Decision making process in natural gas transition

A Case study in Overvecht-Noord, Utrecht, on the decision making process of creating a natural gas free neighbourhood

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Abstract

The Dutch national government imposes the goal of abolishing natural gas from the built environment. This task is the responsibility of the municipalities who have to find a way to deal with a variety of stakeholders with all different interests whilst not having the formal power to enforce the transition. Dealing with the natural gas transition requires a different approach than the players in urban regeneration projects are used to. This research aims to gain insight in what a process of abolishing natural gas from the neighbourhood entails, by using Overvecht-Noord as case study. The research question is: "*What mechanisms play a role in the decision making process in Overvecht-Noord on realising a natural gas free neighbourhood?*. Based on a reconstruction of the decision making process with the use of the rounds modal and an analysis with an analytical framework based on the notion of process management, there are 5 mechanisms identified. It concerns *finances*, *party involvement*, *interests and negotiation, urgency, and agreements*. The research shows that flexibility and an iterative approach to the decision making process provides the opportunity to resolve issues and create support. Secondly, the lack of sense of urgency of the natural gas transition amongst stakeholders hampers the negotiation process because the willingness to make concessions is not felt as much. Lastly, the natural gas transition does not only concern technical challenges but also societal challenges. The involvement of the inhabitants is an important challenge that is difficult to solve.

Keywords: natural gas free, networks, decision making, built environment,

1. Introduction

The energy transition poses a major challenge in the Dutch built environment. The Dutch national government has set the goal of creating a (near) climate neutral housing stock in 2050 (SER, 2013; PBL, 2014). This goal was more specified in the 2013 and 2019 climate agreements, in which it was pointed out that abolishing the use of natural gas from the built environment has a priority in order to reduce CO_2-emissions and put a halt to gas extractions in Groningen (klimaatakkoord, 2019). The Programme Natural gas free Neighbourhoods was initiated in order to create a knowledge base and learning structure (Rijksoverheid, n.d.). Despite an investment by the Ministry of the Interior and Kingdom Relations of almost 150 million euros in this programme, the harsh conclusion over the period 2018-19 is that the impact for the energy transition is limited (Hendriksma, 2020). Out of the intended 2000 dwellings that were supposed to be natural gas free by the end of 2019, for slightly under 100 dwellings this goal was achieved (Hendriksma, 2020).

The task of abolishing natural gas from the built environment is imposed onto the Municipalities (Rijksdienst voor Ondernemend Nederland [RVO], n.d.). In the Netherlands the Municipalities are responsible for local policies and building law and in that authority they generally play an important role in urban regeneration and building processes (Tambach, 2009). However, a transition in natural gas use would require a different approach than the players are used to. Opstelten, Weterings, and Versteeg (2015) point out that without interaction between market actors, research and development, and policy and regulations an energy transition would not be possible. Additionally, the municipalities have little to no property in the housing stock and they are short of effective legal instruments to improve the energy efficiency of existing dwellings (Tambach, 2009). The owner of a building ultimately decides what happens to the building and given that the municipalities don't own dwellings, whether or not a transition is going to be successful is very much dependent on the cooperation of homeowners (Tambach, 2009). The natural gas transition requires a different approach in which local stakeholders are involved. The Netherlands Enterprise Agency (RVO, 2017) recognises this requirement and advises municipalities to involve local stakeholders already early in the process.

The abolishment of natural gas from the built environment requires a different approach than most of the players in urban regeneration and building processes are used to. Participation of various (local) stakeholders appears to be essential in this new approach. An example of a project on abolishing natural gas from the built environment where the focus is on including local stakeholders concerns the neighbourhood Overvecht-Noord in Utrecht. In Overvecht-Noord they are working towards a decision for alternatives to natural gas use while aiming at achieving consensus and participation. Given that the natural gas transition is relatively new there is not much known about how urban regeneration processes in this new context play out. This research therefore aims to gain insight in what such a process of abolishing natural gas from a neighbourhood entails by using the decision making process in Overvecht-Noord as case study. The main research question is as follows:

> *What mechanisms play a role in the decision making process on realising a natural gas free neighbourhood?*

2. Analytical framework

In Overvecht-Noord the aim is to work together on the abolishment of natural gas and create consensus and participation. The stakeholders in Overvecht-Noord are dependent on one another for achieving a natural gas free neighbourhood. This situation can be described as a network of interdependent actors because key elements of a network incorporate links between public and private actors, as well as interdependencies between all parties involved (Khan, 2013; Nieboer et al., 2011; De Bruijn et al., 2010). When concerned with decision making in such a network of interdependent actors De Bruijn et al. (2010) propose using a process approach. They state that a process approach can reduce resistance of stakeholders, can create broader and more balanced perceptions amongst the participants, and allows for making all new insights and information available within the process. For these reasons an analytical framework is derived from the notion of process management in order to analyse and identify mechanisms that play a role in the decision making process in Overvecht-Noord

that relate to creating consensus and participation. De notion of a process approach by De Bruijn et al. (2010) incorporates 4 core elements. These core elements are generally used as guidelines for designing a process, but for this research they are translated into indicators that help analysing a process. The design principles described by De Bruijn et al. (2010) form the main source of input for the indicators used in this framework. The analytical framework used in this research is presented in table 1 where a summation of the indicators is presented.

Table 1: Analytical framework Process Management (based on De Bruijn et al. 2010)

Openness	**Indicators**
Party involvement	- Broad representation of stakeholders in the process - Rules and agreements about joining - High acceptance of parties joining
Room for negotiation	- Interests of parties involved are considered during the process - No unilateral decision making
Agenda setting	- Broad variety of actors proposed topics for the agenda - Topics for the agenda are discussed and decided on together
Transparency	
Decision making	- Deadline set for decision making upfront - Rules for decision making defined and communicated upfront - Criteria that guide decision making are set and communicated upfront or early in process
Process	- End goal clearly defined upfront - Rules communicated upfront (who, when and where) - Deadlines are clear to all stakeholders and set up front

Protection of core values	**Indicators**
Protected core values	- Indications of resistance or dissent
Exit rules	- Possibility to leave the process - Conditions defined concerning circumstances under which one can leave - Conditions defined concerning at what point in the process one can leave

Progress	**Indicators**
Incentives for progress	- Gains for each party are clear - Parties encounter a sense of urgency
Heavy staffed	- Delay due to consultation - Representatives have a position with relevant decision making power in the organisation they represent
Eliminating obstacles that slow the process down	- Alterations specifically made to overcome issues in the decision making process

Substance	Indicators
Negotiated knowledge	- Authoritative information - Every party involved uses the same, decided upon, information - New amount of joint knowledge produced
Unbundling experts and decision makers	- Inclusion of external research groups or experts - Experts involved who are detangled from parties in programme team - Fields of expertise relate to energy transition - Assignments for research groups formulated by programme team
Variety of options considered	- All possible options have to be identified - These options should have been included in an initial assessment

3. Methodology

The energy transition in the built environment has a very case specific character and therefore a one size fits all approach is not possible (De Leeuw & Groenleer, 2018). Every project on abolishing natural gas from the built environment is different due to these case specific elements. In order to gain insight in the decision making on abolishing natural gas from the built environment it is therefore important to take these case specific characteristics into account. The case study method is a preferred method in order to achieve this (Yin, 2012). Therefore a case study design is applied to observe the decision making process on abolishing the use of natural gas, with Overvecht-Noord as object of research.

A reconstruction of the decision making process in Overvecht-Noord is created with the use of qualitative methods. By means of conducting desk research relevant documentation concerning the process is analysed and interviews with individuals involved in the process are held to retrieve detailed information concerning the process. The information generated with these methods provides insight in factual statements concerning the process as well as experiences, perceptions, and actor specific viewpoints towards challenges and opportunities the process is exposed to.

Case Overvecht-Noord

Overvecht-Noord is a neighbourhood in Utrecht that was appointed to be the first neighbourhood in this city to become free of natural gas. The municipality initiated the Regietafel in which next to the municipality also housing associations, Stedin, Eneco, and Energie-U deliberate on issues concerning the energy transition in Utrecht. Overvecht-Noord natural gas free is one of their sub-projects that started in 2016 and is still ongoing at the time of conducting this research. This project aims at making Overvecht-Noord free of natural gas use by 2030. In order to create a clearly demarcated case study this research focuses on one specific part of the decision making process, namely from the start of the process to the finalisation of the transition plan in October 2019. Secondly, the research focuses on the neighbourhood level, meaning that the main focus is on the programme team. The programme team is tasked by the Regietafel with working out the process of abolishing natural gas from the neighbourhood, and reflects the same organisations that are represented in the Regietafel.

Data collection

The interviews were conducted in the period from the end of February 2020 till the start of April 2020. The interviews were approached in an open way by letting the interviewees describe the process. Based on this description and input from already obtained

information follow up questions were asked for clarification and to obtain more detailed information. A total of 7 interviews were conducted with 7 different interviewees who were all involved in the decision making process in Overvecht-Noord at some point in time. A representative from each organisation in the programme team is interviewed. Unfortunately, there are no interviews included in this research with representatives involved in the Regietafel or with people who are in other ways involved in the process.

Data analysis

The reconstruction of the decision making process in Overvecht-Noord is structured with the use of the rounds model (Teisman, 2000). This model is described by Teisman (2000) to be applicable in complex situations where the decision making power does not lie with a focal actor. As Teisman (2000) explains, the base assumption of the rounds model is that several actors play a role in the decision making process, where the actions or decisions made by one actor can influence decisions made by other actors. The concepts that are used to reconstruct the decision making process are defined in table 2. After the reconstruction of the process the findings are analysed with the use of the analytical framework. Where the reconstruction with the rounds model is meant to obtain an objective observation of the process, with the use of the analytical framework the process is observed from the perspective of process management.

Table 2: Concepts of the rounds model

Concept	Definition
Decision making round	A period with a focus on a specific topic or task, and ends with a 'crucial decision'(Enserink et al., 2010). During this period interaction takes place and actors make (individual) decisions (Teisman, 2000).
Crucial decisions	"Decisions that in a later period of decision making serve as an important point of reference for the behaviour of the actors that are present at the time (Teisman 1998)" (Teisman, 2000 p. 944)
Arena	"Places where specific groups of actors interact on an issue and make choices on specific aspects of the issue (Cohen, March, and Olsen, 1972; Koppenjan, 1993)" (Van Bueren et al., 2003 p. 195)

4. Results

Arenas

The process recognises a couple of active arenas. Figure 1 illustrates the structure of the arenas and the dynamics between them. The main arenas that are concerned with policy making for the abolishment of natural gas from Overvecht-Noord are the Regietafel and the programme team. The Regietafel is active at the level of the city and is concerned with the entire energy transition in Utrecht. Several stakeholders are active in this arena: the Municipality of Utrecht, Energie-U, Eneco, STUW (Platform for Housing Associations Utrecht), and Stedin. The Regietafel is the arena where the investment decision making power is vested.

The Regietafel installed the second arena, the programme team. The programme team works in assignment for the Regietafel on abolishing the use of natural gas from the neighbourhood Overvecht-Noord. The programme team works out the details of the process but the final decisions are made at the level of the Regietafel. The parties that are involved in the programme team reflect the parties in the Regietafel, except for the

housing associations that don't have any property in Overvecht-Noord. The programme team has frequent discussions with a sounding group where inhabitants of the neighbourhood are presented with the possibility to provide feedback on the plans of the programme team.

Next to these arenas concerned with policy making, there are two other mechanisms that are of importance. The housing associations maintain contact with their tenants, mainly through the tenant associations. These communications can be defined as negotiations. When a housing association wants to renovate the dwellings whilst there are people occupying them, they have to negotiate the terms of the renovations with the tenants. At least 70% of the tenants have to agree with the plans for renovations for the housing association to be able to carry them out (art. 220 BW Boek 7).

The second mechanism that is important to the process in Overvecht-Noord concerns the neighbourhood initiatives. Some inhabitants in Overvecht-Noord felt left out of the process. They didn't want to be told what to do and how to spend their money. They wanted to have a say in the decision making process as well. In first instance some inhabitants wanted their part of the neighbourhood to be excluded from the process and tried to achieve this by means of collecting signatures. Later in the process, when attempts to get out of it had failed, the inhabitants decided to start neighbourhood initiatives that would represent the voice of the inhabitants. There are two main initiatives, Nieuwe Energie voor de Vechtzoom and klopvaartbuurt aardgasvrij, that made contact with the inhabitants of (their part of) the neighbourhood and each set up their own manifest with conditions under which they are willing to cooperate with the process. These conditions are based on the input put forward by the inhabitants of the neighbourhood. Both these initiatives work together in order to get their message across to the programme team.

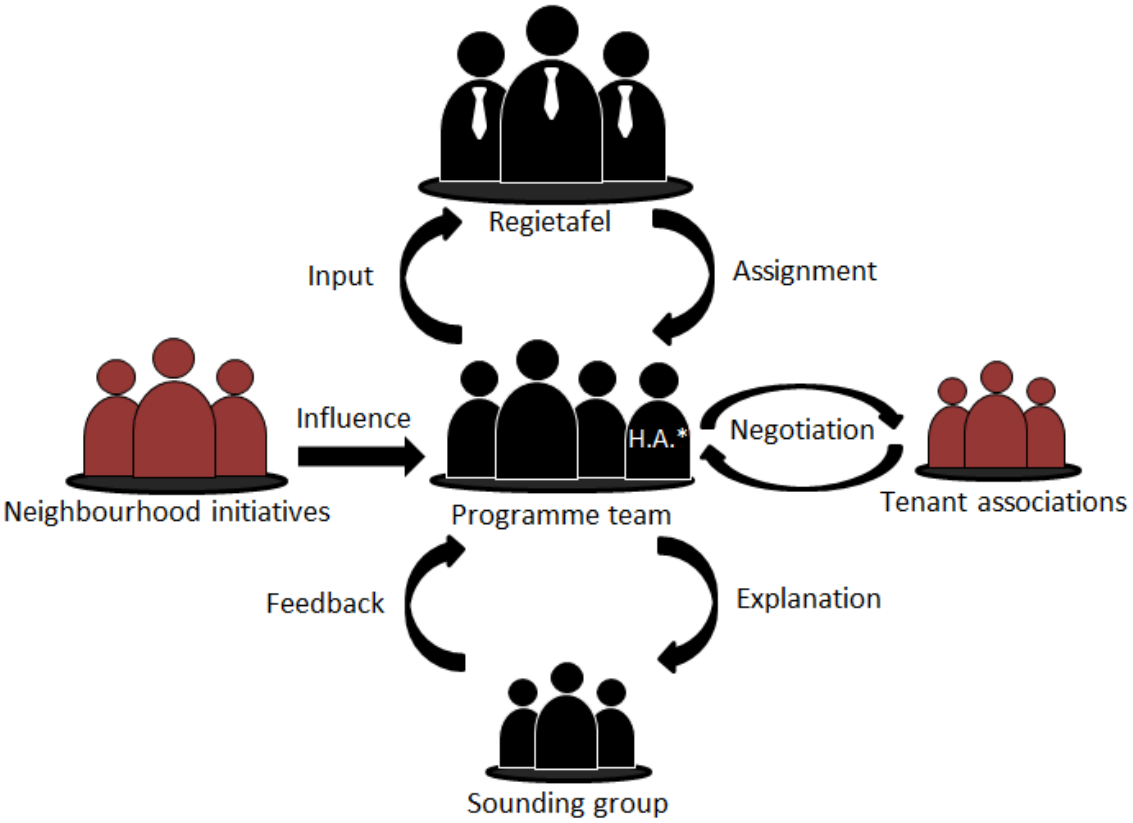

Figure 1: Dynamics of arena structure

*Housing associations negotiate with their tenant associations individually

Reconstruction of the decision making process Overvecht-Noord

The decision making process in Overvecht-Noord can be divided into four rounds. These rounds are defined by crucial decisions, which are listed in table 3. During these rounds individual decisions were made by stakeholders that influenced the course of the process. The individual decisions made by the involved actors are listed in figure 2. This figure presents the individual organisation in the programme team separately, and the Regietafel as one entity. Decisions made in coalition form are indicated with a white square surrounding them.

The first round starts in the spring of 2016 and includes the initiation of the process. The Municipality of Utrecht started with exploratory conversations to map the situation concerning the energy transition. In doing so they made inventory of which stakeholders would be useful and crucial to invite to the table. This ended with installing the Regietafel in which the Municipality of Utrecht, Energie-U, Eneco, STUW (Platform for Housing Associations Utrecht), and Stedin took place.

The Regietafel decided to start with the project of making Overvecht-Noord free of natural gas use, which meant the start of the second round in the summer of 2016. During this round a newly initiated workgroup worked out preliminary work. They worked on the demarcation of the project area, deciding on the precise goals they want to achieve, and gathering information and data concerning the task. At the start of the third round the first meetings where the inhabitants of the neighbourhood were informed were held. The workgroup couldn't provide with (all) the information the inhabitants were hoping for, which led to a rather negative reaction towards the process amongst the inhabitants. The team continues working and eventually ends up with the Infrastructural Footprint study (IF study) and a first proposal for a transition plan. These plans were turned down by the Regietafel, they stepped in and installed a new programme manager. In the fourth round the programme team decided to take a step back, away from the substance of the process and focus more on the participation aspects. In doing so they created the transition plan that incorporates a roadmap on how they want to approach the process. This transition plan was approved by the Regietafel and published in the autumn of 2019. After the fourth round the programme team started working on the steps they set out in the transition plan. However, this continuation of the process is no longer part of the scope of this research.

Table 3: Starting points and crucial decisions of the rounds

Round	Time	Starting point	Crucial decision
Initiation	Spring 2016 – Summer 2016	Commotion concerning the heat network and climate discussion	Decision to turn Overvecht-Noord into a natural gas free neighbourhood
Preliminary work	Summer 2016 – Autumn 2017	Installation of project team	Put a hold to gathering information and data and start communicating towards inhabitants
Computation	Autumn 2017 – Autumn 2018	Residents gathering, informing about the process	Rejection of transition plan
Transition plan	Autumn 2018 – Autumn 2019	Installation of newly appointed programme manager	Approval of the transition plan
Continuation	Autumn 2019 – ongoing	Preparation for redoing calculations	

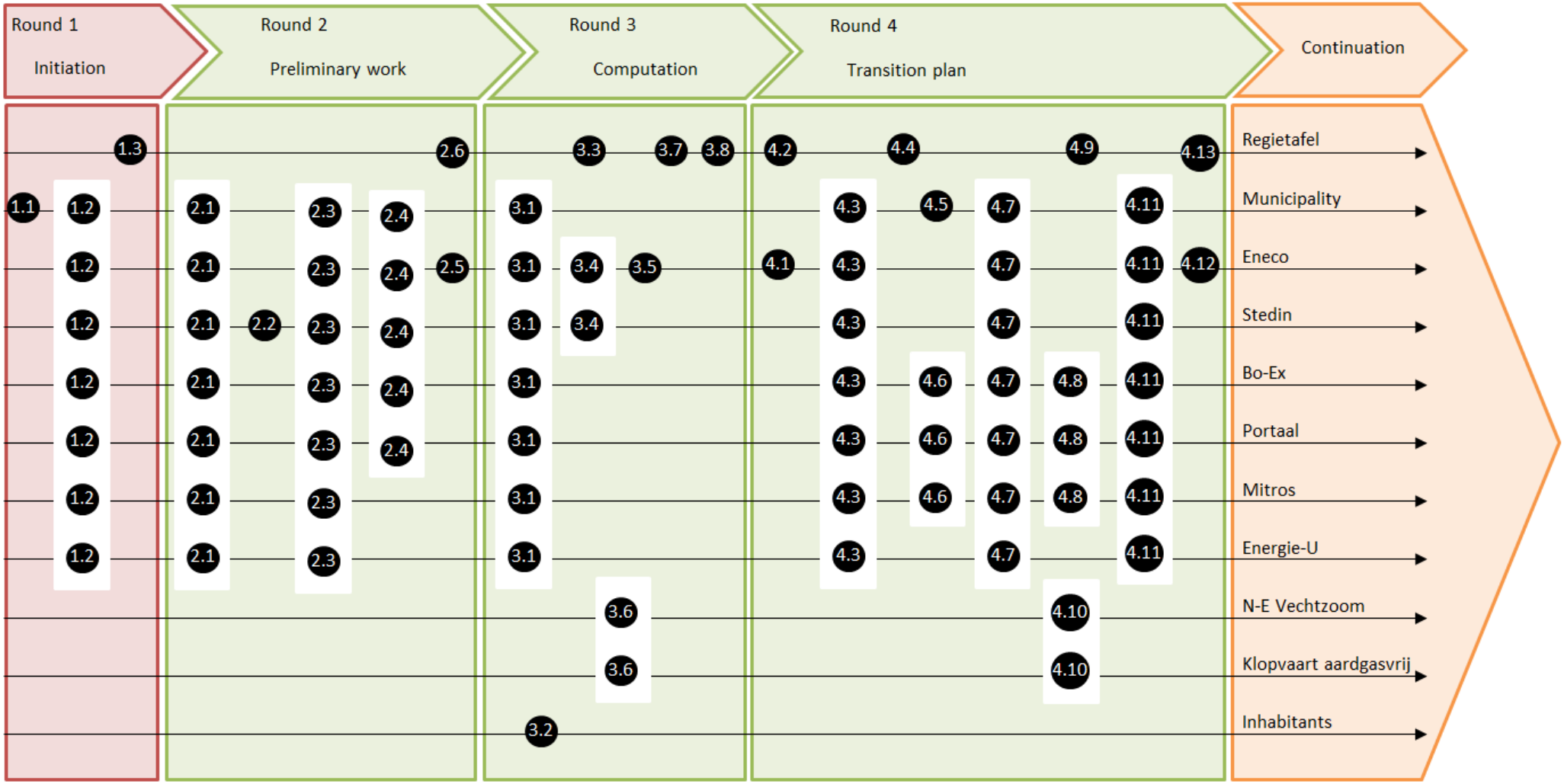

Figure 2: Rounds and individual decisions

1.1 Municipality initiates Regietafel
1.2 The invited parties decide to join the Regietafel
1.3 Decision Overvecht-Noord natural gas free

2.1 Agreement to form project team
2.2 Pressure deadline due to replacement of gas network
2.3 Project team decides to focus on direct use natural gas
2.4 Sharing data
2.5 Ambition for sustainable energy source heat network
2.6 Decision to stop collecting data and make contact with inhabitants

3.1 Communication towards inhabitants
3.2 Petition against the plans
3.3 Decision to stick to the original plan
3.4 IF-study
3.5 Eneco makes design for neighbourhood
3.6 Neighbourhood initiatives emerge and they bundle voices
3.7 Transition plan rejected
3.8 New programme manager

4.1 Eneco puts less effort in programme team
4.2 Undesirable to communicate outcomes
4.3 take step back, focus on participation
4.4 Transition plan rejected
4.5 Housing associations desired focus on CO_2 reduction
4.6 Municipality holds on tight to natural gas free
4.7 Main goal remains natural gas free
4.8 Housing associations' main goal CO_2 reduction, in Overvecht-Noord they commit to natural gas free
4.9 Approval transition plan
4.10 Neighbourhood initiatives draft manifests
4.11 Decision to cooperate with neighbourhood initiatives
4.12 Eneco leaves programme team
4.13 Regietafel replaced by Steering group

The process from the view of process management

The process in Overvecht-Noord from spring 2016 until autumn 2019 can be characterised as pre-negotiations for what is more to come. During this time period of 3 years the programme team had to figure out how to approach the task at hand. This occurred by trial and error. Eventually they realised they had to set up a plan of approach, which resulted in the transition plan which was approved by the Regietal in the autumn of 2019. This plan includes the agreed upon steps that will be taken in order to come to a substantive decision and is therefore defined as a set of process agreements.

When analysing the decision making process in Overvecht-Noord with the use of the indicators of the analytical framework, the observations presented in table 4 are found. The openness of the process is an important aspect that poses challenges. Various organisations are involved in the programme team, however the inhabitants form a very crucial actor group that is not directly represented. The process shows that the lack of involvement of the inhabitants led to resistance early in the process. Finding a way to create support among the inhabitants is very important, given that it is close to impossible to abolish the use of natural gas if (the majority of) the residents don't want to comply.

A good mechanism concerning openness that is used in the process thus far is that certain topics of discussion are postponed. The transition plan and assessment criteria used to assess the alternatives to natural gas include criteria and agreements that reflect the interests of the involved parties. By doing so the participants of the process feel there is something to gain from the process. Additionally by postponing discussions, instead of deciding early in the process, more time and opportunity is generated for all parties to negotiate their interests whilst everyone preserves a prospect of gain.

The protection of core values seems to have played less of an important role thus far in the process. The mechanism of postponing decisions or discussions also turned out to be useful in protecting the core values of the housing associations who needed to preserve the possibility for them to come up with a solution that is in line with their core task; providing affordable housing to low income households. Another occurrence concerning the protection of core values is that Eneco left the negotiation table when the substantive negotiations started off. They decided to do this in order to preserve the core of their business; selling energy.

The progress of the process turned out to have a significant effect on the way stakeholders perceive the process. To some the process appears to be too sluggish. The relatively short time span that is set out for the process and the fact that a lot of people are living in uncertainty about what they can expect make that some stakeholders feel uncomfortable about the process. This has a negative influence in the way they perceive the process and possibly to their willingness to cooperate as well. Three major aspects came forward that hamper progression. One, not every stakeholder perceives the same sense of urgency, causing a mismatch in incentives to progress between the involved organisations. Second, the process is based on trust, ambition, and willingness to collaborate. Where this is very positive from the perspective of intentions, it appears to lack the proper level of commitment. The third aspect that hampers progression to a great extent is the fact that it involves a testing

ground. Since there is no predefined outline on how to approach this task, the process is characterised by trial and error, which takes a lot of time.

The process functioning as a testing ground also means that a lot of contextual factors in which this process plays out are unclear. Law and regulations as well as subsidy instruments are under development and will partially be based on the outcomes of the testing grounds. This makes that the programme team and Regietafel don't know which future instruments will be at their disposal. Especially the subsidies concern a mechanism of interest. Energy advises provided to inhabitants of the neighbourhood indicated that the investments required to abolish natural gas from the neighbourhood are higher than politically desirable. A political statement made is that this transition should be 'payable and doable', including there should be no increase in cost of living. Financial aspects are one of the crucial criteria the inhabitants hold on to, meaning if they can't afford it is likely not going to happen.

Concerning the substance of the process there are quite some positive aspects. The Regietafel appointed an independent (built) environment manager and an independent programme manager. The fact that these functions are filled by independent actors takes away the possibility that the perception arises that a certain stakeholder dictates the process, while at the same time embedding an independent view in the programme team that is not driven by direct stakes in the process. Secondly, the programme team decided to outsource the calculations concerning alternatives to natural gas. This way a new knowledge base is created which forms the main foundation for the substantive negotiations, while at the same time the credibility of the results of the calculations is maintained.

Table 4: Analysis decision making process Overvecht-Noord

Openness		
Party involvement	-	Most of the important parties are represented.
	-	Broad variety of stakeholders (Network operators, energy supplier, government, energy cooperation, housing associations)
	-	The inhabitants are not directly represented in the programme team
	-	No clear rules and agreements about joining
	-	Thus far little support for others joining the programme team, but they are open to alternative constructions
Room for negotiation	-	Interests of parties involved are considered and sometimes formalised in the transition plan
	-	Transition plan product of collaboration and negotiation
Agenda setting	-	Agenda setting unclear
	-	Eneco has no 'interest'in the agenda points
	-	The goal/focus of the process and elements of transition plan are discussed and decided on together, by formalising it in the transition plan which is approved by the Regietafel
Transparency		
Decision making	-	Deadline set for decision on implementation plan in (mid) 2020
	-	No clear rules defined and communicated
	-	Every party has to make an individual decision, but in collaboration with the others
	-	Municipal council takes formal decision (implementation plan)
	-	Criteria defined for alternative heat solutions in assessment framework
Process	-	End goal: Overvecht-Noord natural gas free by 2030
	-	No clear rules and agreements
	-	Deadlines possibly mostly set in the fourth round (not so much in earlier rounds)
Protection of core values		
Protected core values	-	No indication of agreements or mechanisms for protecting core values
	-	Housing associations wanted focus on CO_2-reduction to comply to their core value of providing affordable housing
	-	Eneco left the process so that they would be more credible as energy provider
Exit rules	-	It is possible to leave, but consequences unknown
	-	There are no conditions defined concerning the circumstances under which one can leave or at which point in the process one can leave
	-	Exit rules are most likely relevant and decided upon at the level of the Regietafel

Progress	
Incentives for progress	- Short term gains not clear and/or present for all involved stakeholders - Sense of urgency seems to be missing with some stakeholders
Heavy staffed	- Regietafel is heavily staffed - Programme team less heavily staffed - No indication there was a lot of delay due to consultation
Eliminating obstacles that slow the process down	- There were changes made to the structure of the process (Regietafel replaced with steering group) - Certain topics were postponed by integrating them in the transition plan or assessment framework - Structure of arenas allows for transferring conflicts to the periphery of the process (although unclear whether used that way)
Substance	
Negotiated knowledge	- (New) calculations on alternatives to natural gas are done during the process, conform assessment criteria. - Assessment criteria drafted in consultation with the parties in the programme team - Transition plan incorporates these calculations as a basis knowledge input for decision making
Unbundling experts and decision makers	- Calculations on alternatives to natural gas are outsourced to two external organisations - There is an independent programme manager and (built) environment manager - The assignment for calculations, accompanied by an assessment framework, is drafted in consultation with the participants in the programme team
Variety of options considered	- A broad variety of options were a part of an initial assessment - Options that were excluded first but became more viable later could be included again if the process still allows for it - Transparent documentation concerning the consideration of alternatives

5. Discussion

This research aims to gain insight in the decision making process concerning the abolishment of the use of natural gas in the built environment. The conclusions are based on a case study involving the decision making process in Overvecht-Noord. Due to the case specific characteristics of the neighbourhood Overvecht-Noord the findings of this research generally cannot be directly transferred onto different neighbourhoods. The conclusions drawn from the research do provide insights concerning the natural gas transition in general. However, when applying these conclusions to different neighbourhoods it has to be taken into account that not only the contextual factors of the neighbourhood are important but also the characteristics of social elements. Interaction between organisations and people is central to decision making in networks and every person has specific motivations and interests.

The data generation process was bound by a time limit. A total of 7 people who are, or have been involved in the decision making process in Overvecht-Noord provided an interview. These interviews, along with desk research, provided a large amount of generated data with which a very rich analysis of the decision making process could be conducted.

All of the interviewed people were involved with the programme team, it was not possible to conduct interviews with representatives from the Regietafel and other actor groups involved in the process such as the inhabitants of the neighbourhood. These actor groups played an important role in the process. The Regietafel is the arena where investment decisions are made and therefore from the point of view of decision making it would have added value to include it in the research. Additionally, certain elements of the framework are likely more relevant at the level of the Regietafel than at the programme team level. Also the inhabitants are relevant to the research. These people are very much affected by the process, tried to obstruct the process, and eventually created an arena in order to influence the process. Although it concerns a large group of very differing people and therefore a more generalised view is difficult to capture with an interview, including this group would have put more weight on the side of the largest actor group involved. These gaps in the generated data were filled with information obtained by desk research. In that way it was still possible to reflect on the viewpoints of these actor groups, but a rich in-depth analysis was more difficult to achieve.

Rounds model and analytical framework

The reconstruction of the process is conducted with the use of the rounds model by Teisman (2000). Identifying arenas, rounds, and individual decisions lead to a rich observation of the process while providing a clear structure. The rounds model is therefore of added value to this research. In recreating a decision making process the rounds model is very much applicable and provides a clear set up to conduct further analysis. Since the rounds model does not provide clear possibilities to identify mechanisms that played a role in the process, an additional framework is required.

The analytical framework based on process management by De Bruijn et al. (2010) was added to identify these mechanisms. The framework assisted in recognising mechanisms that influence the decision making process in Overvecht-Noord and the interaction between the involved parties. The analytical framework used in this research proved to be of added value in analysing the decision making process in Overvecht-Noord. The framework forces a categorisation of the findings that covers a broad range of elements. Therefore all findings of the research were possible to link and explain with the use of the framework.

The notion of process management is applicable to negotiation processes that occur in a (complex) network of interdependent relations. It is therefore expected that the analytical framework derived from this notion is also applicable in the same situation. The energy transition entails a new challenge in the built environment that shows similarities with a complex network of interdependent actors. When in the object of research an approach to decision making is chosen that also incorporates elements of participation the analytical framework used in this research is of added value since suitable frameworks with a participatory element that fit this context are not evident. Therefore this framework shows promise to be of added value to scientific research. However, it has to

bet taken into account that the analytical framework as presented in this research concerns a first version. Even though the first experience in using the framework is positive, the applicability of the framework, as well as a further elaboration on the elements of the framework, have to be researched further in order to develop a well-established analytical framework. In order to further operationalise a framework based on process management a qualitative meta study could be conducted in order to identify patterns in the literature. Based on these patterns it is possible to define the elements of importance to decision making processes in complex networks and elaborate on them. This could provide a proper basis for improving this framework by defining a more exhaustive and clear defined set of indicators that allow for investigating decision making processes.

6. Conclusions

Abolishing natural gas from the built environment is a goal imposed by the Dutch national government and is supposed to be dealt with at the local (neighbourhood) level. This research aims to obtain insight in what a process of abolishing natural gas from the neighbourhood Overvecht-Noord entails, with as research question:

> *What mechanisms play a role in the decision making process on realising a natural gas free neighbourhood?*

The decision making process in Overvecht-Noord on abolishing the use of natural gas in the neighbourhood has several typical characteristics. Although there is no formal power that allows the Municipality to enforce abolishing the use of natural gas, the stakeholders know the energy transition is going to affect them one way or the other. The approach in Overvecht-Noord is therefore characterised by a diverse set of stakeholders who placed themselves in a horizontal playing field to negotiate an alternative to the use of natural gas. The goal is to create consensus and participation. The mechanisms that play a role in the decision making process in Overvecht-Noord are:

Finances

Everybody is living in times of uncertainty and no one knows how to address the situation. No one can move forward. Network operators don't know whether they can expand their networks or replace them without taking financial risks and households don't know what to do when their heat installation or cooking- installation and attributes need to be replaced. At the same time a huge investment sum is hanging over each and everyone's head. The financial challenges in this process are difficult to solve and will most likely play an important part in whether or not the process ends successfully.

Party involvement

Good efforts have been made by involving a broad variety of actors in the main arenas of the process, namely the Regietafel and the programme team. However, one group that is very much affected by the transition seems to feel like they are not properly involved in the process. It concerns the inhabitants of the neighbourhood. The rented dwellings to a great extent are the responsibility of the landlords and this group is somewhat easier to approach given that landlords generally possess several units, especially when it concerns housing associations. However, the owner-occupier population is an even more diverse group of individuals. Without the efforts of these people abolishing natural gas is not possible. It is therefore very important to involve this group in the process in the

correct way, so that they feel their opinion matters, the chosen solution is also their solution, and a willingness to cooperate from their part is created.

Interests and negotiation

A mechanism that works well in the process is the acknowledgement of party's interests and providing the room to negotiate. This provides the prospect of future gains which allows the individual parties to see a benefit in participating in the process. Having possibilities to protect core values is important in this aspect as well. Without mechanisms in place that provide this protection commitment to the process would be more difficult. In Overvecht-Noord it is possible to step away from the process as an ultimate measure, however the complications of doing so are unclear.

Urgency

The process seems to entail a different sense of urgency to different stakeholders. As long as parties don't feel the urgency to progress they have an incentive to obstruct. Therefore a sense of urgency for every involved party is very important and it preferably has to be linked to the same time span as well.

Agreements

Participation in the process is mainly based on trust, ambition, and willingness to cooperate. This means there is no mechanism in play to ensure participants follow through on their commitments. This can lead to a sluggish process. Making agreements upfront concerning what is expected from everyone involved can help solve this issue.

Lessons learned from the Overvecht-Noord process

The decision making process in Overvecht-Noord on abolishing the use of natural gas from the neighbourhood shows that the Municipality does not have the required instruments to enforce the natural gas transition. As long as this lack of tools to enforce energy goals exists, reaching consensus about the plans is imperative. The way in which this consensus can be reached is dependent on the characteristics of the neighbourhood and the stakeholders. This concerns both physical and societal characteristics. The process in Overvecht-Noord shows that it is difficult to determine upfront what a good approach will be. This is partially due to the fact that it concerns a testing ground and there is not much experience with this transition. Therefore flexibility and a circular approach is advised. In Overvecht-Noord during the first rounds there was resistance from the inhabitants and the first plans could not be agreed upon by the stakeholders in the Regietafel. By making iterating steps; adapting organisational structures, shifting the focus of the process, and rethinking the positions of stakeholders, the programme team was capable of resolving some issues and creating more support amongst the stakeholders to a certain extent.

A second lesson that can be taken away from the process in Overvecht-Noord is that interests and sense of urgency have significant influence on the course of the process. In Overvecht-Noord it appears that not every party involved feels the required sense of urgency that makes them open up to making concessions in the negotiations. No one is convinced that after a certain period of time there won't be any more natural gas available. Without this sense of urgency stakeholders will not find the need to make the required compromises, but rather they might hold on to unrealistic demands.

The final aspect that clearly shows in the Overvecht-Noord process is that the natural

gas transition includes a societal component that has a lot of impact on the process and that involving the inhabitants of the neighbourhood is a very difficult challenge. In the existing built environment an important part of the decision making power is vested with the building owners. Every owner-occupier has the authority to decide what happens to his property to a certain extent. Also tenants have an influence in the decision making because permission from the tenant is required in order to apply energy renovations to the dwelling.

As turned out in Overvecht-Noord the involvement of the inhabitants in the process is challenging. At first there was resistance towards the plans of making the neighbourhood free of natural gas and later in the process some inhabitant groups started neighbourhood initiatives in order to enforce their interests and influence the process. A close involvement of the inhabitants is desirable so that they are part of the knowledge generation process and therefore are not only more aware of how certain decisions came to be, it likely also creates the sense that the decisions made are also their decisions opposed to imposed decisions by the government. Finding the appropriate way of including the inhabitants in the process is however challenging. There is a concern with the legitimacy of any representation for the inhabitants since this group consists of a very diverse set of individuals with differing interests and opinions. Therefore there is a concern that representation for the inhabitants might focus more on the interests of a select few than actually represent all residents of the neighbourhood.

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