijking met andere netwerksectoren

Bij gas en electra kan redelijk bepaald worden onder welke druk en spanningen het systeem moet functioneren. Bij warmte variëren de bron(nen) en afnemer(s), en is het moeilijker om toekomstige uitbreidingen mee te nemen. Warmte is technisch gezien heel anders. Bronnen kunnen het 'slimst' worden ingezet wanneer deze ook in beheer zijn van de integraal verantwoordelijke partij (ook met betrekking tot sectorkoppeling). Een integraal warmtebedrijf kan aan de technische vereiste voor levering voldoen (temperatuur, debiet), maar heeft geen speelruimte om de bronnen als business case goed te laten functioneren. Het is makkelijker om vraag en aanbod op elkaar af te stemmen wanneer één partij de gehele keten in bezit heeft. Er is een significant verschil tussen integrale verantwoordelijkheid en eigendom van de gehele warmteketen.

De technische achtergrond van warmte (in combinatie met de uitdaging omtrent ruimtelijke inpassing) pleit voor publiek eigendom. Echter, moet er wel ruimte zijn voor bedrijven om te opereren. Anders belanden we in een communistisch staat.

Maatschappelijk draagvlak

Strakke regulering in combinatie met het beter informeren van bewoners werkt niet om het maatschappelijk draagvlak te verhogen. Dit blijkt uit enkele voorbeelden/ ervaringen. Zo heeft een gemeenten geprocedeerd tegen een warmtebedrijf (met betrekking tot transparantie en rendementen, toen gekoppeld aan het NMDA). De aanleiding was het gevoel van bewoners die van mening waren dat zij te veel betaalden.

Het maatschappelijk draagvlak voor publiek eigendom is groter. Consumenten overtuigen is niet de oplossing. Dit is heel bijzonder, aangezien warmtebedrijven zich objectief meetbaar netjes aan de regels houden. Desondanks hebben veel bewoners het gevoel dat zij te veel betalen. Dit blijkt ook uit de aangevraagde wob-verzoeken door bewoners, in eerder genoemde zaak. Het gevoel vanuit de bewoners is zo sterk en feitelijk niet uit te leggen.

In Denemarken is een model ontwikkeld met veel draagvlak bij lokale partijen en bewoners. Het is daarnaast interessant dat het risico van al deze partijen uiteindelijk wordt gedragen door de overheid.

Controle transparantie tarieven/ kostenstructuur

Sommige gemeenten hebben besloten om geen gehoor (meer) te geven aan de aanbestedingsregels, en alleen nog met een publieke partij in zee te gaan. Juridisch mag dit niet. Echter neemt een juridisch proces zo veel tijd in beslag, dat niemand hier tegenin gaat.

'Rationeel' gezien zouden private en publieke partijen dezelfde kostenstructuur moeten hebben, en zou de eigendomsverdeling geen invloed moeten hebben op de tarieven. Echter is dit in de praktijk anders. De overheid heeft momenteel geen directe invloed op de tarieven van energie/ warmte, wat een groot onderdeel is van de uitgaven van bewoners. Dit wordt gekenmerkt door de uitgekeerde energietoeslag. Bewoners kunnen dit voor een ander doel besteden. In het geval van publiek eigendom, is de invloed die de overheid uitoefent direct zichtbaar in de tarieven.

Politieke invloed

Er bestaat een risico dat gemeenten hun private taak gaan gebruiken om de publieke zaak te regelen. Dit beseffen veel wethouders niet. Wanneer een gemeente risicodragend aandeelhouder is van warmtebedrijf x, en een andere kavel wordt aanbesteed, kunnen zij dit niet zomaar gunnen aan warmtebedrijf x. Zij moeten hier non-discriminatoire in handelen en deze uitvraag ook neerzetten bij warmtebedrijf y. In deze zin kan de politiek (negatieve) invloed hebben op de besluitvorming, en kunnen partijen uitgesloten worden.

Wanneer de overheid een garantstelling biedt, en de overheid ook de besluiten kan nemen, is het voor de lange termijn beter geregeld. Echter is het de vraag in hoeverre wethouders de daadkracht hebben om beslissingen te nemen met betrekking tot investeringen. De politieke besluitvorming/ verkiezingen heeft hier heel veel invloed, en kan als te strategisch worden beschouwd.

Conclusie

Concluderend, is er niet één mening, en zijn partijen welwillend om met elkaar in gesprek te gaan. In de praktijk zoeken partijen elkaar echter te weinig op.

Het is een feit dat er meer maatschappelijk draagvlak is voor publiek eigendom. Dit is gebaseerd op een gevoel, wat moeilijk/ niet te beschrijven is. Bewoners beter informeren en private partijen sterker reguleren neemt dit gevoel niet weg. Toepassing van een Deens model zou oplossing kunnen bieden. Daarnaast biedt publiek eigendom meer grip, en kunnen de tarieven zo direct worden beïnvloed.

Gemeenten hebben momenteel geen realisatiekracht, maar dit is logisch. Verwacht wordt dat kennis gaat verschuiven. Echter moet de politieke invloed niet onderschat worden. Hetzelfde geldt voor de ontwikkelingen op technisch gebied, en de gevolgen hiervan voor de integrale keten en de verantwoordelijke partij.

D.4. Interview Expert 4 (Ex4)

Background: socio-technical

Date: 07/21/23

Proces

De invloed van perceptie van verschillende partijen op het verloop en inhoud van het proces is groot. Het is te begrijpen dat verschillende partijen het proces als intransparant en politiek karakteriseren. Met name de rol van de VNG is erg bepalend geweest voor het besluit. Echter is binnen de VNG ook discussie geweest, onder andere tussen de G4 gemeenten (Den Haag, Utrecht, Rotterdam, Amsterdam). Het imago van warmtebedrijven (onvoldoende transparantie, onvoldoende denken vanuit het perspectief van de consument) kan een onderliggende reden zijn van, en negatieve impact hebben gehad op, de mate waarin het besluit politiek is/ als politiek wordt beschouwd. Meer transparantie in de tarieven in de afgelopen jaren had wellicht kunnen zorgen voor een minder politiek proces. Dit imago van de (grote) warmtebedrijven heeft waarschijnlijk een negatieve rol gespeeld in het proces. Dit imago speelt in ieder geval voor de private warmtebedrijven, maar zelfs voor de publieke bedrijven zoals HVC.

De variabiliteit van operationele kosten zit in de bron (productie en levering). De infrastructuur brengt stabiliteit in een integraal bedrijf, al zit hierin ook verreweg het grootste deel van de investeringen. Wanneer de schakels in de keten los worden beschouwd, is de infrastructuur een solide investering met een heel lange afschrijvingstermijn, terwijl de productie/ levering heel volatiel is. Voor hernieuwbare bronnen is dit nog meer het geval.

Onderzoek naar de voor- en nadelen van integraliteit versus gesplitst bedrijf en de risicoverdeling in geval van splitsing is een ommissie. De conclusies met betrekking tot integrale verantwoordelijkheid hebben gevolgen voor het al dan niet losstaand beschouwen van de infrastructuur, en de mogelijke eigendomsmodellen. Op sommige aspecten lijkt het besluit te snel genomen, zonder dat de impact en het alternatief goed is uitgedacht. Bijvoorbeeld de netwerkbedrijven die (vanwege het 'groepsverbod') geen leveringsactiviteiten mochten verrichten, waardoor dit verbod opgeheven moest worden (in hoeverre wordt dan voorbijgegaan aan het doel van het groepsverbod?). Hetzelfde geldt voor de rol die warmtegemeenschappen (lees: lokale energiecoöperaties) spelen. Deze is pas naderhand bepaald.

De intransparantie in de kostenstructuur en de tarieven aan de kant van de warmtebedrijven heeft een negatieve invloed gehad op het proces. Het kosten+ model vereist meer transparantie vanuit de warmtebedrijven. Dit model is overigens wel omarmd door deze bedrijven. Van publieke partijen verwacht je van nature meer transparantie, maar in hoeverre publiek eigendom leidt tot lagere tarieven en (meer) garantie om de transitie te versnellen en meer groei te stimuleren, is nog wel de vraag.

Inhoudelijk

Kleinere gemeenten zijn niet in staat om een meerderheidsaandeel te nemen in een warmtebedrijf, zowel met betrekking tot kapitaal, (interne) organisatie als kennis/ expertise. Deze opgave, vooral de complexiteit hier van, wordt mijns inziens momenteel onderschat door de VNG. Aanleg en behaar van de infrastructuur is naar verwachting nog wel te organiseren door publieke partijen. Voor de levering is dit een ander verhaal, aangezien een publieke partij daar (momenteel) niet voor is ingericht. Het verschil tussen publiek eigendom van de infrastructuur en publiek eigendom van een integraal warmtebedrijf wordt erg onderschat. Grote landelijke publieke organisaties (o.a. Gasunie, EBN) kunnen wellicht een rol spelen in deze publieke eigendomsmodellen, door een deel van de aandelen in handen te hebben (bijvoorbeeld een 40/40/20 constructie; 40 gemeente, 40 privaat, 20 grote publieke organisatie).

Het is een feit dat het maatschappelijk draagvlak (bij de consument) voor warmte momenteel laag is, mede doordat consumenten een soort 'angst' hebben voor de private monopolist. Dit draagvlak moet verhoogd worden, om de transitie te versnellen. Het is echter de vraag in hoeverre een publieke monopolist het maatschappelijk draagvlak onder consumenten verbetert, en het beste middel is om dit probleem aan te pakken. De consument is gewend aan keuzevrijheden op het gebied van energielevering. Misschien werkt dit door in het gevoel van de consument binnen de warmtemarkt. Gemeenten willen hun bewoners vertegenwoordigen, en lijken het huidige lage draagvlak te gebruiken als extra argument voor publiek eigendom.

Invoering van het kosten+ model heeft als gevolg dat warmtelevering op sommige plekken een stuk duurder wordt dan op andere. Dit moet wel uitgelegd worden aan bewoners, ook aangezien het duurder kan worden dan de huidige situatie. Binnen een publiek warmtebedrijf kan de politiek besluiten dit verschil (tussen huidige (gas) en toekomstige (warmte) energiekosten) niet bij de consument neer te leggen, maar via een andere weg te dekken. Het besef dat een kosten+ model resulteert in een grotere variatie van kostenverdeling onder bewoners, is vaak niet genoeg aanwezig. Duidelijkheid en verder onderzoek op dit gebied had het proces kunnen verbeteren.

Energie is vitaal. Echter is het business model voor warmte, vanwege het lokale karakter, heel anders dan voor elektriciteit en gas. Warmte beschouwen als een vitale infrastructuur biedt argumentatie voor medezeggenschap vanuit de publieke sector. Veel partijen zijn het ook wel eens dat er een rol is voor publieke partijen, ook de private partijen (in tegenstelling tot een aantal jaar geleden). In hoeverre publiek eigendom het juiste middel is om deze vitaliteit te borgen is echter de vraag.

Binnen gemeenten wordt een bepaald percentage van de jaarlijkse begroting aangehouden voor het dragen van het risico. Voor kleine gemeente is dit een vrij laag bedrag, waardoor het aanleggen van een warmtenet (meestal) uitgesloten is. Grotere partijen moeten hierbij helpen.

Conclusie

De discussie omtrent 'integrale verantwoordelijkheid of een meer gesplitste keten', ook in relatie tot warmte als vitale infrastructuur, vereist verheldering. Momenteel worden eigenlijk allerlei oplossingen gevonden voor een 'onvoldoende doordacht besluit': een publieke partij die integraal verantwoordelijk is. De verplichting tot publiek(-dominant) eigendom heeft mogelijk impact op de bedrijfsvoering van deze toekomstig publieke netwerk- en warmtebedrijven. Het sterk politieke karakter van de besluitvorming van gemeenten maakt dat verschillende partijen huiverig zijn over de mogelijke invloed van de politiek op de bedrijfsvoering. Dit leidt tot een juridische uitdaging om deze politieke invloed zo veel mogelijk in te dammen.

Verder kunnen grote publieke partijen wellicht een rol pakken in de eigendomsverdeling, om zo de financiële risico's en besluitvorming te vergemakkelijken. De expertise op landelijk niveau kan zo tevens beter geborgd worden. Vanuit het perspectief van private partijen, wordt voorkomen dat één publiek partij de meerderheid heeft.

Perceptie heeft in het gehele besluit en proces een zeer grote rol gespeeld. Normaal gesproken worden besluiten genomen op basis van onderzoeken, feiten en consensus. Ondanks de vele onderzoeken, heeft de politiek een grote rol in het besluitvormingsproces gespeeld, gevoed door perceptie (o.a. gerelateerd aan onvoldoende transparantie vanuit warmtebedrijven).

D.5. Interview Expert 5 (Ex5)

Date: 07/19/23

Eigendomsverdeling infrastructuur en integrale verantwoordelijkheid

De eigendomsverdeling van de warmte-infrastructuur en de integrale verantwoordelijkheid van de keten zijn verschillende concepten, maar hebben enige overlap. De contracteerbaarheid van warmteafspraken in combinatie met de (on)voorzienbaarheid van sommige gebeurtenissen, is het belangrijkste argument om te pleiten voor verplicht publiek eigendom.

Politieke besluitvorming

De uiteindelijke keuze is politiek en moet een weging zijn van voor- en nadelen, maar te veel politieke besluitvorming kan transparantie belemmeren. Deze intransparantie kan een reden zijn waarom verschillende partijen het proces te politiek vinden. De betrokkenheid van de VNG maakt het proces per definitie politiek. Daarnaast kan de achtergrond van tweede kamerleden meespelen bij de vorming van het uiteindelijke besluit.

Warmte als technisch (anders) systeem

Er is gehamerd op onafhankelijkheid van de netbeheerders. Echter wordt nu voor warmte een uitzondering gemaakt. Het is de vraag in hoeverre deze uitzondering te rechtvaardigen is. De verschillen tussen warmte, electriciteit en gas zijn groot. Vanwege het lokale karakter van warmte, is concurrentie tussen private partijen lastig te organiseren.

Maatschappelijk draagvlak en tarieven

Het is begrijpelijk dat de consument 'angst' heeft voor een private monopolist, ook met de historische achtergrond (met betrekking tot eenmalige aansluitvergoeding). Het is de vraag in hoeverre een publieke monopolist de taak beter (en goedkoper) kan vervullen. Het is niet eenvoudig om de realisatiekracht in de publieke sector te realiseren. Publiek eigendom van de infrastructuur kan wellicht directer invloed hebben op warmtetarieven, maar het is onzeker of dit tot goedkopere tarieven zal leiden. Gaat de gemeente haar eigen inwoners subsidiëren wanneer de warmtetarieven stijgen? Is hier geld voor? De tariefsystematiek in de Wcw kan mogelijk de betaalbaarheid al waarborgen.

Conclusie

Hoewel de warmtemarkt veel potentieel heeft, zorgt de huidige discussie voor vertraging. Daarnaast bestaat het risico dat gemeenten het niet van de grond krijgen, en kennis/ ervaring niet optimaal benut wordt. Het veranderen van de markt van privaat naar publiek brengt enorme kosten met zich mee, zonder duidelijke voordelen. Er is weinig aanleiding om de markt te veranderen, omdat er een gebrek is aan een accurate analyse van de huidige marktwerking en het specifieke probleem dat opgelost moet worden met publiek eigendom. De discussie lijkt weinig vooruitgang te hebben geboekt sinds 2016, en gebrek aan duidelijkheid leidt tot miscommunicatie tussen partijen.

D.6. Interview Expert 6 (Ex6)

Background expert: commercial, technical

Date: 07/24/23

Inleidend

De discussie omtrent eigendomsverdeling is al enige tijd aan de gang binnen de electriciteits- en gassector. Voor deze sectoren is een splitsing bepaald, waarbij publieke netbeheerders onafhankelijk eigenaren van de netwerken zijn (rond 2004). Voor de warmtesector is rond deze tijd ook nagedacht over een mogelijke marktordening. Echter is geconstateerd dat dit complex zou worden, en is daardoor geen aanstalte gemaakt. Langzamerhand is er in de maatschappij een discussie op gang gekomen, sinds de splitsing in de gas- en electriciteitssector, of een dergelijke splitsing ook voor warmte kan worden toegepast. De vraag is wat we hierin belangrijk vinden; onafhankelijk netbeheer (al of niet met eigendomssplitsing), toegang voor derden voor bronnen, leverancierskeuze voor de consument of publiek eigendom van netten. Deze discussie is geleidelijk sterker geworden, doordat verschillende partijen niet tevreden zijn over de huidige tarieven.

Procesmatig

Ecorys heeft in 2016 een evaluatie van de warmtewet gedaan, gericht op de doelstellingen van de nieuwe warmtewet, inclusief de marktordening. In dit onderzoek wordt benadrukt dat publiek eigendom niet per definitie tot goedkopere tarieven leidt. Aan het begin van het besluitvormingsproces (feb 2019 wordt beschouwd als het begin) stond de integraliteit van de warmteketen ter discussie, (publiek) eigendom is hier toen niet in meegenomen. Deze discussie is pas later op gang gekomen, als gevolg van de politiek druk vanuit de VNG/ IPO, en de rol die netbeheerders hierin willen spelen.

Net als bij de stroom- en gasvoorziening is bij warmte per systeem een systeem verantwoordelijke nodig. Bij gas- en elektriciteit is die neergelegd bij het (landelijke) netbeheer. Vanwege de technisch-economische karakteristieken van warmte, is de systeemverantwoordelijke bij warmte de leverancier die tevens voor het netbeheer moet instaan. Dit is een vereiste voor functionering van het systeem. In de Warmtewet (2014) is dan ook de leverancier wettelijk integraal verantwoordelijk. Voorgaande is overgenomen in het eerste ontwerp voor marktordening (concept wet juni 2020). Toen dit in consultatie ging, is de (openbare) discussie omtrent splitsing en eigendomsverdeling gestart. Gemeenten en provincies pleitten voor publiek eigendom, waarbij zij een belangrijke rol zien voor netbeheerders (zie hiervoor het commentaar van VNG/ IPO op de concept wet van juni 2020). Netbeheerders deelden dit perspectief, en zagen voor zichzelf een rol weggelegd als netbeheerder binnen de warmtesector.

Inhoudelijk

Het groepsverbod wordt momenteel aangepast (zie kamerbrief begin juli 2023) zo dat een netbeheerder eigenaar mag zijn van een warmtebedrijf, wat ook warmte levert (echter mogen zij 'zelf' niet leveren). In tegenstelling, mag een energiebedrijf (lees: Eneco, Vattenfall, Ennatuurlijk etc.) niet deelnemen in een warmtebedrijf waar ook een netbeheerder aan deelneemt. Het groepsverbod wordt dus eenzijdig aangepast. Praktisch gezien is de beoogde rol van netbeheerders niet te regelen. Hier wordt overheen gepraat. Het is daarnaast bijzonder dat snel voorbij wordt gegaan aan het doel van het groepsverbod (de onafhankelijkheid van de netbeheerders), allemaal onder de druk van de lokale politiek.

Gemeenten willen meer zeggenschap hebben, en willen 'hun' netbeheerders hier voor inzetten. Het is de vraag in hoeverre publiek eigendom hier het juiste middel voor is. Hier zijn ook andere oplossingen voor.

Veel warmtebedrijven zijn momenteel onderdeel van energiebedrijven. Het is de vraag in hoeverre we bij de splitsing van de electriciteits- gassector begin deze eeuw ook na hadden moeten denken over loskoppeling binnen de warmtesector. In 2019 is geconcludeerd dat de warmteketen integraal beschouwd moet blijven worden. Door het groepsverbod mogen/ kunnen netbeheerders die direct gelieerd zijn aan de gas- en elektriciteitsnetbeheerder hier geen rol in spelen (anders dan als partij die in opdracht van een warmtebedrijf een warmtenet aanlegt).

Conclusie

Niets staat (ook nu al) gemeenten en provincies in de weg eigen warmtebedrijven op te starten en te exploiteren. Concurrentie om de markt (concessies), waarbij geen eisen worden gesteld aan eigendom, wordt beschouwd als meest geschikte marktordening voor de warmtesector. Integrale verantwoordelijkheid staat voorop, vanwege de technisch-economische kenmerken van de sector. Bij deze marktordening wordt één kanttekening gemaakt: wanneer een gemeente de volledige zeggenschap heeft over (eigenaar is van) haar eigen warmtebedrijf moet inbesteden mogelijk zijn. In dat geval is een selectie/aanbestedingsprocedure overbodig. Hieronder valt niet het zonder aanbesteding mogen aanwijzen van een overheidsbedrijf waarover de betreffende gemeente niet zelf de volledige zeggenschap heeft.

Vaak hebben publieke partijen kritiek op dit model, aangezien zij van mening zijn dat private partijen dan gaan 'cherry picken'. Wanneer een wijk/ kavel onrendabel is om aan te sluiten, moet men zich echter afvragen of deze wijk wel aangesloten moet worden, of dat andere oplossingen de voorkeur behoeven.

Tot slot, wanneer de minister dan toch kiest voor een verplicht publiek meerderheidsaandeel van het warmtebedrijf, moet aan private partijen wel de mogelijkheid worden geboden om hun warmtebedrijf direct te verkopen aan publieke partijen, in plaats van het huidige voorgestelde beleid dat er van uitgaat dat over een aantal jaren het eigendom moet toevallen aan een (welke?) overheid of overheidsbedrijf.

D.7. Interview Expert 7 (Ex7)

Date: 07/24/2023

Procescriteria

Het is interessant om te zien dat grote warmtebedrijven zelf niet aan tafel hebben gezeten tijdens het besluitvormingsproces. De lobby vanuit VNG en IPO heeft mogelijk de perceptie van de warmtebedrijven beïnvloed, en als gevolg gehad dat zij het proces als intransparant beschouwen. Warmtebedrijven hebben minder invloed op politieke besluiten, maar zijn hier wel afhankelijk van. Het watgevingstraject wordt intransparant geacht door warmtebedrijven. Echter is het een feit dat wetgevingstrajecten niet altijd transparant (kunnen) zijn. Het is de vraag in hoeverre het ministerie van EZK transparantie heeft beloofd, wat zij onder transparantie verstaat en wat zij hebben gecommuniceerd richting partijen.

Politieke besluiten moeten een weging zijn van publieke waarden, waarbij een beargumenteerde keuze wordt gemaakt. Verschillende partijen hebben het gevoel dat de criteria, waaraan de eigendomsverdeling voor infrastructuur moet voldoen, niet goed bepaald zijn aan het begin van het proces. Dit in acht nemend, is het proces niet (te) politiek, maar ontbreken feiten/ onderzoek ter argumentatie. Een goede beleidsmaker maakt zijn keuze op basis van de afweging van verschillende waarden/ criteria (betaalbaarheid, betrouwbaarheid etc.). Indien deze waarden voorafgaand niet duidelijk zijn gedefinieerd, en het besluit niet gebaseerd wordt op een weging van deze waarde, is het besluit intransparant en slecht onderbouwd. We moeten er op kunnen vertrouwen dat een overheid doelmatige en doeltreffende beslissingen neemt.

Verschillende partijen hebben het gevoel dat zij niet op alle relevante momenten betrokken zijn geweest, en dat hun belangen daarnaast op de verkeerde manier gepresenteerd zijn. Het is interessant om deze conclusie in het licht van de participatieladder te plaatsen. Partijen kunnen het gevoel hebben dat zij hoger in de ladder zitten dan het ministerie van EZK in gedachte heeft. Met betrekking tot de koppeling van integrale verantwoordelijk en eigendomsverdeling (van de infrastructuur), kan verder onderzoek helpen om de mogelijke modellen scherp te krijgen. Het ontbreekt hier daarnaast aan heldere criteria waar deze mogelijke modellen op getoetst kunnen worden.

Inhoudelijke criteria

Het is de vraag in hoeverre de betaalbaarheid (meer) wordt geborgd bij publiek eigendom van de infrastructuur. Hiervoor wordt verwezen naar de rendementsmonitor van het ACM: rendementen in de warmtesector zijn heel beperkt. Echter zien we dit niet terug in de discussie. Hierbij moet wel worden vermeld dat de monitor wordt uitgevoerd op basis van data aangeleverd door (vooral private) warmtebedrijven, waarbij soms wordt 'gespeeld' met de kosten. Het wantrouwen vanuit de consument is hier waarschijnlijk (deels) op gebaseerd. Dit wantrouwen kan resulteren in relatief meer 'opt-outs' vanuit de consument onder privaat dan publiek eigendom. Dit heeft negatieve gevolgen voor de business case. Meer transparantie in de kosten, vanuit warmtebedrijven, kan kansen bieden op het gebied van maatschappelijk draagvlak, welke dus (positief) doorwerken in de business case. Echter maakt de complexiteit van de warmtesector de mogelijkheid tot meer transparantie complex.

Conclusie

Concluderend, is naar veel lostaande aspecten/ criteria onderzoek gedaan (zie o.a. prijsregulering Oxera). Onderzoek naar de mogelijkheden voor eigendomsverdeling in relatie met de integrale verantwoordelijkheid ontbreekt. Veel ingrediënten zijn beschikbaar, maar er is een gebrek aan een compleet en objectief overzicht van deze mogelijke modellen, getoetst op relevante criteria.



Validation session stakeholders

Date: 09/08/2023

Present stakeholders: M1, M3 and Pd2

Validatie issues

Het lokale karakter is een terugkerend thema tijdens de discussie omtrent eigendomsverdeling. Dit leidt tot een gedwongen implementatie van warmteoplossingen die zijn afgestemd op specifieke regio's. Er is een erkende rationaliteitskloof waarin bepaalde belangrijke vraagstukken niet adequaat worden aangepakt.

Zowel private als publieke entiteiten uiten terughoudendheid om niet-rendabele warmteprojecten uit te voeren. Het lijkt erop dat de verantwoordelijkheid voor dergelijke projecten verschuift naar de overheid. Een portfolio benadering zou kunnen worden toegepast om zowel niet-rendabele als rendabele gebieden binnen de warmtemarkt te beoordelen. Deze portfolio benadering kan helpen bij het prioriteren van projecten.

Zowel interne als externe modellen zijn mogelijk voor de organisatie van (publieke) warmtebedrijven. Externe organisatie lijkt noodzakelijk, vanwege de uitdagingen met betrekking tot opschaling die voor ons liggen.

De onduidelijkheid met betrekking tot het al dan niet integraal benaderen van de warmteketen wordt deels toegeschreven aan regelgeving over vitale infrastructuur vanuit de EU.

Verder wordt binnen de nieuwe Wcw te weinig rekening gehouden met de mogelijkheden en ontwikkeling van lage temperatuur netwerken, waarbij uitwisseling van zowel warmte als koude een van de focuspunten zou moeten zijn.

Ronde tafel

Rollen, kansen, uitdagingen

Gezamenlijk zien we de volgende kansen:

- Warmte wordt over het algemeen beschouwd als nieuwe nutsvoorziening die schaalvoordelen zou moeten bieden en voor iedereen goedkoop zou moeten zijn.
- De Wcw biedt duidelijke richtlijnen voor projectontwikkelaars en gebouw eigenaren die zelf initiatieven willen nemen.
- Een publiek energiebedrijf kan de focus verbreden naar zonne-energie en vergelijkbare initiatieven, om zo de functionering van het integrale systeem te borgen.
- Waterbedrijven in de omgeving nauw betrekken, gezien de cruciale rol van water in het systeem.

En de volgende uitdagingen:

- Het vinden van de juiste private partij om, binnen de huidige kaders van de Wcw, een samenwerking aan te gaan. Tot op heden hebben sommige publieke partijen nog geen partner kunnen vinden, mogelijk door de onduidelijkheid omtrent doorgang van de Wcw.
- Schaarste van bronnen
- Schaarste van aannemers
- De ondersteunde rol aan bewoners, om hen te begeleiden bij de transitie naar duurzame energiebronnen door middel van de wijkaanpak.

In het kort moet een balans gevonden worden tussen betaalbaarheid, inclusiviteit, transparantie en duurzaamheid.

Samenwerken

Er wordt een model voorgesteld waarbij de BAK in alle gebieden/ kavels gelijk is, waarbij één keer wordt aanbesteed voor de beginfase, en het geheel daarna voor 50%+1 aandeel wordt overgedragen aan de gemeente/ andere publieke organisatie.

Hier kan echter pas op gestuurd worden wanneer de Wcw rond is. Private partijen zijn terughoudend in samenwerken. Daarnaast kunnen samenwerkingen ingewikkeld zijn in verband met contractuele verplichtingen en verantwoordelijkheden (bijv. wie sluit contracten met consument?).