10 facts about Dutch home owners and frontrunners involved in nZEB renovation of single-family homes

1. A mixture of drivers lead home owners to undertake an nZEB renovation. Particularly, building conditions and environmental reasons play an important role.

2. Home owners undertaking an nZEB renovation have specific energy saving targets in mind. About 61% had an energy performance level in mind prior to the start of the renovation process, another 19% report targets were set during the process. After completion of works, home owners do not always feel that their energy saving objectives are completely achieved (only 38% confirmed this).

3. Potential problems can occur at all stages of the renovation process. Frontrunners in the Netherlands most frequently point that what goes less well is often related to the diagnosis (30%), design (24%) and execution (18%).

4. About half of the frontrunners today (51%) makes use of quality assurance instruments, to ensure they have the proper skills/knowledge for nZEB renovation and to ensure the quality of products they use on site.

5. 63% of the home owners claim ensuring themselves about the skills of actors involved before deciding who to work with, it is however not entirely clear how. Most frequently reported mechanism are: actors having on-site training or expertise (33%) and actors recommended by people they know (27%).

6. 33% of home owners use instruments providing assurance on the quality of products used on site. 44% of these used "other means" to ensure the right quality of the products, such as common sense, own research (e.g. using internet) and recommendations by architect or energy advisor.

7. Some frontrunners today confirm the use of instruments to ensure all parties involved in the nZEB renovation work towards a commonly agreed end result. The average market penetration of these instruments could rise from 35% today to 61% in the future.

8. Most frequently used mechanisms are energy advice according to code of good practice (50%) and third-party endorsement e.g. list of recognized energy experts/advisors (50%).

9. End result related mechanisms - particularly quality labels and performance contracting - are not always providing the needed trust to home owners. On average the end-result related quality assurance instruments are considered to provide confidence to 18% of home owners.

10. A majority of customers (65%) does not know if process related quality assurance instruments provide confidence.

\[\text{Quality and Customer Confidence in nZEB renovation}\]
Hands-on recommendations on quality assurance and customer confidence for business model development in the Netherlands

Value Proposition

1. According to the survey with home owners the following aspects are of value to customers and play a role in the decision making process leading towards an energy saving renovation:
   - Upgrade of the building (one or several building related problems trigger the process)
   - Environmental reasons
   - Improved indoor comfort or health conditions
   - Financial reasons

2. Many Dutch home owners (62%) did not always feel that their energy saving objectives were completely achieved. The value proposition should somehow address the achievement of specific energy performance levels.

3. The knowledge and skills of actors involved (and the quality of products used) should be guaranteed. From experienced home owners we have seen that 44% do own research about the quality of products. 33% turned to actors having on-site training or expertise, and 27% listened to recommendations by people they know.

4. Mechanism that provide high confidence to some customers are energy advice according to code of good practice (35%) and an informal common agreement amongst actors to achieve an aspired end result (15%).

5. Human resources as skilled consultants and craftsmen are the most important resource. The majority of Dutch frontrunners have acknowledged the importance of energy advice (50%) and third-party endorsement (50%).

Key Resources

6. Prior to the start of activities, actors involved should commonly agree together with their customer on the energy performance level and energy targets. This is necessary to ensure all actors work towards a common end result and to offer guarantees after completion. A majority of home owners undertaking an nZEB renovation (60%) sets specific energy targets for the nZEB renovation work. A majority of the Dutch home owners (61%) even has a specific energy performance level in mind prior to the start of the renovation process.

7. The starting point for an nZEB renovation should be a properly executed energy advice. 83% of the frontrunners relate diagnosis problems to independent energy advice as a starting point. 50% of the frontrunners already use an energy advice according to code of good practice, in view of it’s crucial role in identifying what energy savings measures should be undertaken. Energy advice according to code of good practice also provides the highest customer confidence (35%). After completion of works, energy saving objectives should be completely achieved.

8. Lack of design knowledge with the architect/advisors (83% of respondents) is among the most important problems. Appropriate activities should thus be integrated to ensure integrated design processes and cooperation between all actors involved in order to provide knowledge increases with the architect/advisors. Most commonly, handbooks and guidelines are used (75%), training programmes and courses (75%), on-site training or experience (56%) and quality labels and certification schemes (56%). Various actors are experimenting with the systematic use of scrum teams and lean construction processes.

9. The appointment of a project/process manager in charge of overall coordination is a particularly valuable potential solution to ensure on-site coordination, collaboration and quality control. It is currently still only used by a minority in the Netherlands (15%). At the same time a most frequently reported problems by frontrunners is lack of on-site coordination and cooperation (63% of respondents). Control and learning on site and lean construction processes can be a key activity.

10. Appropriate attention should be paid to activities related to hand-over and follow-up during use phase. A potential activity that can strengthen a business proposition towards customers is the delivery of a user guide with clear maintenance guidelines and instructions (already used by 59% of the frontrunners). Also, maintenance contracts and a project/process manager in charge of overall coordinated are used by 33% of the frontrunners.

Key Activities

11. Partners attracted in the business proposition should have the appropriate knowledge and skills related to nZEB renovation (acquired through handbooks, guidelines, training programs and so on) and should have appropriate previous on-site experience. In particular nZEB renovation projects require the involvement of skilled and experienced architects and advisors. Lack of knowledge with the architect/advisor was reported by 53% of frontrunners as a problem hindering the quality of nZEB renovation projects.

12. In general, for all actors involved it should be considered to work with actors that feature third-party endorsement, with actors that guarantee providing energy advice according to a certain code of good practice or actors that use a quality label/certification for products used on site.

13. A skilled and experienced energy advisor should be involved in the partnership. The starting point for an nZEB renovation should be a proper energy advice. It is recommended to involve an energy advisor that works according to an endorsed code of good practice for nZEB renovation (e.g. according to the Meer met Minder requirements, or actors delivering certificates endorsed by independent institutes, for example PassiefBouwenKeur).

14. Endorsements and listing of the service by neutral actors are important channels to potential customers. It is therefore important to establish connections with neutral actors.

Key Partners

15. Partners attracted in the business proposition should work with actors delivering certificates endorsed by independent institutes, for example PassiefBouwenKeur.