

Changing governance and the Dutch energy transition

Benefits and constraints of the governance-turn within the development of solar fields in the province of Groningen



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Colophon

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Preface

It's done; an intense period of studying alongside a full-time job has ended. I look back on a very educational and perspective-offering year and a half in a very happy and grateful way. In addition to the fact that I have had to show an enormous commitment myself, I would like to take this opportunity to thank people who have made it possible to sustain and, in the end, to fulfill this sometimes-crazy choice.

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Albert Timotheus Vos
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Abstract

Following the literature in the statement that there is a 'government to governance shift' [Lemos & Agrawal (2006); Verweij et al. (2013); Zuidema (2016a)], this study provides empirical insights in the benefits and constraints of this 'governance turn' within the development of solar fields in the province of Groningen. Included are the main parallel related influencing trends as; New Public Management, privatization, decentralization and the use of Market-Based instruments, particularly the use of subsidies. By using a 'governance spectrum', a degree of self-governance is determined, based on empirical input from regional- and local governments, solar field developers and adjacent citizens of solar fields. These actors are selected according to the 'governance triangle' of Lemos and Agrawal (2006) as key players in governance. Is there for citizens, in the development of solar fields, a possibility to participate? Who is initiating the developments? What is the role of the province of Groningen, as regional government in this playfield, and has it added value? These indicators helped to structure the empirical input to determine that governments are not the ruling players or the initiators in solar field developments in this study. The developments are more area-based and tailor made, the doubt remain if the governance strategy and the implemented changes are more efficient than 'the old', functional and top-down strategy, as thought.

Keywords:

Governance, Energy transition, Decentralization, Market-Based Instruments, Solar fields

Index

Changing governance and the Dutch energy transition	1
Colophon	2
Preface	3
Abstract	4
Index	5
1 Development of solar fields within the energy transition	7
1.1 Introduction	7
1.2 New challenges	7
1.3 Scientific relevance	8
1.4 Research approach	9
2 Exploring the shift from government to governance	10
2.1 The strong central government	10
2.2 New Public Management	11
2.3 Shift from government to governance networks	12
2.4 Privatization	14
2.5 Decentralization	15
2.6 Market-based instruments	16
2.7 Conceptual model	17
3 Methodology	19
3.1 Strategy	19
3.2 Empirical set-up	20
3.3 Ethical issues	20
3.4 Selecting indicators	21
3.5 Selecting interviewees	21
3.6 Coding data	23
3.7 Specific developments	24
3.8 Expectations	26
4 Empirical input and analysis	27
4.1 Playfield of solar field developments in the province of Groningen	27
4.2 Development Molenwaard	32
4.3 Development Roodehaan	33
4.4 Taking stock of the playfield and the specific developments	34
5 Conclusion and discussion	36
5.1 Dutch governance-turn until now	36
5.2 Governance-networks in the developments of solar fields	36

5.3 Answering the research questions	38
5.4 Implications for the planning theory and practice	40
6 Reflection	42
6.1 Who's steering solar field developments?	42
6.2 Solar field developments in national perspective	42
6.3 Future investigation	43
6.4 Personal review of the researcher	43
References	44
Appendix 1 Interview questions (in Dutch)	46
Appendix 2 Examples of coded interview-quotes (in English)	47
Appendix 3 Overview of coded interview-quotes (in Dutch)	49
Appendix 4 Relevant interview parts (in Dutch)	67
Interview D1	67
Interview D2	70
Interview P1	75
Interview P2	78
Interview M1	84
Interview M2	88
Interview C1	94
Interview C2	96
Interview C3	98

1 Development of solar fields within the energy transition

1.1 Introduction

“When the wind of change blows, some people build walls, others build windmills” says a Chinese proverb. In the Netherlands, they take this really serious, within the ‘wind of change’ for the sources of energy provision. The development of sustainable and renewable energy initiatives increases rapidly. The ongoing energy transition, to get less dependent on fossil sources of energy and provide renewable and sustainable sources of energy, results in several initiatives in the Netherlands but in particular in big scale initiatives in solar and wind. Numerous initiatives have emerged (RVO, 2019) and occurs with an upward trend.

The search for other sources of energy and to develop new initiatives, such as the mentioned solar and wind initiatives, is necessary due to the Paris Agreement which is signed by the Netherlands in 2015 (Klimaatakkoord, 2019a). To reach these ambitions, a time of exploration and learning -transition experiments- has arrived. These experiments could be ‘tryouts’ of transition pathways of the ambitions within the energy transition (Meadowcroft, 2009) that with beneficial results could be scaled up. In practice, the central government of the Netherlands gives incentives to market parties to stimulate them to invest in new and sustainable sources of energy, which are most of the time in the first place on small scale not profitable to invest in.

The so called SDE+ subsidy (translated out of Dutch: stimulating sustainable energy production) is such an incentive and stimulates among other initiatives in sustainable energy production, the development of solar- and wind initiatives. Much use has already been made of the SDE+ subsidy for both solar and wind initiatives, but especially solar fields. More than five thousand requests have already been submitted for development of solar fields (RVO, 2019) and there are more initiatives planned. Therefore, a challenge to be discovered for the planning practice of this time due to the increasing spatial impact which this has.

1.2 New challenges

Fossil energy sources are very compact related to the amount of energy they deliver (Hall, 2008). The new energy sources of (big scale) solar fields and wind parks needs a lot more space, compared to fossil energy sources in what they deliver and besides, they are more visible. Where fossil fuels are mostly under the ground and less visible, the solar fields and wind parks are pretty visible. This is a tangible difference and requires a shift in the paradigm of us all that energy production becomes an increasingly part of our environment. Another change is in the institutional design. Within the shift from *government* to *governance*, there is now increasingly room for other institutions and self-organizing systems as well (Innes, 1995, p. 184). Due to the accumulating development of solar fields and wind parks, the spatial impact and also at the institutional design increases too. In addition, the growing pressure and spatial consequences as well as the shifting institutional design is prone to resistance and unsolicited participation.

Today’s resistance is for instance visible in the province of Groningen in the plans to build windmills along the road N33. The building company has struggles with threats of anonymous groups who are against the plans which send them threatening letters (NOS, 2019). These threats go so far that dumps of asbestos are part of the resistance to put pressure on the building parties (RTV-Noord, 2019).

For instance, constraints in the institutional design, and perhaps a fuzzy aligning of the governance strategies, is in the same province visible in the ‘cry for help’ from Enexis, who is responsible of the transportation and supply of electricity on regional level. They ask the province of Groningen for guiding of the development of the solar fields because of limitations of the grid at some locations. In doing so, these parties are more able to plan investments that are needed to enlarge the grid capacity on time to remain capable to distribute the produced electricity (RTV-Noord, 2018). In history, the energy supply was a public task but, after privatization market parties are now responsible (Stellinga, 2012). However, the developments of solar fields within the province of Groningen is for this study in particular interesting to look at due to this apparent mismatch between incentives in the form of the SDE+ subsidy and the lack of infrastructural enforcements and enlargement of the grid to create more capacity. There is apparently a lack of governmental steering from the local and regional governments and also the mentioned spatial impact and the already created resistance.

Relevant for this study is what the benefits and drawbacks are of the changed institutional design, especially in the context of a government to governance shift. What are the different perspectives on, interests and

constraints in today's developments of the solar fields and does this provide new insights for future developments to create less public resistance, more public support and better consensus among the parties? In this study, contributing insights will be provided in the institutional design and the spectrum between government and governance in the development solar fields in the province of Groningen, related to the roles and tasks of the actors involved. The specific solar fields considered in this study are located in the semi-rural area and adjacent to the urban area. This is worth mentioning because of the different challenges in the urban, mostly densely populated areas compared to the area next to or completely outside the urban area which are generally less densely populated and faces in land use other interests and related perspectives.

1.3 Scientific relevance

Changing governance to more hybrid forms and involving citizens and parties is in progress and visible in practice [Lemos & Agrawal (2006); Spaans (2007); Mol (2016)]. Also, the already mentioned energy transition to more sustainable solutions in the Netherlands is in progress. These processes are complex in nature and therefore hard to 'steer', in particular the sustainability process of the energy transition. Kemp et al. (2007) mentioned in Meadowcroft (2009) six problems in his article related to the steering for sustainability; "dissent an ambivalence about goals, dealing with uncertainty, distributed control, political myopia, determination of short-term steps for long-term change and the danger of lock in" (p. 333).

This study provides empirical insights in the current 'governance playfield' within the developments of solar fields in the province of Groningen. Division of roles and tasks of governments and other parties involved and how they relate to each other in terms of 'governance' and how to 'manage' the mentioned six problems in steering sustainability. Besides, it provides some insights in the different interests between the parties involved in the developments of solar fields. These insights came both from the public as well as from the market perspective and perspectives of other involved parties. With these empirical insights the benefits and constraints of the shift from government to governance are compared with the theory.

Because of the 'learning by doing' nature of the energy transition, where the solar field initiatives are part of, it is important for governments to prevent lock-ins, as one of the mentioned six problems in steering sustainability, and sustain spatial qualities within experimental practices. How does the 'governance playfield' in the province of Groningen look like, within the developments of solar fields? Who steers these developments? In which way is participation possible and how to borrow public support to sustain the mentioned area-based values within the current 'governance strategy'?

Therefore, this study tests in practice the benefits and drawbacks of the governance-turn and developments parallel and contributing to this turn such as; the rise of New Public Management, privatization and decentralization. Stoker (1998) in Jordan et al. (2005) argues that "the governance perspective is date and place specific" (p.493), what advocates further investigation in a specific region. The area of the province of Groningen is in particular interesting in this light because of the quick development of solar fields in this region (Provincie Groningen, 2020). Due to the incentives of the Dutch central government, initiatives are booming and increasingly larger in size. This trend has an increasing impact on the socio-economic system and the relation between humans and the environment and puts increasing pressure on the spatial qualities, values and economic activities next to energy initiatives.

The benefits of this study are twofold; on the one hand the study could contribute to determine or reconsider the current governance strategies. On the other hand, this study provides empirical examples to the theory for academics by taking stock of the current position in the governance playfield of the parties involved in the developments of solar fields in the province of Groningen.

To summarize the scientific relevance, this study, which focuses particularly on developments of solar fields in the province of Groningen, provides insights in dealing with such spatial planning issues and gives more context for future (niche) developments within the energy transition and the related role of a provincial government.

1.4 Research approach

The mentioned trends, developments, tensions, and questions so far lead to the approach and central research question of this study. Within the spectrum between government and governance this study is focused on the benefits of this shift according to the literature. Within this frame, the focus of this study is in particular on the developments of solar fields in the province of Groningen and an investigation into the role and involvement of the province of Groningen within these developments. What is described in the literature created the thorough theoretical foundation as a framework for further investigation into the particular developments of solar fields of this study, which are further explained in chapter three.

To structure this investigation there are research questions formulated to better determine what in the literature and in practice could contribute to this study.

Primary research question

What are the benefits and constraints of the governance turn for the actors involved, with regard to the development of solar fields in the context of an energy transition in the province of Groningen?

Secondary research questions

- What are the benefits and drawbacks of a governance-turn according to the literature?
- What are visible trends within the governance-turn in the western world?
- In what way is a shift from government to governance visible within the province of Groningen?
- What are the different perspectives on the roles and interests between the regional government, market parties and other parties involved within the developments of solar fields in the province of Groningen?
- What are constraints and drawbacks in the current governance practice within the development of solar fields in the province of Groningen, related to the regional government?
- What are the needs for public and private parties, within this research frame?

These research questions determine the direction in which the research is working out in a threefold combination of a qualitative research approach. This approach consists of a literature review, case studies and semi-structured interviews. The qualitative research approach fits well due to the case-based nature and the relatively small number of participants, which will be discussed in-depth in chapter three.

The semi-structured interviews are means to investigate in the different (case-based) interests, roles and the way the regulation and involvement of governments are present. The overall purpose is, of course, to determine if the benefits of the governance-turn, according to the literature, are present in practice within the specific developments of this study. These insights provide empirical input to contribute to the academic field.

The next chapter will set up the theoretical framework based on international, peer-reviewed, leading literature for this investigation, concluded with a conceptual model to clarify the structure of this study. Thereafter, the methodology and the explanation of the specific developments of this study will be presented in more detail in chapter three. Chapter four includes the outcomes of the investigation itself followed by the conclusions and answers on the research questions in the fifth chapter. At the end there will be a reflection on this study, with implications for the planning practice and impetus for further research.

2 Exploring the shift from government to governance

In chapter 1, resistance is seen in the development of wind parks in the Netherlands with a top-down and central organized approach. In the development of solar fields, the approach is changed where a more bottom-up and area-based approach is the practice. This recent shift in approach can be seen as the governance-turn in a nutshell. To determine the benefits and drawbacks of the governance-turn in a bigger scale it is first needed to review international and relevant literature to understand the historical trends which are fundamental for the present developments and which determine the playfield for the development of solar fields in the province of Groningen.

The governance turn has relations with several developments, shifts, transformations, transitions, changing circumstances and paradigms in time. According to Majone et al. (1996), are the most important drivers in governance; 'privatization' and 'New Public Management'. Therefore, the outline of this chapter will be structured with these two trends as well as the trend of decentralization and especially one policy instrument related. Finally, these together point to the main research question and the further investigation, which is elaborated on in chapter three. In sum, the changes relevant for this study and influencing the governance turn are; the rise of New Public Management (2.2), privatization (2.4), decentralization (2.5) and Market-Based Instruments (2.6).

2.1 The strong central government

In order to follow the paradigm shift and related practice of governance, contextual facts surrounding the top-down, functional and most of all the coordinative model of governance provided as a matrix for understanding the shift. Therefore, the starting point is halfway through the twentieth century, were World War two has come to an end, and were the coordinative governance was common practice. Europe has to rebuild the physical environment as well as the economic status quo. Because of the miserable situation there was a lack of time to endless discuss about the plans for housing, industry and related matters. Functionality was the starting point for the rebuilding process (De Roo, 2012, p.107). This resulted in providing functional solutions, available and affordable as quick as possible to overcome the damage and the backlog due to the war and to incentivize the economic circumstances.

In Europe, the post-war paradigm was mostly based on a coordinative model of governance in spatial planning processes (Zuidema, 2016a) and in particular in this exceptional challenge with this major extent. Steering these led almost automatically to the central government as only key player to plan, to decide and to build with a technical-rational approach (Zuidema, 2016a) without contextual engagement or inclusion of local values. This traditional form of public administration can be seen as *efficient* through the breakdown of complex tasks (Stoker, 2006) and therefore a strong focus on the intended purposes to simply solve problems. In the mentioned time frame the way of *governing with only the government* was general accepted and the government was accountable in steering and exercise the reconstruction. As De Roo (2012) called this "post-war functionalism [...] with a high degree of top-down control" (p.103).

Not even three decades later, in the 1970s, the central role of the government declined (Lemos & Agrawal, 2006) at least in Europe. Among others, the middle East Oil Crisis brought the governmental system under pressure, because citizens lost their trust in the system and became more and more critical (De Roo, 2012). This tremendous devaluation in the socio-economic context had a degree of explanatory power for the paradigm shift because of the big impact of the crisis and the apparently limits of the accountability of the central government within the socio-economic system. Besides, people became more assertive and like-minded people grouped together to be heard more. The governments in Europe, among others the Netherlands, reacted by making policy sectors and to remain 'in control' (De Roo, 2012, p.107 and 108). This development can be seen as the beginning of the shift from *government* to *governance*, where the

paradigm of the government as only responsible and acting actor shifted. Rhodes (1996) has at least six definitions of governance whereby 'the minimum state' as one of them is the most striking, which shows the decline of the central role of the government in extreme. Or, according to Lemos and Agrawal (2006): "*Governance [governing] without government*" (p.311). This shift is based on the critique on the government as prime actor. Due to the mass citizenship and therefore the increasing demands on the central government (Stoker, 2006), the bundling of diversity and simplifying complexity through standardization was the general means to manageable collective solutions in traditional public administration.

2.2 New Public Management

The first reversals in the governance-paradigm were described so far but, other developments in the same vein followed up. Like in a couple of OECD countries across the Western world where over the 1980s the New Public Management (NPM) did his entrance [Hood (1995), pp.93; Stoker (2006), pp. 45]. Not only in the UK or other English-speaking OECD countries followed the movement of NPM, the Netherlands amongst others was one of the countries that were influenced by the entrance of NPM (Hood, 1995, p.100), however it is hard to measure in public administrations to what extent this was.

The paradigm of the NPM is according to Rhodes (1996) based on three pillars; *economy, efficiency and effectiveness*. In this vein, the term 'efficiency' receives another meaning then mentioned earlier, in chapter 2.1. Stoker (2006) argues that there was critique on the lack of efficiency related to value for money within the traditional public administration, based on the monopolistic position and the reactive attitude to the citizens (p.45). As a result, public administration became more businesslike; citizens were more viewed as 'customers', the 'output' and related efficiency became more important as well as the distance of the government to citizens decreased whereby the accessibility increased (Rhodes, 1996, p.655). The distinction can now be made between goal setting, including financial goals, and the management of these goals into practice (Stoker, 2006). Therefore, management skills and competition between market parties became more important and disaggregation within the public sector increased [Rhodes (1996), pp. 655; Hood (1995), pp. 97]. Stoker (2006) points out in a clear way; "NPM seeks to dismantle the bureaucratic pillar of the Weberian model of traditional public administration" (p.45), where in his model the elected public representatives have the pivotal position in decision-making. Where traditional public administration approaches the governing as holistic and monopolistic practice, mostly the central government, the policy making and the implementation is in the NPM paradigm more or less separated and citizens became more important.

NPM is important to mention here because, in the light of the shift from government to governance, it can be seen as part of the beginning to involve more actors in the planning process following the first doubts that came about the government as the only omniscient party that determines what is good for the citizens. The mentioned paradigm of NPM is in a certain way about 'steering' when it comes to management, which is called by Rhodes (1996) a synonym for 'governance' (p.655). In the next section, the term 'governance' will be more elaborated on in order to this study.

2.3 Shift from government to governance networks

What exactly means 'governance' and how does this relate or differ from [the] 'government', according to the literature? So far, there is written about governments as institutions that are public administrations, with their civil servants and elected ones. Governance has so far been used as a verb with meanings as; steering, managing or guiding, and all this mainly independent of a party that does that. Rhodes (1996) stated governance as a synonym for a change in the meaning of government (p. 652), which can be, of

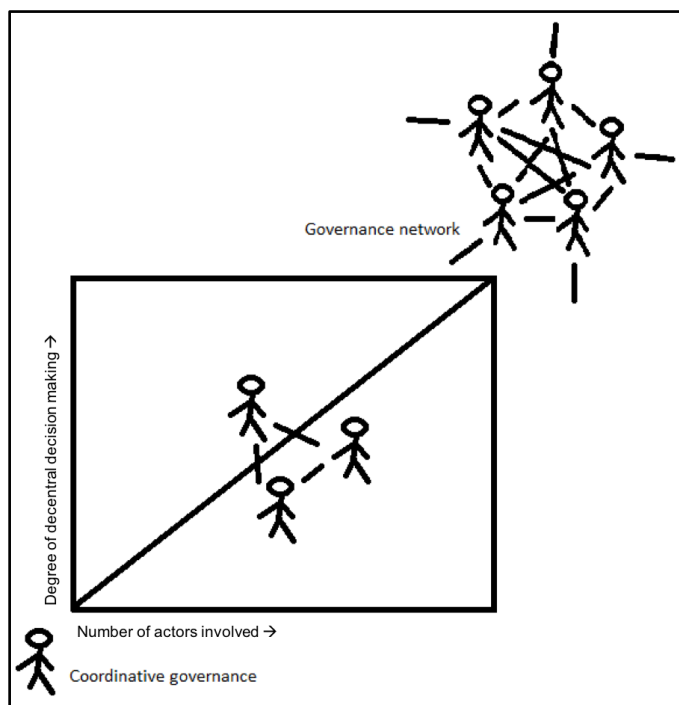


Figure 1: Spectrum of governance; from coordinative governance to governance networks. (Source: author)

course, the *role* of the government. Later he stated, like mentioned earlier 'governance as a synonym for steering' (p.655), which is more about the use of the word governance as the mentioned verb. Interestingly, González and Healey (2005) define the term governance as 'problematic' itself, this makes it all the more necessary to define this term, for at least as a starting point in this study. Obviously, because this study is about the advantages and disadvantages of the change in governance and how this is visible in contemporary planning practice. In simple terms and in line with one of the definitions of González and Healey (2005), the definition in this regard is that the shift *within* the practice of governance means that there has entered more than one actor in the operationalization in planning processes, where there was in history primarily the (central) government. This implicitly shows that the existence of governance is not shifting, but the meaning of it, because there is apparently a shift *in* governance. This means, within the changing governance, more actors and participatory stakeholders are included in the

planning process than just the government and in some cases, governance exists without government.

The latter governance form is in the literature commonly called 'self-organizing networks' or 'self-governance' [Rhodes (1996); Jordan et al. (2005); Stoker (1998)]. This is why this governance turn is also called a shift from government to governance. In addition, Zuidema (2016a) described this movement also as a 'dispersal of power [...] over many groups and levels in society' (p.2). These groups, or networks of actors, have a share and influencing power in the decision-making process or are directly involved in planning processes. In other words, the playfield in planning has shifted from a coordinative governance [government] to a network of actors [governance network]. This new pluralistic institutional structure means literally "less government and more governance" (Rhodes, 1996) and the involvement of more actors. This can be presented in a spectrum, as seen in figure 1. Here, in the bottom left corner of the spectrum, only the government is present in coordinative governance. Sliding in the spectrum to the right-upper corner means more and more actors are influencing decisions or are even being involved in the planning process until there is reached the governance-networks as self-organizing networks where 'own' decisions are being made. The degree of decentral decision-making increases as well, sliding along the same line in the spectrum. This has to do with the principles of subsidiarity and decentralization, which will be discussed in-depth in chapter 2.5.

So far, only a shift from a single actor to multiple actors has been looked at, but not yet who exactly 'those other actors' can be. The actors who enter the planning playfield can now be, next to governments, market parties and [the] community as well. Following Lemos & Agrawal (2006) there are between the mentioned extremes on the governance spectrum several governance forms possible, known as hybrid forms of governance. Hybrid forms of governance can exist of a combination of 'state' and 'market', within a public-private partnership (PPP), a combination of the 'state' and 'community' that is called 'co management' or a combination of 'community' and 'market', that is called private-social partnerships (Lemos & Agrawal, 2006) or, like mentioned earlier, the self-organizational form of governance in governance networks. In figure 2 this is illustrated with a 'governance triangle', based on Lemos & Agrawal (2006). They stated as well that in the search for more participation and influence in the decision-making, these governance strategies are viewed as more efficient in implementation (p.319). This statement goes even further than the expectations which are mentioned in the previous paragraph within NPM where efficiency was the purpose within the government with market-based principles of management. Now, in collaboration with among others market-parties, the intended efficiency is again increased. When the public authority is minimized, the efficiency could probably be maximized. In Europe and the Netherlands there is a theoretical, ethical limitation for this eventual maximization of efficiency in providing public services because, this has to be done in an equal way due to the ruling democracy (Lemos & Agrawal, 2006). Next to democracy, other aspects are 'limiting' the governance-turn in this respect with the role that, according to Mol (2016) can only be performed or guaranteed by governments such as: "environmental accountability, rule-altering behavior [...] and balancing interests" (p.63). To what extent these limitations are present in practice or noticeable, based on the statements so far, relates to the extent of the number of actors involved and the roles of the different governments involved.

To summarize, the number of actors involved in the playfield of planning can now provide insights in the governance strategy, scaled on the governance spectrum (figure 1). Besides, the difference can now be made between the type of actors involved and all the hybrid governance forms in between, by using the governance triangle (figure 2).

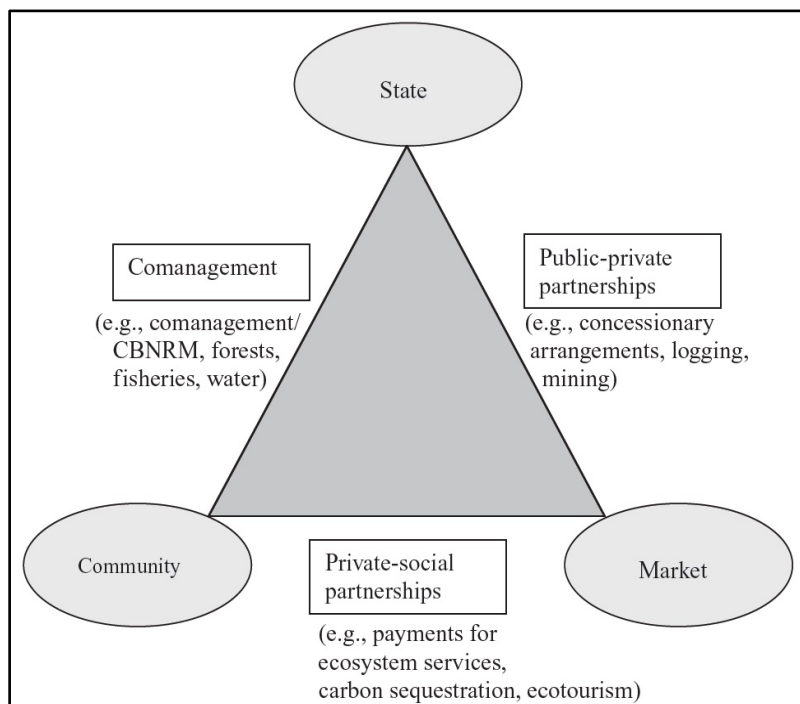


Figure 2: Governance triangle (source: Lemos & Agrawal, 2006)

2.4 Privatization

Another trend in the changing governance, in the vein of neoliberalism, is privatization. Former governmental tasks were privatized in order to 'deliver' the citizens, as the governments customer, in a more efficient way. The paradigm of efficiency in public services started with NPM, as mentioned in chapter 2.2 and continued in the privatizing of some governmental tasks. The endeavor of efficiency was in essence the same as it was in NPM but, in privatization it is not only the implementation of market-based management principles, it is also the outsourcing of tasks. The transfer of governmental tasks to market parties created a 'governance network', a hybrid governance structure with the new semi-state parties and the state to serve the citizens in a more efficient way. The first privatized government tasks in the Netherlands were for instance; telephony, post-delivery, public transport and energy supply (Stellinga, 2012).

Within the energy sector in the Netherlands there was a tendency visible from growth in energy delivery and consumption to, later, reduction and desired efficiency. After the World War two, energy consumption stands for (industrial) growth. Later, as a result of the earlier mentioned middle East Oil Crisis and also the report 'The limits to growth' to the Club of Rome (Meadows et al, 1972), the focus of energy became more on reduction of the consumption and therefore the needed efficiency in the use of the energy itself (Tellegen et al., 1996, p. 227). Therefore, the movement to privatize this governmental task started because of the benefits that were seen as a kind of cure for the inefficiency of the government. Benefits of privatization were viewed as, according to Stellinga (2012): "Reducing public costs, more administrative control and strengthening the private sector" (p. 30). Positive side effects were also, following Tellegen et al. (1996), collaborations between the privatized energy distribution party, other market parties and citizens. Local initiatives are now more into focus, in particular due to the energy transition and the transition experiments (p.237). This brought possibilities for more tailor-made solutions as well (Tellegen et al., 1996, p.230).

About two decades later, in the late ninetees, the Dutch House of Representatives were concerned about the energy provision, as a primary need for the Dutch citizens. This demanded for extra administrative effort from the government to secure and monitor a 'proper supply' with the privatized energy companies. (Tweede Kamer, 2000). This proper supply can become an ethical issue, related to the privatization of the energy supply, when it comes to available and affordable energy for every citizen of the Netherlands, as it is a public right. The efforts of the government are at odds with the anticipated benefits, as mentioned earlier. This nevertheless confirms Majone's (1996) theoretical statement in which she stated that within NPM and privatization more regulation is required rather than less. Further criticism came of the ideological and infertile content of the political discussion about the privatization and the narrow choice of just 'pro' or 'con' this movement (Stellinga, 2012, p. 87). This was also noted by the national press where the NRC quoted: "The unconditional belief in the free market as the medicine for all economic and social ailments" (NRC Handelsblad, 1996). The House of Representatives became more cautious, resulting in the obligation to include research and experiences so far in the considerations for the following choices about an expansion of this neo-liberal turn (Tweede Kamer, 2000).

2.5 Decentralization

Till now there is spoken about the government in general but, of course, in the Netherlands there are three levels; central, regional and local level. In other words; national government, provinces and municipalities. Another development or, according to Lemos & Agrawal (2006) 'reconfiguration', which is part of setting the stage for the governance-turn, is the movement of the decision-making 'from the top', on national governmental level, to the regional and local level. Especially in the western world this movement of decentralized decision-making has become one of the new tactics in, among others, the environmental policies and spatial planning [Spaans (2007); Zuidema (2016b); Lemos and Agrawal (2006)]. Decentralization is based on the principles of subsidiarity, which is the decision-making at the level where the issue is at hand (Spaans, 2007, p. 206). In spatial planning, it basically aims for a more area-based approach of environmental issues, mostly out of reach of the central state because of local uniqueness (Zuidema, 2016b, p35). Area-bases could be explained in this case as 'more proactive, integrated and tailor-made approaches' (Zuidema, 2016b). Planning at the more local level brings logically more details as it actually works the same as zooming in on a photo. More directly response from stakeholders is a logically effect as well because of the decision-making is more accessible which can easily lead to more direct support or resistance to new policies and decisions. These increasing number of stakeholders is an increasing complexity as well (Verweij et al., 2013) due to the increasing of interests and the more holistic attitude which can easily lead to a bigger challenge to reach consensus.

The distinction can be made between simple and complex issues at hand to decide at what level decisions have to be made, in order to implement new (environmental) policies. Zuidema (2016b) terms this consideration, based on De Roo (2004), the degree of complexity to determine the governmental level for implementing policies. This consideration relates to the willingness and ability of lower level governments and economies of scale as well as the mentioned span of control of the national government to cope with specific or complex issues. Decentralization can function as a means to deal with increased complexity at a more decentralized level (Zuidema, 2016b, p. 34). It can also be an interplay of the national government and lower level governments when there are central objectives, of interest for the total country with an area-based implementation on regional or local level. The national government can put pressure on the lower level governments by using 'checks and balances' and prevents social dilemmas, such as the precedent effect, between other (neighbor) provinces or municipalities (Zuidema, 2016b). In other words, the national government sets the conditions needed for the decentralized governments to achieve (national) objectives and forms in this way a hybrid mixture in the institutional setting. Following De Vries (2000) in Zuidema (2016b), the balance between decision-making at the lowest governmental level and the local ability can result in an "optimal institutional arrangement" (p.39). This explanation of the interplay between the different government levels complete the earlier mentioned metaphor of the zooming level on a photo, where the national government's objectives can be seen as the whole picture, the local implementation as a zoom level.

So far, the provinces and municipalities have been discussed as being the same, under the heading of decentralized governments. Of course, they both are decentralized governments but they are not that similar. The regional government, the province, has a unique role compared to the national government and municipalities and they also differ in their mutual roles. For instance, provinces with large cities and their municipalities in it have another role division than provinces with much rural areas and smaller cities and their municipalities (Spaans, 2007). This relates to the economies of scale of larger municipalities and the related ability to deal with city-transcending planning issues. Seven years ago, De Roo (2012) described also differences in the way the municipalities and provinces embraced other actors in the decision-making, where the provinces are increasingly being called upon to share responsibility, participation was "still seen as a burden rather than a challenge" (p. 105). This is an interesting statement in the changing governance, discussed in section 2.3. Between the ambition of the national government for subsidiarity and participation there is apparently in some cases a limitation in the willingness or perhaps the ability to respond to complex

circumstances as such. Another interesting statement is from the work of Spaans (2007) where she states: "There are, in recent planning practice, a number of examples from the province and city-regions that demonstrate a search for a new balance in the role that the government level should take in specific cases interest." (207). This observation clearly shows that the division of roles more than ten years ago was not always clear. This makes it all the more interesting for this study how this is now, within the development of solar fields.

2.6 Market-based instruments

In this last substantive part of this chapter influencing mechanisms within, among others, the playfield of the development solar fields in the province of Groningen, are discussed. Following Jordan et al (2005), there are several ways in which governments implement their policies and reach their related purposes that are in the literature described as, next to other old or traditional policy instruments, 'New' Environmental Policy Instruments (NEPI's) (p. 481). NEPI's include, among others; Market-Based Instruments, a broad range of eco-taxes, eco-labels, environmental management and information systems, certifications and voluntary agreements [Lemos & Agrawal (2006), p. 305; Jordan et al. (2005), p. 482]. In this study, the focus is on Market-Based Instruments (MBI), as part of the mentioned NEPI's. Market-based instruments are particularly interesting for this study because they can be seen in essence as 'remote governance' of the national government by the area-based implementation, tailor-made nature rather than a top-down generic approach (Lemos & Agrawal, 2006) and therefore of interest in the discussion about the governance-turn and related trends. This interplay between governments, markets and citizens is to some extent an interplay between theory and practice. The goal setting and policy-making is on to governments, the implementation and achievement of these goals are at the regional and local level, through mostly markets and citizens. As mentioned in the previous chapter, the multi-level government in decentralization can be a means to make governments more accessible to operate more 'on the ground', based on the principles of subsidiarity. Theoretically, the lower-level governments and other actors connects apparently their efforts at this decentral level. This is at least an interesting thought in the context of the developments solar fields.

Market-based instruments can have several purposes, dependent on the governmental goal-setting and policies and therefore the appearances of different instruments are inherent. Following Jordan et al. (2005) and according to the OECD (1994), there are four main instruments which includes: "eco-taxes, tradable permits, subsidies and deposit-refund schemes" (p. 482). Purposes and related instruments can be both restricting or encouraging to meet for instance, environmental goals or 'more responsible behaviors' (Jordan et al, 2005). For this study, only the subsidy as one of the market-based instruments is elaborated on. This is because, within the developments of solar fields subsidies are a very widely used market-based instrument, as mentioned in chapter 1.

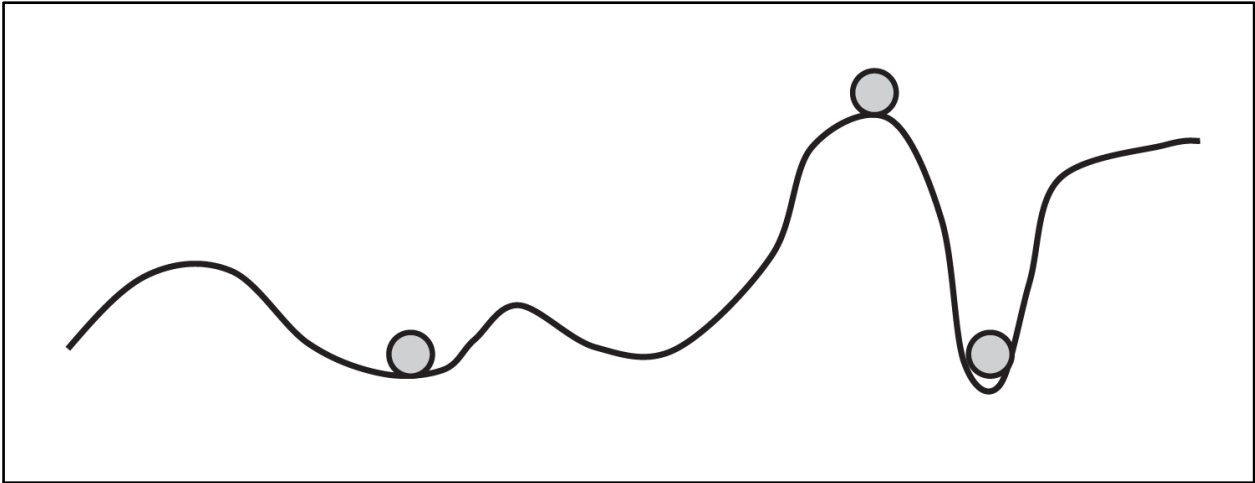


Figure 3: Visual impression of the effect of the interplay between ‘niches’ and subsidies (Zuidema, 2019).

Innovations, developments of solar fields can be seen as one of them, have most common characteristic that they aren't profitable in the beginning for the developer or operators and therefore, most of the time, expensive for potential users. To mobilize user's behavioral patterns and to incentivize developers or operators, governments can use ‘pull mechanisms’ to provide the necessary incentives, which can be both financial and in-kind privileged, to allow the innovations to compete artificially with existing alternatives. In this way, innovations become attractive to switch to, compared to existing, conservative or unwanted alternatives. Changing the balance between costs and benefits through among others subsidies, as pull mechanism is a means to artificially overcome the threshold of high upfront investment and relatively low benefits. This ‘artificial underpricing’ can be seen as an effect of subsidies. The pre-investment for an innovation that is still expensive in the initial phase is reduced by means of a subsidy. This effect is shown graphically in figure 3 where the non-profitable top, or threshold, is lowered by subsidies.

‘Push mechanisms’ are another way to influence users, developers or operators by discouragement of conservative, old or undesirable behavior, choices or actions. In their research for changing behavior in the use of electric cars in different European cities, Held and Gerrits (2019) showed that it is most successful when implementing a *combination* of push- and pull mechanisms. This means on the one hand ‘pushing’ people into a new direction by discouraging the conservative or actual behavior. On the other hand, this means incentivize people by ‘pulling’ to encouraging desired behavior.

2.7 Conceptual model

For this study, a conceptual model is set as a basis for the strategy for the empirical investigation in the development of solar fields in the province of Groningen and what the building blocks are of the playfield, related to the mentioned trends in this chapter. In figure 4 there is seen a graphical view of this conceptual model where relationships and influences of the different trends, actors and the context are presented. This model illustrates the nature of this study; from the macro-topic ‘energy transition’ to specific the governance of the developments of solar fields in the province of Groningen which finally lead to lessons that can be learned, based on the empirical insights linked with the theory and the broader planning practice.

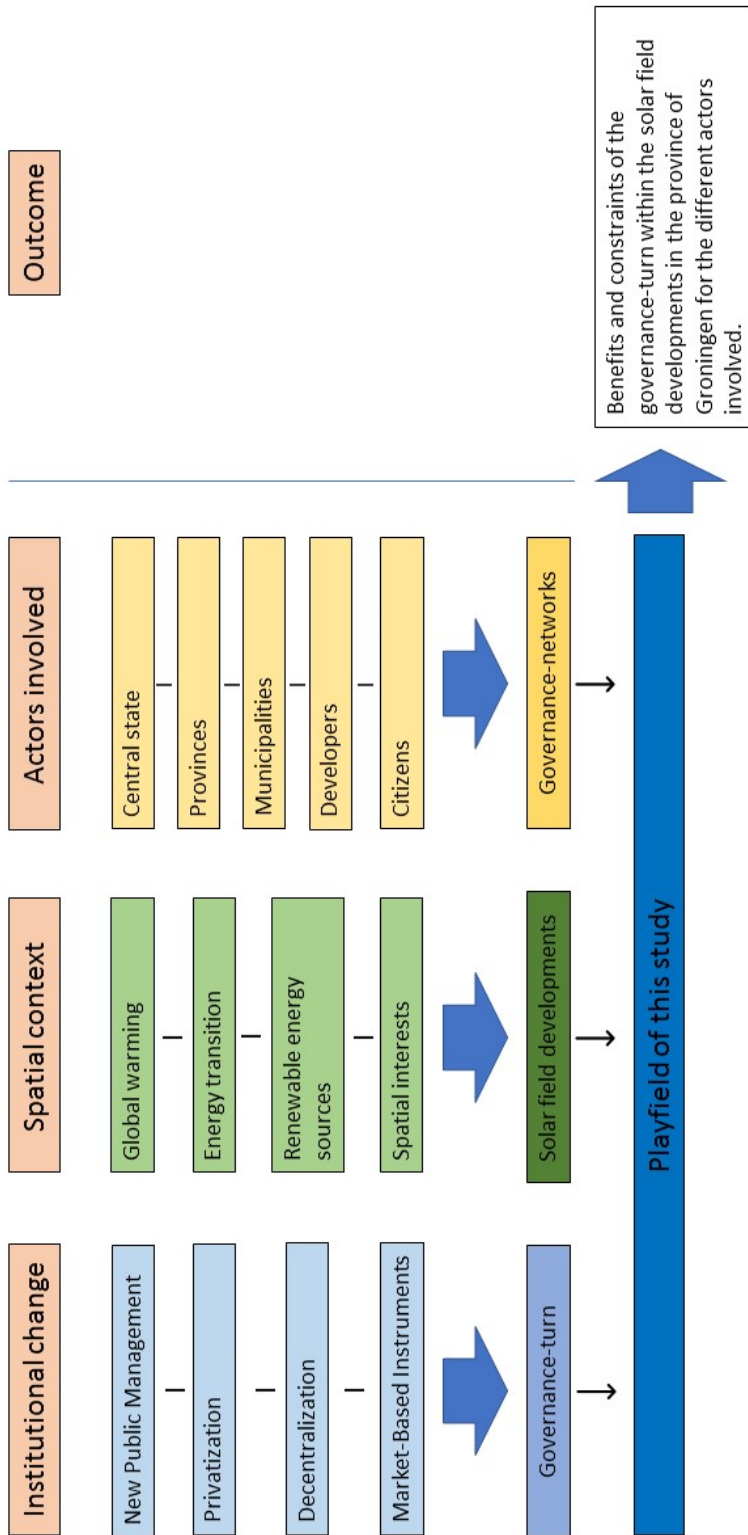


Figure 4: Overview of the conceptual model

3 Methodology

In this chapter the first step is taken to the practice of the development of solar fields in the province of Groningen. The previous chapter provided a theoretical framework and a conceptual model for this study. To prosecute, in this chapter the strategy is given and the methodology is outlined for the collection of the empirical input which in the end provide answers to the research questions and empirical insights for further investigation. In sum, the chapter consists of the outlining of the strategy used (3.1), the empirical set-up (3.2), the related ethical issues (3.3), selected indicators (3.4), the interviewees (3.5), the way of coding of the collected data (3.6), the selected, specific developments (3.7) and finally, the expectations for the empirical input and conclusions (3.8).

3.1 Strategy

For this study, the conceptual model presented in chapter 2.7 is used as a framework for the empirical collection. With the starting-point that there is indeed a shift from government to governance [Lemos & Agrawal (2006); Verweij et al. (2013); Zuidema (2016a)], this empirical investigation is both inductive as well as deductive to show that this is at hand within the practice of the development of solar fields as well. The common thread in this investigation is to compare the benefits and constraints described in the literature, within all the mentioned developments and shifts parallel to the governance-turn mentioned in chapter 2, with empirical insights. This, of course, according to the mentioned research questions in chapter 1. These questions are leading but therefore it is needed to understand the playfield of the development solar fields in the province of Groningen and the players within before answering the research questions. The different theories, trends and resulting context of the playfield of this study are summarized in the conceptual model. This conceptual model is used as tool for guiding the research to finally answer the research questions.

The field of investigation for this study is the development of solar fields in the province of Groningen for a few reasons. First, the physical, geographical and social characteristics of the whole country of the Netherlands are too diffuse for an in-depth case study in the governance-turn, therefore the choice is made for a smaller region. The choice is made for the province of Groningen. This is because of the high ambition of the province of Groningen related to renewable energy initiatives (Provincie Groningen, 2016) in order to reach the goals of the Paris Agreement and therefore is this province particularly interesting. Besides, as a very practical consideration, the University of Groningen is located in the research area and the author of this master thesis is quite familiar with this region and has moreover an entrance to the province of Groningen as regional government. This latter is interesting and very helpful for the collection of empirical data, needed for this study.

To find answers in the playfield, indicators are formulated which will lead to the answers, when doing the empirical investigation. For instance, it is relevant to know what the role division is between the actors involved in the development of solar fields as well as the opportunity for stakeholders to participate in the decision-making. These and other indicators are used, based on the conceptual model to stay focused on the relevant themes and actors in the playfield.

To find the actors involved in the development solar fields in the province of Groningen, a start will be made with an inventory in authorities and developers in this region. Based on their input, specific developments will be selected for determining the active governance-networks and the actors involved. The basis for this will be the governance-triangle of Lemos & Agrawal (2006), which is also incorporated in the conceptual model, to determine the separated actors. The input from these actors, structured with the indicators will in the end lead to the answers to the research questions.

3.2 Empirical set-up

In order to get introduced into the practice of the development solar fields in the province of Groningen, a small document study is done as the first exploration of the playfield. The focus is particularly on the specific social, political, geographical and physical context of the province of Groningen. For the experience of the researcher related to the size of the developments and the spatial impact, a couple field trips are undertaken to different solar fields for observation, both operating as under construction. As a continuation, websites of the central government, province of Groningen, municipalities and solar field developers are viewed to get an idea of the number and the overall spatial impact in the province of Groningen, all for the first empirical input. To determine the benefits and the constraints of the shift from government to governance in the province of Groningen, the empirical input should also include insights in the playfield of the actors involved, their perspectives, relations among each other, experiences and interests. For these purposes, subjective input has to be collected about personal meanings, in-depth and case-specific data. This kind of input called for a qualitative research approach to collect this information, a quantitative research approach is more focused on generic, objective and factual input (Clifford et al., 2016, p. 6) representing a large group or entire sector. In the mentioned first exploration of the playfield, this is roughly done by searching on websites and documents, for creating a frame of reference for the qualitative study which follows. In this research, therefore, the focus is on specific developments of solar fields within the province of Groningen to approach them in a qualitative way.

To do so, the research is done through semi-structured interviews, as means for the qualitative data collection. This way of interviewing is chosen to compare the different perspectives of the different stakeholders within the solar field projects and to determine different interests and task divisions on the spectrum of governance (see figure 1). To be able to compare these, a list of interview questions is prepared to structure this part of the interviews (see appendix 1). This structure is based on the theoretical framework, as discussed in chapter 2, and indicators which will be discussed in chapter 3.4. This results in a much easier and clearer coding process after the interviews. In order to level with the interviewee's knowledge about the subjects, the unstructured part of this type of interviewing leaves for the researcher the opportunity to skip questions as well. Besides, this part of the interviews leaves the opportunity to ask further on topics at hand by the researcher and, on the other hand, leaves the opportunity for the interviewees to add topics which are at their interests. This semi-structured way of interviewing, with a certain freedom in it, is done because in this study the starting point is to extract personal experiences and answers from the empirical field with the interviews. In other words, the interviewees have the knowledge and information to provide input to contribute to answering the research questions (Clifford et al., 2016), resulting in both deductive as well as inductive input. In addition, as seen in appendix 1, every interviewee is asked for possibly following up with questions via mail, phone or another time in person. This to hold the opportunity to enrich findings in the data after collecting these.

The subjective input come from different perspectives of the actors involved in the development of solar fields in the province of Groningen, based on the governance triangle of Lemos and Agrawal (2006). The input from market-parties, governments and citizens gives insights into different interpretations, from different angles and with different expertise and knowledge of the same playfield, and also gives insights in the perception of power relations. This input from different actors, function as triangulation as well, which works inductive for this study. Finally, there can be determined what the benefits and constraints are of the new governance practice, related to the coordinative governance, most common in history as mentioned in chapter 2.

3.3 Ethical issues

Ethical issues in research with the methodology of semi-structured interviews includes; confidentiality and anonymity (Clifford et al., 2016, p.151). The interviewees in this research are therefore anonymous, except

for their contribution and role in the development of solar fields. At the start of each interview, the interviewee is asked for permission for recording the interview, leaving the names of them out. Besides, the opportunity is there to remove the recording after the interview, in the case that the information is confidential. In order to be accessible for the interviewees and to remain in a certain informal setting, there is chosen for an oral conformation instead of signing a paper related to the anonymity and the recording. Because of the niche-character, the relatively small scale of the playfield and the limited number of the actors involved in the development of solar fields in the province of Groningen, makes that despite the anonymity of the interviewed actors, they can be traced easily. This results in the risk that the more open the interviewees are in the interviews, the more vulnerable are the insights in the interests, perspectives on the different actors in the playfield and their experiences in the current constraints. The open character of this methodology is in this case therefore well chosen, so that the mentioned subjective and specific data can be collected, despite the fact that it is probably vulnerable. The sensitivity lies mainly in the effect that besides that these insights can give revelations in the current functioning of the actors and their mutual relationships in the playfield, can also bring ammunition for reproach. This risk can arise from the opacity to the researcher when the actors are outside the context of their playfield, where this within the development of solar fields might have been more strategically and less explicitly named or propagated. This also gives this research its added value, but the sensitivity and risk of misunderstanding among the actors when reading this research is something to keep in mind. Other issues, related to this qualitative methodology of semi-structured interviews, are biases of the researcher and suggestive questions. This has been avoided as much as possible by preparing the interview questions in advance in the most open manner and structure and being aware of the weaknesses and vulnerabilities of this methodology during the interviews.

3.4 Selecting indicators

The set-up of this study is to compare theoretical statements and arguments of the benefits and constraints of the governance-turn within the development of solar fields in the province of Groningen. To do this, indicators needed for the semi-structured interviews are defined to link the theory with the input of the interviews, both inductive as well as deductive. These indicators are based on the research questions which in the end will lead to answers, or at least attempting to this, and provocation for further research.

Indicators:

- Who is the initiator of the solar field development?
- Is there local support when the developer is the initiator?
- Is participation possible for citizens and if so, in what way?
- What is the allocation of the decision-making within the government (central/decentral)?
- Is there a difference experienced by the actors between the energy supply as a governmental task and the privatized company?
- Is subsidy needed or is it 'self-governance' in the development of solar fields?
- Experience of efficiency and the related reduction of public costs?
- Is there added value of the province of Groningen experienced by the other actors involved?

3.5 Selecting interviewees

As mentioned in chapter 3.1, input from market-parties, governments and citizens is intended. Therefore, the interviews are held with solar field developers, officials of municipalities, an official of the province of Groningen, the provincial minister of the province of Groningen responsible for the green program and citizens involved in the development solar fields. With all these actors, the corners of the governance triangle of Lemos and Agrawal (2006) are 'filled'. To reach citizens, related to the specific developments in this study, a selection based on 'cold calling' (Clifford et al., 2016, p.149) is chosen. The only starting point

to get in contact with these citizens is based on geographical position, obviously adjacent to one of the developments because of the high probability that these citizens are involved in a certain way within the developments, if this possibility is offered in the project. The cold calling is therefore done in two ways; first there was a search on Google maps to find phone numbers based on the addresses adjacent to the developments, this could give the opportunity to simply make an appointment, when one is open to being interviewed of course. The other way is by physically visiting the solar fields (whether or not under construction) and ringing neighboring citizens on the spot. For the latter, there is chosen for a Saturday for doing this because of the greatest chance to find someone at home who is probably at work during the week. Visiting in the evening was another possible option but, in the autumn the sunset is early and to prevent uncomfortable situations for the citizens of 'strangers at the door in the dark', there is chosen for the Saturday.

The other interviewees, in this case coming from governments and solar field developers, were easier to approach because they are within official bodies. These bodies are generally geared towards having customer contact, which also includes a visit by a scientist for conducting an interview in this case. This has resulted in a number of appointments for having an interview. Table 1 shows the selected interviewees and the dates of the interviews in sum.

Chapter 3.7 elaborates a bit more in detail of the characteristics of the two specific developments in this study.

	Interview code	Date	Role	public/private
Interviewee 1	D1 (developer 1)	18 oct. 2019	Projectmanager, solar field developer	private
Interviewee 2	D2 (developer 2)	22 oct. 2019	Projectmanager, solar field developer	private
Interviewee 3	P1 (province 1)	28 oct. 2019	Provincial minister, province of Groningen	public
Interviewee 4	P2 (province 2)	30 oct. 2019	Provincial officer, province of Groningen	public
Interviewee 5	M1 (municipality 1)	13 nov. 2019	Municipal officer, municipality of Midden-Groningen (Hoogezand)	public
Interviewee 6	M2 (municipality 2)	01 nov. 2019	Municipal officer, municipality of Groningen	public
Interviewee 7	C1 (citizen 1)	12 nov. 2019	Citizen of Hoogezand	private
Interviewee 8	C2 (citizen 2)	13 nov. 2019	Citizen of Hoogezand	private
Interviewee 9	C3 (citizen 3)	13 nov. 2019	Citizen of Groningen	private

Table 1: Summary description of interviewees with their roles and backgrounds

3.6 Coding data

The qualitative data derived from the semi-structured interviews is a bulk of information which is probably not in total useful or relevant to this study. Coding the data is a scientific way to organize the information to be able to analyze the data easier and to expose possible patterns, trends or relationships (Clifford et al., 2016). To do this, after the interviews are held, the interviews are listened from the recordings followed by transcribing the relevant parts. This first reflection on what the interviewees have said is an interpretative and subjective practice (Clifford et al., 2016, p. 649) and it is therefore necessary to do this process in the most transparent way possible to follow the steps well, but also for the repeatability of this study. Out of the parts marked by the researcher as being relevant, quotes are extracted for coding and categorization, in favor of this study and answering the research questions, as a lens in analyzing the data. The coding is based on the in chapter 3.4 selected indicators as well on the mentioned trends in the governance-turn, described in chapter 2. In order to determine what are quotes that is theory explaining and what is theory building, the selected quotes are coded with the subdivision; inductive or deductive. An example of the coded quotes is seen in appendix 2.

3.7 Specific developments

To become more specific in the indicators and the visibility of a governance-turn, specific developments has been selected to provide empirical insights within the playfield of the development of solar fields. For this study, two specific developments are selected, both within the province of Groningen, based on examples passing by in the first interviews. The selection of the two developments is thus based on the input of interviewees themselves, whereby these examples functioned in their opinion as good examples for zooming in and besides, of interest for answering the research questions to show (different) governance strategies in practice.

Development 1: Molenwaard (Hoogezand)

The solar field Molenwaard is situated at the western border of the city of Hoogezand, within the municipality of Midden-Groningen. The development of this solar field is interesting to look at because of the size and the specific location with the proximity of several citizens almost around the field. The boundaries of the field are at the north a rail way and at the other three sides housing. See figure 5. Although the former destination of the field concerned housing, according to the municipality's zoning plan, the permit for the solar field was nevertheless granted to the developer in 2018 (Midden-Groningen, 2018). The field is under construction at the moment of writing.



Figure 5: Overview solar field Molenwaard (Hoogezand). The solid red line is the planned field.

- Spatial footprint: Gross 35 ha, net about 28 ha. 7 ha is used for spatial measures.
- Current status of development: Under construction
- Municipality: Midden-Groningen (former Hoogezand)
- Contextual: Adjacent urban area

Development 2: Roodehaan (Groningen)

The solar field Roodehaan is situated in the south-east of the city of Groningen in the semi-rural area. The boundaries of the field are at the north the highway A7, at the west a planned industrial park and at the south and east sides housing and agricultural lots. The field is subdivided into three parts where part one already exists and two is under construction at the moment of writing. See figure 6.



Figure 6: Overview solar fields Roodehaan. The solid red line is the planned field, subdivided in three fields.

- Spatial footprint of the total field: 40 ha
- Current status of development: Authorized
- Municipality: Groningen
- Contextual: Semi-rural, adjacent industrial area

3.8 Expectations

The regional government in this case is the province of Groningen. The jurisdictional role of the province, relevant in this study, is securing spatial quality within developments with a spatial impact on regional level. This security can be, based on the Planning Act 2008, a pro-active role where the province can overrule municipalities with a provincial structure vision (Janssen-Jansen & Woltjer, 2010, p. 909) and a re-active role as well when municipalities 'do the job'.

Because of the regional nature of the province and the related regional function, the expectation for the development of solar fields is; the larger the project or development and related spatial impact, the more visible the role of the province. Besides, NIMBYism within municipalities can be of interest of the province of Groningen to mediate or overrules in favor of regional interest.

The following chapter gives the first empirical insights in the playfield of the development of solar fields within the province of Groningen and all the related actors and their input in this study.

4 Empirical input and analysis

In this chapter, empirical input and analysis is provided, based on the nine semi-structured interviews, document study and field trips. Like mentioned in the previous chapter, the two specific developments in this study are based on the interviews held in the beginning with developers and the province of Groningen. Based on these suggestions, the municipalities and partly the citizens were selected for the interviews. The development of the solar fields Roodehaan and Molenwaard are interesting because of the difference in public support, while they are almost the same size. Many citizens live around the solar field Molenwaard and just a few around solar field Roodehaan. Interestingly, the public support is much greater at Molenwaard than at Roodehaan. What are the differences in the approach during the developments? Who has the lead in the developing processes? What could be the reason that there is this difference in public support among the solar fields? In the next session the playfield of the developments in the province of Groningen is outlined, to setting the stage for the specific developments. The focus is on the development of solar field Molenwaard in chapter 4.2 and the section thereafter is focusing on the development of Roodehaan.

The coded parts of the interviews, are seen in appendix 3, in the original language the interviews were held. This forms the basis for the empirical analysis of this study.

4.1 Playfield of solar field developments in the province of Groningen

The chapters so far have laid the foundation for outlining the urgency of the subject of this study, a theoretical framework with relevant and related trends, the research method and finally a brief introduction has been given of the specific developments of solar fields in this study. To continue, the results of the exploration of the playfield of the selected solar field developments are presented. This exploration is based on the governance-networks presented in the development of solar fields in the province of Groningen in general and in particular; Molenwaard and Roodehaan. The fact that there are more actors present in the developments than just one (central) government, can be seen as a first confirmation of the existence of a certain governance-turn.

To outline the playfield in the province of Groningen, the in chapter 3 mentioned indicators are used to structure the empirical input which will lead to the answers to the research questions of this study and finally to conclusions in the next chapter.

- Who is the initiator of the solar field development?

The first question in the interviews is to describe the playfield and the relationships among the actors involved. The purpose of this question is to determine the level of decision making, the perspectives of the actors on each other and, most of all, who is the initiator in a new development of a solar field? This latter becomes totally, unanimously clear; the developer, as a market-party is most of the time the initiator. Exceptions are the upcoming small-scale cooperation with only citizens and in the development of Roodehaan the municipality comes back in as initiator. The latter will be discussed later.

- Is there local support when the developer is the initiator?

The local support is related to the previous developments of wind parks and the related policy. In the introduction in chapter 1, the public resistance was mentioned about the wind park along the N33, with dumps asbestos as result. Lessons have been learned from the top-down determining of locations for wind parks and therefore the policy for solar fields changed and was decentral in the determination of the locations.

“The sun policy (In Dutch: zonbeleid) was at that time an administrative choice to be the opposite of wind. So, do not designate search areas from above, but rather encourage municipalities to determine locations.” -P2

It is not clear whether the local support really depends on who the initiator is. What is striking is that if the plans change gradually and participation is again determined by a government that, in the development of Roodehaan, the local support is considerably damaged.

“A censured developer has a park where the participation went fantastic: Molenwaard in Hoogezand [...] There, in a residential area surrounded by two hundred homes, zero legal objections. In Groningen nine legal objections on fifteen houses around Roodehaan.” -M2*

- Is participation possible for citizens and if so, in what way?

Participation can be present in several ways. Following the definition of the Cambridge Dictionary (2019) participation is: “the act of taking part in an event or activity”. ‘Taking part’ is not that specific and leaves the opportunity for own interpretation. The possibility and the way this is, is now up to the initiator of a new development. The initiator, mostly the solar field developer, has the obligation to involve in some way adjacent citizens by a new solar field to receive permission from the authority.

“We involve citizens in the development from the outset. And we look at what citizens need and in what proportion people watch the park the most. Which people do you want to compensate for that reason? And, which people do you want to be involved in the development of the park within a larger circle and how do you do that?” -D1

In this quote, participation and compensation lies close to each other. This can be an interpretation of the manner to involve citizens in the project. Participation can therefore roughly be subdivided into process participation, to have an influence on the decision-making process and, on the other hand financial participation, to share the benefits of a solar field for instance. The provincial minister refers to the first way of participation by saying:

“Eventually you have to organize it as close as possible to those citizens, so that they can take matters into their own hands in order to be able to organize something small in their own environment or perhaps something big that also affects more people.” -P1

In line with this, the extent of the development can be seen as a determining factor for the participatory effort. The more the spatial impact is, the more participation of the surrounding citizens are required. The link in the spatial and social aspects of the solar field developments are apparently more and more of interest (Klimaataakkoord, 2019b), this becomes visible in the following quote of the provincial minister related to the still developing Regional Energy Strategy (In Dutch: Regionale Energiestrategie (RES)):

“What is increasingly emerging is that you actually get a kind of trade-off between what is spatially the best place and what do people want? And we are now doing this together in the Regional Energy Strategy. So that you do much more, not just a spatial assessment, but also a social assessment.” P1

Another way in process participation is seen at the municipality of Midden-Groningen, where two big solar fields are under construction at the moment. This municipality does, besides the project participation, development of the policy for the whole municipality with the involvement of local residents of the municipality. They play ‘card blanche’ in order to determine possible and desirable locations for possible future solar field developments within the municipality. This proactive way of collaboration of the

municipality of Midden-Groningen and their citizens come to the fore in the following quote of the municipal officer:

“During the policy preparation, we invited residents to indicate where they think there are possibilities for solar fields and where not, by using printed maps on tables.” -M1

In the neighboring municipality Groningen, participation is more seen as difficulty and again related to the spatial impact of the development of solar fields. The approach in the following quote is also more focused on the financial participation.

“At present, the biggest obstacle is the major challenge for resident participation. How do you let the surrounding citizens think in a park and how do you benefit and be proud of it; ‘that is my solar park that lies behind it, because it benefits me’. On a very small scale it works, on very large solar parks, if you want to hurry up, it is very difficult, you get a lot of resistance.” -M2

These different interpretations and practices of a participatory approach in the development solar fields has become a diffuse playfield, because all the above quoted actors are involved in the same province of Groningen and apparently, they all have a different meaning for participation. In the following sections, 4.2 and 4.3, this subject will be discussed more in-depth with the interpretations and experiences of citizens in the specific developments of Molenwaard and Roodehaan as well.

- What is the allocation of the decision-making within the government (central/decentral)?

Where there was in history only the central government ruling, the governance-turn changed this. This becomes clear in the quote from a solar field developer:

“The state said; “We don’t really want to get involved, at the local level. So, the ministry of Economic affairs said; “We give exempt from the national coordination scheme” -D1

The central government has apparently a marginal role in the implementation of the solar fields, following this statement. This thought is further reinforced by the provincial official's claim by saying the following:

“At the moment there is no one park, no solar park in the Netherlands that has been realized according to that national coordination scheme.” -P2

Initial, the area development plans come from municipalities, as already seen in the collaboration between the municipality of Midden-Groningen and their citizens. Municipalities has to develop a policy for the implementation of solar fields in their municipality, when this is at hand. When a municipality has no policy, the province has the authority for the decision-making. Also, when there is an initiative for a solar field in the open, rural area, permission is required from the province, regardless of the municipality has a policy or not. The policy of the province of Groningen state as follows: “Solar parks isolated in the rural area [...] can only be realized at locations designated for this by us, at the suggestion of a municipality.” (Translated out of Dutch; Provincie Groningen, 2016, p. 64). In addition, the provincial officer said:

“This applies to almost all solar parks that are being developed; larger than a hectare and not within an urban area, the municipalities do that themselves. But we do the rest” -P2

This means that the decision-making of large-scale solar fields is formal at provincial level. The municipality is responsible for the local policy within their borders and outside of the urban area is a collaboration of the municipality and the province where the province has the decision-making authority. In the provincial policy the province states: “We believe that spatial integration and local participation are important. With good

spatial integration, we want to increase support for sustainable energy together with municipalities.” (Translated out of Dutch; Provincie Groningen, 2016, p. 63). Spatial integration is important and the province is responsible for that. As the provincial officer formulates this nicely:

“the province is actually the keeper of the outlying area, which is cursed but also embraces” -P2

So, municipalities are in the lead and the province is the keeper of the open area, with a regional focus. In the policy of the province of Groningen is said: “We hereby request municipalities to guarantee spatial quality and to guarantee careful use of space.” (Translated out of Dutch; Provincie Groningen, 2016, p. 63). This statement makes the role division clearer, the province requests the actor in the lead, which is the municipality, the first supplier.

- Is there a difference experienced by the actors between the energy supply as a governmental task and the privatized company?

Among other governmental tasks is the energy supply privatized in the Netherlands. On the national level, TenneT is responsible for the transportation of electricity and the related grid (TenneT, 2020). On the more regional and local level, the country is subdivided into districts with different energy suppliers with the responsibility for their grid in that region. In the province of Groningen, Enexis is the party who is responsible for this (Enexis, 2020). One of the reasons for privatization, mentioned in chapter 3 according to Stellinga (2012), is for instance to reduce public costs. In line with the paradigm of New Public Management is the expectation that the privatized task will now be carried out differently, in a more efficient way, including reducing public costs.

“We had always adjusted ourselves to demand, just energy demand. Well, the energy demand in the peripheral areas is very low. And then in one go there is a gigantic offer on the same network and that can of course never be transported, because that capacity is not there. So that is what TenneT has indicated. Of course, everyone fell for that, but the CEO, the best man, is of course right.” -P2

Strangely enough, a few interviewees did not really have an idea of the effects of privatized energy supply. Many spoke about what they thought Enexis should represent or in which it would have specific characteristics.

“They are really big organizations with a lot of good people, but I don't think that people talk and work with each other very effectively or efficiently.” -D2

Most of the reactions in the interviews were that the privatization is experienced as a negative or not working move, not that different of a government. This in the way that the expectations of the interviewees did not correspond with the practice, in their experiences.

“If you do not have competition, such a system does not work” -M2

The reason this municipal officer outlines is striking and he is not the only one who mentioned this as an explanation for the inefficiency in the interviews. Competition is perhaps an aspect of market mechanisms that gives the negative connotation at the moment.

- Is subsidy needed or is it ‘self-governance’ in the development of solar fields?

The governance-turn is in the development of solar fields visible in the existence of a governance-network which is doing these. To what degree are these developments, with the actors involved, a self-governance, independent of the government's subsidy? The reactions in the interviews were a bit contradictory between the developers and the spoken governments.

“In the end you hope that it will be so good that it can ultimately be earned back without subsidies, that is the dream of every developer. Because, we also really want to develop without subsidies, but that is just not possible now.” -D2

“It is even said: are we not already talking about improper state aid?” -P2

These reactions won't make it that clear and as long as there are subsidies we will maybe never know exactly who is right in this. There is, of course, a great economic interest for the developer, certainly if the developments were already profitable and on top of that the subsidy was added. It seems, as with the most innovative developments, in the beginning a need to overcome the so called 'non-profitable' top with subsidy, see figure 3 again. In this case, it is not clear in what phase the developments are and if the incentive of the central government is still needed. What is striking is the way the developers deal with the subsidy, after the developments are finished. What happened in some cases is that the solar fields after a couple months are sold through to, for instance, Chinese investors. Apparently, this is generally known:

“I wonder if this is the right incentive, especially if you don't want the SDE to go to China” -P1

Nevertheless, there is a form of 'self-governance' when we see how a developer himself takes care of the connection to the grid. This is of course independent of the subsidy, but it does indicate that the authorities are not involved in this.

“For our projects we have looked into the possibility if there is a good chance that, when we start the project, we can connect it to the grid. And, if possible or if we have a bit of certainty, we reserve that capacity so that we have the commitment of the grid-connection.” -D1

With this movement, a form of self-governance is visible, regardless of the way in which citizens participate. In fact, developers are independently performing the task of the Paris Agreement by proactively searching for locations, arranging grid capacity and applying for a subsidy.

- Experience of efficiency and the related reduction of public costs?

It seems hard to say if this governance network works more efficient than in historical developments with only the central government as an actor involved. The development of solar fields are quite new, related to the trends which influences the efficiency of this playfield. Nevertheless, it can be deduced that there is a certain shift in bureaucracy. Where this previously occurred within the central government with the result of New Public Management, this can now be seen between the various actors.

“You just want to continue; and then the municipality is waiting for the province and we are waiting for the province and they are all very busy, because they have to apply such a customized method for every solar park that is arranged in the province of Groningen. Yes, that's quite a job!” -D2

The developer and the municipality are both waiting for the province in this case, while the province is busy with a good integration of the solar fields in the area, based on the input from the developer. The joint approach does not seem to be completely absorbed in this aspect. Different development interests may have a connection with this and that is probably the strength of the role division over different actors as well, so that different interests are secured in the developments, albeit with some bureaucracy.

- Is there added value of the province of Groningen experienced by the actors involved?

The added value of the province of Groningen is mostly the regional function which it fulfills. This regional character, as middle level government in between the central state and the municipalities, is in the

development of solar fields mostly seen in relation with the municipalities as a kind of back-up to overcome economies of scale.

“Sometimes it is annoying when the province imposes things on you, but sometimes it can also help because there is just a clear framework.” -M1

According to this, the regional task the province of Groningen fulfills is to securing regional interests, and, in order to remain spatial quality in the rural area. This is in line with what the province say about itself and this overarching focus of the province of Groningen is experienced as added value.

“Look, the municipalities look no further than the municipal boundary, very exhaustively said. Because that is our policy, our playfield. And there must be something above that that determines” -M2

4.2 Development Molenwaard

Solar field Molenwaard is at the moment of this study under construction, in the middle of a neighborhood. Interestingly, the adjacent citizens of the field are apparently all positive about it. For this study, two of these citizens were randomly selected for the interviews and they spoke almost in the same way about the development and in a positive way. To determine the influence of the citizens on the development of the solar field, explicit questions are asked in the interviews about the way participation was possible.

“We were given priority to buy shares. That was possible from twenty-five euros.” -C1

Financial participation in the way of sharing in the benefits was possible, in a quite accessible way. Another form of financial participation was initially possible to settle with the personal energy bill, in order to benefit from the solar field. Later, by the lack of enthusiasm of the citizens, this option disappeared. Besides the financial participation the possibility was there to help determining the way the solar field fits in the area. This includes in this case the possibility for a footpath around the solar field, on top of a kind of dyke. Also the dyke was part of the discussion. The intention of the developer was to hidden the solar field behind a green dike with grass, small trees and low plants, to mitigate a bit the probable disturbing effect of the artificial looks of a solar field. These choices were all part of the discussion the adjacent citizens could have with the developer. This went well, based on the following quote from one of the interviewed citizens:

“My idea is that the citizens are very well involved in everything.” -C2

Not only the influence in the decision making is important to determine. Another important aspect to investigate is the perspectives on the different actors involved in the governance-network, acting in the developing of this solar field. This in line with the central research question to determine benefits and constraints in the governance-turn, where now more actors are involved. In what way is the governance-turn visible and what are the experiences in this particular development?

“I think the province is the most important in this development. Because, The Hague does let go a bit and the municipalities are too small, so I think the province is a good player for this.” -C1

This citizen describes obviously the trend of decentralization and relates this with the lack of economies of scale the municipalities could have. The province, as middle level government, is the government to overcome the scale problem, according to this citizen. As mentioned in the previous section of this chapter, the regional character of the province is experienced by the municipalities for being an added value. Here the similarity is visible in the perspectives of the municipalities and this citizen. The citizen continues and underlines the regional function of the province of Groningen by saying:

"I think there are also things my municipality disagrees with, but that the province says it must happen anyway" -C1

To come back again to the fact that this solar field is so supported by the adjacent citizens, it is striking that this is the case; such a large solar field central of this residential area. Like mentioned earlier, the changing area development plan brought a solid foundation for local support related to the solar field development.

"Everyone really had then something like; no houses at least" -C1

This interviewee called this change almost a strategy of the municipality for creating support. Whatever the case is, this change worked for creating local support and involvement of the adjacent citizens, as part of the governance -network in this development.

4.3 Development Roodehaan

Solar field Roodehaan is subdivided into three parts, as seen in figure 6. The first part is initiated by a solar field developer who was in the lead in the participation process and the overall developments. Parts two and three are initiated by the municipality of Groningen, who wants to meet their energy ambitions within the boundaries of their municipality.

"We consider this area to be a suitable area if you still have a task [...] So we, as a municipality, governments, are pulling it to us, we organize this process so that it must be realized under our conditions." -M2

They first looked at the possibilities on roofs in the urban area but, there was still a lack of potential capacity to reach the goals which were set by the officials of the municipality. The enlargement of the initial plan of Roodehaan was based on the developed policy of the municipality in the same time that the developer was informing the citizens adjacent the planned solar field, about part one. This, unfortunately, resulted in another consultation turn for the developer to the mentioned citizens. This was the beginning of a turn in the support of the citizens for the developments, despite the fact that, according to Swart (2019), participation of the citizens was highly required (p. 3).

"As a citizen you have to deal with that area for twenty-four hours and that official has between nine and four, or if he works a little harder, up to five, that area under his control and then he closes the door behind him [...] But that means there is no pressure to make good decisions." -C3

Here, the tension can be seen between the central determined climate goal and the related timeframe, translated to the local level of the municipality on one hand. On the other hand, the implementation of a tailor-made solution for this solar field, with the required public support and a qualitative integration within the landscape. As said, the developer had the initial plan for part one and was already busy with the consultation to the surrounding citizens. Usually, there are meetings in a community center or similar.

"You are in my backyard, so I don't have to come to you at all, you come to me. And then you come and tell me what your plans are." -C3

In this case, information meetings were held among others at the house of this interviewee. It was remarkable that this citizen called the developer 'neighbors', which can be seen as a sort of equivalent. The aim of a governance-network, in which one can participate in a development, is the same in this way.

Participation was in this project both financial as in physical sense possible, to help in the decision making of the integration of the solar field, for instance. As regards to the interviewee living next to this development, this resident had agreed with the developer to install solar panels on his roof and provided reciprocal services to the developer, since this resident is capable of doing so. This is therefore not a representative example for all residents, but it does indicate that these possibilities occur in these developments.

“The intention is to lay a green belt around it with lower plants. And for that I have been asked to think along as an adjacent citizen. And I was even allowed to choose which trees and plants and so on.” -C3

Despite the efforts of the developer to create public support and a collaboration with the adjacent citizens, nine legal objections were handed in. Partly due to the previously outlined expansion of the development and the unfortunate timing and the initiative that shifted in this, led to resistance. In addition, plans were announced that there might also come windmills at the same location. This was also an increasing reason for some residents to drop out and start to resist.

4.4 Taking stock of the playfield and the specific developments

That there was indeed a governance-turn and still ongoing, can be seen as confirmed through several reactions in the interviews. Still remains the question; ‘to what degree?’ The search to this also became clear in the reaction of the provincial officer by saying:

“The municipality asks us for guidelines, while we have delegated that to municipalities themselves. In fact, municipalities put that back again. That means that you constantly get a bit of a hybrid mix of control.” - P2

What is becoming clear is that the task of implementing, allowing or constructing solar field developments in the province of Groningen, is allocated at the local level with the municipalities, in the first place. Based on the description of the provincial officer there seems to be a limit to what municipalities can oversee, related to the scale of their playfield. As earlier mentioned by the municipal officer (M2) is that they are basically only focused on their own territory.

The municipalities, as first point of contact, asks developers to do the participation trajectories with potential adjacent citizens of a possible future solar field. This is done in both developments; Molenwaard and Roodehaan. In these developments were the opportunities to participate in financial sense and also to help determine how the solar field fits into the landscape. What does not seem to be so much the subject of debate in both developments is the question of whether or not the solar field will come? Although legal objections have been submitted in the development of the solar field Roodehaan, the development will continue, rather or not with some adjustments. Apparently, the participation of the adjacent citizens does not go so far as to be able to determine at that level. Nevertheless, several interviewees indicated the tension between the objective of the Paris Agreement and the local implementation. This observation is quite striking because administrators, civil servants and citizens mentioned this tension in the interviews. This could be a reason why the developments, approved by the authorities, at the moment continue anyway, despite changing plans or initiators.

Differences in the approach of the municipalities Groningen and Midden-Groningen provides the opportunity for developing a solar field on municipal territory. In theory could be expected that there becomes resistance of residents in the development of Molenwaard, because of the area development plan and the destination of housing and therefore a location in the middle of a neighborhood. But, instead, the citizens reacted in the opposite way and they supported the development plan of a solar field. The expectation for the development of Roodehaan, that there would be less resistance from residents, can be

the case for two reasons; the number of surrounding citizens and the semi-rural nature and associated area development plan that provides for a destination for industries. The opposite, again, arose, two third of the adjacent citizens start to resist by handing in their legal objections.

In the next chapter conclusions will be presented based on the empirical input and analysis of this chapter.

5 Conclusion and discussion

In this chapter, conclusions will be presented for the benefits and constraints of the governance-turn for the actors involved within the development of solar fields in the province of Groningen. The study is based on a theoretical and empirical investigation of the playfield of these developments which finally led to answering the research questions, mentioned in chapter 1. Implications of these answers for future developments get attention as well, both for the province of Groningen as well as in other provinces.

5.1 Dutch governance-turn until now

In chapter 2.1, a shift in governance was described from a post-war paradigm, based on a coordinative model of governance in spatial planning processes (Zuidema, 2016a) and functionality as the starting point for the rebuilding process (De Roo, 2012), to a more decentral and area-based approach. Shifts and changes related to this governance-turn are visualized in the conceptual model, which was used in this study as a tool to investigate the playfield of the development of solar fields in the province of Groningen. The conceptual model, seen in chapter 2.7, elaborated on the influencing trends and shifts which were: the rise of New Public Management, privatization of particularly the energy company, decentralization of the central state, and the use of Market-Based Instruments, particularly subsidies.

This research started with the overall question; are the benefits of the governance-turn and the mentioned related trends, described in the literature, visible in the practice of the development of solar fields within the province of Groningen and are there constraints as well? The exploration of the literature made clear that there became more actors involved in the planning processes as the meaning of governance and what the turn could include, this in line with one of the definitions of González and Healey (2005). Therefore, the governance-spectrum was introduced (figure 1) to visualize the relationship between the number of actors and the degree of the decentral decision-making. Like mentioned in the previous chapter, the fact that more than one, local actor could be interviewed, because of their involvement in the specific investigated developments of solar fields for this study, can be seen as confirmation for the existence of local governance-networks. Besides, the level of the decision-making is clearly shifted from a central level, as it was after World War two, to a decentral level where more actors are involved and participating. In sum, the development of solar fields in the province of Groningen is presenting the shift from one central actor to other actors at a decentral level, within local governance networks.

5.2 Governance-networks in the developments of solar fields

For this study, the governance triangle of Lemos & Agrawal (2006) is used to determine the actors involved in the development of solar fields in the province of Groningen. As seen in chapter 3.5, the interviewees include developers (market-parties), citizens (society) and local and regional governments (decentralized state). The central state was not among the interviewees because of the minor role in the developments. This latter became clear and was confirmed in the interviews by asking about central guidance through subsidy, as a Market-Based Instrument used by the central state. In addition, there is a National Coordination Scheme (In Dutch: Rijkscoördinatieregeling) where the central state could interfere in the development of solar fields, but according to the input of the interviews, this is so far never happened. This marginal role of the central state in the integration of solar fields in the landscape is also founded in the way wind parks were top-down implemented and the related resistance, as mentioned in chapter 1. The bottom-up approach in the development of solar fields can be seen as a reaction, to reach the Paris Agreement goals with more public support.

This bottom-up approach was investigated in the province of Groningen and in particular two developments, namely; solar field Molenwaard, within the municipality of Midden-Groningen and solar field Roodehaan, within the municipality of Groningen. Both developments are almost the same size but they differ in

contextual aspects as the number of adjacent citizens and location related to the urban area. Solar field Roodehaan is situated in the semi-rural area, adjacent to an industrial zone with a few adjacent citizens. Instead, Molenwaard is situated in the adjacent urban area with a lot of adjacent citizens. Both were interesting for this study to show because of the difference in public support between the developments.

For Molenwaard there were a lot of adjacent citizens and a great public support and therefore no legal objection. Instead, for Roodehaan there were nine legal objections related to a few adjacent citizens. The reason for this difference in support have to do with development-specific characteristics. In the development of Molenwaard, there were housing planned on the location of the solar field and the change to a solar field created a lot of public support because it was received as a less annoying scenario, despite the fact that the location is almost in the middle of the neighborhood. Adjacent citizens were able to participate in the development in both financial as well in co-deciding on the appearance of the field. In this development, the municipality Midden-Groningen, the developer and adjacent citizens has some stake in it and all have a degree of decision power. Because of the size of the solar field, which is larger than one hectare, the province of Groningen has also a say in the development, when this is needed and of regional interest. Due to the shared decision making of involved local actors, a tailor-made development is possible. In line with Zuidema (2016b), this area-based approach, in this specific way can be seen as out of range of the central government and has in that sense added value for the local citizens since they can exert a direct influence on their own neighborhood.

In the development of Roodehaan, public support had to do with the change of the initiator. In the first place, the solar field developer was the initiator of the solar field, which is always the case, turned out the interviews. Interestingly, the municipality took over in a certain way the initiative from the active developer to meet their new set energy goals of their new policy. The developer in turn has to provide the adjacent citizens of the new information about the enlargement of the plan. This move can be seen as a kind of paradox of the governance-turn, a move back to the conservative role the government was used to have. Of course, still at a decentral governmental level, but it differs from an open and participatory approach, related to citizens; it's more top-down again.

According to Spaans (2007), is decentralization based on the principles of subsidiarity, which is the decision-making at the level where the issue is at hand. In this development, the subsidiarity principle for a local implementation is still at hand because of the municipality who takes it over. Unfortunately, this kind of overruling of the municipality caused irritation with the developer and resistance with the adjacent citizens.

By comparing the two developments, related to the governance-spectrum, can be said that the degree of self-governance is higher in the development of Molenwaard related to the development of Roodehaan. In the latter, the degree of self-governance is decreased by the move of the municipality to take the lead again, which is, mentioned already as a kind of paradox in the governance-turn so far. Of course, these two developments are just specific cases and not direct representative for the whole development of solar fields, but it gives a glimpse of how a certain governance-network could work in these developments.

In the playfield of the development of solar fields in the province of Groningen in general, the role division between the province and the municipalities is not always clear. Spaans (2007) stated that in the observations of the planning practice, ten years ago, this role division wasn't clear either. The provincial policy states that the province is only responsible for a good implementation of a solar field within the open landscape, where this field is bigger than one hectare. The proactive and cooperating role the province of Groningen fulfills in not only the solar fields in their responsibility, is unique compared to other provinces. This has been demonstrated in the interviews with both developers, who develop solar fields throughout the Netherlands, and by the provincial officer, who is also involved in inter-provincial consultations (In Dutch:

Interprovinciaal Overleg (IPO)). For the developments they do, the so-called customized method (In Dutch: maatwerk methode) is then followed with the parties involved. This is to ensure that the particular solar field fits within the landscape in an aesthetically responsible way. The result is experienced through the interviewees as being bureaucratic as well as needed, in order to ensure the developments in regional perspective. Bureaucratic as a term has perhaps a negative connotation, but in the integrated decision-making this role of the province of Groningen is greatly appreciated. And, given the different interests of the actors, the integration into the landscape and securing the values in it, is a responsibility that no citizen or developer can take on, that is only for governments. This is also in line with the statement of Mol (2016) where he said that among others environmental accountability and balancing interests, can only be performed or guaranteed by governments. In this case, the implementation of a solar field is seen in a regional perspective, across the municipal borders. The province is in that sense the right government to ensure this value, certainly in the context of the subsidiarity principle where the central state is too far at a distance. This is also experienced in this way by the majority interviewees.

Other actors in the governance network are the national and regional energy supply companies, TenneT and Enexis. The shift from a governmental task to a privatized task there had, according to the paradigm in that time, the expectation of certain benefits as among others; “the reduction of public costs, more administrative control and strengthening the private sector” (Stellinga, 2012, p. 30). In this study, the change in the use of the grid came to the forth in one of the interviews; from a demand-driven grid to a supply-driven grid. This is striking and important in judging the efficiency of the privatized company. What is said in one of the interviews is that the grid was made for the demand, which was done in such an efficient way that there are problems at the moment with the transportation of produced energy on the grid. In this paradigm, these constraints are apparently not the result of inefficiency, but a strategy for waiting for a good business case to invest in. The provincial minister also dedicates this to the government itself by saying that they have not been clear for a long time about where the energy transition in the Netherlands will go. In any case, it was clear that most of the actors interviewed did not really know or notice the difference between privatization and the foregoing government task.

5.3 Answering the research questions

Based on the literature review in chapter 2, empirical input described in chapter 4, and the analysis by using the conceptual model, the research questions are answered in this section, as the conclusion of this study.

First the research sub questions in this study:

- What are the benefits and drawbacks of a governance-turn according to the literature?

As seen in chapter 2 is the governance-turn in this study viewed according to the conceptual model with the relevant shifts and changes in governance, as mentioned earlier in this chapter. In Zuidema (2016b) aspects of decentralization were mentioned as; economies of scale related to the principle of subsidiarity. Also, the social dilemma was mentioned, such as the precedent effect, between other (neighbor) provinces or municipalities. Both the aspects were seen in the development of solar fields in the province of Groningen and the specific input which is about these aspects can therefore be seen as theory confirming input. These mentioned aspects can be both beneficial and constraining, depending of the role division between the governmental levels, both horizontal and vertical, as well as related to other actors.

- What are visible trends within the governance-turn in the western world?

The conceptual model as a basis for this study, seen in chapter 2.7, elaborated on the influencing trends and shifts which were: the rise of New Public Management, privatization, decentralization, and the use of Market-Based Instruments, particularly subsidies. These are all reviewed as being of interest in the governance-turn in the western world, as broadly discussed in chapter 2.

- In what way is a shift from government to governance visible within the province of Groningen?

The so-called governance-turn was in this study in the first place viewed with the governance triangle of Lemos & Agrawal (2006). In this governance triangle, there are three main actors mentioned; state, markets and society. All these actors could be interviewed and were therefore interviewed in order to determine in which the governance-turn is visible in the province of Groningen within the development of solar fields. What is seen as a governance-turn in this case; is a decentral decision-making, more actors involved aside from governments, a bottom-up and area-based approach and the initiative lies at the developer and not at the (central) government anymore. The effect of privatization for this playfield is hard to say. As said in the interviews, the energy supply company has no competition and has to follow the lines of the government but is on its own. So, in essence it is privatized, as a result of the search for more efficiency. The effect of a more efficient business operations, according to the intended benefits described in Stellinga (2012) as mentioned earlier, became not that clear.

- What are the different perspectives on the roles and interests between the regional government, market parties and other parties involved within the developments of solar fields in the province of Groningen?

For every actor, it is clear that the solar field developer is the initiator of solar field projects. This also includes the leading role in the participation processes with citizens, which is experienced as fine by the citizens. The province of Groningen fulfilled, in line with the expectations in chapter 3.8, the regional function. The province of Groningen is in charge when there is NIMBYism within municipalities or different policies that are constraining between municipalities, as mentioned earlier as the social dilemma (Zuidema, 2016b). Unique is the cooperative role that the province of Groningen fulfilled, compared to other provinces, like mentioned earlier. This proactive attitude can also be seen as constraining in the formal role division between the municipalities and the province. In the first place, this is the municipality but they asked, according to the interviews, for guiding and guidelines at the province, which is already more collaborating than their formal role. The municipal civil servant of Groningen indicates that they cannot have sufficient efforts for all the developments because of the lack of funding and that they therefore appeal to the province, which has both the funding and the capacity to organize meetings to share knowledge and to cooperate. This municipal officer is positive about how the province takes on this role. Despite this prominent role that the province play, the province is practically not visible to the citizen. The input of the interviewed citizens also differs in this study for the role they fulfilled themselves in the development of solar fields and their perspectives on the other actors involved. The interviewed adjacent citizen at the solar field Roodehaan, for instance, makes arrangements himself with the solar field developer to benefit maximal of the solar field in his so-called backyard. Instead, both interviewed citizens adjacent to the solar field Molenwaard were not interested in financial participation at all. However, despite the fact that the interests of citizens differ, in future developments, the local ownership becomes more and more important, according to the provincial minister.

- What are constraints and drawbacks in the current governance practice within the development of solar fields in the province of Groningen, related to the regional government?

The main drawbacks according to the interviewees are the lack of effort the municipalities have for criticize the initiatives of new development of solar fields. In addition, the bureaucratic way of the province of Groningen for ensuring good implementations of the solar fields within the landscape and the safeguarding of valuable landscape. As mentioned earlier, this latter is a task for governments, but it is constraining in the flow and speed of the developments because every initiative has to pass the desk of the province. Also, the tension between the long processes of the bottom-up and area-based approach in the development of solar fields contrary to the sharp climate goals constraints the speed of reaching these goals. The last-mentioned constraining factor in the playfield of the development of solar fields is the lack of grid capacity for the possibility of transportation the energy of the new solar fields. Due to the institutional distance

between the government to the energy supplier, due to privatization, and the lack of clarity on the side of the government has led to the fact that there is at the moment insufficient capacity available for new solar fields, according to the provincial minister.

- What are the needs for public and private parties, within this research frame?

For the development of solar fields, the developer is always the initiator. It is in these initiatives the responsibility for the developer to ensure public support by organizing opportunities for citizens to participate in the projects. What is needed is a clear role division and a guide for the developments. In addition, developers and one of the interviewed citizens, indicated that there is a lack of a clear regional policy. Besides the indication of the developers about the lack of area visions in some municipalities. As a last-mentioned constraint, based on the indication of the provincial minister, a part of the benefits for the region instead flow at the moment to Chinese investors. In line with the goals in the Paris Agreement, local ownership should in her opinion be a solution for this.

To continue with the conclusions, now the main research question is answered.

What are the benefits and constraints of the governance turn for the actors involved, with regard to the development of solar fields in the context of an energy transition in the province of Groningen?

In essence, the benefits of the governance-turn within the development of solar fields in the province of Groningen are the more tailored solutions in the local context. Participation of adjacent citizens is a starting point and the allocation of the decision-making is in all cases at the moment at the municipal level. In addition, with the upcoming Regional Energy Strategy in order to follow the Paris Agreement, local ownership has become more and more important and has to be ensured in future developments. This means that the citizens can increasingly benefit from the initiatives. These effects of the governance-turn can certainly be seen as benefits. The governance-turn has in these developments also constraints, because of the narrow focus of municipalities which is like NIMBYism on a municipal scale. In addition, there is a lack of an area vision in some municipalities and the need for a regional vision or policy, as mentioned earlier to overcome this constraint. This can be seen as subsidiarity where maybe the municipal level is too low for this energy task, related to the mentioned economies of scale (Zuidema, 2016b). Another constraint is the pressure on the developments to meet the climate agreement. This can be of more interest than the tailored integration of energy solutions in the field, like is seen in the extensions of solar field Roodehaan. Besides the governance-turn is seen in the developments and has its benefits, a self-governance is not very likely in view of the spatial choices that must be made, which is a typical governmental task as indicated earlier. In the development of Roodehaan, the role and influence which the government within the governance network has, is that, if necessary, the governance-turn can partly be turned back towards the government, and the benefits of the governance-turn can be lost again.

5.4 Implications for the planning theory and practice

The case-based nature of this study has the advantage that in-depth and personal information could be collected and analyzed. The disadvantage is the generalization of this study to determine lessons or implications for the planning theory and planning practice in a broader sense. However, the empirical insights combined with the literature review form the basis for more generic lessons. What has become clear out of this study is that the combination of municipalities and a province is sufficient in effort for the implementation of solar field development. The increased support for the local, area-based development of solar fields compared to the top-down implemented development of wind parks, can be seen as a result of a successful, decentral governments approach which can also be of interest for other similar developments in the Netherlands. Further, other provinces can learn from the province of Groningen in the positive experienced proactive and collaborative attitude and role to the municipalities. Besides, the formal role of the province could also be reconsidered when it comes to ensuring a proper integration of the solar fields

into the landscape. What an interviewed citizen mentioned in the interview is that this person is seriously worried about the clutter of the landscape in a couple years, which is not that strange considering the pace and extent of the developments.

6 Reflection

This last chapter will provide some reflections on the study presented in the previous chapters and the personal view, thoughts, doubts and struggles during the research process of the author himself.

6.1 Who's steering solar field developments?

The governance-turn has created more actors involved at a local level. As said in the interviews and according to the literature, more tailored solutions with more actors involved at hand and the needed time invested in the developments is increasing. This increasing number of actors involved in the planning process can be seen as complex and can raise the question: 'Who is steering?'. The more people involved, the more pluralistic are the joint views, interpretations, personal frames of reference and so on. In this study only three citizens were interviewed, that is still fairly uncluttered. An area-based approach does not only apply in a physical sense, but also in a social sense, and as different an environment can be, so versatile can a development be as well. The post-war paradigm was in that sense clearer and more straightforward; the state was ruling and deciding. In the interviews of this study, the paradoxes between some interviewees are in this case a reflection of the pluralistic nature of different people together. This difficulty becomes explicit in this quote:

"A lot is being devised to create this kind of development with the environment, the state could never do that, it can only be done decentral. That is very good, but it also makes it very difficult." - D2

This can be seen as a confirmation of the argument of De Roo (2010) where more actors in the planning process lead to a more complex and longer process to consensus. As mentioned in the previous chapter, this gives a tension with the high-set goals of the Paris Agreement, but despite this tension, this area-based approach on a local scale is experienced positive in the implementation. However, the local implementation and the related time pressure is in a certain way the result of the signed Paris Agreement on the central state level. The citizen adjacent to the Roodehaan solar field doubts that the local authorities are not resolving the problems of the central state, which have ultimately conformed to the time frame of the Paris Agreement. This tension is mentioned several times in the interviews by both citizens and officials.

6.2 Solar field developments in national perspective

In chapter 1.3 'lock ins for governments' were mentioned as one of the problems in steering sustainability, according to Kemp et al. (2007) in Meadowcroft (2009). In this case, the privatization can be seen as a lock-in for the current institutional setting. Enexis is a kind of monopolist for the regional grid in the province of Groningen because of the lack of competition with other parties in the same vein. Thereby, Enexis receives rights and obligations from the European, central and regional governments what makes the party more or less a remote government.

Another danger for a lock-in is the path-dependency of the developed solar fields. As mentioned in the interview with the adjacent citizen of solar field Roodehaan, the solar fields have a planned lifetime of thirty years and the fields 'come up like mushrooms'. The concern of this citizen for a decreased quality of the landscape for the future decades can be seen as a lock-in as well, in physical sense.

"Solar parks are only temporarily permitted based on the technical-economic life span. This ensures that the locations used can be returned to their original function." (Translated out of Dutch; Provincie Groningen, 2016, p. 64)

Apart from whether a destination of thirty years is actually path dependent, related to the in the past created 'energy landscapes', real expensive houses in the Netherlands are, among other locations, adjacent to

peatland. In the top-ten of the Dutch most expensive houses at the moment are a couple of houses located exactly in the past energy landscapes (Liberoaankoop, 2020). Perhaps in the future, a house adjacent to a solar field is attractive for the insurance of electricity. Maybe the current paradigm shifts in the future as well, just as it went with the peatland in the Netherlands, as a path dependent result.

6.3 Future investigation

Not included in this research was an investigation between the approaches of the different solar field developers in this study, related to local support and overall development and implementation. In the work of De Jong (2019) this is discussed in more detail, for the national playfield of the development of solar fields. Limitations of this qualitative research approach are the limited benchmark with other projects in the encountering of the different characteristics, different socio-political and physical contexts. Another opportunity for further research is the wealth of the data collected and used in this study. The interviews for this study were recorded as well as possible and the working method was described as transparently as possible in order to promote the repeatability of the research. This work could therefore be a starting point for new, additional or repeating research after a few years.

Finally, in the interviews came to the forth the more and more upcoming development of solar fields with local cooperation, citizens initiatives. In the governance triangle of Lemos & Agrawal (2006), this hybrid form of governance is located between the market and community and is the so-called 'private-social partnership', as seen in figure 2. Interesting could be the impact of the developments over time related to the public support, local ownership and the share in the goal-setting of the Paris Agreement.

6.4 Personal review of the researcher

The information in the narratives of the interviews is not nearly all used. There is still so much wealth in it for other analyzes within these developments of solar fields, which is definitely a result of the strength of the methodology used in this study. Restricting the line of research and putting focus into the recorded and transcribed interviews did lead to some stress in the analysis. There was a tendency that everything was found to be interesting and useful. Personally, I would really like it if other researchers would still use my data in future studies. In that case, please contact me so I can ask the interviewees of this study for permission.

A difficult aspect of qualitative research is not to be biased and suggestive, this in both the collection as well as in the processing of the data from the interviews. Of course, value-free analysis is practically impossible. Every individual has its own frame of references as the basis for decisions, so do I. In this study, I again concretely experienced this myself. Other difficulties were the contradictions within the same interview, this was difficult in the choice what to work with. When the same answer was given in another interview, the choice was made for that answer, as triangulation. But this was experienced as a difficulty in the analysis of the data.

Another hard aspect in the research was the lack of useful empirical input about privatization. Most of the interviewees had no collaboration with the energy supply company on regional or national level. Theoretical, privatization is an important shift, related to the governance-turn, but in the investigated developments the link was unfortunately not that clear for far reaching deductive or inductive conclusions.

If I would redo this study, I would also pay more attention at the central state. If I look back at the results, I see a knowledge gap in this study in the considerations of the central state which are of influence of the regional and local level of the developments.

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Appendix 1 Interview questions (in Dutch)

'Governance' binnen de ontwikkeling van zonnevelden in de provincie Groningen

Interests and different perspectives on the roles

1. Wie heeft in uw optiek welke rol binnen de ontwikkeling van zonnevelden? (speelveld)
2. Wat is uw belang bij de ontwikkeling van de zonnevelden?

Decentralization

Er hebben een aantal veranderingen zich voorgedaan in het speelveld rondom zonnevelden in de provincie Groningen, waaronder decentralisatie.

3. Waarom denkt u dat er in het verleden is gedecentraliseerd? (Lokale kennis en waarde meer benutten; meer maatwerk en participatie)
4. En waar herkent u de decentralisatie aan in uw dagelijkse praktijk? **Voorbeeld?**
5. Hoe ziet en beoordeelt u in dit kader de taken die de provincie Groningen uitvoert in de huidige rol? (Toegankelijk of niet, meerwaarde of niet, logische taakverdeling of niet?)

Privatization

Een andere ontwikkeling is de privatisering. Waarom heeft volgens u de privatisering plaatsgevonden?

6. Heeft de privatisering van het energiebedrijf geleid tot het oorspronkelijk beoogd doel, i.r.t. de ontwikkeling van zonnevelden? (meer efficiënt en daarmee lagere maatschappelijke kosten) **Voorbeeld?**

Market-based instruments

7. In het kader van de SDE+, in hoeverre is deze aansporing voor de ontwikkeling van zonnevelden nodig volgens u? M.a.w. zou u de zonnevelden ook bouwen zonder SDE+?

Normative linked with constraints and needs

8. Moet er volgens u iets veranderen in de huidige rol van de provincie Groningen en de relaties met andere rollen, binnen de ontwikkeling van zonnevelden? Zo ja, waarin dan en waarom? **Voorbeeld?**

- *Mag ik u nog eens benaderen, als ik nog iets wil vragen de komende weken?*

Appendix 2 Examples of coded interview-quotes (in English)

Quote	Who	Category	Inductive/Deductive
No one would build solar fields without SDE. See, the idea of the SDE is that it compensates for the difference from the unprofitable top	D1	Market-based instruments; subsidy	Deductive
There is currently no solar field in the Netherlands that has been realized according to that 'government coordination scheme' (Rijkscoördinatieregeling)	P2	Decentralization	Inductive
Absolutely an advantage! Because the central government has much less insight into what is happening in the local environment	P2	Decentralization	Deductive
administratively it has been decided to let solar fields really be done by municipalities, I think that is the most decentralized form that you can do	P2	Decentralization	Inductive
..we are about space and I am also responsible for making that change now. So, we can't wait for that, so we have to take on that spatial role. But in addition to that spatial role, that social role is becoming increasingly important	P1	Tensions in spatial planning and targets. Changing of current provincial role	Inductive
you actually want to discuss everything and do it bottom-up, but then you won't reach an energy transition on time.	P1	Tensions in participation and targets	Inductive
at the moment that you do not exclude specific locations, but focus on customization, you also see locations that you would not initially consider, but that can be a suitable location with local support, that those locations are realized	D1	Area-based approach	Deductive
Sometimes it is annoying when the province imposes things on you, but sometimes it can also help because there is just a clear framework.	M1	Role province, regional task	Inductive
In my view, there is a role for the province to do that coordination, which is just above those municipalities.	M2	Role province	Deductive
A censured developer has a park where the participation went fantastic: Molenwaard in Hoogezand. [...] This was in a residential area surrounded by two hundred houses without legal objections. By contrast, in	M2	Public support and participation; Molenwaard and Roodehaan	Inductive

Groningen, nine legal objections were filed against only fifteen houses around Roodehaan			
During the policy preparation, we invited residents to indicate where they think there are possibilities for solar fields and where not, by using printed maps on tables	M1	Participation	Inductive
I think the province is the most important in this area. Because the Hague does let go a bit and the municipalities are too small, I think the province is a good player for this.	C1	Decentralization and economies of scale	Deductive
you can't make all residents happy, so you have to find a compromise somewhere	C2	Consensus building and participation	Deductive
you are in my backyard, so I don't have to come to you at all, you come to me. And then you tell me what your plans are.	C3	Participation	Inductive
quickly build houses after the second world war, something like this actually happens here. Only in a completely coordinated way, which I do not understand.	C3	Tensions in participation and targets	Inductive
Despite the fact that I am in favor of privatization in many areas, but these are essential necessities that I think should be centrally regulated.	C3	Privatization	Inductive