

# How actors align their different goal frames regarding the disconnecting of households from natural gas.

A comparative case study involving three neighbourhoods in the Netherlands.

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## 1. Introduction

The goal of the Dutch government is to almost completely replace its fossil-based energy system with an energy system that is sustainable, renewable and emission-free by 2050 (Jansma et al., 2020). This objective is embedded in the Dutch Climate Agreement, signed on June 28 2019, and has come into being due to various reasons (Klimaatakkoord, 2019).

One of these reasons is that the reduced availability of domestic natural gas (because the subsidence of the houses in Groningen is causing the extraction of natural gas to be phased out), poses new challenges to the Dutch energy supply. With the phasing out of domestic gas exploitation, the energy supply has become more dependent on importing natural gas. Due to political unrest and dependence on gas supplies from unstable countries (e.g. Russia), it is wise to become more self-sufficient in terms of energy supply (Hölsgens, 2019).

Another reason for the Netherlands to transition to an energy supply that is self-sufficient and renewable is climate change. The emission of fossil fuels and the resulting increased greenhouse effect is causing the earth to warm up, which leads to climate change (Anderson et al., 2016; Crowley, 2000). This has significant consequences for the planet, people and animals. The Paris Agreement is an international treaty on climate change and entered into force on 4 November 2016 (UNFCCC, 2015). The main goal of the Paris Agreement is to limit global warming (the increase in the temperature worldwide) to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels.

Due to the aforementioned reasons, the energy transition in the Netherlands involves mainly the disconnecting of households from natural gas. This goal is specific to the Netherlands. Other countries are trying to achieve the goals of the Paris Agreement in other ways. Germany, for example, is accelerating its transition from coal to natural gas (Wilson & Staffell, 2018). The Dutch Climate Agreement shows that disconnecting households from natural gas is a state responsibility, but that the actual disconnection of neighbourhoods must be undertaken at the municipal and provincial level (Klimaatakkoord, 2019). Because neighbourhoods differ greatly and sustainable solutions must be customized, municipalities play a crucial role in this. They must decide what the most appropriate and affordable option is for a particular neighbourhood.

However, municipalities are finding it difficult to get cooperation from residents (Jansma et al., 2020; Scholte et al., 2020). Statements from residents show that local initiatives to disconnect households from the natural gas in local neighbourhoods often fail, because the various actors cannot reach an agreement (Berg, 2021). For example, residents are afraid of high costs, do not acknowledge the necessity or believe that the pleasure of living will decrease if the house becomes gas-free (Berg, 2021; Jansma et al., 2020).

A provincial initiative dedicated to bringing together actors and accelerating the disconnection of natural gas from neighbourhoods is the Gelderland Energy Agreement (hereinafter: GEA). This initiative has adopted the goal of the Dutch Climate Agreement to make Gelderland CO<sub>2</sub>-neutral by 2050 (Klimaatakkoord, 2019). This goal has been specifically translated into disconnecting homes from natural gas and making them energy neutral. The Central Bureau of Statistics shows that far too few households have been disconnected from the gas and switched to sustainable energy in recent years (Central Bureau of Statistics of the Netherlands, 2021: "92 per cent of households powered by natural gas at the start of 2019"). As mentioned earlier, local initiatives regarding disconnecting neighbourhoods from natural gas thus often fail. This is due to the fact that there are many different actors and interests involved in these local initiatives (Berg, 2021). Actors do not succeed in reconciling these different interests that actors have from different motivations. It is therefore important to research what the dominant motivation of actors is and how actors can align these dominant motivations during the process of an initiative that seeks to achieve the disconnection of a neighbourhood from natural gas.

The dominant motivation of an actor will be viewed in this thesis through the lens of goal-framing theory. Lindenberg and Steg (2007) distinguish three goal frames, namely the hedonic goal (hedonism is a philosophical doctrine related to pleasure), the gain goal (to sustain and improve one's resources) and the normative goal (behave according to rules of conduct). According to Lindenberg and Steg (2013), each of these goal frames can be the focal goal frame with the other goal frames fading into the background. This focal goal frame is the leading goal and therefore the dominant motivation of an actor. Of the three goal frames distinguished, Lindenberg and Steg (2007) suggest that the normative goal frame probably has the greatest impact on pro-environmental behaviour<sup>1</sup>. Normative goal frames have a stronger effect if people are aware of the consequences that certain actions have on the environment.

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<sup>1</sup> Pro-environmental behaviour is defined as behaviour that ensures that the environment is not damaged or is damaged less. In the case of this thesis, the pro-environmental behaviour to be promoted is participating in initiatives that seek to disconnect households from natural gas. The interpretation of pro-environmental behaviour is explained each time the meaning is relevant.

Lindenberg and Steg (2013) suggest that environmental awareness therefore contributes to pro-environmental behaviour. Other authors, however, are of the opinion that hedonic or gain goal frames are the most important for pro-environmental behaviour. Donmez-Turan and Kiliclar (2021) for instance, concluded in their research that a gain goal frame was more important than a normative goal frame in accounting for pro-environmental behaviour (recycling). A study by Geng et al. (2016) also found that the most significant change in pro-environmental behaviour (green modes of transport) came from the gain goal frame. Other authors have found indications that the hedonic goal frame can also be important for pro-environmental behaviour (De Young, 2000; Pelletier et al., 1998; Smith et al., 1994).

In terms of aligning the goal frames, alignment strategies are important (Benford & Snow, 2000). As mentioned earlier, too few households are yet disconnected from natural gas and local initiatives that attempt to achieve that often fail, whereas the main difficulty lays in aligning goal frames. Without the alignment of goals there is no or too little commitment. A low level of commitment could lead to people who *exit* the initiative, which means quitting the initiative (Hirschman, 1970). As a result no course of action is taken (Meyer et al., 2004). Alignment strategies focus on linking actors their orientations, causing their goals to become congruent and complementary in, within the scope of this thesis, a local initiative (Snow et al., 1986). Alignment involves a number of strategies to align the interests and goal frames of actors to bring about a collective course of action (Benford & Snow, 2000). The alignment strategies identified by Benford and Snow (2000) are the following: frame bridging, frame amplification, frame extension and frame transformation.

This thesis researches goal frames and alignment strategies in the context of local neighbourhoods that aim to disconnect households from natural gas. Therefore, the scientific relevance of this thesis aims to contribute to goal-framing theory and frame alignment theory by researching how actors can align their goal frames when it comes to local initiatives regarding the disconnecting of households from natural gas (Benford & Snow, 2000; Lindenberg & Steg, 2007). To this end, we also research the influence of goal frames on the commitment of actors, whether specific alignment strategies can be applied to connect specific goal frames and which goal frames and alignment theories are dominant in local initiatives (Benford & Snow, 2000; Lindenberg & Steg, 2007; Meyer et al., 2004). In addition, identifying from which goal frame actors act and which alignment strategies they use (or do not use) during the process will help actors align their goal frames in future local initiatives regarding the disconnecting of households from natural gas. Aligned goal frames increase commitment which in turn makes sure a course of action can be taken and thereby

accelerate the energy transition (Meyer et al., 2004). To gain this insight, the goal of this thesis is to research the similarities and differences between actors in terms of goal frames and alignment strategies in three different neighbourhoods. This leads to the following research question:

*How do actors align their goal frames in a local initiative regarding the disconnecting of households from natural gas in neighbourhoods and what are the similarities and differences in terms of goal frames and alignment strategies between the three neighbourhoods?*

In this thesis we will first present the theoretical background, in which we address the meaning of framing in this thesis. Hereafter we will address the different goal frames as formulated in the goal-framing theory – which are normative, hedonic and gain goal frames (Lindenberg & Steg, 2013). We will continue by considering the alignment strategies of Benford and Snow (2000). After the description of the theory we will continue with the methodology and the analysis. After that comes the discussion and we will finish with a conclusion.

## 2. Theory background

### 2.2 Framing

#### 2.2.1 Background of frames and framing

Frames are perspectives on how actors view ‘reality’. In this thesis the reality entails the transition of houses from natural gas to renewable energy sources. The definition of ‘frame’ is derived from Goffman (1974) and is defined as a way to denote ‘schemata of interpretation’ which enables people to label events in their life. By giving events a certain ‘value’, frames have an ordering function where decisions can be made based on valuation. Actors have a certain motivation in the process which makes them hesitant or driven on disconnecting households from natural gas. In this thesis, we are mainly interested in the dominant motivation that the actors have. This dominant motivation and the resulting behaviour has to do with what goals actors are pursuing (Meyer et al., 2004). The idea that goals are important in motivating people has its roots way back (Locke & Latham, 1984). A theory that has been developed on the basis of goal setting theory is the goal-framing theory from Lindenberg (2001), which distinguished different dominant motivations as goal frames. These dominant motivations are important because they lead to a certain degree of commitment; such as; time, investments or wanting to comply to certain expectations. This commitment is in turn important because, according to Meyer and Herscovitch (2001) commitment is a force that binds individuals to a course of action. The degree of commitment, among other things, plays a major role in the outcome of a local initiative regarding the disconnecting of households from natural gas in local neighbourhoods. A high degree of commitment corresponds with a high degree of loyalty (Hirschman, 1970). Actors must have a certain commitment to actually put ideas, to disconnect homes from natural gas, into practice. In case of low commitment because, for example, the benefit of a participant to participate decreases, there are two options according to Pete (Hirschman, 1970); They can *exit*, which means withdrawing from the initiative; or they can *voice*, which means attempting to improve their benefit through the communication of the grievance or decrease in benefit. *Voice* happens, for example, by making the grievance clear to politicians. Residents and the grid operator, for example, must work together to make this happen. Without the necessary commitment of the residents, this is an almost impossible task as no course of action will be taken (Meyer et al., 2004).



### 2.2.2 Goal-Framing Theory

Lindenberg and Steg (2007) introduce Goal-Framing Theory as an important theory for environmental psychology. “The central idea is that goals govern or ‘frame’ what people attend to, what knowledge and attitudes become cognitively most accessible, how people evaluate various aspects of the situation, and what alternatives are being considered” (Lindenberg & Steg, 2007, p. 119). These goal frames filter information from the environment in a certain way. If someone is focused on a sustainable neighbourhood because he wants to live up to a certain norm, they pay less attention (or not at all) to information about costs, as the dominant motivation is not about costs. The dominant motivation, the goal frame, directs the absorption of specific information. As previously mentioned, this dominant motivation leads to a certain commitment and a course of action. Depending on the goal frame, the commitment consists, for example, of an investment (gain goal frame).

### 2.2.3 Hedonic, gain and normative goal frames

Lindenberg and Steg (2007) review three goal frames, namely the hedonic goal frame (hedonism is a philosophical doctrine related to pleasure), the gain goal frame (to sustain and improve one’s resources) and the normative goal frame (behave according to rules of conduct).

The objective in a hedonic goal frame is to improve how one feels. This is achieved by activating one or more sub goals that can increase a person’s mood, such as avoiding effort or seeking pleasure (Lindenberg & Steg, 2007). The time horizon is often very short because someone wants to feel better as soon as possible (Lindenberg & Steg, 2007). This short time horizon could have a major impact on the commitment people want to make. For example, people with a short time horizon will often not want to invest in something from which they can only reap the benefits in the long term. With solar panels, for example, it takes a certain period of time, the payback period, before an investment is made profitable (Breukel et al., 2016). When people have a short time horizon, they are less likely to choose this type of solution.

A gain goal frame makes people aware of changes in their personal resources and they have a medium or long time horizon (Lindenberg & Steg, 2007). Goal realization can be achieved by improving one’s resources or by using them more efficiently (a sub goal is, for example, saving money) (Lindenberg & Steg, 2007). A study by Steg and Vlek (2009) shows that pro-environmental behaviour can be inhibited by the fact that green purchasing behaviour is more expensive. De Groot and Steg (2009) state that people with a strong egoistic value

orientation will make a cost-benefit consideration to see if the perceived benefits exceeds the cost for acting pro-environmentally. A gain goal often involves the financial side of things (Jansma et al., 2020). Homeowners make a cost-benefit analysis when considering if their investments they have to make to disconnect their households from natural gas will justify these costs through a lower future energy bill (Jansma et al., 2020). If the answer to this question is negative, someone by whom the gain goal frame plays the biggest factor is unlikely to make this investment. Research has shown that Dutch households are less interested in energy saving household improvements than other countries, because they are concerned about the high investment costs, among other things (Backhaus, 2019).

A normative goal frame means acting appropriately and ‘doing the right thing’ (Etienne, 2011; Lindenberg & Steg, 2007). Think, for example, of a grid operator who must abide by certain energy laws. In a normative goal frame, Lindenberg and Steg (2007) suggests goals that we have seen in a hedonic goal frame and gain goal frame are not relevant. However, the research of Chakraborty et al. (2017) shows that the above-mentioned vision from this might be a bit too short-sighted and that goal frames can in fact coexist and even interact. Chakraborty et al. (2017) found that the indirect effect of hedonic or gain goal via normative goals led to more pro-environmental behaviour. Furthermore, the study also showed that the hedonic goal has a significant correlation with gain goal, which suggests that both goals influence each other. Certain pro-environmental behaviour can serve both hedonic and gain goal motivations. In studying whether there was a positive relationship between goal frames and pro-environmental behaviour, Chakraborty et al. (2017) also found that normative and gain goals had a direct effect on pro-environmental behaviour, but that the hedonic goal only had this positive effect when mediated by the normative goal.

Of these three goal frames, Lindenberg and Steg (2007) suggests that the normative goal frame probably has the greatest impact on pro-environmental behaviour in the population at large. In addition Lindenberg and Steg (2007) state that normative goal frames have a stronger effect if people are aware of the consequences that certain actions have on the environment. Lindenberg and Steg (2013) suggest that environmental awareness therefore contributes to pro-environmental behaviour. However, this effect was not found in the study of Yang et al. (2020) that involved green purchasing behaviour. The mediation effect of a normative goal frame was not found to be higher when environmental awareness<sup>2</sup> is higher (Yang et al., 2020). That environmental awareness in general (also called ecological

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<sup>2</sup> Yang et al., 2020 used PSEP, which “is defined as resident’s overall assessment of the current situation on environmental crisis, which reflects the public’s concern and subjective perception of environmental problems” (Yang et al., p. 1211).

worldview in other studies) influences pro-environmental behaviour is found in subsequent studies (see for example; Wu (2018), Liobikienė and Poškus (2019) & Donmez-Turan and Kiliclar (2021)).

In a gain goal frame, a particular cost-benefit analysis is much more likely to be considered, rather than a pro-environmental solution. An example of this is the following. A gain goal frame sometimes involves the financial side of things (Jansma et al., 2020). If solar panels were free, many people would install solar panels in order to potentially disconnect their homes from natural gas. In addition, a cost-benefit analysis is often considered, where the question is asked whether something is financially worth the investment. However, gain goal frames do motivate people to buy less materialistic things which also results in less consumption (Liobikienė & Minelgaitė, 2021). This is because people in a gain goal frame want to be efficient with their financial resources. By buying object A, they can no longer buy object B or they can no longer do activity C. This efficiency can play a role in whether or not to choose solutions that disconnect homes from natural gas. People in a hedonic goal frame are very dependent on their attitudes and short-term vision, so the path of least resistance and the path of happiness is not always the same as the pro-environmental path. On the other hand, people with a hedonic goal frame make pro-environmental choices, such as buying green products, to raise their status (Liobikienė et al., 2020). Also, people with a hedonic goal frame may engage in pro-environmentally behaviour because it is enjoyable for them to do so (Liobikienė & Minelgaitė, 2021; Pelletier et al., 1998).

Other authors, however, believe that the gain or hedonic goal frame has the most influence on pro-environmental behaviour. We will first discuss the authors who have conducted research on the hedonic goal frame. A study by Smith et al. (1994) has shown a significant relationship between affect and environmental behaviour. In addition Pelletier et al. (1998) have shown that people are more likely to engage in pro-environmental behaviour when they derive satisfaction from acting that way, compared to acting in accordance with moral standards. This was most evident when the desired behaviour was difficult for people. An interesting view from De Young (2000) shows that some people engage in certain environmental behaviour just because it makes them happy. So although the consequences of the behaviour are the same, the underlying idea is actually one of enjoyment (De Young, 2000; Lindenberg & Steg, 2007).

As mentioned earlier, the objective in a gain goal frame is primarily to protect your own resources. Ajzen (1985) has researched theory that assumes that people are motivated by self-interests and that a cost-benefit consideration will drive their behaviour. In several

studies, this has proven successful in explaining environmental behaviour. Examples of these are household recycling (Mannetti et al., 2004) and the purchase of energy-saving light bulbs, unbleached paper use, water use and meat consumption (Harland et al., 1999). Lindenberg and Steg (2007) also cite a study by Bamberg and Schmidt (2003) that shows that in the case of behaviour that involves high costs, people are more likely to exhibit pro-environmental behaviour if the cost-benefit sum is positive. The situation in this thesis, initiatives to disconnect households from the gas is a situation that often involves high costs for residents. It would therefore not be out of the question for residents to mostly act from within a gain goal frame in the process to disconnect households from natural gas.

In a recent study, Donmez-Turan and Kiliclar (2021)<sup>3</sup> showed that the gain goal frame had a greater impact on pro environmental behaviour than a normative goal frame. The pro-environmental behaviour in this study concerned the action of throwing trash in the recycling bin. In short, the findings of this study indicated that those with high scores on an ecological worldview test were more likely to exhibit pro-environmental behaviours after receiving training. The study also showed that the gain goal frame had more influence than the normative goal frame. This could be related to the socio-economic status of students. A study by Arroyo and Carrete (2019) found that gain goals increased the adoption of green energy for people who have a medium socio-economic status. In contrast, normative goals increase the adoption of green energy for people with high socio-economic status.

In summary we can conclude that all three goal frames have influence, but that it is sometimes difficult to say which frame is dominant in an actor. Now that we have established that different goal frames are active among actors, it is also important to consider how actors can align these different goal frames. Therefore, I will discuss alignment in the next section of the theory.

## 2.3 Alignment

### 2.3.1 Strategic alignment processes

Snow et al. (1986) refer to frame alignment as the linkage of actors' individual and social interpretive orientations, causing individual interests, values, beliefs, goals and ideology become congruent and complementary. Actors refers to individuals and organizations that have a stake in the process of disconnecting homes from natural gas (Avelino & Wittmayer, 2016). according to the multi-actor perspective of Avelino and Wittmayer (2016), there are several categories of actors; the state, the market, the community

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<sup>3</sup> We specifically refer to 'study 1' in the article by Donmez-Turan and Kiliclar (2021).

and the third sector. Although there are often many actors active in the neighbourhoods, we limit the number of actors in my thesis to ones we felt were most important in the context of my research on a local initiative. These are the following: the municipality, the housing corporation, the grid operator and the residents organization.

Snow et al. (1986) have identified four strategies which can lead to such alignment between different orientations, in the case of this thesis goal frames, from actors – frame bridging, frame amplification, frame extension and frame transformation – each of which we will explain.

### 2.3.2 Frame bridging

Frame bridging is defined by Snow et al. (1986) as the linking of ideologically congruent but structurally unconnected frames regarding a specific issue. “Bridging can occur between a movement and individuals, through the linkage of a movement organization with an immobilized sentiment pool or public opinion cluster, or across social movements” (Benford & Snow, 2000, p. 624). The unmobilized sentiment pools or public opinion clusters are defined by McCarthy (1986) as groups of individuals which share common complaints or opinions, but cannot express their displeasure because they lack a way to bind their opinions in an organizational manner to pursue their interests. Frame bridging is conducted for instance by information diffusion by organizations (Snow et al., 1986). Of course, the article of Snow et al. (1986) is from a time prior to social media and the way frame bridging takes place has also changed over the years. However, this does not take away from the fact that frame bridging is still an important method for bringing people together and for acquiring resources (such as capital). Much of the information diffusion will occur through online news and through social media such as Facebook. Also, the rise of search websites such as Google has made it easier to conduct one's own research on information sources. A situation from Snow et al. (1986) where the organizations send letters to collect money won't be as common these days. This kind of frame bridging for the purpose of fundraising is often done in other ways – take crowdfunding for example (Mollick, 2014). In addition, the internet and social media are widely used to convey information, e.g. electronic newsletters or updates.

### 2.3.3 Frame amplification

Frame amplification refers to clarification of existing values, beliefs or problems (Benford & Snow, 2000; Snow et al., 1986). Since one of the key factors that determine

whether or not a proposed frame will resonate with potential supporters has to do with the level of alignment of the frame with existing cultural values and beliefs, it is not surprising to discover that most movements seek to reinforce existing values and beliefs (Benford & Snow, 2000). Benford and Snow (2000) use an example of an article from Berbrier (1998) where white separatists use a wide range of frame amplification strategy in an attempt to transform the stigma of white supremacy by using language such as "ethnic affectations" such as "love," "pride," and "heritage preservation." Snow et al. (1986) suggest that there are two varieties of frame amplification – value amplification and belief amplification.

Value amplification, as the name suggests, refers to the emphasizing of values that are considered fundamental to future supporters, but which, for one reason or another have not led to action. Values that are important in the context of the thesis are, for example, sustainability and socio-economic equality. Snow et al. (1986) cite examples of what may have happened to values by which value amplification is needed: “They may have atrophied, fallen into disuse, or have been suppressed because of the lack of an opportunity for expression due to a repressive authority structure (Tilly, 1978) or the absence of an organizational outlet (McCarthy, 1986); they may have become taken for granted or clichéd (Zijderveld, 1979); they may not have been sufficiently challenged or threatened (Turner and Killian, 1972); or their relevance to a particular event or issue may be ambiguous (Goffman, 1974)” (Snow et al., 1986, p. 469).

In the belief amplification variety, belief refers to assumed relationships between two or more aspects – such as climate change is bad or the earth is flat. Where values refer to the goals that actors seek to achieve, beliefs should be understood as idealistic elements that encourage action or obstruct it (Bem, 1970; Snow et al., 1986). Furthermore, Snow et al. (1986) state that there are five types of belief amplification relevant to movement and participation processes.<sup>4</sup>

A study of frame amplification in which the use of this strategy was highly observable is described in an article by McCammon et al. (2004). McCammon et al. (2004) conducted research on woman suffragist in the United States. To generate supporters to gain voting rights for women they used various forms of rhetorical information. On the one hand, they

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<sup>4</sup> (1) The previously discussed beliefs about the seriousness of the problem, issue, or grievance in question (Gamson et al., 1982; McAdam, 1982; Piven and Cloward, 1977; Turner, 1969); (2) beliefs about the locus of causality or blame (Ferree and Miller, 1985; Piven and Cloward, 1977; Zurcher and Snow, 1981); (3) stereotypic beliefs about antagonists or targets of influence (Shibutani, 1970; Turner and Killian, 1972); (4) beliefs about the probability of change or the efficacy of collective action (Klandermans, 1983, 1984; Oberschall, 1980; Olson, 1965; and Piven and Cloward, 1977); and (5) beliefs about the necessity and propriety of "standing up" (Fireman and Gamson, 1979; Oliver, 1984; Piven and Cloward, 1977).

used a 'justice' argument where the argument entailed that men and women are equal and therefore should have equal rights. The other argument looked at 'reform' which implied that women should be on the ballot because women contribute greatly to politics. These differently framed arguments were used at different times and with different target groups. By doing so, this suggest they distinguished which approach would work best with a specific group of people (McCammon et al., 2004). It seems that by doing so they were trying to convince as many people as possible of their point of view, albeit not all with the same arguments (McCammon et al., 2004). Because there are many different interests involved in disconnecting households from natural gas, frame amplification as used in the example above can be well used to reach as large a group of people as possible. By appealing to people's goal frames, it is possible to get more people involved in local initiatives regarding the disconnecting of households from natural gas. To persuade actors with a gain goal frame to opt for disconnecting their home from natural gas, you could use more arguments that make a sustainable solution more financially attractive, whereas with actors with a normative goal frame, you need to use more arguments that have to do with a shared commitment to reform the fossil energy system.

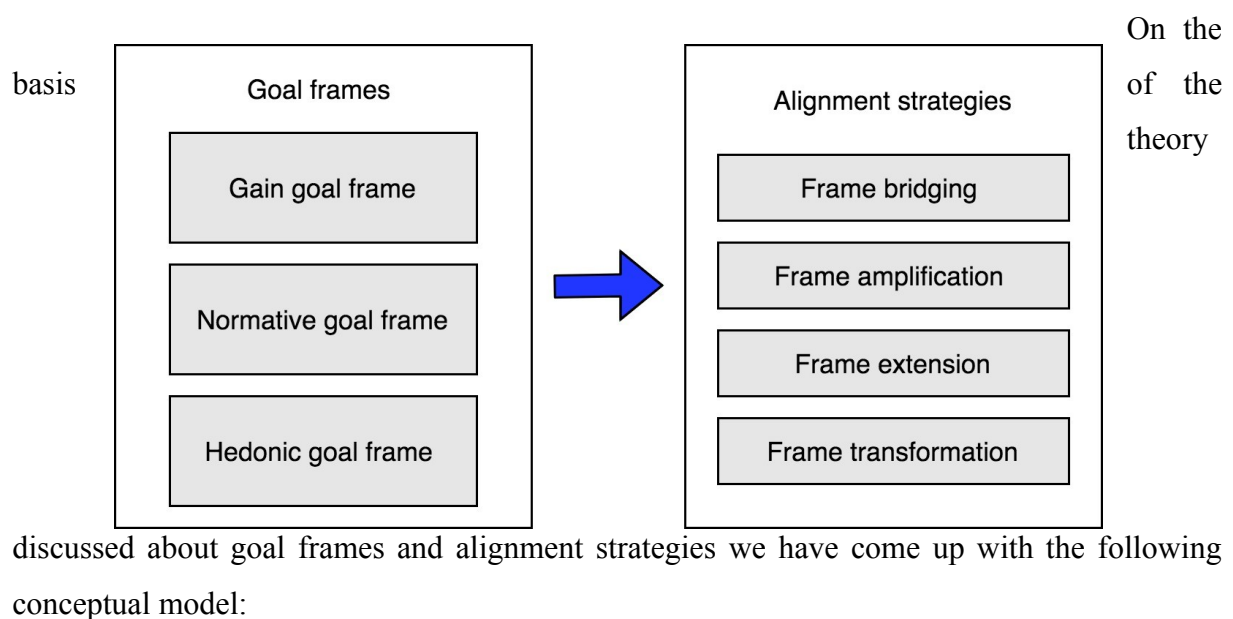
#### 2.3.4 Frame extension

Frame extension implies that actors interests and frame extend beyond its primary interests to include issues and concerns believed to be of interest to the potential interested people for whom they are implementing this strategy (Benford & Snow, 2000). In addition, frame extension is used by actors to promote goals in terms of values and beliefs that may not be particularly noticeable to potential interested people, necessitating the reinforcement of these goals to clarify the link between personal or group interests and support for the actors (Snow et al., 1986). It is important to note, in this respect, that the desired results of this alignment strategy is by no means always achieved and that opposite effects also occur (Benford & Snow, 2000). When we look at disconnecting households from natural gas, for example, frame expansion could look at expanding the frame by involving all kinds of interests that make a large group of people feel involved.

#### 2.3.5 Frame transformation

Old values and beliefs of actors are sometimes outdated. By outdated we mean that the old understandings may not correspond to modern-day standards. They may even appear

unethical to conventional lifestyles or existing frames (Snow et al., 1986). If this is the case then the old understandings have to be changed into new ones, this is what frame transformation is about (Benford & Snow, 2000). It can be useful to transform existing frames. For example, to persuade opponents or to reach new interested people. If we translate this to disconnecting households from natural gas, for example, frame transformation could involve transforming the perception that a natural gas-free home is necessarily more expensive than one that does use natural gas. Or debunking the idea that natural gas as an energy source is clean enough and thereby emphasizing the importance of being completely CO<sub>2</sub>-emission free.



*Figure 1: Conceptual model*



Actors have different goal frames, namely the gain goal frame, the normative goal frame and the hedonic goal frame (see also section 2.2). At the same time, actors want other actors to commit to the process. For example, by entering into letters of intent or by setting up a declaration of cooperation. To this end, different alignment strategies are used - frame bridging, frame amplification, frame extension and frame transformation (see also section 2.3). These alignment strategies may be able to ensure that different goal frames are aligned with each other and thereby making it possible for more households to be disconnected from natural gas.

### 3. Methodology

#### 3.1 Outline

This chapter will elaborate on the methodology in this study. We have used a qualitative method which specifically entailed conducting a multiple case study (Yin, 2003). First, we will elaborate on the chosen method. Secondly, we will address which data sources will be used and how the cases are selected. Subsequently, we will go into the data analysis procedure. The data analysis procedure is followed by explaining how the quality of this research is ensured. And finally, we will explain how research ethics will be addressed.

#### 3.2 Research strategy and method

In order to be able to answer the aforementioned research question, in-depth research is necessary. This thesis researches goal frames and alignment strategies in the specific context of local neighbourhoods that aim to disconnect households from natural gas. The use of alignment strategies to unify the different goal frames of actors has not yet been studied in the context of local neighbourhoods. Hence, this is mainly the reason why a qualitative study is undertaken. Qualitative research helps to interpret terms in a specific context (Ketokivi & Choi, 2014). In addition, qualitative research is better able to depict social processes because qualitative research is more sensitive to nuances and complexity (Earl-Babbie, 2013). According to Yin (2003) qualitative research, and in particular a case study, is ideally suited

for viewing a certain phenomenon in a specific context. A case study is ‘an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’ (Yin (2003, p. 13). Also, case studies are useful for answering ‘how-questions’, which makes them suitable for answering the research question of this thesis (Yin, 2003). Also, case studies are useful for answering how-questions, which hopefully also makes them suitable for answering the research question of this thesis. Since we want to be able to make a comparison between three different neighbourhoods we are going to conduct a comparative case study (Ragin, 2014). We will first look at how the goal frames and alignment strategies appear in each case among actors, and then we will highlight the similarities and differences between the cases.

### 3.3 Data collection method

In case study research, there are multiple ways to collect data such as interviews, documents, and observations (Yin, 2003). When doing a case study, it is recommended to use multiple sources, also called data triangulation (Yin, 2003). Hence, this is the reason why we used multiple sources in this thesis like interviews, observations and collected documents. Using data triangulation allows the examination of cases from various sources, which in turn enables a crosscheck of the findings. Due to time constraints not the same amount of data was used for each neighbourhood. Incidentally, we do not think that this fact causes an anomalous picture. Regarding the interviews, a semi-structured method was used where the researcher prepared a list of questions where the answer to that question was open-ended. The big advantage of semi-structured interviews is that reciprocity can take place between the participant and the interviewer (Galletta, 2013). This has the consequence that you, as a researcher, can respond to the answers given by the respondent. You can also adapt the question to the answer given by the respondent. This will give you the most complete and comprehensive interview possible (Kallio et al., 2016). When using semi-structured interviews the researcher needs a certain level of knowledge about the research topic area, because without this knowledge it is impossible to formulate questions (Kallio et al., 2016). These interviews are recorded which allows the researcher to fully focus on the person with whom the interview is taking place. By recording the interview, the interview could be transcribed and used for the analysis. Concluding, the relevant data consists of interviews already conducted, additional data, observations and secondary data sources. Additional data is collected by conducting by additional interviews in the Benedenbuurt in Wageningen. One

of these interviews was arranged because a respondent referred me to someone. This method of snowball sampling can be very helpful in qualitative research when doing interviews, because respondents may have a valuable network at their disposal. It is also possible that they will provide contact information for an important actor that would have been difficult or impossible for one to find on their own (Noy, 2008). The interviews used in the analysis are listed in Appendix 3.

### 3.4 Case selection

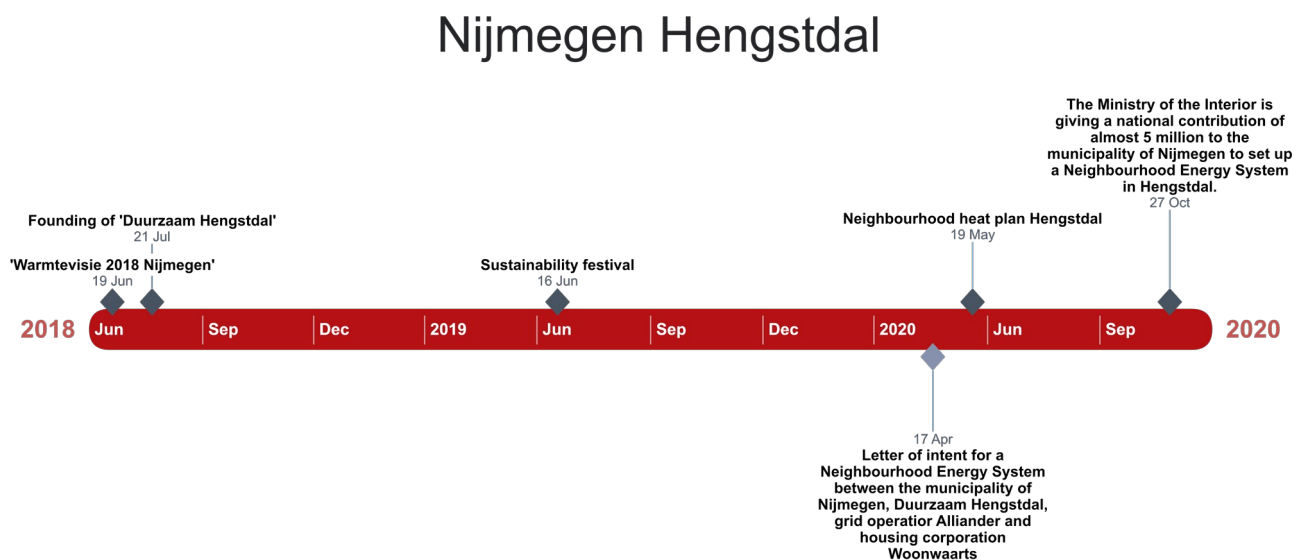
#### 3.4.1 Gelderland Energy Agreement

As stated before, a multiple case study is conducted so we can research similarities and differences in terms of goal frames and alignment strategies between neighbourhoods. To select the cases, we chose three ‘Neighbourhoods of the Future’. These are neighbourhoods that the GEA (The Gelderland Energy Accord, see also the introduction) has designated to be made more sustainable. As mentioned before the GEA is a provincial initiative. It is a network organization where more than 200 partners work together on the energy transition of Gelderland (Gelders Energieakkoord, 2015).

Neighbourhoods of the future are the most important instrument to achieve the goal to make Gelderland energy neutral by 2050. GEA now includes 28 of these neighbourhood initiatives, among other initiatives in for instance the mobility sector. In these neighbourhoods, residents, municipalities, the grid manager and energy companies work together to make a neighbourhood more sustainable and ultimately disconnect the neighbourhood from natural gas (GEA, 2021).

### 3.4.2 Nijmegen Hengstdal

Hengstdal is a neighbourhood selected by the city council to be one of the first neighbourhoods in Nijmegen to become natural gas-free. Various sustainability initiatives have been developed in the neighbourhood. At first it was thought that all electric would be feasible, but after further research it turned out to be very difficult. The focus is therefore now on a heat grid, seasonal storage and geothermal heat, which could theoretically be connected to the neighbourhood heating system. The feasibility of this variant is now under investigation. There are now plans to create a Neighbourhood Energy System ('Buurt Energie Systeem' (BES)) with part of the neighbourhood (Fokkema, & Scholtens, 2017). The actors include the residents organization, municipality of Nijmegen, the grid operator and the housing corporation. The timeline below lists the most important events in chronological order.

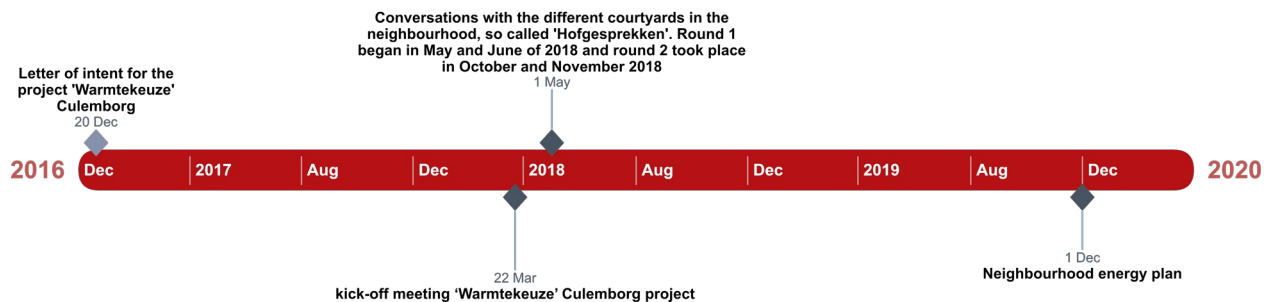


*Figure 2: Timeline Nijmegen Hengstdal*

### 3.4.3 Culemborg EVA-Lanxmeer

The municipality of Culemborg has set itself the goal of being energy-neutral by 2040. EVA-Lanxmeer is one of the neighbourhoods in Culemborg (located in Culemborg Zuid Oost) that want to become natural gas-free. In 2016, parties entered into a letter of intent 'Warmtekeuze Culemborg' until the end of 2018, the aim of which was to use a neighbourhood-oriented approach to jointly arrive at a choice of heat in Culemborg and to investigate whether sustainable heat supply is feasible. The neighbourhood is currently in the feasibility and planning phase. A transition vision has been prepared and people are looking at the financial options (Fokkema, & Scholtens, 2017). The actors include the residents organization, municipality of Culemborg, the grid operator and the housing corporation. The timeline below lists the most important events in chronological order.

## Culemborg EVA-Lanxmeer



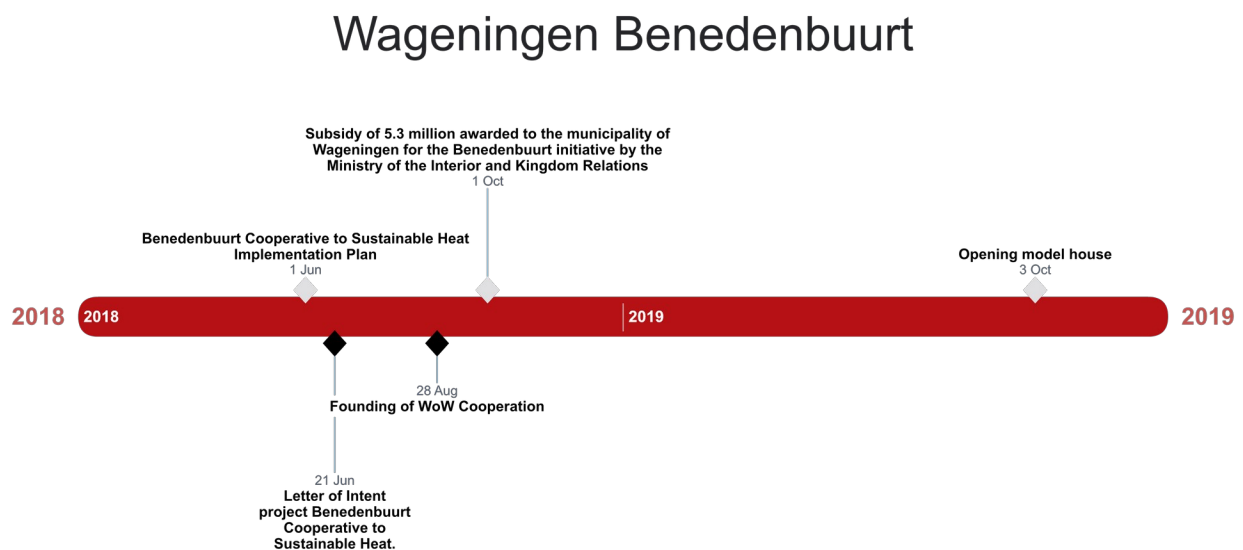
*Figure 3: Timeline EVA-Lanxmeer*



### 3.4.4 Wageningen Benedenbuurt

The Benedenbuurt in Wageningen consists of about 490 houses, all built in the 1950s. Two-thirds of the houses are owner-occupied and one-third are rental properties. So, both the owner of the rental properties and the residents of the owner-occupied properties are important in making the neighbourhood natural gas-free.

A residents' initiative has arisen in the Benedenbuurt neighbourhood that wants to work together on making the neighbourhood natural gas-free. There were extra opportunities to make the neighbourhood gas-free because the sewerage system urgently needed to be replaced and the gas pipes would have to be replaced at the same time. In addition, the Benedenbuurt in Wageningen is receiving financial assistance because it has been designated as a pilot project for gas-free neighbourhoods ('Proeftuin Aardgasvrije Wijken') by the Ministry of the Interior and Kingdom Relations (Fokkema & Scholtens, 2017). The goal is to make the Benedenbuurt completely natural gas-free by 2023. The actors include the residents organization, the grid operator, the municipality and the housing corporation. The timeline below lists the most important events in chronological order.



*Figure 4: Timeline Wageningen Benedenbuurt*

### 3.5 Operationalization

Concept	Concept definition	Variables and operational definition	Indicators
Goal frames	“The central idea is that goals govern or ‘frame’ what people attend to, what knowledge and attitudes become cognitively most accessible, how people evaluate various aspects of the situation, and what alternatives are being considered.” (Lindenberg & Steg, 2007, p. 119).	<p>Hedonic goal frame</p> <p>“A hedonic goal frame activates one or more subgoals that promise to improve the way one feels in a particular situation (such as avoiding effort, avoiding negative thoughts and events, avoiding direct uncertainty, seeking direct pleasure, seeking direct improvement in self-esteem, seeking excitement etc.).” (Lindenberg &amp; Steg, 2007, p. 119)</p>	The hedonic goal frame is about joy and satisfaction. Actors' motivation consists of experiencing short-term pleasure.
		<p>Gain goal frame</p> <p>“A gain goal frame will make people very sensitive to changes in their personal resources. Its time horizon is middle or long term and the criterion for goal realization is an improvement of (or prevention of decrease in) one's resources or efficiency of resources.” (Lindenberg &amp; Steg, 2007, p. 120)</p>	The gain goal frame is about one's personal resources. It involves cost-benefit comparisons, affordability, efficiency calculations and upscaling possibilities.
		<p>Normative goal frame</p> <p>“A normative goal frame activates all sorts of subgoals associated with appropriateness (such as behaving the right way, contributing to a clean environment, showing exemplary behavior). It will make people especially sensitive to</p>	The normative goal frame is about what someone is supposed to do, regardless of the pleasure they get out of it and the consequences for their resources. Motivations include; Gas disconnection, legislation, participation and sustainability.

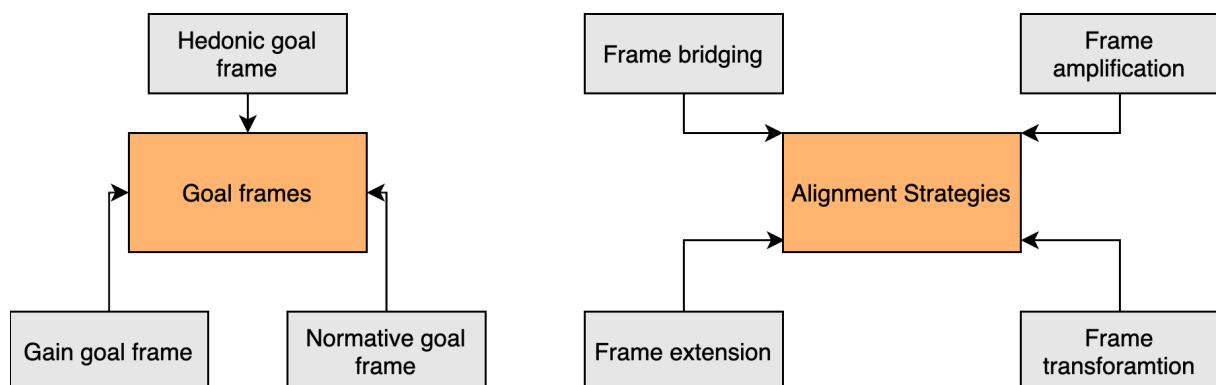


		what they think one ought to do.” (Lindenberg & Steg, 2007, p. 120)	
Frame Alignment Strategies	Snow et al. (1986) refer to frame alignment as the linkage of actors’ individual and social interpretive orientations, causing individual interests, values, beliefs, goals and ideology become congruent and complementary.	Frame bridging  “Frame bridging refers to the linking of two or more ideologically congruent but structurally unconnected frames regarding a particular issue or problem.” (Benford & Snow, 2000, p. 624)	Frame bridging is about connecting two structurally unconnected goal frames.
		Frame amplification  “Frame amplification involves the idealization, embellishment, clarification, or invigoration of existing values or beliefs.” (Benford & Snow, 2000, p. 624)	Frame amplification refers to the clarification or idealization of existing goal frames which hopefully causes others to rally behind their ideas and ideals.
		Frame extension  “Frame extension entails depicting an SMO’s interest and frame(s) as extending beyond its primary interests to include issues and concerns that are presumed to be of importance to potential adherents.” (Benford & Snow, 2000, p. 625)	Frame extension can be used by actors to make the primary goal frame broader by expanding it to include problems, issues, views and goal frames of the targeted interest group.
		Frame transformation  “Frame transformation refers to changing old understandings and meanings and/or generating new ones” (Benford & Snow, 2000, p. 625)	Frame transformation is used by actors to forward old values and beliefs to new values and beliefs. This allows old opponents to be persuaded or new candidates to become interested.

### 3.6 Data analysis procedure

After conducting the interviews and transcribing them, the next step is to code the transcribed interviews. Coding, also known as the categorization of data, is very important in the qualitative research process (Basit, 2003). Coding means that you subdivide the data and assign categories and codes to these subdivisions (Basit, 2003). This process is also called data organizing (Stuckey, 2015). Codes or categories are ‘labels’ to be able to give meaning to the data obtained and usually consist of words, phrases and sentences (Basit, 2003). These categories refer back to the operationalization of the research concepts. In coding and in the analysis, we do not use a strict form of coding. Coding is an iterative process and depending on what we encounter during coding, the method may change partially. We combine methods as described by Evers (2015) in his article on thick analysis. This will allow for a more comprehensive analysis. All the things we encounter are documented in memos and when changes occur, they are explained in detail in a memo.

We primarily conduct a content analysis in which we will use thematic coding to create different categories for the predefined concepts and variables. The indicators that led to the classification are coded as subcategories and explained in a memo or when coding where necessary. The choice for a content analysis was made because after conducting the open-interviews a lot of data comes available. Content analysis is a useful data reduction technique because it enables the compressing of many words (mostly transcribed interviews in this study) into fewer categories based on rules of coding (Stemler, 2000). Content analysis is a research tool which looks for the presence of certain words or phrases to be able to quantify and analyze the meanings and relationships of before mentioned words and phrases (Hsieh & Shannon, 2005). Figure X shows the concepts and variables as described in the operationalization scheme in paragraph 3.5.



*Figure 5: Concepts and variables*

### 3.7 Quality of research design

According to Bleijenbergh (2013), the researcher is extremely important for the quality of the research. High quality research must have both validity and reliability (Bleijenbergh, 2013; Yin, 2003). According to Yin (2003), there are different forms of validity that must be met, namely; construct validity, internal validity and external validity.

Construct validity addresses the question of whether appropriate operational measures have been developed for the concepts to be studied (Yin, 2003). In addition, construct validity also involves whether data saturation has been achieved (Glaser & Strauss, 1967). Construct validity involves a logical connection between the concepts, variables, operational definition and measures. This is ensured by introducing clear concepts in the theoretical framework (chapter 2) and by elaborating on them in the operationalization scheme in chapter 3.5.1. As discussed in paragraph 3.3 triangulation of data is used because the use of multiple sources increases the likelihood of correctly measuring the concepts being studied (Yin, 2003). Despite the fact that not the same number of interviews were used to analyze each case, we believe that saturation is still present due to the use of secondary data sources.

Internal validity is concerned with whether the research reflects reality (Yin, 2003). Internal validity answers the question whether the measured results are similar to how the phenomenon occurs in reality. The research is based on existing concepts by well-known authors in the scientific literature. In addition, we tried to ensure the internal validity by conducting a comparative multiple case study. This allows us to examine what the similarities and differences are and whether the phenomenon is occurring in the same way across neighbourhoods.

In terms of external validity, the question is whether the results of the study can be drawn more broadly than the cases studied, or in other words, are the results generalizable to the population outside the study (Yin, 2003). An often-heard critical note in case study research is the lack of generalizability (Miles, 2015; Somekh & Lewin, 2005). Much case study research is context specific and has poor generalizability. Flyvbjerg (2006) believes that generalizability is not very critical in a case study because it is beyond the purpose of a case study. So, although a case study often does not have statistical generalizability, it can still have analytic generalization. Analytical generalization means “to generalize a particular set of results to some broader theory” (Yin, 2003, p. 37). In the case of this research, the context consists of neighbourhoods who are trying to disconnect from the natural gas, which therefore entails the domain in which results would be generalizable.

According to (Yin, 2003) reliability looks at whether, if the study were conducted by a different researcher, would produce nearly the same results. Reliability has been ensured in this study by adopting a number of measures. First, the same measurement procedure was followed in all three cases. Secondly, all interview material was recorded and transcribed, allowing the accuracy of evidence to be verified. Thirdly, all data is stored systematically in a case-specific data base. Finally, as can also be seen in this section, the research steps are well represented in this study. These measures theoretically allow other researchers to do the same research and get nearly the same results. They could also conduct a follow-up study in the future where the same steps are followed in other cases.

### 3.8 Ethics

Research ethics are important to consider for a study (David & Resnik, 2011). Respondents should not feel uncomfortable about participating in this study at any time. Respondents will be informed in advance of the purpose of this study and can also ask questions about it. The research information is presented to them in a document, see Appendix 1. Permission to record the conversation is requested in advance and, if desired, anonymity can be guaranteed. Appendix 2 contains the informed consent form that the respondent must fill out beforehand. Herein, the respondents give or withhold their consent to various actions related to the interview and the study. Furthermore, the researcher has no ties to the organizations being interviewed and is not sponsored in any way, which ensures the objectivity of the study. The data will be stored in a secure data repository at Radboud University, ensuring its optimal security. Furthermore, the data won't be publicly available and the data is anonymized before it is processed. At the request of the respondents, we will send the transcript and, if desired, the findings of the study. This also provides an additional check as respondents can check their transcripts for any inaccuracies.

## 4. Analysis

### 4.1 Outline

In this chapter we will discuss the results of the analysis. First, we will discuss the goal frames and alignment techniques used in each case. Hereafter we look at the similarities, differences and generic outcomes of the analysis. To make the most accurate case comparison possible, we look at similar events. These are not always completely the same given the context-dependent nature of the cases. Also, we limit the analysis to four actors per case, being; the municipality, the residents' organization, the housing corporation and the grid operator. This restriction is in place to keep the comparative case study clear and pure.

### 4.2 Nijmegen Hengstdal

In Hengstdal, the municipality, the housing corporation, the residents' organization and the grid operator have worked towards a so-called neighbourhood heat plan ('Wijkwarmteplan') in recent years. The aim of this plan is to make the neighbourhood natural gas-free by the year 2035 (Wijkwarmteplan Aardgasvrij Hengstdal, 2020). This goal originates from the municipality's 'Warmtevisie 2018', which has chosen Hengstdal to be natural gas free by 2035 at the latest. To accomplish this, residents formed a residents' organization in the month of July 2018 and the parties entered into a letter of intent for a Neighbourhood Energy System in April 2020. Recently, The Ministry of Internal Affairs has given a state contribution of almost 5 million to the municipality of Nijmegen to set up a Neighbourhood Energy System in Hengstdal.

One of the actors is the municipality. The municipality's 'Warmtevisie 2018' shows that Nijmegen's ambition is to become an energy-neutral city by 2045 (Warmtevisie Nijmegen, 2018). In order to achieve this goal, the built environment in Nijmegen, comprising almost eighty thousand homes and all other buildings, must be free of natural gas by 2045. This is a major challenge which, on the one hand, means that the demand for heat must significantly reduce and, on the other, that alternative heat options are needed to heat our homes and meet the demand for hot tap water and cooking. Hengstdal is one of the neighbourhoods that the municipality wants to have disconnected of natural gas by the year 2035 at the latest.

This 'Warmtevisie 2018' plan also shows that the reason for the municipality to make Hengstdal gas-free is twofold: "But now the Groningen natural gas is running out and earthquakes are occurring in Groningen as a result of the natural gas extraction. This

confronts every city, including ours, with enormous challenges that must be tackled with lightning speed. Houses and other buildings must be disconnected from natural gas and space must be created for the generation and storage of sustainable energy. In December 2015, an agreement was reached in the climate treaty on reducing greenhouse natural gas emissions, the so-called Paris targets. The most important is that the average temperature on earth may not increase by more than 2 degrees Celsius. To achieve this, the emission of greenhouse gases, such as those from the combustion of natural gas, must be greatly reduced. That is why we must look for alternatives to natural gas.” The municipality views this objective from a normative goal frame, disconnecting homes from natural gas is the right thing to do to meet expectations and agreements. Respondent 1 confirms this in an interview: “Yes, the Paris Climate Conference. Then, of course, this was taken over by our government. In it, we said that we want to be energy-neutral by 2045. Energy neutrality is one of the most important pillars underlying this, the reduction of CO<sub>2</sub>.”

An alignment strategy that we have come across in the ‘Warmtevisie 2018’ is frame extension. In the quote below, it is about broadening the normative goal frame of the municipality, the grid operator and the housing corporation to the gain goal frame of the residents organization in order to involve the residents in the energy transition. The normative goal frame of the aforementioned parties refers to sustainability and the gain goal frame of the residents organization refers to affordability: “To prepare the city for an era without natural gas, it is essential to reach out to all residents and get them on board. Many people already have questions, for example about replacing central heating boilers, what is a good time and whether there are any subsidies. This requires understandable policies, but also measures that are realistic and affordable for everyone. That is why we want to include the energy revolution in our broader neighbourhood approach. In doing so, we also look at social issues such as unemployment, loneliness, the social climate in the neighbourhood, sufficient greenery and playgrounds. In such an integrated urban renewal project, energy transition is more than an installer changing 'something technical' in your house; it becomes part of a better living environment.”

Another important actor consists of the residents of Hengstdal. A group of these residents have joined together in a residents organization with the purpose of, as respondent 2 stated: “a representation of the neighbourhood residents”. This respondent plays a role in this organization because he was both enthusiastic and afraid of the possible consequences. As he said himself: “On the one hand I found it exciting, and on the other hand I found it frightening. So, I thought, I want to be involved in at least some way.” These feelings with the

initiative indicate a hedonic goal frame. From the information on their website it appears that they mainly have a normative goal frame in which climate change and its prevention are central; “The residents organization consists of residents who together try to make their neighbourhood more sustainable. By saving energy, planting green, avoiding waste and finding alternatives to natural gas. All things that are important to counteract climate change and to deal better with the only planet we have.” (Duurzaam Hengstdal, 2021). The ‘Wijkwarmteplan Aardgasvrij Hengstdal’ states that the residents' organization will ensure awareness and participation through neighbourhood evenings, newsletters and other events (Wijkwarmteplan Aardgasvrij Hengstdal, 2020). In 2018, a sustainability festival took place where a wide range of sustainability aspects were discussed in order to bring people together. For example, respondent 2 said: "Showing people that cooking on an induction hob is not scary at all and we let people taste vegan snacks to show them that it is actually quite tasty."

A problem that respondent 3 mentioned in relation to resident participation was that there was often no remuneration in return. So even though people are extremely motivated to combat climate change, at a certain point it becomes too much work for some of the residents, if they get no payment in return. Here one can see that the gain goal frame plays a role in the commitment of residents to remain engaged in such an initiative.

The housing corporation is also an important actor in Hengstdal. Almost two-thirds of the neighbourhood is composed of social housing. They have agreed with the government and other housing corporations to bring the energy labels to at least B, which means less energy consumption. Therefore, this obligation also applies to Hengstdal. Less energy consumption results in lower housing costs. The housing corporation's motivation for entering into this arrangement consists of a gain goal frame. Ultimately, they want to move towards a completely natural gas-free Hengstdal because that is what is agreed upon in the neighbourhood heat plan. This plan states the following about bringing homes to energy label B: “A large proportion of private homes are still insufficiently insulated. How much heat a home requires is a factor in choosing an alternative. The more homes have the same heat demand, the less customization is needed per home. And that makes a difference to costs. That is why we are currently aiming for an equal starting position for all homes. We are striving for energy label B.” It is therefore very good that the housing corporation's residential properties are already at energy label B. In addition, the housing corporation is also concerned with sustainability because it is an important core value of the organization. This indicates a normative goal frame. Respondent 12 states the following about this: “Of course, it was expressed that XXX considers sustainability one of the most important pillars of the

organization. Of the new organization. So, it's an important theme within XXX. But there's kind of a good balance anyway, I think. Because XXX is really of the sustainability and would prefer to go all the way by itself. XXX also looks at the social components. So, I think that's a good balance, a good mix to find. On the one hand, not to lose sight of the social. On the other hand, when it comes to a CO<sub>2</sub>-free society in 2050. Then we also have to disconnect from the natural gas.”

A frequently discussed option in the neighbourhood heating plan for Hengstdal is the all-electric variant. This option was investigated by CE Delft on behalf of the municipality of Nijmegen. This resulted in a report highlighting the possibilities (CE Delft, 2016). The grid operator as an actor plays a major role in this because they have to make many changes to the grid for this to be possible in the long run. Another conclusion of the neighbourhood heating plan was therefore that mass switching to 'all-electric' is not yet possible. The current grid cannot support this demand. The grid operator is conducting research to test the effects on the electricity grid. This will enable the grid operator to estimate what investments will be needed. Examples include the installation of additional medium-voltage units and the renewal of cables. The grid operator looks at the energy transition with both a gain goal frame and a normative goal frame. It is a gain goal frame because the grid operator is concerned about efficient use of limited resources (scarcity) and the normative goal frame looks at the sustainability perspective. Respondent 4 has the following to say about this: "Goal 1 is deal, deal carefully with scarce resources. Well, energy is a scarce available..., fossil energy is a scarce available resource, so we have to deal with that carefully. So, reducing fossil energy is an important issue from a scarcity point of view. Two is climate. The fossil energy leads to a climate change that is undesirable. So, we have to limit that and prevent that. We have to correct that. The third is, which focuses more on the economy, that with fossil energy you are of course very dependent on a limited number of parties in the world, so you can also get an economic shift that is not always very desirable. And certainly, if the scarcity of sources increases, the price will rise, making you very dependent on price fluctuations that you yourself cannot control, but which are determined by third parties.”

The conclusion of the neighbourhood heat plan is that there is no alternative that seems sustainable, affordable and reliable. The variants with electricity, such as all-electric are not sustainable enough. Because only 11% of the electricity in the Netherlands is currently generated sustainably. The 'neutral cost of living' is also under discussion. All of the variants that have been calculated involve higher costs than the price that people currently pay for natural gas. These costs cannot be paid by all homeowners because there are not yet sufficient



financing options. In the neighbourhood heating plan it was therefore not possible to align the gain goal frame with the normative goal frame. So, there was an attempt at frame bridging here from all actors, but it didn't completely succeed. The neighbourhood energy plan shows that no course of action has yet taken place in terms of a solution which means that the goal frames are still structurally unconnected.

Because there is not yet a suitable solution that meets the needs of all, it is important to try things out by means of pilots. The neighbourhood heating plan shows that the biggest 'pilot' that is currently being worked on is the Neighbourhood Energy System. The grid operator, the resident's organization and the municipality of Nijmegen are jointly investigating the feasibility of a Neighbourhood Energy System on a small scale. They have also signed a letter of intent for this.

#### 4.2 Culemborg – EVA Lanxmeer

In Culemborg, specifically EVA-Lanxmeer, the municipality, the housing corporation, the grid operator, but especially the residents' organization have worked towards a so-called neighbourhood energy plan in recent years. This neighbourhood energy plan stems from the project 'Warmtekeuze' Culemborg. The goal of this plan was initially to get homes natural gas free but quickly went to energy neutral. The choice for EVA-Lanxmeer is obvious. Two thirds of the homes in EVA-Lanxmeer are heated by a collective heat network. This makes the task of disconnecting EVA-Lanxmeer from natural gas relatively less challenging. If disconnecting the neighbourhood from gas doesn't succeed here, it probably won't succeed anywhere (Buurtenergieplan EVA Lanxmeer Culemborg, 2019).

The municipality of Culemborg wants to be energy neutral in 2040, on their website they give the following explanation for this: "In 2040 Culemborg wants to be energy neutral. This means that we generate as much clean or green energy as we use. And no longer emit greenhouse gases or send them into the air. As a municipality we will contribute to the promises made in the Dutch Climate Accord and the Gelderland Energy Accord. Those accords include agreements on reducing greenhouse gases in the air." On December 20, 2016, the residents organization, the municipality of Culemborg, the grid operator and the housing corporation signed a letter of intent to start the project 'Warmtekeuze' Culemborg.<sup>5</sup> The parties are initiating this project because the municipality of Culemborg wants to be energy-neutral in 2040 and a considerable amount still needs to be done to achieve this. The

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<sup>5</sup> There are 8 more actors who have signed this letter of intent but for the delineation of the neighbourhood and to stay within the scope of the neighbourhood comparison I only name these.

municipality would like to do the right thing and stick to agreements made and therefore has a strong normative goal frame. This also emerged in the interview with respondent 5 in which he said, "we as a local municipality also have to take responsibility. And that is why the municipal council also said. There is 'Energienutraal' 2040. It is important to set such a target, because all the other actions you take then are important. Then of course you have to think about how am I going to achieve that objective." On Thursday evening, March 22, 2018, the kick-off meeting of the 'Warmtekeuze' Culemborg project took place. This meeting in the Gelderland Factory was attended by approximately 250 residents, relatively many of whom were from EVA-Lanxmeer. This can be seen as frame amplification because by answering questions, removing concerns and raising problems the municipality tries to get everyone on the same page. In doing so, the municipality is trying to convey its normative goal frame. After the kick-off meeting, conversations with the different courtyards in the neighbourhood ('Hofgesprekken') took place. These conversations were about ambitions, the neighbourhood process and the questions that living without natural gas raised among residents. These conversations took place in May and June of 2018 (round 1). Subsequent conversations were conducted for feedback and to answer the questions from the conversations in round 1 and took place October and November 2018 (round 2).

The residents' organization, also play a major role here. However, the goal frames among residents vary widely. Respondent 6 mentioned a number of reasons why people wanted to participate in the neighbourhood process: "The reasons why people wanted to participate varied. On the one hand, 'I'd like to know what you're all going to come up with. They didn't really trust it. They want to keep on top of these things. I am actually quite attached to my central heating boiler. I don't like the idea of having to turn my house upside down. Others, purely from their involvement with the climate and the environment, say: 'Well, it's nice that the municipality has put this on the agenda. I was already curious as to when it would be our turn. I would like to participate, because I think it is an important subject. And others, because they were just curious, but also because they saw an opportunity to get to know their neighbours better. So, to speak, the social aspect.'" The above quote actually brings up all the goal frames. Normative because of the climate, gain because of the financial control aspect and hedonic because of the fears and feelings with the process.

EVA-Lanxmeer is an ecological neighbourhood where many sustainability measures have already been taken. It is also home to people who are already more concerned about the climate and the problems associated with it. This was also evident in the interview with respondent 7: "Look, the majority of the people living in EVA-Lanxmeer are already involved

in sustainability. That is why they came to live in the neighbourhood. Many of the people in the core group were already motivated by that to think along. Either from the perspective of sustainability, or from the perspective of the neighbourhood. Involvement in their own living environment, the neighbourhood." Neighbourhood residents were therefore primarily motivated to participate in the neighbourhood energy plan because they were concerned about the environment which is a normative goal frame.

In the quote below from respondent 8, we see a combination of frame extension and frame transformation which has been applied by the residents organization. There is frame extension because the normative goal frame is broadened by including new subjects like electric mobility and there is frame transformation because by changing the name old values are transformed into new values which hopefully leads to more participation and commitment. With both alignment strategies, the gain goal frame of other actors is addressed because, for example, as electric transport becomes more cheaply available: "In addition, here in the neighbourhood there are a number of topics under discussion, within the ambition of the Neighbourhood Energy Plan. So, we don't call it a neighbourhood heat plan, but a Neighbourhood Energy Plan. For that reason, that it is not only about heat. The core group has also said here: 'we also want to have particulate matter as an issue'. So, preventing further structural heating of houses on wood. So, no biomass plants in the neighbourhood. No additional biomass plants. Because there are already some biomass plants in the neighbourhoods. We don't want more of them. Another topic here is electric mobility..."

One actor who has also been involved in the process is the housing corporation that owns 60 of the 331 homes. These 60 homes are occupied by tenants. Although the housing corporation was invited to join the project team, the team that includes representatives of the important actors that support the neighbourhood process, it did not initially succeed in participating. In the course of the project, the housing corporation caught up and representatives became active in the project team. This has led to the approach to rental housing is an integral part of this plan. In its sustainability policy, the housing corporation focuses on CO<sub>2</sub>-neutrality by 2050. A home is CO<sub>2</sub>-neutral when it uses only green, sustainable or renewable energy. The housing corporation operates from a normative goal frame whereby the climate is central.

The grid operator has played a key role in the steering group of the project 'Warmtekeuze Culemborg' (Buurtenergieplan EVA Lanxmeer Culemborg, 2019). The grid operator is mainly looking at the possibilities related to the grid load and or where the grid might need to be expanded or replaced. In addition, the grid operator keeps a close eye on the

project and makes decisions together with the other members of the steering group. At the time options for the neighbourhood come into consideration, the street- and neighbourhood-level implications will be presented to the grid operator. The grid operator will look at the possibilities in terms of the grid and any work required and the costs involved. The grid operator has both the gain goal frame and the normative goal frame to participate in this process. The grid operator has set itself the goal of actively contributing to the energy transition in the Netherlands by contributing where possible. This indicates the normative goal frame. In addition, the grid operator wants to achieve this at the lowest possible social cost, which indicates the gain goal frame (Intentieverklaring Warmtekeuze Culemborg, 2016).

#### 4.3 Wageningen Benedenbuurt

In the Benedenbuurt, the municipality, the housing corporation, the residents organization and the grid operator have worked towards an implementation plan. The plan was ready in June 2018 and they have been executing the plan since then to achieve the ultimate goal which is establishing a heat network in the Benedenbuurt. After this, a lot has been arranged to get the heat network built and the residents organization is now tendering with parties to get the business case completed.

The Benedenbuurt is a special neighbourhood where the enthusiasm for sustainability initiatives and working on disconnecting from natural gas was mainly initiated by the residents. They have united in a cooperation on 21 July 2018. The choice for a cooperation was a well-considered decision because the residents would like to have a collective control over the new heat supply. The motivation to engage in this initiative is multi-faceted, on the one hand the goal is to reduce CO<sub>2</sub> and on the other hand many residents find it enjoyable to have a project to work on together. Respondent 9 says: "you just have to have a common goal that you put your shoulders under together. And CO<sub>2</sub> reduction is the goal then, but it's also fun to do something together with your neighbours." Furthermore respondent 10 said: "I really like it but it's also necessary that it happens. That we're getting off fossil fuels and the need for action is incredible and if we... we can't leave that to governments, the problem is just too big for that." Both the normative and hedonic goal frames of the residents organization are reflected. The normative goal frame because of sustainability and the hedonic goal frame because of the pleasure that participation provides. When it comes to actually disconnecting from natural gas and switching to another energy source, you see that finances play a big role. Respondent 9 suspects that there is little incentive to switch if the energy bill were to increase as a result: "If my energy bill doubles as a result, then I am also like, "Why should I participate? And I also have to realize if I'm not participating why would my neighbour participate?". Respondent 9 also indicated that if we don't succeed in keeping energy costs neutral here, with the subsidy of the Ministry of the Interior and Kingdom Relations, it will probably not succeed anywhere. Respondent is referring here to the 5.3 million subsidy that was awarded to the municipality of Wageningen on 1 October 2018 by the Ministry of the Interior and Kingdom Relations to be used in the project in the Benedenbuurt was awarded to the Benedenbuurt initiative. Respondent 9 says the following statement about this: "I also think that if we were to build this neighbourhood... which is quite a bit... a neighbourhood dating back to 1900... which there are a lot of in the Netherlands. If, with a subsidy of 5.7 million euros, we can't put something here that comes close to what

people are paying now, why... then you are no longer a pilot project... then you have completely sidelined yourself. Then you have to look for it... if it turns out that it is twice as expensive, then you have to look for another way... then you have to let go... then you have to look for another way, then this is not the right way.” Respondent 10 also commented on this matter, saying that: “Look at the fact that we are all trying to reduce the amount of CO<sub>2</sub> emitted when heating our rooms and tap water, that we are trying to do this, it is a climate objective and that applies to everyone. But being able to heat your home affordably in the future is also a goal... it shouldn't cost more than it would otherwise.” Here you see that an energy bill that is equal or decreases is actually a precondition for the willingness to switch to another energy source at the neighbourhood level, this clearly indicates a gain goal frame. Individually, there are people who are quite willing to pay more, such as respondent 10, because they believe in the need for a solution to the emission of CO<sub>2</sub>. This particular respondent has a strong normative goal frame. But cost neutrality is a precondition for the organization as such.

A form of frame alignment which took place in the implementation plan by the residents organization is frame extension. By involving several subjects in the transition, you reach more people and parties, which makes it easier to get those same people to commit to disconnecting from the natural gas in the future. In this way, the normative goal frame where CO<sub>2</sub>-neutrality is central is extended to the gain goal frame where, for example, a cost-neutral business case is concerned. Respondent 9 said the following about this: “To make that whole transition possible, you have to keep connecting things to make the business case better... that can also be electric mobility... and storage and generation on the other hand, I think you also have to broaden that agenda to gain support... well, support... to get the involvement of residents. Not everyone is keen on the heat transition, but they might be keen on another issue... so the fact that we've started the redesign... the public redesign... I think I mentioned that in the podcast as well ... offering cheap electric cars and an AED in the neighbourhood... we are now going to start a project with waste streams. That it just becomes a very inclusive programme. That you don't approach it as a heat transition, but simply as a neighbourhood approach. What else can you do with that neighbourhood? and that could be anything, so to speak....” The result of this is reflected, for example, in the growth of the number of subscriptions to the newsletter.

Because one third of the housing consists of rental properties owned by the housing corporation, they are an important actor in the Benedenbuurt. During the conversation with the housing corporation it came up that the housing corporation has already insulated all

homes to energy label B, a step that is also necessary for the possible switch to a heat network. Respondent 11 said that they had done this for the following reasons: "insulation has several thoughts for us as a corporation, of course it is the climate objective. But we actually have two more. We also see sustainability as a derivative of quality, it makes the homes more comfortable. And what also applies to us is that the affordability of our tenants improves, because if we insulate the homes the energy costs go down. So, it's relevant for us to do from three points of view." Basically, all goal frames play a role, the housing corporation has the climate problem, tenant comfort and affordability in mind. In addition, the housing corporation indicated that there are many residents who are concerned about the financial picture. They do not want to pay more for another way of heating their home. Respondent 11 said: "So for us cost neutrality is an important premise, otherwise we really won't get them on board".

An initiative that has been made possible primarily by the housing cooperative is the realization of a model-house where residents can come and see how any adaptations that need to be made for the transition to a heat network will look in their own homes, respondent 9 said the following: "we have that model-house here... in 2019 we have already invited all the residents street by street to come and see with their neighbours... to have the conversation and to tell them what the plans are and what the consequences are for their homes. There were several people there who looked at what that would look like and they were like. "ohm ohh is this it then... then it's not an issue." This 'model-house' can be seen as a form of frame amplification by showing the impact of the construction of a heat pump on the homes. Emphasis is placed on the little change to the home, which addresses concerns. Here, an attempt is made to align the normative goal frame of the housing corporation who want to become gas-free with both the hedonic and gain goal frames of skeptics or opponents.

The housing corporation has good contact with its tenants, including through a residents' committee. Respondent 11 states the following about this: "We have a residents' committee for the Benedenbuurt, the neighbourhood is slightly larger which is called the Struikenbuurt, that residents' committee is the contact point for us, they also have contact with residents but we ourselves also. So, we've actually had intensive contact with our tenants since the initiative, which goes back to about 2017, through newsletters, information meetings, one of our tenants is also in the residents organizations' project group. We do notice that the tenants are less involved than the owner-occupiers. Tenants have more of a wait-and-see attitude, they also look at the housing corporation to see how you feel about this. We try to involve them very much and we also work together with the residents organization. And we

have activities that we undertake there, we have brought theater to the neighbourhood, we have information meetings, also newsletters from the residents organization to actually take them along. Model house, show house we have made available so people can see what it will look like. To take them with us that way and let them experience that it's not very radical either". The above initiatives and the model house mentioned earlier are ways to align the normative goal frame of the housing corporation with the gain and the hedonic goal frame of the residents' cooperation. Frame bridging has therefore taken place between the housing corporation and the residents' cooperation.

The municipality of Wageningen also plays a major facilitating role in the Benedenbuurt. In the spring of 2016, it was announced by the municipality that the sewage system would be replaced in the near future. A local resident then took the initiative towards fellow residents and the municipality to jointly investigate the possibility of replacing the sewers while also creating (the infrastructure of) an alternative heat supply. Wageningen municipality's 'Warmtevisie' shows that the reason for disconnecting from natural gas comes from several directions. They mention earthquakes in Groningen, the greenhouse effect and that the government has decided that the entire Netherlands must disconnect from natural gas. all of these reasons are driven from a normative goal frame where the municipality does align with prevailing norms, agreements and they would like to do the right thing. Although the initiative came from the residents, the municipality has been very involved and helpful from the beginning due to the beforementioned objectives. Respondent 10 states that: "That kind of cooperation from the municipality is really great. That's also very different from stories I hear from other projects." Respondent also talks about municipalities pretending to be in favor but actually obstructing wherever they can. This indicates that it is not a given that a municipality will cooperate well with initiatives.

From the beginning of the process in the Benedenbuurt, the grid operator has been involved. They helped by making calculations regarding the technical possibility of certain alternative. The grid operator deals with questions such as; is the grid network sufficient, do connections need to be adjusted or perhaps even replaced? A large part of the natural gas network in the Benedenbuurt is outdated and although, certainly when the process started two years ago, communicating about something like an end to the natural gas supply in certain neighbourhoods was not yet common practice, the grid operator has shown that it stands side by side with the municipality and the residents' cooperative in this respect. A sign of this support is expressed in a declaration of support that the grid operator has drawn up for this project. In this statement, the grid operator let it be known that they support the application



for the ‘Proeftuin Aardgasvrije Wijken’. In addition, they state their motivations which are essentially: (1) that realizing the transition to sustainable homes is only possible if actors work together to achieve this and (2) that they would like to think collaboratively on how this can be done at the lowest possible cost. The grid operator has both the gain goal frame and the normative goal frame to participate in this process. The grid operator has set itself the goal of actively contributing to the energy transition in the Netherlands, which indicates a normative goal frame. Furthermore, they want to achieve this goal with the least possible social cost. This indicates the gain goal frame.

## 5. Discussion

### 5.1 Similarities and differences between goal frames

In terms of motivations for disconnecting from natural gas, it is more or less the same in each case. The main reason is climate change and the agreements that the government has made in terms of CO<sub>2</sub> reduction and becoming natural gas free. This is documented in the Dutch Climate Agreement (Klimaatakkoord, 2019). Earthquakes in Groningen are also cited as a reason for wanting to get rid of natural gas. Lastly, the use of foreign natural gas and the dependence on unstable countries also play a role among actors.

As shown in Tables 1,3 and 5, in all cases the normative goal frame plays a major role at the municipality. This can partially be explained by the fact that the municipality has been given the explicit assignment in the Dutch Climate Agreement to work towards gas-free neighbourhoods (Klimaatakkoord, 2019).

Objections are manifold, but are primarily based on comfort and financial impact. People want their homes heated just as comfortably as with natural gas and they don't want their energy bill to be higher than it was originally. People are afraid they won't get their house warm anymore and people are afraid it will cost a lot of money. For homeowners it is mainly about initial investments and for tenants it is about possible rent increases and replacement costs of, for example, pots and pans if they have to cook on induction.

When we look at the gain goal frame, we see in Table 1 that it does not play a role in Hengstdal with the resident's organization, while in Tables 3 and 5 it can be seen that the gain goal frame does play an important role with the residents' organizations of EVA-Lanxmeer and of the Benedenbuurt. This could be explained by the fact that the normative goal frame is so strong that the other goal frames no longer matter as Lindenberg and Steg (2007) argue.

Regarding the hedonic goal frame, we notice in Tables 1,3,5 that in Hengstdal and EVA-lanxmeer only the residents organization has a hedonic goal frame and in Wageningen Benedenbuurt we see that also the housing corporation has a hedonic goal frame. In both the residents organization of Hengstdal and of EVA-lanxmeer, there is a hedonic goal frame because the actors derive pleasure from participating in the initiative, this is consistent with the theory of (De Young, 2000) which argues that people engage in certain pro-environmental behaviors because it makes them happy.

When comparing these outcomes with the literature of the theory section, we see some interesting things. Lindenberg and Steg (2007) suggested that the normative goal frame probably has the greatest impact on pro-environmental behaviour. Although the normative goal frame does contribute to the creation of commitment, the gain goal frame plays a larger role in the analyzed cases to actually act regarding the disconnection from natural gas, which contradicts the statement of Lindenberg and Steg (2007). This can be seen, for example, in the neighbourhood heating plan for Hengstdal, where the all-electric option was discarded because of the high costs. This is also apparent in Hengstdal from another example in the analysis where someone chose to *exit* their role because there was no compensation in return, which is consistent with the literature of Hirschman (1970) in the sense that if the benefit of a participant to participate decreases he has two choices, *exit* or *voice* and in this case he chose *exit*. This also shows the influence of the goal frame on the level of commitment from an actor (Meyer et al., 2004). Because the gain goal frame was central rather than the normative goal frame, there was too low a commitment which caused the actor to choose *exit* (Hirschman, 1970; Meyer et al., 2004).

The outcomes are consistent with the cited research<sup>6</sup> of Donmez-Turan and Kiliclar (2021), who concluded in his study that the gain goal frame is more important to induce pro-environmental behaviour. In addition, Lindenberg and Steg (2007) argue that goals that can be seen in a hedonic and gain goal frame are not relevant when actors operate from a normative goal frame. In contrast, the tables show that the actors often have multiple goal frames occurring simultaneously which is more in line with the theory of Chakraborty et al. (2017) that goal frames can in fact coexist and interact. We found no strong evidence that the hedonic goal frame plays an important role in local initiatives that aim to disconnect their neighbourhood from natural gas. This result is in contrast to research by Smith et al. (1994). A contribution to the literature consists of the fact that When it comes down to it, the gain goal frame plays the biggest role in local initiatives trying to disconnect neighborhoods from natural gas. Cost neutrality of residents' energy costs after disconnection from natural gas was therefore a prerequisite for many actors in all three cases.

## 5.2 Similarities and differences between alignment strategies

Tables 2,4 and 6 displays that especially in Hengstdal alignment strategies were widely used, compared to EVA-Lanxmeer and the Benedenbuurt where less alignment strategies were observed. Frame bridging has particularly taken place in Hengstdal where all

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<sup>6</sup> Again, we refer to 'study 1' in the article by Donmez-Turan and Kiliclar (2021).

actors were involved in an attempt to align the normative goal frame with the gain goal frame (back and forth) in the neighbourhood energy plan. This is where they explored if the alternative all-electric was an option to take the neighbourhood disconnected from natural gas. This was not successful because the costs were too high. They did not succeed in linking the two structurally unconnected frames, being the normative and the gain goal frame (Benford & Snow, 2000; Snow et al., 1986). In the Benedenbuurt, frame bridging has also taken place. The housing corporation used frame bridging to align the normative goal frame of the housing corporation with the gain and hedonic goal frames of the resident's organization. By using information diffusion such as newsletters, which is consistent with Snow's literature (Snow et al., 1986).

Frame amplification frame amplification has been used by the municipality in EVA-Lanxmeer and by the housing corporation in the Benedenbuurt. Both cases involved emphasizing the normative goal frame and reassuring actors with a gain or hedonic goal frame through answering questions and addressing concerns. In the Benedenbuurt, this consisted of a model-house where individuals could come and see what would be the consequences of a heat pump in a house. This 'model-house' can be seen as a form of frame amplification by showing the impact of the construction of a heat pump on the homes. Emphasis is placed on the little change to the home, which addresses concerns. Here, an attempt is made to align goal frames by clarifying the normative goal frame (Benford & Snow, 2000; Snow et al., 1986)

Furthermore, in all three neighbourhoods there is frame extension to observe. In EVA-Lanxmeer and in the Benedenbuurt, frame extension both occurs by including more subjects in the scope of the normative goal frame in the heat plan and the implementation plan, respectively, in order to reach actors with a different goal frame (Benford & Snow, 2000; Snow et al., 1986).

Finally, we only observed frame transformation in EVA-Lanxmeer's neighbourhood energy plan. First it was called a neighbourhood heat plan, but because the plan had to include more than just the normative goal frame of the heat transition they changed the name to add more subjects to the plan and thus also appeal to the gain goal frame and the hedonic goal frame. By changing the name of the plan and including more subjects they forwarded old values and beliefs into new ones which makes sure that new candidates become interested (Benford & Snow, 2000; Snow et al., 1986)

An interesting difference between the cases lies in the initiating actor. In the Benedenbuurt it is very clearly the residents themselves, but in Hengstdal this is different

because Hengstdal has been designated by the municipality to disconnect from the natural gas grid. In EVA-Lanxmeer it is a combination of both, where the residents are involved with sustainability and the neighbourhood had already taken many sustainability initiatives, but where the neighbourhood is also designated by the municipality to become completely CO<sub>2</sub>-neutral. The initiating actor is important because not every actor will participate as willingly (Avelino & Wittmayer, 2016). If the residents' organization is the initiating actor, the start of the initiative is less complicated because, for example, the municipality is more likely to participate because they have an obligation from the state. On the other hand, if the initiative comes from the municipality, the question is whether there are enough incentives for a residents' organization (if any) to participate. Furthermore (Selman, 2000) suggests that the initiating actor is important to generate local consensus which in turn leads to achieve political acceptability and municipal action.

The tables mentioned before in the discussion are located below and display the results schematically for each case. In this way it is possible to see which goal frames are involved and which alignment strategies have been used by each actor. These tables show the similarities and differences between the cases.

		Case 1: Nijmegen Hengstdal			
Goal frames		Municipality	Energy grid company	Housing corporation	Residents / Resident organisation
Norm	1 Gas disconnection	X			X
	2 Legislation	X			
	3 Participation				X
	4 Sustainability	X	X	X	X
Gain	1 Affordability			X	
	2 Efficiency		X		
	3 Investment			X	
	4 Upscaling				
Hedonic	1 Joy and Satisfaction				X

Table 1: Goal frames Nijmegen Hengstdal

		Case 1: Nijmegen Hengstdal			
Alignment strategies		Municipality	Energy grid company	Housing corporation	Residents/ Residents' organization
Bridging		X	X	X	X
Amplification					
Extension		X	X	X	
Transformation					

Table 2: Alignment strategies Nijmegen Hengstdal

		Case 2: Culemborg EVA-Lanxmeer			
Goal frames		Municipality	Energy grid company	Housing corporation	Residents / Resident organisation
Norm	1 Gas disconnection	X			
	2 Legislation	X			
	3 Participation	X			X
	4 Sustainability	X	X	X	X
Gain	1 Affordability				X
	2 Efficiency		X		X
	3 Investment				
	4 Upscaling				
Hedonic	1 Joy and Satisfaction				X

Table 3: Goal frames Culemborg EVA-Lanxmeer

Case 2: Culemborg EVA-Lanxmeer				
Alignment strategies	Municipality	Energy grid company	Housing corporation	Residents /Residents' organization
Bridging				
Amplification	X			
Extension				X
Transformation				X

Table 4: Alignment strategies Culemborg EVA-Lanxmeer

		Case 3: Wageningen Benedenbuurt			
Goal frames		Municipality	Energy grid company	Housing corporation	Residents / Resident organisation
Norm	1 Gas disconnection	X			X
	2 Legislation	X			
	3 Participation				X
	4 Sustainability	X	X	X	X
Gain	1 Affordability			X	X
	2 Efficiency		X	X	
	3 Investment				
	4 Upscaling				
Hedonic	1 Joy and Satisfaction			X	X

Table 5: Goal frames Wageningen Benedenbuurt

Case 3: Wageningen Benedenbuurt				
Alignment strategies	Municipality	Energy grid company	Housing corporation	Residents/ Residents' organization
Bridging			X	X
Amplification			X	
Extension				X
Transformation				

Table 6: Alignment strategies Wageningen Benedenbuurt



### 5.3 Limitations and follow-up research

A limitation of this research is that it case study research that looked at a select number of neighbourhoods. The research results are therefore very context dependent. By conducting a comparative case study where we looked at the similarities and differences at three districts, this problem was partially addressed (Ragin, 2014; Yin, 2003). Follow-up research could focus on a large-scale quantitative study where dozens or hundreds of neighbourhoods could be included in the study. It is then important to make the goal frames and alignment strategies clearly measurable based on well-considered questions. Another angle of large-scale quantitative research could look at the extent to which actors (often residents) are willing to pay more to switch from natural gas to another heat source. It would be interesting to see where the financial limit is for homeowners and renters to change. Are people willing to pay 1% more if it benefits the environment? If so, are people also willing to pay 2% more if it helps the environment, it would be interesting to see where this boundary lies.

Another limitation concerned the dimension level of the actors. For example, I looked at the residents through the residents' organization. This organization represents as accurately as possible all residents and their interests. However, this does not alter the fact that the residents (organization) as an actor can be split up into several groups. For example, there is a distinction between homeowners and (social) tenants (Jansma et al., 2020). Making this distinction can be interesting in order to research how different socio-economic groups, affects actors' goal frames. For example, researchers in a follow-up study can research whether the study of Arroyo and Carrete (2019), whose results indicated that gain goals increased the adoption to green energy for people who have a medium socio-economic status, also applies in a local initiative aimed at disconnecting a neighbourhood from natural gas. In contrast, the normative goals increased the adoption to green energy for people with high socio-economic status in the study of Arroyo and Carrete (2019).

In terms of alignment strategies, follow-up research could look at alignment within actors instead of between actors. Not everyone within a given actor has the same goal frame. In order to advance the disconnection of natural gas, it is vital that different goal frames are aligned, both between the actors as well as within the actors themselves. According to Aalbers and Dolfma (2015) the transfer of knowledge within an organization is important to create innovative activity. If we apply this to the unit of analysis of this study, the transfer of knowledge is, among other things, possible through alignment strategies within actors

themselves in order to proceed to a course of action (Benford & Snow, 2000; Meyer et al., 2004).

## 6. Conclusion

In this thesis we have tried to find an answer to the following research question; *How do actors align their goal frames in a local initiative regarding the disconnecting of households from natural gas in neighbourhoods and what are the similarities and differences in terms of goal frames and alignment strategies between the three neighbourhoods?* The goal frames in this thesis come, in summary, down to the following; the hedonic goal frame consists mainly of short-term pleasure, the normative goal frame consists mainly of climate reasons and the gain goal frame consists mainly of the financial picture. As for the alignment strategies, they were all used by the actors at one time or another. Frame amplification is, for instance, done by addressing concerns, transformation is performed by changing names and premises, frame extension is done by broadening plans and subjects and actors try to bridge goal frames by looking if alternatives that offer a lot of environmental benefits are also financially feasible and, in this way, unite the normative goal frame with the gain goal frame.

As displayed in Tables 2,4 and 6, we observed more frame alignment in Hengstdal than in EVA-Lanxmeer and in the Benedenbuurt. This could mean that the actors in Hengstdal are more concerned with the linkage of actors' individual and social interpretive orientations than the actors in EVA-Lanxmeer and the Benedenbuurt. This could also mean that frame alignment between the actors is more required in Hengstdal than in the other two neighbourhoods. Despite the commitment and goodwill of the actors, in all cases it appears that balancing the financial picture was often (too) difficult. Cost neutrality in switching to a natural gas-free energy source is an essential premise, especially for the residents' organization and the housing corporation. Still, to this day, it is not always possible. In order to make the Netherlands completely natural gas-free, it is crucial that the national government gives people fair compensation for their efforts and, if necessary, contributes to the construction and realization of an alternative energy supply.



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## ONDERZOEKSINFORMATIE INTERVIEW

**Naam onderzoek:** besluitvorming over de afkoppeling van het aardgas in de bebouwde omgeving

**Verantwoordelijke onderzoeker:** Koen van Lierop

### **Inleiding**

Wij vragen u om mee te doen aan een wetenschappelijk onderzoek. Om mee te doen is uw schriftelijke toestemming nodig. Voordat u beslist of u wilt meedoen aan dit onderzoek, krijgt u uitleg over wat het onderzoek inhoudt. Lees deze informatie rustig door en vraag de onderzoeker uitleg als u vragen heeft.

### **Beschrijving en doel van het onderzoek**

Het doel van het onderzoek is tweeledig. Ten eerste inzicht verkrijgen in hoe besluitvormingsframes bij actoren ontstaan die betrokken zijn bij de afkoppeling van het aardgas. Ten tweede wordt kennis opgedaan over het effect van een besluitvormingstool op de afkoppeling van het aardgas. De onderzoeker neemt interviews af om informatie te verzamelen over besluitvormingsframes en -tools.

U doet vrijwillig mee aan dit onderzoek. Daarom kunt u op elk moment tijdens het onderzoek uw deelname stopzetten en uw toestemming intrekken. U hoeft niet aan te geven waarom u stopt. U kunt tot twee weken na deelname ook uw onderzoeksgegevens en persoonsgegevens laten verwijderen. Daarnaast heeft u recht om uw gegevens in te zien en foutief opgeslagen gegevens te laten wijzigen. Daarvoor kunt u contact opnemen met de onderzoeker.

### **Wat wordt er van u verwacht?**

Tijdens het interview beantwoordt u open vragen van de onderzoeker over besluitvorming aangaande de afkoppeling van het aardgas.

Bij aanvang van het interview vraagt de onderzoeker of het interview mag worden opgenomen voor analysedoeleinden. Bij aanvang kunt u ook kenbaar maken het interviewtranscript, het onderzoeksplan en de onderzoeksresultaten toegestuurd te willen krijgen. U krijgt dan digitaal de door u gewenste documenten toegestuurd. Wilt u ook aangeven of u benaderd mag worden voor een vervolgonderzoek? U wordt verzocht uw wensen hieromtrent kenbaar te maken op het toestemmingsformulier. Noteer hiervoor uw emailadres op het toestemmingsformulier.

**Wat gebeurt er met mijn gegevens?**

De onderzoeksgegevens die we in dit onderzoek verzamelen, zullen vertrouwelijk worden behandeld. Als we gegevens met anderen buiten het project delen, kunnen deze niet tot u herleid worden. Alleen anoniem gemaakte onderzoeksgegevens kunnen door wetenschappers buiten het project gebruikt worden voor datasets, onderwijs, artikelen en presentaties.

Uw persoonsgegevens worden maximaal 10 jaar bewaard aan de Radboud Universiteit voor de interne administratie van het onderzoek. Deze gegevens zijn alleen toegankelijk voor de onderzoeker en de gegevensbeheerder.

We bewaren alle onderzoeks- en persoonsgegevens op beveiligde wijze volgens de richtlijnen van de Radboud Universiteit.

**Heeft u vragen over het onderzoek?**

Als u graag verdere informatie over het onderzoek wilt hebben, nu of in de toekomst, kunt u contact opnemen met:

Radboud Universiteit Nijmegen  
Nijmegen School of Management  
Naam : Koen van Lierop, onderzoeker  
Email : [k.vanlierop@student.ru.nl](mailto:k.vanlierop@student.ru.nl)  
Telefoon : 0627131952

Heeft u klachten over het onderzoek, dan kunt u contact opnemen met de bovengenoemde verantwoordelijk onderzoeker, of de tweede klachtpersoon:

Radboud Universiteit Nijmegen  
Nijmegen School of Management  
Naam : Prof. dr. Hans van Kranenburg  
Email : [h.vankranenburg@fm.ru.nl](mailto:h.vankranenburg@fm.ru.nl)  
Telefoon : +31 (0)24 – 3612381

**Toestemmingsverklaring**

Als u aan dit onderzoek mee wilt doen, vragen we u een toestemmingsverklaring te ondertekenen. Door uw schriftelijke toestemming geeft u aan dat u de informatie heeft begrepen en instemt met deelname aan het onderzoek.



## TOESTEMMINGSVERKLARING INTERVIEW

**Naam onderzoek:** besluitvorming over de afkoppeling van het aardgas in de bebouwde omgeving

**Verantwoordelijke onderzoeker:** Koen van Lierop

### **Verklaring deelnemer**

Ik heb uitleg gekregen over het doel van het onderzoek. Ik heb vragen mogen stellen over het onderzoek. Ik neem vrijwillig aan het onderzoek deel. Ik begrijp dat ik op elk moment tijdens het onderzoek mag stoppen als ik dat wil. Ik begrijp hoe de gegevens van het onderzoek bewaard zullen worden en waarvoor ze gebruikt zullen worden. Ik stem in met deelname aan het onderzoek zoals beschreven in het informatiedocument.

Wilt u alstublieft uw wensen ten aanzien van het onderzoek kenbaar maken?

1. Mag een audio-opname van het interview worden gemaakt?  
JA/NEE
2. Ik wil het interviewtranscript ontvangen.  
JA/NEE
3. Ik wil het onderzoeksplan toegestuurd krijgen.  
JA/NEE
4. Ik wil op de hoogte worden gehouden van de onderzoeksresultaten.  
JA/NEE
5. Ik stem in dat ik benaderd kan worden voor een toekomstige studie.  
JA/NEE

Naam :

Email:

Handtekening: .....

Datum:

### **Verklaring uitvoerend onderzoeker**

Ik verklaar dat ik de hierboven genoemde persoon juist heb geïnformeerd over het onderzoek.

Naam: Koen van Lierop

Email: [k.vanlierop@student.ru.nl](mailto:k.vanlierop@student.ru.nl)

Handtekening:

Datum:

### Appendix 3: Overview of respondents

<b>Number</b>	<b>Neighbourhood</b>	<b>Actor</b>
1	Nijmegen Hengstdal	Municipality of Nijmegen
2	Nijmegen Hengstdal	Residents organization
3	Nijmegen Hengstdal	Residents organization
4	Nijmegen Hengstdal/	Grid operator
5	Culemborg EVA-Lanxmeer	Municipality of Culemborg
6	Culemborg EVA-Lanxmeer	Municipality of Culemborg
7	Culemborg EVA-Lanxmeer	Residents organization
8	Culemborg EVA-Lanxmeer	Residents organization
9	Wageningen Benedenbuurt	Residents organization
10	Wageningen Benedenbuurt	Residents organization
11	Wageningen Benedenbuurt	Housing corporation
12	Nijmegen Hengstdal	Housing corporation