
Master thesis

Environmental and Infrastructure Planning

The Dutch central government and the energy transition

Student: Chris Smit, s1789678

Date: march 2015

Supervisor: C. Zuidema

University of Groningen, faculty of Spatial Sciences



*“We don’t oppose wind energy, but we dislike the way
the government planned it”*

Henk Hoving in an interview in De Volkskrant, 24-04-2014

Summary

In this thesis the role of the Dutch central government in the so-called energy transition in the Netherlands will be examined. Main conclusion is that the government isn't actually in a transition, from a scientific point of view. The government is busy with top-down, centralized designed and implemented policy, while calling it a transition. The main mistake the government makes is to take too much control, and leave too little space for the local level to operate in a way that they want. The government needs to think about the way they position themselves in relation to what their actual goals are in order to make the energy transition.

This paper starts with an introduction in the Dutch energy sector, and an introduction to the Dutch energy transition. The Dutch government set itself a goal to produce a total of 14% green energy in 2020. This goal (among others) is set in the recently published Energieakkoord. This goal is far from being achieved yet, as per 2013 only about 4% of the energy generated in the Netherlands is being produced by green energy sources. To try to achieve their goals, the government initiated an energy transition. The strategy the central government executes is analyzed via policy implementation theory. The policy of the government has a lot of characteristics of a centralized and top-down approach, in which the central government is initiator, designers and implementer of most of the policy. Next, the strategy of the Dutch government is analyzed with transition management theory. A transition, as described in literature, is described as a change from a certain dynamic equilibrium to another dynamic equilibrium. This change is multi-phase and multi-level. The strategy of the central government is then approached via the organization of the Dutch energy system and the history of energy policy leading to the development of the Energieakkoord. Finally, the actual strategy of the central government is researched, and characteristics of the strategy are compared with policy implementation theory and transition theory.

The Energieakkoord, as core of the Dutch energy transition strategy, is in essence well formulated, but in practice leaves much to be desired. The Energieakkoord is full of positive goals, agreements and ideas in which the government wants to leave a lot of space for local initiatives and tries to achieve the energy transition together with local parties and the community. When looking at the practice, the actual agreements, and the spatial plans involved, the current strategy of the government seems different from what they say they want to do, with less space for local activities and more power in the hands of the central government. This deviation from the theoretical ideas about policy implementation and transition management is used as an explanation to why the strategy fails.

Table of Contents

1. Introduction.....	6
1.1 Problem statement, goal definition and formulation of the research question	8
1.2 Outline	9
1.3 Methodology	10
1.4 The next step?	13
2. Policy implementation theory	14
2.1 Historical overview	14
2.2 Top-down/bottom-up.....	16
2.3 Centralized/decentralized.....	17
2.4 The Dutch government and energy policy	18
2.5 The next step?	19
3. Transition theory	20
3.1 What is a transition?.....	20
3.2 The role of the central government	23
3.3 The current situation in the Netherlands	24
3.4 The next step?	24
4. Dutch energy systems: An overview of the history, characteristics and possible future.	25
4.1 History of the Dutch energy situation	25
4.2 Current organization of Dutch energy systems	26
4.3 The future of the Dutch energy balance	28
5. Dutch energy policy in practice: policy documents, cases and reactions	30
5.1 An international and a national review of Dutch energy policy	30
5.2 Het Energieakkoord (the energy agreement).....	32
5.3 Centrally and top down plans in the Energy Agreement.....	34
6. Rounding up.....	38
6.1 Linking theory and practice	38
6.2 Conclusion	39
6.3 Evaluation/discussion	41
6.4 Recommendations for further research	42
7. Literature overview	43

Preface

“No iron curtain around our village” (Stichting Erfgoed Urk, 2010). This sentence I picked up in the media was my introduction to the subject of this thesis. The sentence was about a windmill farm which was planned to be built just outside of the little village Urk in the Netherlands, in the Noordoostpolder region. It caught my attention because of a large amount of media attention. This media attention was mainly focused on the local civilians protesting against the plans the national government presented. As an urban planner, I became curious of what exactly was going on.

I was amazed by the scale of the project, the different stakes involved and the resistance against the project, but most of all the role of the central government brought some questions to my mind. How can we achieve a transition to sustainable energy if initiatives by the central government face so much resistance? This makes it hard for the central government to implement their plans. I started thinking to myself: how far in the transition are we, as the Netherlands? Does the central government try hard enough to come up with decent sustainable energy initiatives? Or is there perhaps more potential in localized energy initiatives?

From those questions I got the idea to write a thesis on the subject of the (important) role of the central government in the energy transition and why they are seemingly failing in fulfilling this role, as the energy transition isn't taking off yet.

1. Introduction

The central government in the Netherlands is currently busy with what the government calls the energy transition (SER, 2013A). The energy transition is described in a policy document called the NMP4 as the change from an energy system which is dependent on fossil fuels to a system which is dependent on green energy sources (SER, 2001). A transition in general is a long-term change of a system from one stable situation to another stable situation (Rotmans et al., 2001). This change has different phases and needs to happen on different levels, which will be further explained in chapter three.

The central government currently uses a strategy in which they want to be the main initiator in this transition, as described in the introduction of the recently published Energieakkoord (SER, 2013A). This approach could be described as a top-down, centralized approach, as the central government is the one initiating change, managing energy laws and policy and leading the negotiations between different parties associated with the Dutch energy system. One of the goals in the Energieakkoord is developing big windmill farms as a way to enlarge the part of sustainable energies in the Dutch energy mix. These are also different fields in which they develop policy and strategic plans, for example storage of CO₂ and improving the energy infrastructure, as well as aiming for more energy efficiency and reducing energy usage overall. (For an example of a full strategy written down by the government one can read: Ministerie van Infrastructuur and Milieu, 2012).

The windmill farm being built in the Noordoostpolder (Ministerie van Economische Zaken, Landbouw & Innovatie & Ministerie van Infrastructuur en Milieu, 2010) is a good example of the strategy of the central government. This windmill farm is being built with an 'inpassingsplan' initiated from the central government, which is justified from the 'crisis- en herstelwet' (In English: crisis and restore law). This law is a very top-down, centralized policy instrument (Rijksoverheid, 2012). In short this law shortens procedures on large-scale spatial planning projects, making it easier for governmental organizations to implement plans by bypassing/shortening some environmental and participation aspects of the regular planning process. Besides, current policy states that The Hague is responsible for the decisions on windmill farms which produce over 100 MW of power, so no local powers are involved. The windmill farm mentioned in the preface has a production capacity of 450 MW. The fact that the central government used such a top-down approach raised a lot of resistance in the case of the Noordoostpolder. The politicians of the central government in the Netherlands (in combination with local farmers and an energy company) decided for the local municipalities that they had to fit what would become the biggest windmill farm in the Netherlands into their current plans (for more information: read chapter 5.3). Local inhabitants in the town Urk (18.000 people, about 2 km from the farm) were informed in a late stage of the planning process. Furthermore, the local inhabitants could (and are expected to) experience a lot of nuisance while they won't get any or little compensation. The way the central government implemented this plan is remarkable, because they recently implemented new policy that promotes decentralized initiatives, as described in the policy letter 'Eenvoudig Beter' (Ministerie van Infrastructuur & Milieu, 2011). Besides, in the recent Energy Agreement the central government says to be focusing extra on the local level (SER, 2013a). The strategy the central government chose by implementing big windmill farms with an 'inpassingsplan' is still a top-down way of implementing policy and making plans.

While the government is busy with their centralized strategy, a number of local parties in The Netherlands have started multiple local initiatives for green energy. Examples are: the Stichting Energie Transitie (nonprofit foundation on the energy transition, more information: www.setnl.nl) and the rise of LEDB's (local sustainable energy companies, there are already >150 in The

Netherlands). Up until now, those local parties haven't been able to contribute to achieving the energy goals very much, although they look very promising. For example, wind energy in total accounts for about 33% (or four billion kWh) of the sustainable electricity production in the Netherlands (VNG, 2013). Local, decentralized parties account for only 4% of the total produced wind energy in the Netherlands, and wind energy is the biggest source of locally produced electricity. Furthermore, those local initiatives are still in an early stage and up until now largely ignored by the central government, instead, the central government expects local governments to initiate the cooperation or facilitate the local energy initiatives (further reading: Ministerie van Economische Zaken, Landbouw & Innovatie, 2011). The central government does however acknowledge the developments which are going on at the local level, as stated in the Energieakkoord, and is trying to make a start into facilitating local initiatives and making it easier for them to develop and access the electricity grid for example (SER, 2013A).

The strategy chosen by the central government could be partially explained by the fact that they set some clear sustainable energy goals for the Netherlands for the year 2020 (Further reading: chapter four). Those goals are not only set by themselves and other national and local parties, but are also in line with European policies regarding sustainable energy. Thus, the central government experiences pressure from the European level to actually achieve those goals, increasing the need to actually change the current energy situation and increase the percentage of sustainable energy in the Dutch energy mix.

The central government is putting a fair amount of money in the windmill project as it was very expensive; at least 1.2 billion euros of subsidies are involved (Ministerie van Economische Zaken, Landbouw & Innovatie & Ministerie van Infrastructuur en Milieu, 2010). Note that a big part of the required money is subsidized by the central government to ensure profit for the investors, which indicates the central state recognizes that the farm isn't profitable by itself. Also note, that this is just one of the windmill projects, all the wind energy projects together are said to involve a budget of at least 25 billion euros (As stated by Marcel Crok in his interview). The money was spent without much debate in the House of Representatives, without researching alternatives or consulting the local parties. Besides, the windmill plans the central government has developed are not enough to achieve the energy goals on their own, so the fact that the central government spends so much money, time and effort in just a part of their energy transition is remarkable.

According to the Dutch government, the country is in the middle of an energy transition (SER, 2013A). Transition theory (Rotmans et al. 2001) asks for a complete paradigm shift on multiple levels of government. This transition doesn't seem to be happening (yet) (Rotmans, 2011) as the goals are far from being achieved. The IEA (2014) states the Netherlands still face considerable challenges until 2020. The main goals the central government states is that in 2020 they want:

- 14% of the total energy produced to be sustainable. Currently this is about 4% (SER, 2013A). The initial (European) goal was 16% sustainably energy in 2020, the Dutch government set a different, more realistic goal in their latest energy agreement, keeping it on 14%, with 16% to be achieved by 2023.
- 20% less CO₂ emission then in reference year 1990 (in 2011 it was only 9% less than 1990 (CBS Statline, 2013).
- 1.5% less energy being used by the consumers and industry every year, which translates to a 100PJ reduction of total energy usage in 2020. To put this number in perspective: currently in the whole of 2013 about 3300PJ of energy was used (CBS, 2014)
- 15.000 fulltime jobs to be created by the energy sector.

From the listed goals, the first goal is the one this thesis will be mentioning and will analyze the central government about. As can be seen above the goal regarding clean energy is not being achieved yet. As stated before, the national government says they are in the middle of an energy

transition. As the goals are not being achieved yet, the transition is far from complete as well. The fact that this transition is far from complete could for a large part be the fault of the central government. The science field of transition theory views a transition as a process, in which a society changes in a fundamental way over a long period of time (>25 years) (Rotmans et al., 2001). A transition is multi-level, has a multi-phase character and encompasses multiple actors. A transition also includes a clear learning philosophy and is about both innovation as well as improvement in the system. According to Kemp (2010), a transition is usually not initiated by the central government, but this central government does play an important role in a transition. Usually a transition is started by some experiments on mostly the local level, followed by facilitation and support by the governments. The local level is described as 'niches', while the central government is described as 'regimes' (as explained in Kemp (2010), Rotmans et al. (2001) and Rotmans (2011) and further elaborated upon in chapter three). The government is positioning itself as main actor in their "transition" while seemingly neglecting a lot of local initiatives (more information in chapters four and five), thus not meeting the characteristics of a transition. A transition is reliant on bottom-up processes in the mentioned 'niches' (Kemp, 2010). Rotmans (2011) also remarks that even though the central governments calls the energy transition a transition, it is not showing to be an actual transition, mainly because it is the regimes dominating the niches, while it should be the other way around. Kemp (2010) mentions that although the transition looks promising, environmental and economic gains are yet to be achieved. Kemp et al. (2007) also mention that the government is too much in 'control' of the transition, giving it more characteristics of planning and policy implementation rather than transition management. This makes sense, as Zuidema (2015, pp. 17) states:

"(...) environmental policy is traditionally among the more centralized governance policies"

To research this, both the characteristics of transition theory and policy implementation theory needs to analyzed to place the strategy of the central government in the right theoretical framework.

This chapter will continue on the contents of this thesis, including a research question/problem statement, research methodology and an outline of the thesis.

1.1 Problem statement, goal definition and formulation of the research question

In the introduction a number of problems have been brought up that are important for this thesis. Below is a summarized list of these problems which will be addressed this thesis:

- The goals towards a sustainable energy system aren't being achieved yet, while the central government places itself as a central initiator in trying to achieve the goal.
- The central government is trying to start an energy transition, but is this transition an actual transition or is it just a more traditional, top-down way of policy implementation?
- What are the effects of the strategy of the central government on other parties, like the local companies and governments or the civilians?

Stating those problems leads to the following research objectives to be distinguished:

- Exploring theoretical ways to make a transition to sustainable energy.
- Gain insights in policy implementation theory, how local and national parties interact in the bottom-up/top-down and centralized/decentralized spectrums.
- Explain the current organization of the Dutch energy sector by analyzing historical developments to understand the approach of the central government.
- Uncover the current strategy of the Dutch government in making the energy transition.
- Formulating an exploratory, sound advice for the Dutch government how to possibly situate itself in the energy transition, taking ideas from policy implementation theory, as well as from transition theory.

My hypothesis is that the fact the government is focusing so much on performing a transition, while not acting the way they 'should' in a transition is contributing to the fact this transition is seemingly failing.

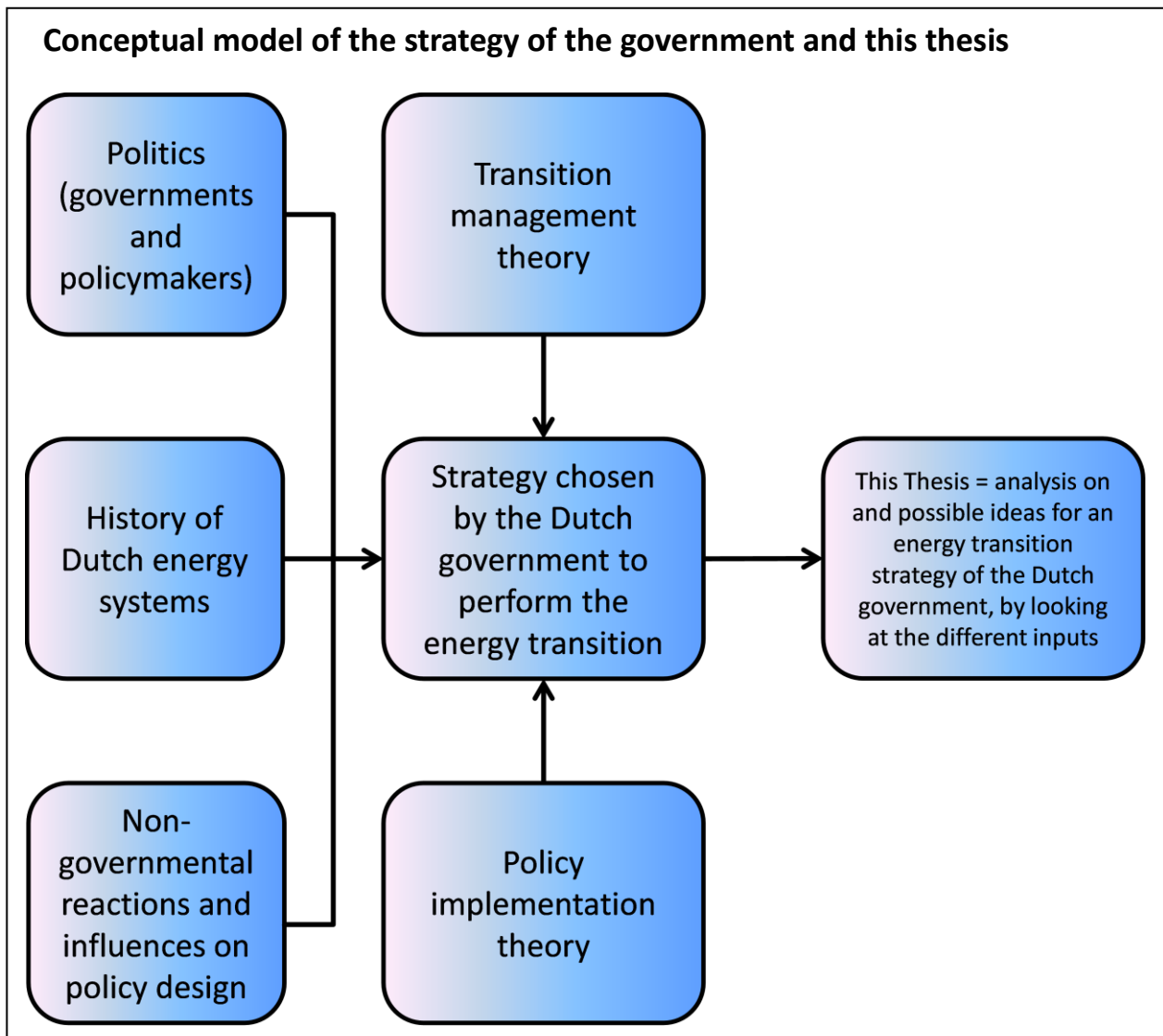
From this hypothesis, lists of problem statements and goals of this thesis, the following research questions could be formulated:

"To what extent does the Dutch government follow the approach to the energy transition as explained in the theory on transition management, and how does this explain the current progress in making the energy transition?"

The main goal will be to look at the position of a central government body in the transition to a sustainable energy system. From that point of view different sub-questions have to be asked:

- What does existing literature say on how a central government can position itself while implementing policy (chapter 2)?
- How does this position of the central government relate to literature on transition management (chapter 3)?
- How is the Dutch energy system shaped and how did it develop this way (chapter 4)?
- What is the main strategy of the central government and how does this strategy work out in practice (chapter 5)?
- By combining theory and practice, how can we explain the limited success of the central government towards the goals of the energy transition (chapter 6)?

1.2 Outline



Above is the conceptual model on which the research is based. In the middle is the subject of this thesis, the energy transition strategy chosen by the central government. On the top, bottom and left sides are all influencing factors on this strategy, while the right side is the outcome of this thesis. All these different factors influencing the strategy, as well as the strategy itself will be analyzed in this thesis. To achieve this, this thesis is divided in four different sections, starting with the introduction, following with theoretical views and ideas, practice, ending with the conclusion and discussion. The introduction of this thesis is chapter one. In the introduction the idea and relevance of the research are addressed, along with the proposal of the research question and problem statements, ending with the methodology used in this thesis. This conceptual model also visualizes the linked importance of transition management theory and policy implementation theory for the strategy of the government. The reason they are both analyzed, is because they both offer different ways of making a transition. The government says they are in the middle of a transition, but their current strategy depicts more of a traditional top-down policy implementation strategy. The goal is to link both perspectives, to see what parts of what theoretical approaches the government is using and could use to their advantage to perform an actual transition to a sustainable energy system.

Next is the theoretical overview. This theoretical overview consists of two parts: first the strategy of the government will be analyzed from a policy implementation perspective, which is explained and explored in chapter two. The bottom-up/top-down and the centralized/decentralized spectrums of policy implementation will be explored. The central government seems to have chosen for a top-down/centralized approach when trying to achieve goals towards more sustainable energy, in chapter two there will be further explored what characterizes this approach, and what a different approach could be. After we gained understanding of these different ways of implementing policy, and gaining insight in the current Dutch situation, this thesis follows up with a chapter on transition theory. This chapter will focus on what a transition actually is, how a central government could position itself in a transition, and whether the Dutch energy transition can be called a transition or not. The Dutch energy transition is initiated as a transition, but the central government is taking a large leading and initiating role in the transition, while transition theory is about co-evolution and multi-level transformation. The way the central government positions itself (top-down and centralized) and handles local parties, makes it difficult to describe the energy transition as an actual transition from a theoretical point of view.

In the next section the practical side of the energy transition is being reviewed. First of all, this thesis is about the Dutch energy transition, thus giving an overview of the characteristics and history of the current Dutch energy sector is important to understand what the background of the sector is and where it stands now. Furthermore the goals and objectives on which the energy transition is based are elaborated upon in this chapter. In chapter five, empirical data will be used to answer the rest of the research questions, and gain even more insight in the strategy of the central government in the energy transition. This thesis will conclude with a concluding chapter six, linking the theoretical ideas on transitions and policy implementation with the empirical data found in chapter five.

1.3 Methodology

In this section, the methodology of the research will be explained. There will be an explanation of the used methods of data collection per chapter of this thesis. The data in this thesis was collected according to a qualitative research approach. Ritchie & Lewis (2003) mention that qualitative research is all about, interpretation, value-giving and the understanding of the meanings people give to things they encounter. The subject of this thesis, the energy transition and the way the central government handles it, is well suited for research in an interpretative way. Because it is important to know what value the makers gave to it, what value intergovernmental organizations give to it, and what value the 'common people' give to it, to let the transition either succeed or fail. Moreover, qualitative research and analysis is fit for researching complex problems, in which social context, social relations and

interpretation are all part of understanding the phenomena at hand (Ritchie & Lewis, 2003). All in all, different types of qualitative research will be used, which will be addressed in the following paragraphs. I have made a clear choice not to engage in quantitative research, which has everything to do with collecting and analyzing statistics, while trying to find significant connections between different data sets (Ritchie & Lewis, 2003). In this thesis I am looking at specific in-depth information about a certain subject, rather than quantifying data for the purpose of comparing them thus a qualitative approach was chosen.

To answer the different research questions different research strategies have been used. Every strategy will be addressed in this paragraph including an in-depth explanation of different methods. The plan of the research was to follow the conceptual model presented in the outline of chapter 1.2. This means that in short the research goes via theoretical concepts on policy implementation and transition theory to analysis of policy documents and articles on the energy transitions to understand and research the current strategy of the Dutch government.

The research started with analysis of scientific literature to form a theoretical basis for the thesis. Chapter two and three rely on scientific literature to explain the scientific, theoretical perspectives in which the actions of the central government can be explained. The goal of this literature review was to uncover the potential role of the central government from different theoretical perspectives. The literature for chapters two and three were mainly found via search engines for scientific literature, like PiCarta and Google Scholar. Search terms used included terms like: "Energy transition", "Energy Policy", "top-down bottom-up", "Centralized decentralized", "Policy implementation energy sector". While searching for usable literature, the main criterion was whether the information in the article was applicable to the subject at hand: energy policy/energy transitions. Preferably, each article had information on the Dutch energy sector or at least was linkable to the Dutch energy sector. While searching for usable literature on transitions, one researcher, Jan Rotmans, emerged as a pioneer and main contributor on the subject of transitions. So, while reviewing his website, articles and literature lists of his articles, a lot of follow-up reading could be found to incorporate in this thesis. The policy documents and literature were used in this part to increase understanding of the subject at hand (Ritchie & Lewis, 2003).

The research followed with chapter four. This chapter relies on policy documents and statistics to describe the current situation (actors, goals, formation etc.) of the Dutch energy sector. This part is also used as a fundament to support the following, applied part, and to compare the actual situation with theoretical overviews. The policy documents and statistics used were all used to increase understanding of the current Dutch energy system, to gain more insight in how and why it performs the way it does. While searching for characteristics of the Dutch energy system, an extensive description of the past developments was found, written by De Jong et al. (2005). This document proved instrumental to gain insight in the formation of the Dutch energy systems. From this document, the idea rose to describe different periods of Dutch energy systems. Together with the description of De Jong et al. (2005), various scientific articles which were already researched for the chapter 2 also described the history of Dutch energy systems, thus combining them made for the chapter in its current form. When describing the current Dutch energy system, one has to include the Dutch ministry of economic affairs, which is responsible for energy policies. Thus searching for policy documents within this ministry (i.e. letters to the House of Representatives, actual laws, strategic documents, sector analysis etc.) proved detrimental in finding information for this thesis. The policy documents were analyzed on parts where for example the energy transition was mentioned, where the history of energy systems was explained or parts where actual strategies/policy of the government was concerned. As policy is potentially a quick changing factor, with different national political views following each other in quick succession, only the most recent policy documents were used to depict the current strategy of the Dutch government. All policy documents analyzed and which provided information for the research have been mentioned in the Literature overview.

Following investigations of the theory and policy documents leading to the current strategy of the central government is a chapter about the practice of this strategy. According to Ritchie & Lewis (2003): *“Applied research is concerned with using the knowledge acquired through research to contribute directly to the understanding or resolution of a contemporary issue.”* (pp. 24). The contemporary issue at hand is in this case the energy transition, and the ‘applied’ research of looking into analysis of the Dutch sector, recent governmental plans and strategic agreements is very important to understand the characteristics of the current developments in the Dutch energy transition. The practice of the strategy is being researched by looking at the most recent publications on the Dutch energy sector. First the IEA (2014) and their analysis of the Dutch energy sector will be covered, followed by an overview of the recent Energy Agreement (SER, 2013a) and the reception of this Agreement. The parts mentioning the transition and how the government is going to facilitate the transition will be analyzed and compared to the actual (spatial) plans the government is implementing and executing. The central government seems to be focusing on large scale wind energy to achieve the transition, as explored in the rest of chapter five. The IEA was chosen as an important actor to analyze, as they are the leading intergovernmental energy agency in the western world, capable of providing meaningful statistics, insight and comparison to the different members. Second, the Energy Agreement was chosen to analyze as in this document the main points of the strategy of the central government in the energy transition are written down and elaborated upon.

Aside of the policy documents, the other parts of the information in the empirical chapter are coming from interviews which others performed, opinion articles, news articles, and websites made by people who have something to say about the way the government handles the energy transition. This data was collected mainly by searching for reactions on the plans and strategies formulated by the central government, and filtering them by the organization they belonged to. Main search term was “energy agreement” on for example Google.com and just look at every website which popped up. There was also searched for articles on the energy agreement in newspapers (namely the Volkskrant) and news websites. Sites like that of the Volkskrant, also has a ‘suggested reading’ list while browsing articles. This snowball effect was also used to gather even more articles and information on the energy agreements and the energy strategy of the central government.

This data was collected by scanning numerous reactions, interviews and opinion articles to create a broad overview of different reactions to the same document. The goal was to gather different reactions to the energy agreement as well as the general strategy of the central government. Not only different reactions were important, also gathering different parties which reacted was important, to cover an as wide as possible range of different opinions and backgrounds. The source for every article/interview used is written in the literature overview. This way of collecting data is valuable, because it involves statements of people directly responding to for example the energy agreement. A lot of information and reactions can be found online or in the newspaper in many different shapes and sizes and is freely accessible, and thus I can search directly for what I need, and filter out sources which aren’t as beneficial. An advantage of getting data from those written sources, like webpages and opinion articles, is that it is expected to be the exact opinion of the people who have written it down, without any need to hold back and limited forms of editorial work. When using interviews from for example newspapers, which somebody else performed, it is a second hand source of information, so it is being perceived and interpreted by the journalist already. The goal is always to interpret the available data as neutral as possible, and as relevant for the research as possible.

This thesis will end with the strategy of the government (the Energy Agreement and the impact of their spatial plans) being compared to the theory researched in chapters two and three. Linking the theoretical standpoints to the actual actions of the central government could provide meaningful insight in explaining the current strategy, explaining the failing of the current strategy, and formulate advice for change in the strategy of the central government.

1.4 The next step?

This chapter functioned as an introduction to this research. The subject is introduced, as well as the outline and finishing with the research methods. The Netherlands have set some clear goals for the future of their energy system, accordingly with international commitments. When looking at these goals, the Netherlands are not yet on the right path to succeed them in the energy transition. The country is far behind in their set goals for 2020 because they are still extremely dependent of fossil fuels. Also on an international scale the Netherland fall behind other European countries. The mean amount of renewables is 13% whereas the Netherland are stuck around the 4.3% (Eurostat, 2011) or 4.5% (IEA, 2014). This could cause potential international troubles, as the most important goals are set in international treaties. The importance of reaching these goals is enormous, not only in environmental sense but also in political sense as these goals are parts of international treaties. Current or past developments in for example Dutch politics (quick changes of power, cutting funds on clean energy) and international politics/economy (the financial crisis, the debate on Ukraine, Syria, ebola etc.) made that there is less attention for green energy and less money all together (further reading: Rotmans, 2011). The core is: the energy transition isn't going in the right direction fast enough yet. The central government on the one hand sees itself as main initiator of this transition but on the other hand says it's not an issue of the central state alone. The central government doesn't quite seem sure how to position itself, let alone tell other parties how to position and handle themselves. As stated before, the central government is adapting to a certain strategy (the transition), but the strategy is seemingly failing as the goals don't seem to be achieved in time. Could there maybe be some discrepancy in the way the government positions itself in implementing the policy designed for the energy transition? We take a look at different ways of policy implementation, and different ways of the government to handle this in the next chapter, to get a broader context on possible ways of implementing policy (like the new energy transition) and to get more insight on the current situation and position of the Dutch central government.

2. Policy implementation theory

Box 2: Policy implementation?

As this chapter will be talking a lot about policy implementation, it is important to define it first. A clear definition has been given by Mazmanian & Sabatier (1983, p.20-21) and goes as following:

"Implementation is the carrying out of a basic policy decision, usually incorporated in a statute but which can also take the form of important executive orders or court decisions. Ideally, that decision identifies the problem(s) to be addressed, stipulates the objective(s) to be pursued, and, in a variety of ways, "structures" the implementation process. The process normally runs through a number of stages beginning with passage of the basic statute, followed by the policy outputs (decisions) of the implementing agencies, the compliance of target groups with those decisions, the actual impacts of agency decisions, and, finally, important revisions (or attempted revisions) in the basic statute."

There are different manners of policy implementation the existing literature distinguishes. This chapter will be about either a bottom-up vs. a top-down approach or a centralized vs. a decentralized approach in policy implementation. In short, bottom-up/top-down says something about the **way** in which policy is designed and implemented. Centralized/decentralized says something about the **level** on which the policy is designed and implemented. These different manners can be used to further elaborate on the role the central government could play in implementing policy. As stated before, the change to a more sustainable energy system in the Netherlands isn't working out yet. The central government is busy with trying to make a transition mainly through writing policy (Kemp et al., 2007), thus a literature review on policy implementation theory is deemed necessary. According to, among others, O'Toole (2000), De Vries (2000) and Matland (1995) both existing literature and policy implementation practice are far from reaching consensus. Both theory and practice did not yet find out the ideal way to develop and implement policy. This chapter will be used as exploration and more detailed explanation on the topic of policy implementation, without trying to come up with a 'final answer'. A lot of policy suffers from failure (O'Toole, 2000) and policy implementation remains a 'puzzle' (O'Toole, 2000, p.265) which is yet to be solved.

In this chapter first a historical overview of the Dutch policy implementation 'tradition' will be given. This is done to understand where we are coming from and thus better understanding where the central government is right now. After that an explanation will be given on top-down vs. bottom-up policy implementation. This is done to give an overview over possible ways to develop and implement policy. The role of the central government will be central in this part, just like the whole thesis. Next a literature overview of the debate on centralized vs. decentralized policy implementation will be given. The difference between top-down/bottom-up and centralized/decentralized will be explained and the current role of the central government will be reviewed to see how the central government currently positions itself with its energy transition policy. The goal of this chapter is by no means to give a *complete* overview of all scholars and ideas on policy implementation. The space is simply too short to encompass everything. However, a basic overview will be given in policy implementation theory and the Dutch (energy) situation to better understand the position they currently occupy and to place it in a scientific perspective. Furthermore, although the focus in this thesis is on energy policy, this chapter will focus on some more general viewing point on policy implementation. All of which is just as applicable for energy policy as it would be for general policy. Throughout the chapter, links to energy or environmental policy will be made, and at the end of the chapter the theory will be linked to the Dutch situation.

2.1 Historical overview

In order to understand where we are right now in policy implementation theory a historical overview of the developments of the last decades will be given. The past decisions made, trends followed, and shifts in governance have taught us in practice how differences in policy implementation strategy works and more importantly: it gives us more insight in why certain strategies in certain work or don't work. In this part the main focus will be on the centralized vs. decentralized questions. This part

mainly focuses on the centralized/decentralized debate, so on the question on what level the policy is developed and designed.

According to De Vries (2000) the trends between centralized and decentralized strategies are somewhat cyclic of nature; first one strategy is dominant, until the disadvantages of one strategy come to light, then the focus shifts to the complete opposite site of policy implementation. It seems that the whole discussion is also one of losing and gaining power; when the focus shifts, some parties gain, and some parties lose power. Important to note is that mostly every change raises resistance, but not only from the ones losing power. DeLeon & DeLeon (2002) point out that the trends which can be seen in research on policy implementation have a high interconnection with trends in actual policy implementation. So if in practice the drawbacks of centralized planning emerge, the shift in research will be to decentralized implementation.

When we look at the history of policy implementation in the Netherlands multiple trends can be distinguished. For this research, only the 'modern' era is important, because only from then on public policy implementation was practiced and studied (DeLeon & DeLeon, 2002). The first notion of studying policy dates from the 50's/60's of the last century. From then, more and more interest came in studying governmental behavior and relations. From the early 70's the first generation of policy implementation studies developed. Because of this, the overview will start from the 70's/80's of the last century until today.

Up until the early 70's there wasn't that much attention for energy policy. Industries like the oil industry and the coal mines for were treated like any other sector (De Jong et al., 2005). There was a mix of public and private initiatives and ownership, although there was quite a big market influence. Wherever the market failed however, the government would step in and handle the situation in a top-down/centralized manner (DeLeon & DeLeon, 2002). In the 70's and early 80's, in a time where an oil crisis happened and there came increased attention for environmental issues, the government stepped in to regulate more and more parts of the energy sector. The 'price' the government paid for trying to own and regulate more parts of the industry, was the fact that this strategy was leading to overregulation (DeLeon & DeLeon, 2002). Besides, every different sector in the energy sector, like oil, coal, gas, etc. got its own set of rules and laws, increasing bureaucracy and making the central state work less efficient than policy makers would like. This triggered researchers and policy makers to find a new way to work: starting the decentralization trend.

The decentralization started to get increased attention from the mid 80's and attention peaked until the late 90's. While the central state was getting larger and more complex, suffering from bureaucracy and overregulation, more and more advantages of decentralization were discovered (De Vries, 2000). Those will be addressed later in this chapter. In this period a process started which could be described as 'hollowing out' of the central state. According to Zuidema & De Roo (2015) power moved to three directions: Upwards to supranational bodies (e.g. the European Union), sideways to market parties (e.g. privatization of railroad companies) and downwards to local governments (i.e. local governments taking local decisions). In this period the landscape of decision making started to change. Apart from previously mentioned trends the increase in influence from civil society in the form of public participation made this change possible.

From the late 90's policy makers and researchers increasingly realized that also an exclusive decentralized approach wasn't the Holy Grail they were looking for (De Vries, 2000; Zuidema, 2015). This even led the recentralization, thus the central government pulling back tasks to them. However, the larger trend is still more focused on decentralization (The UN has a saying: think globally, act locally (Zuidema, 2015)). Since the 80's big steps are taken in vertical communication between governments and the focus shifted from governments to *governance* (the process of governing).

According to Zuidema (2015) we are now in the middle of an experimental phase. Governments use different ways to try and find balance, e.g. 'pick and mix'-strategies or 'trial-and-error'-strategies. After this short historical overview, we arrived in the present. The next paragraphs will focus on top-down/bottom-up policy implementation and the centralized/decentralized debate and the difference between those terms.

2.2 Top-down/bottom-up

In this part there will be explained what kind of relations there exactly are between higher and lower level governments. I distinguish a difference between bottom-up vs. top-down policy implementation and centralized vs. decentralized policy implementation as explained in the introduction paragraph. This part will focus on the differences between top-down and bottom-up policy design.

In essence, top-down vs. bottom-up is about the way the policy is implemented. Does it start at the top or at the bottom? Like the terms already say, top-down policy implementation starts at the top and then goes down (Ryan, 1995). This means that policy is developed from one core idea, the details are to be filled in after the main goal is set. It is a deductive way of thinking and an authoritative way of implementing policy. Policy starts with something like a law or another initiative from a large, centralized party (Matland, 1995). This party isn't necessarily the central government though. A goal is formulated on a central level and the policy is implemented in such a way from the top to the bottom that the set goal can be achieved. So the 'top' is dictating what the 'bottom' should be doing to achieve the goals the 'top' has set. According to Matland (1995) and Ryan (1995) some 'characteristics' of top-down strategies include: Clear and consistent goals, few actors in the process, *"limit the extent of change necessary"* (Matland, 1995, p.147) and finally: most of the times the responsibility of executing the policy is in the hands of a governmental-associated organization (on which level this decision is taken is the question in the centralized/decentralized debate).

As stated, top-down policy design is focused around a clear goal/objective and the main purpose of the policy is to achieve this goal. According to Ryan (1995), some main questions when reviewing top-down implemented policies include: How is the goal achieved over time? Did the actors do everything they could to achieve the objectives? What factors influenced the process and output? This indicates that top-down policy is very result oriented. This can be a huge advantage, as it makes sure everyone involved with the policy is working towards the same goal (Ryan, 1995). This could facilitate easier communication between actors. Characteristic of top-down is also minimizing the number of actors, thus making decision making easier (Matland, 1995). The hierarchical structure of the implementation of the policy also makes for good control of the process, as the end-goal is always in sight and everything is working towards it. These characteristics form advantages for a top-down way of policy design. At the same time though, they form drawbacks of this type of policy implementation. The result-oriented character makes that other factors, like the way the objective is achieved are sometimes moved to the background. A lot of effort is put in to achieve the goal for mostly political reasons (Ryan, 1995). Factors moving to the background include: a democratic, communicative process and inclusion of local parties (DeLeon & DeLeon, 2002; Ryan, 1995). A loss of inclusion of local parties means a loss of area-specific goals and arguments. When designing policy in a top-down way, the end goal may be already set, but it isn't able to fit within all local factors and actors. Top-down focuses on generalizable factors which don't always fit with localized factors (Matland, 1995). Also, some problems are simply too complex to describe as a single-objective policy (DeLeon & DeLeon, 2002; Ryan, 1995). Top-down design can thus be a little unrealistic. As top-down policy design favors as little actors as possible, the local experts are largely ignored. Some kinds of problems are very local in nature though and thus this is a big flaw to usual top-down design (DeLeon & DeLeon, 2002). The policy fails to adapt to the specific local circumstances and thus fails to solve the local problem with lack of a tailor-made approach.

Bottom-up policy implementation is the opposite of top-down policy implementation. This term describes policy being developed from the bottom. The process starts with some details on the local level and slowly but surely a core or greater idea is developed. It is an inductive form of reasoning.

Policy development and implementation is concentrated at the local level. It focuses on non-generalizable factors (Matland, 1995) and main goal is to design policy from a local perspective, using street level bureaucrats, local officials and lower governments for example (DeLeon & DeLeon, 2002). According to Ryan (1995) the bottom-up way of implementing was a direct reaction to the policy failure of top-down policy design, like stated in the historical overview. The drawbacks of top-down became clearer and policy designers started to believe that the most important level is the local level. The local level is the starting point of policy. As this is the level on which the policy affects the people directly. The hierarchical structure of top-down design was discarded and a more communicative, localized and realistic was developed (Matland, 1995; Ryan, 1995).

Bottom-up design is far less objective oriented than top-down design. The key factor here is shaping the policy to local factors. The local context (Matland, 1995) is very important according to 'bottom-uppers' and thus a single outcome or objective of policy is not realistic. Also, the main belief of bottom-up favorers is that only local parties/bureaucrats/governments etc. can form decent policy for local problems (Matland, 1995). Matland 1995 does remind us that the local government is not without flaws and has access to less resources and possibilities than central government for example.

Matland (1995), Ryan (1995) and DeLeon & DeLeon (2002) and O'Toole (2000) state that there are arguments both in favor of a top-down approach as that there are arguments in favor of a bottom-up approach. Ideally, a synthesis of those two systems has to be found. O'Toole (2000) argues that the classic bottom-up/top-down debate is really over and we have moved beyond to different debates. DeLeon & DeLeon (2002) and Matland (1995) argue that each type of policy is different and should be treated differently. Some policies (national security etc.) are preferably handled top-down. While on the other hand sometimes more localized and more democratic approaches are desirable. I agree with DeLeon & DeLeon (2002) that context is important and that 'one size never fits all' (p. 489).

A top-down way of making policy as described in this paragraph usually goes together with a centralized way of making policy. The centralized party (central government) is the one starting the policy, formulating goals, developing it and implementing it. On the other hand, bottom-up and decentralization usually go hand-in-hand. However this isn't necessarily the case. A policy can be designed in a top-down way, but can be initiated by decentralized parties. The next part will explain what centralized and decentralized means.

2.3 Centralized/decentralized

Centralized vs. decentralized means the level of governance on which the policy is developed (De Vries, 2000). This means, is it the central government making up the policies, or are it local governments who decide? This is in essence about on the distribution of power, on what level is what decided? The arguments in favor of centralized or decentralized approaches have largely been covered already in 4.1 and are comparable to the arguments presented in 4.2. This paragraph will thus focus on defining centralized policy design and decentralized policy design. De Vries (2000) does argue that neither the arguments in favor of centralized approaches nor the arguments in favor of decentralized approaches are convincing (p.194). Gershberg (1998) teaches us that moves towards decentralization are mainly to improve policy design and implementation. This is also the case for (re)centralization. Prud'homme (1994) describes that decentralization often mentions both a process and a state, which is no different in this thesis. The process of decentralization is the actual transfer of power/authority while the state of decentralization is the actual situation where the power/authority is already transferred to local parties. In essence the process and the state are always mentioned together, you can't reach the state without the process and as such it could be viewed as one term.

Decentralization as process is described as the transferring of authority and power towards lower governments (Gershberg, 1998). This is in essence done to achieve better results locally. Ideally, the policies are more tailor-made and fit for local conditions. De Vries (2000) acknowledges the idea behind it, but is not convinced whether it works as well as ideally planned. A lot of theoretical arguments are present in favor of decentralizing policies (De Vries, 2000); in practice the outcome is

debatable (Prud'homme 1994). Although there is more local knowledge present at the local level, it is debatable whether the local parties have enough resources and expertise to actually implement decent policy to solve local problems. Also local governments are expected to face less resistance than centrally planned policies, because they are expected to be closer to the people and know their population better. (Re)Centralization is described as both transferring power back from the locale to the center, but also as the reforming of functions at the central level which cannot be transferred to other levels (Gershberg, 1998). Centralized policy design has the potential advantage to be more equal, as they treat everything which is covered by the policy the same. Also their sheer overwhelming sources of funds and knowledge and power are far greater than smaller governments could ever have. There are multiple arguments to be mentioned, but that's not the goal of this chapter. According to De Vries (2000) these arguments are again mainly theoretical in nature and thus debatable whether they work like that in practice. Important is thus that in a centralized environment, policies can be controlled in a way decentralized parties cannot. There is coordination from the top, which could prevent competition and overlapping of rules, effort and policies between different cities for example. Also, when there is coordination from the center (or top) controversial policies have the chance to be actually implemented, regardless of resistance.

Prud'homme (1994), De Vries (2000) and Gershberg (1998) all agree that decentralization or (re)centralization are never *the* answers to problems in policy implementation, but rather are *possible* solutions. They state that (re/de)centralization is practiced differently in different places, different times and different policy fields and that you should try to take everything into consideration when choosing an approach. Also this means that you cannot always state which type of policy needs which kind of approach, simply because there are a lot of factors to take into account. Hooghe & Marks (2003) and Prud'homme (1994) argue that the policy should be implemented at all levels, this fits in line with the transition theory mentioned in chapter 3. Although Prud'homme doesn't describe it with the term multi-level government he argues we should step beyond the centralized vs decentralized debate and should find a way to incorporate different levels of government when designing and implementing policy. He argues that it's best to incorporate different levels of government to cover different types of expertise and knowledge. Hooghe & Marks (2003) specifically describe multi-level approaches as the current paradigm in policy theory. The multi-level approach is in essence the more flexible approach. It can be filled in in different ways and thus adapt to the style of the certain type of policy in question and fit its needs. *"In short, multi-level governance allows decision makers to adjust the scale of governance to reflect heterogeneity."* (pp. 236). They argue that specifically the central government isn't suited to handle variety and diversity, while different policies are diverse in essence and thus need different approaches. This is similar to the arguments given by DeLeon & DeLeon (2002) and Matland (1995) that one size rarely fits all, and that a tailor-made, hybrid, multi-level approach is a good way to handle policy implementation issues.

2.4 The Dutch government and energy policy

Nobody seems to be sure about where we stand right now in the top-down vs bottom-up debate, as described in 2.2. Policy makers and researchers are aware of the different pro's and con's on bottom-up and top-down planning and are struggling to find a new strategy to adapt to (Hooghe & Marks, 2003; Zuidema, 2015). The environmental sector, in which the energy transition fits, is no exception to this debate. Right now there is still a tendency towards decentralization, supported by neo liberal influence (as described by Allmendinger 2002) and the communicative turn (as described by Healey, 1992). In the end, all those developments tend to lead to plurality. Different forms of governance rise and exist horizontally and vertically of on another. Hooghe & Marks (2003) agree and state that there is consensus over the fact that the government should change and that it should be multi-level, again naming that nobody is sure how it should be shaped.

When regarding energy and environmental policies however, the Netherlands come from a top-down history (Zuidema, 2015). Like most policy sectors, energy policies started out as top-down oriented policies. Mostly they were descriptions of norms and standards on how it should be, all developed by

the central government. Thus, the government was relying on uniformity and technological advancements, coming from a very optimistic background. Right now this way of implementing policy is still present, although less prominent. The implementation model used in the Netherlands (and the European Union) for energy policies is best characterized as a coordinative model. The coordinative model means that different governmental bodies are divided into different units. All those units specialize in a specific function carried out by the government. This means for example that the different sectors in energy policies like water pollution, green energy, the cleaning of soil etc. (or different geographical areas) are treated by different agencies. The whole idea about this model is that every agency is dedicated to a single sector. The coordinative part about it is, or at least the coordinative *idea* about it, is that the central state is responsible for coordination between the agencies. The central government makes sure there is communication between the agencies and policies are implemented in a coherent and coordinated way.

Another way to describe the approach chosen in the Netherlands is to say that, instead of making local governance complementary to national policy, local policies are function partly as alternative to national policies. The (inter)national guidelines and norms are usually still functioning, but local actors have freedom to make up their own strategies in some sectors. The idea behind this is that national policies sometimes frustrate rather than stimulate because they have no local dimension whatsoever, and as said before, environmental problems are in many cases very local of nature. In the end, the tailor-made character of local policies should provide for better environmental and ecological quality.

2.5 The next step?

This chapter covered a review of different ways of implementing policy, as well as gaining insight in how the Dutch government developed, and finally exploring where we are now in energy policies. When reviewing this chapter, the most important remark that can be made is that different ways of developing and implementing policy can and should exist simultaneously. The question is however: how does this analysis of policy implementation fit within transition management theory? As described in this chapter, the Dutch government is coming from a centralized/top-down tradition. They are trying to leave more room for the decentralized/bottom-up side of the spectrum. The Dutch government is, according to themselves, in the middle of an energy transition (SER, 2013a), which isn't really working out yet, as stated in the introduction. Maybe this has something to do with the way they position themselves, as being a bit too much focused on the centralized/top-down side of policy implementation. There are certain advantages to setting goals on a central level, but maybe the details of achieving these goals are better implemented bottom-up, as to lower resistance and use local knowledge, initiatives and plans to your advantage. So the main outcome of this chapter is that there is no definitive best way of implementing policy. Every form of policy the government or local parties want to design or implement needs its own mix of top-down/bottom-up way of developing policy as well as its own mix of centralized/decentralized parties to work. The advantages and disadvantages of each extreme of the spectrum have been covered in this chapter, and the outcome is that this means a hybrid, tailor-made approach is probably best suited to handle complex problems like the transition in an energy system, as is going on in the Netherlands.

After reviewing the role of the central government from a policy implementation point of view, the next chapter will look at it from a transition management point of view, and see if the answer as to why the government is having limited success in the energy transition can be discovered.

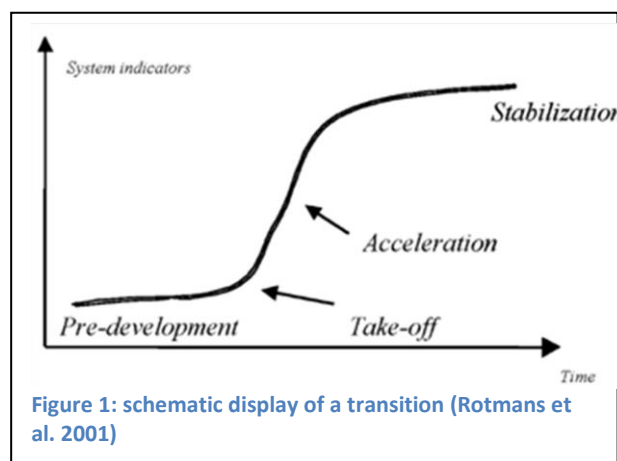
3. Transition theory

This chapter will feature an overview on what transitions are in general, in what stage the current transition in the Netherlands is and what the role of a central government in a transition could be. Also, an example of a successful transition with its characteristics will be given. The Dutch government heavily relies on the transition to happen to accomplish their goals for 2020 (Rotmans et al., 2001; SER, 2001). Kemp (2010) describes this idea as a novel and interesting one, and states that the Dutch government used ideas from transition theory when formulating their plans for the change to a more sustainable energy system. Thus this is an important topic to review in this thesis. First, a general overview about the basics of transition theory will be given. Second, this will be applied to the specific Dutch situation. Finally the role of the central government in a transition will be covered.

3.1 What is a transition?

For the NMP4 (SER, 2001) a way of thinking about transitions was formed in a project called: “*Transitions and transition management*” (Kemp, 2010). Rotmans et al. (2001) wrote a paper in which this way of thinking about transitions was further elaborated upon. They describe the so-called complexity perspective of transition theory. This means that in order for a society to change from a current dynamic equilibrium to another dynamic equilibrium a transition along a path as displayed in figure 1 is needed. A transition is therefore described as a social transformation process in which a system structurally changes over an extended period of time, over 25 years. When talking about the energy sector, the urge for a transition is large. The only way to shift our current system from a fossil fuel dependent system to a system relying on green, renewable energy sources is via a big transformation (supported by Kemp, 2010). Not only in for example laws and policy, but also the whole mindset of society should change and the matter should be integrated into natural thinking patterns to trigger successful change. At the end of this paragraph two practical examples of transitions are given, to link the used terms in this paragraph to an actual change which happened in the past.

Figure 1 displays the multi-phase character of a transition. A transition happens over a long period of time (>25 years) and thus knows different parts in the process (Rotmans et al., 2001). It starts with the pre-development phase. In this phase the status quo doesn't actually change yet but the very first steps and plans towards the transition are taken here. The need for a transition is acknowledged and it is about to begin. The first experiments are started, mainly on the individual level. After that the take-off phase comes. This seems to be the phase we are in right now in the energy transition (Rotmans, 2010). In this phase the processes of change are triggered and the first parts of the system are actually beginning the change. The main actors and initiators are starting to change and the main policies on the subject of the transition are being written. Following the take-off there is the acceleration phase. In this phase the transition is getting its shape. All around initiatives are taken to foster the change and it is taking place at all kinds of levels and sectors (socio-cultural, economic, institutional, ecological etc.). In the final, stabilization phase the transition has taken place and the system is settling into a new dynamic equilibrium.



This transition is not only multi-phase but also multi-level; in order for a transition to succeed (according to Rotmans et al., 2001) it needs to be adopted throughout the whole society. This means that effort is needed on different levels of society, namely: macro, meso and micro levels. Table 1 displays the different levels and their meanings. So the transition doesn't only have a time-aspect, but also an actor-aspect. It takes a long time to complete and it takes the effort of multiple actors on multiple levels to complete it (described by e.g.: Kemp, 2010; Rotmans et. al, 2001; Rotmans, 2011; Verbong & Geels, 2007)

Table 1: Levels of a transition (Rotmans et al., 2001)

<i>Levels of transition</i>	
<i>Macro (landscapes)</i>	<i>Higher level trends like climate change, globalization.</i>
<i>Meso (regimes)</i>	<i>The most dominant structures, policies, institutions, rules and norms.</i>
<i>Micro (niches)</i>	<i>Individual actors and technologies.</i>

The macro level is the highest level of a transition. The other term for this level is the landscape level. On this level you can find large-scale trends and movements like the macro economy, climate change, international institutions etc. Also factors like culture, world-view and the environment are taken into account on this level. This is not the level on which the transition starts; it is more like the level in which the transition has to fit in, as it is least subject to quick change. The meso level is also called the regimes level. This is the level on which the central states government acts. On this level all the institutions, norms and rules are captured which the transition has to deal with and which form the transition in the same time. Policy is made on this level. On this level the connection between the quick innovations of the micro level and the slow processes of the macro is made. The micro level is also called the niche level. On this level the first innovations are started and it is the quickest changing one. This level encompasses individual actors, companies and technologies. On this level the first experiments towards a transition are started. Some of them fail, and some of them succeed. Only when enough experiments succeed and the meso- and macro-level are starting to get along a transition can get out of the 'take-off' phase. The micro-level is the level where the pre-development phase starts and where the largest part of the take-off phase takes place.

This multi-level approach leads to a seeing transition management as a process of governance and co-evolution (Kemp et al., 2007; Kemp, 2010). The concept of co-evolution in transitions is about different actors on different levels influencing each other, without necessarily controlling each other. Furthermore it is about a process of constant change, with different speeds of change, without goals which can be clearly set in advance. It fits within the idea of going from one dynamic situation to the next, and is multilevel because it calls for change and transformation on different levels of society, individuals and governments. Those levels are all influencing each other with cause – effect – cause loops (Kemp et al., 2007), with every cause, causing an effect, and an effect can become the catalyst for further change. The concept of governance instead of government also fits within the co-evolutionary way of looking of transitions. One of the characteristics of governance is that it encompasses more of a communicative approach, rather than a full control approach by the central government (Kemp et al., 2007; Zuidema, 2015). It is beyond the scope of this study to fully explore the concepts of co-evolution and governance and energy policy, for further reading one could read Kemp et al., (2007, on co-evolution) or Zuidema (2015, on governance).

An example of an energy transition is the transition from traditional biomass fuel usage (e.g. using firewood to heat/cook) to modern fossil fuels (e.g. using gas/coal) and gaining access to electricity, in developing countries. This transition is complete in developed countries (Leach, 1992), but is yet in an acceleration or take-off face in developing countries such as India and China (Pachauri & Jiang, 2008). The 'dynamic equilibrium' at the start of the transition is that of households being dependent on traditional biomass fuels for heating and cooking, mainly firewood. The 'dynamic equilibrium' in which this transition ends is a situation where households are connected to modern infrastructure

using fossil fuels and gaining access to electricity. While the subject of the transition is different from the current energy transition in the Netherlands, the general theoretical framework is applicable in both cases. In the transition from biomass to fossil fuels, the characteristics of the multi-level, multi-phase and co-evolutional ideas are all recognizable in this transition. The driving forces of this transition were a mix of processes on the macro, meso and micro levels (Leach, 1992). On the macro level, the discovery of the usage of fossil fuels, the development in household usages of 'modern' energy and even a local scarcity of trees were all large-scale macro forces to drive the transition in different stages. On the meso level, the local and central government helped start and accelerate the process with policy and infrastructure. On the micro level, a big driving force was individual household income increase and to lesser extent the ongoing urbanization (although that could be noted as a landscape process rather than a niche-level process). Individual households, mainly in urban areas, with enough money formed the niches to start the transition (Pachauri & Jiang, 2008). The transition started out in a 'natural' way (Leach, 1992) with the richer part of the lower levels adapting to modern energy sources for better living standards. At the same time, on the macro- and meso levels the urge rose to preserve forests, and thus to lower the need for wood for the people. International treaties and pressure, and processes like desertification were important on macro level, while on the meso level one of the main concerns was to keep the middle class urban civilian happy. Both Pachauri & Jiang (2008) and Leach (1992) mark the moment when the meso-level starts to interfere the moment where the take-off phase evolves into the acceleration phase. The government has its stakes in accelerating the transition, thus develop fitting policy and infrastructure to facilitate the development which is going in the niches. The developing countries of India and China are the beginning of the stabilization phase, with most households having access to modern fuels and electricity. Although the transition started with the niches need for modern fuels, it are different actors on the micro-level being the last ones to fully adapt, namely the rural households with less economic prosperity. For more in-depth reading of this transition and specific examples read Pachauri & Jiang (2008) or Leach (1992). The main point is that even though the transition isn't fully complete, the transition followed a clear multi-level and multi-phase approach. It has hints of co-evolution as described by Kemp et al., (2007) in the fact that multiple processes on multiple levels at the same time were the driving factors for the transition.

Another good example of a successful transition is the transition in the Netherlands in water usage from surface water to pipe water and the improvements in personal hygiene (Geels, 2005). This was an essential transition, as death rates plummeted from 40/1000 to 10/1000 in little over 100 years. In this transition there were constant loops of cause – effect (hinting at co-evolution), the change was multilevel, had clear phases, and changed the system from one dynamic equilibrium to another. On the macro, landscape level there was the technological inventions for piped water. Later, the macro level had multiple developments going on, like industrialization, democratization, population growth, technological advancement and economic growth. All these combined made for more organization of the laborers, and the increase of their power. Meanwhile, the gaining of voting rights, a changing political landscape and the increased care for the wellbeing of the working class. On the meso, regime level, the doctors were the main actor, rather than the central government in the energy transition. Doctors gained increased knowledge of medicine and what causes disease and what doesn't. After they discovered the link between hygiene and disease, city governments adapted their ideas and implemented plans to improve water quality and availability. On the niche level it was mainly a factor of demand for improved personal hygiene and sufficient drinking water. Multiple cities developed a system for piped water independently. Besides, individuals gained more knowledge about the concepts clean and dirty, and began to understand the importance of hygiene. So it was a transition in which the niches (different cities and individuals) developed piped water systems (made possible by macro developments) and gained increased attention for hygiene, via the doctors and governments in the regimes. Meanwhile those people in the niches gained increased power through increased wealth and political change. All in all, the transition operated on different levels, all influencing each other, without one clear party to initiate and control it, a perfect transition to fit

within the described idea of transitions: based on the ideas of co-evolution, the multi-level perspective, a multi-phase perspective (not explicitly mentioned, for more information see: Geels, 2005) and the long term, irreversible change from one dynamic equilibrium to another.

3.2 The role of the central government

The level this paper is focusing on, and arguably the most important level of a transition, is the meso level. This is the level on which the central government operates. This is also the reason transitions are mentioned in this paper, as it focuses on the role of the central government. According to Cherp et al. (2011) the government should play a central role in making the transition. The reason the government is suitable to guide such a transition is because they are the actor which stands between the large scaled global/European processes and the individual/local level. Energy systems are defined as a clear example of a large-scale socio-technical system composed by a myriad of heterogeneous elements, working at different scales. Only a large actor like a central government is capable of keeping somewhat of an overview in such complex matters. Kemp (2010) agrees, and states the government should act as a process manager, being important for issues with coordination and orientation between departments and actors. Kemp (2010) describes the government should not *seek* to control the process, but rather should promote and facilitate change, transformation and evolution on different levels.

There are different tools the government has access to guide such a transition (Cherp et al., 2011). Ranging from taxes and funding to law enforcement to soft policy to public campaigning and so on. A central government could be a perfect bridge between the different types of actors playing in the transition arena. Verbong & Geels (2007) also argue that it is the central government who is really able to provide the rules and policies to start and guide a transition. Although a lot of attention has been going to the micro-level of the transition and the radical changes which can happen on that level (Rotmans et al., 2001), the real facilitator and enabler of those radical micro-level changes is the central government through policies and rules. Also the central government has access to large amounts of financial measures and large organizational power. Verbong & Geels (2007) state that although changes can happen on the micro level, the only way they'll break through is when those changes are supported on the meso (and macro) level. Main point here is that a transition cannot happen when the meso-level (and later the macro level) is not joining in the transition. Else, the initiatives are too small scaled too make an actual impact. The central government as main actor on the meso-level is usually established, and already has existing policy on the subject of transition. Thus the central government is relatively slow in changing and implementing policy. The multi-level perspective (Rotmans et al., 2001; SER, 2001; Verbong & Geels, 2007) clearly states that all levels need to join in the transition.

Rotmans (2011) and Verbong & Geels (2007) agree on the fact that there is a lot of ongoing dynamics on the regional and local levels. As stated above this level alone cannot facilitate a total transition and thus it needs support from the central government. According to Rotmans (2011) the main problem is the fact that the central government obstructing the energy transition, as stated before by Kemp (2010) the government shouldn't be controlling the process. One big issue is the fact that the old, established oil & gas industries have a big lobby on the central government (Rotmans, 2011). It is exactly this regime-level that is not only in this case, but in general the inhibiting factor in early phases of a transition (Rotmans et al, 2001). The main reason for this is the earlier mentioned established rules and policies. The regime level is the level of dominant practices and will react to new experiments in a 'reactionary' way, thus being slower in adapting to the transition. But as stated above, it is exactly this regime level which can be detrimental in accelerating the transition, this making it essential for a transition to complete (Rotmans, 2011; Leach, 1992; Verbong & Geels, 2007).

3.3 The current situation in the Netherlands

Right now, we are still in the take-off phase of the energy transition in the Netherlands (Rotmans, 2011; 2012; Ministerie van Infrastructuur & Milieu, 2012). According to Rotmans (2011) we have been in this stage for a little too long by now. The initiatives and efforts the government put in trying to let the transition take off were/are plenty. There were for example numerous plans (like the windmill farm in the Noordoostpolder, discussed in chapter five), studies (for example 'Verkenning energietransitie en ruimte; Ministerie van Infrastructuur & Milieu, 2012) and policy documents. Starting with the NMP 4, followed by numerous structure visions, on for example: wind energy on land and sea and the storage of CO₂ in the ground (for a more detailed description see: Ministerie van Infrastructuur & Milieu, 2012). So in a way, the transition started off quite good. There was attention for it and a lot of work was done to shape positive factors to set off the transition. There were 100s of millions of euros put into research and new policies, taskforces emerged and a transition agenda was written. The previous two governments have halted the progress though. Clear has become however, that the transition is coming by too slow (Rotmans, 2011). The central government has given itself a big role, but on the other hand a lot of local initiatives can be seen, which experience the central government as an obstructing factor rather than a stimulating one. As will be described in chapters four and five, local energy companies are starting to pop up more often than before. Rotmans (2011) argues that decentralizing the initiatives and stimulating the well-doing experiments needs to be more common to help the transition get on its way. The central government though, reserves a lot of work for themselves. They have stated 5 main subjects of attention (see: Ministerie van Economische Zaken, Landbouw & Innovatie, 2011) of which only one sub-paragraph is about facilitating local initiatives. The rest of the points are about actions the central government themselves has to take. More recently, in the Energy Agreement (SER, 2013A), the central government paved the way for a bigger role for local parties in the niche level. Main point here is that clearly the central government is shaping a big role for themselves (as stated in: PBL, 2014a). The PBL (2014a) states that, in an energy transition, there is a need for a 'strong' government which sets clear goals. They (PBL, 2014a; SER, 2013a) do acknowledge the efforts of other parties, but don't seem to take them serious enough to actually make facilitating the local ideas one of the main points of the policy. Kemp et al. (2007) also mention that the government is too much in 'control' of the transition, giving it more characteristics of planning and policy implementation rather than transition management. Furthermore, co-evolution in transitions is about a process of change which is always going on, without clear plans, goals, blueprints and terms. The same goes for sustainability, a key word in the Energy Agreement (SER, 2013a). This means, that the energy transition isn't maybe something the government can carry from situation a) to situation b), and that we reached *sustainability* when we have reached situation b) (Kemp et al., 2007). The government is initiating some kind of *change*, but that doesn't mean it fits in the description of co-evolution yet, and thus doesn't fit in the concept of transitions yet.

3.4 The next step?

So far, there has been pointed out that the Dutch energy transition is still yet to be made and furthermore there has been elaborated on the theory of transitions. The Netherlands have made clear that it is their goal to make a transition (starting with the NMP 4, 2001) and that it is their goal to initiate and facilitate this transition. When looking at this central government, it becomes clear that they put a lot of effort in the transition, but don't quite seem to relate to other parties good enough to make the transition going. Zuidema (2015) told us energy policies have a top-down tradition, and Kemp et al. (2007) remarked the control of the government also having more characteristics of policy implementation and planning theory rather than transition theory. Thus, after two chapters of theory, the next chapter will focus more on the practical side of things. The question is: what kind of strategy is the central government actually deploying and to what extent is it working out or not? We are taking a look at recent policy document and spatial plans which are part of the government's strategy in the energy transition.

4. Dutch energy systems: An overview of the history, characteristics and possible future.

This chapter will cover an overview of Dutch energy systems. It will start with a historical overview of how the energy systems came to be as they are. Next an overview of the current situation will be given. The last part of the chapter is about the future of the Dutch energy systems.

4.1 History of the Dutch energy situation

De Jong et al. (2005) made a historical overview of the Dutch energy systems. They divided the five periods in history. In this part those periods will be briefly reviewed. This historical overview is important because it explains the current role and position of the Dutch central government and under what circumstances this role was shaped.

The first period is the one until 1974. In the beginning days of energy policy there was actually very little (Verbong & Geels, 2007). The government did participate in the energy market, but the government had a reactive role; only whenever the market failed or there were other problems in the sector, the government reacted with policies. From the moment of the discovery of the big gas field in the province of Groningen and the rise of nuclear energy, the national government started to get more involved with energy planning and policy (Verbong & Geels, 2007). From then, the central government did realize that energy would become a more important topic in Dutch policy. The environment was hardly an issue during this period and the policy was mainly focused on facilitating and regulating the energy industry and making profit of the gas discovery. (De Jong et al., 2005)

The second period is the one from 1974 until 1986. In '73-'74 there was a big, worldwide oil crisis. This brought a shock upon the world. This was also the time the environmental reports of the 'Club of Rome' started to gain attention. In this period energy policy starting to be more of a diversification (oil, gas, nuclear, coal etc.) policy and the government started to get more and more involved (De Jong et al., 2005; Verbong & Geels, 2007). This period the first 'Energienota' (specific law on energy, 1974) by Ruud Lubbers was implemented and improved over the years, mainly focused on long-term planning and reducing energy use. These were the times when reigning politicians believed that they could shape society by socio-economic policies (DeLeon & DeLeon, 2002). Government took more control of the sector and wanted only one national company to be responsible for all energy. This increase in government control mainly emerged from an increase in market failures. Every time the market failed (monopolies, rising prices, too much pollution etc.) the government took a little bit more control on that specific area. In the end this led to a government becoming more and more influential in the energy sector (Verbong & Geels, 2007).

The third period is the one from 1986 until 1996. This period was characterized by a huge increase in attention for environmental problems. The accident in Tjernobyl in '86, the report 'our common future' (or: the Brundtland-report) (World Commission on Environment and Development, 1987) and many other factors raised awareness. Society, individuals, politicians and companies all had great worries. The idea was (and is) that the current way the energy sector was shaped was the main catalyst for environmental changes. There was a lot going on in Dutch policy in this period. This included great, ambitious plans including lots of regulations and long-term ideas for the energy sector. This policy mainly focused on goals to achieve a certain percentage decrease in CO₂-emission. This period international treaties and regulations started to play a role for Dutch policy. They even made an Environmental Action Plan in 1989 to strengthen their actions (VROM, 1989). This period meant the start of renewable energy sources like wind energy, solar energy, energy from biomass, and energy from rest-heath. The term 'sustainability' became a rising star. In this period there was a battle going on for control of the sector between market parties and governmental organizations.

Market parties didn't like the government regulating the sector and the government didn't like the market parties increasing prices and polluting the environment (De Jong et al., 2005).

The fourth period is the one from 1996 until 2002. In this period there was an interesting shift in policy. The third Energy note was implemented and that meant a big shift in the actors controlling the energy sector (De Jong et al., 2005). This was caused by political ideas of liberalization and privatization. The central government thus shifted ownership to

Box 1: Privatization (freely from Sheshinski & López-Calva (2002))

Privatization is the process of shifting ownership of companies from government to market parties. The second half of the 90's was marked by a big trend of privatization in both developed and less developed countries. The main objectives were: Increasing efficiency and creativity through introducing market influence and competition and relieving the government of the burden. Success was not always achieved and thus the government wasn't always able to fully privatize their companies.

market parties and hoped the influence of the market would give the sector a lift in terms of efficiency and competition (see box 1). This idea was strengthened by influence from the EU (Verbong & Geels, 2007). Still, the discussion of the 'ownership' of the sector was an ongoing one. There were mixed reactions on the chosen policy direction. Point of the discussion was the balance between sustainability and economic development. The government did focus to on sustainability and made some strict goals to be achieved. Their motto was: 'Market where possible, government where necessary'. This meant that wherever the government felt they could let control go the market gained influence, for example in exploiting energy towards customers. In the end the policy proved to be quite successful but not without problems. This ended up in policies being rewritten over and over again, increasing complexity and understandability. Discussion about privatizing the energy sector opened up again after large-scale power-outs in California in 2000 and 2001 (Further reading on this power-out and the consequences: Wolak, 2003). Since then reliability became the main focus of debate. The government decided that first of all everybody should have access to power at all times. This meant that the debates about ownership and environment became slightly less important (De Jong et al., 2005).

The final one is from 2002 and still going on. The main focus of policy in period is 'transition policy'. The previous period raised a lot of questions on how policy should be shaped and how the energy sector as a whole should look like. These doubts made policy makers realize energy policy should be about long term security and sustainability and not about short term incentives. This is where transition policy comes in. All aspects of the sector were revised and rewritten in the policy document that started this period: The Energy Report of 2002, leading to an energy transition process. Right now, the Dutch government is still busy with this incorporating this transition in their strategy (Rotmans, 2010; Rotmans et al., 2001).

4.2 Current organization of Dutch energy systems

In this part an overview of the most important legislation, policies and actors in the Dutch energy system will be given. This overview is given to illustrate the current, complex situation the Dutch government operates in when trying to make progress with the energy transition.

Policy and legislation creation is in the hands of different departments and government-linked institutions (IEA, 2008). Main departments involved are the department of Economic Affairs (the actual energy policies) and the department of Infrastructure and Environment (more concerning the spatial side of energy planning). The main government organization handling energy affairs is *De Energiekamer* (The office of Energy Regulation). Their tasks include issuing licenses for production and supply, creating a framework of institutions for the energy market to operate in (including regulations, norms etc.), and making sure there is some sort of competition on the Dutch energy market. They are thus part of the NMA (the Netherlands Competition Authority). These organizations are in essence fully government subsidized. There are various other (governmental) companies

concerning different part of the Dutch energy systems. For example: TenneT (electricity grid), SenterNovem (promoting sustainability), Agentschap NL (executive organ of department Economic Affairs), the energy research center and countless others. The main player between all these institutions, policies, and regulations is the Dutch department of Economic Affairs (De Jong et al., 2005; IEA, 2008).

When looking at the current Dutch energy sector, a highly privatized sector can be seen (Ministerie van Economische Zaken, Landbouw & Innovatie, 2011). After all the changes in the past between control of the state and control of private parties European legislation dictated that energy markets need to be free and thus privatized (see chapter 2.1). The companies however, are not all into Dutch hands. Some of the production and providing companies are of foreign ownership. In 2011, the ownership (and responsibility) of the network grids transporting the energy in the Netherlands was removed from the companies actually producing the energy. The ownership is now in hands of public shareholders. The main factor influencing this European policy is the fact that consumers should have some freedom in choosing who provides them with energy and to repel monopolies. Rotmans (2010) does remind us that even though the European competition policy is applied, still only a small number of energy companies play a very big role in dictating what is being done. The supply-side of the energy markets is way more influential than the demand side. It is also important to note however that although it would be the ideal vision of Europe, the energy market is not entirely free. This is because of physical reasons (there is only one electricity-grid needed in the ground for example, multiple grids would be ludicrous) and policy-related reasons, not just anyone can start an energy company (For more information: De Jong et al., 2005). The energy grids in the Netherlands are thus owned by governmental organizations. This means on the one hand that there is some sort of supervision on the provision of energy but on the other hand means that the grid is not entirely free to access for everybody who wants to.

If you want to start your own energy company you have to get permits to access the grids. So in the end the Dutch government does still have a big hand in deciding who can access the grid and who cannot. The Dutch energy grid was initially designed in a one direction traffic way, from centrally produced energy to the consumer (SGGV, 2011). According to the SGGV (2011) and the VNG (2013) the legal system on the subject is complex. The process of starting an energy company, accessing the grid and getting all the bureaucratic paperwork done is not easy. The current laws, policies, tax and subsidy systems are experienced as limiting factors for local energy initiatives. Although not everybody can enter the grid just like that, overall there has been an increase in local energy initiatives, and the Dutch government is trying to stimulate them (Ministerie van Economische Zaken, Landbouw & Innovatie, 2011). Dutch local energy production started in the early 1990's (VNG, 2013). Determining factors were the increasing attention for sustainability and the increasing need for an independent energy supply. It started with civil individuals and groups starting to exploit windmills. Right now, only a small portion of the energy in the Netherlands is produced decentralized/locally. Clear numbers for totals are hard to find, but in comparison: local windmill farms have a capacity of about 95mW, while national windmill farms have a capacity of about 2.200mW, making local wind only account for 4% of the produced wind energy. There are about 300 local energy producers/corporations in the Netherlands in 2013 (PBL, 2014b; VNG, 2013). According to the PBL (2014b) The Dutch government has big plans for local initiatives to develop and needs them to achieve their goal, but struggle with actually facilitating local corporations to develop and grow.

There are multiple laws in the Netherlands writing about energy policies, the most important ones being the Elektriciteitswet 1988 and the Gaswet (Energiezaak, 2011). The government does provide certain legislation to protect the consumer and make sure the energy companies have at least a small part of their production as renewable energy by setting norms. The main concern of market parties is to make money, while the main concern of the government is to provide a stable and sustainable energy flow to the consumer. This is why the energy market cannot be laid in the hands of the market

completely, because those goals could conflict. This also explains the current strategy of the government (mainly the department of Infrastructure and Environment): 'Market where possible, central government when necessary' (Ministerie van Infrastructuur & Milieu, 2011). This is comparable to the strategy being followed in the early 2000's (De Jong et al., 2005). The influence of the government is mostly needed where market failure happens (As described by Sheshinski & López-Calva, 2002). It is important that the government is clear and consequent in their policies when trying to tackle market failure. According to the department of Infrastructure and Environment (2011), only a strong government which keeps its back straight can provide decent frameworks in the energy market. In the Netherlands the decentralized and privatized trend, described as: 'hollowing out of the central state' (Zuidema, 2015, pp. 18), makes it hard for the central government to take this leading role. The Netherlands have different governmental layers with sometimes overlapping tasks or conflicting stakes, these issues were addressed in chapter 2. And as stated before private companies play a role in the Dutch energy market as well. In the end, the history of the energy system, the number of different governmental layers and the combination with the market parties, make for a complex situation in which it is hard to get an actual change going. The concept of path dependency is very important here. The way the Dutch energy system historically shaped, has a lot of influence on the situation we have today. The current infrastructure, rules and policies are all based on a system which encompasses fossil fuels (Rotmans, 2011) and thus the system is not easily changed into a new system, which fits new energy sources. Furthermore, the array of different parties, different government layers and mix of public and private parties is also caused by the historical national and international developments, and make the Dutch energy system a complex one which is difficult to change overnight.

4.3 The future of the Dutch energy balance

In this part an exploration will be given on the future of the Dutch energy balance. Current problems and dilemmas will be addressed, as well a future views from different reports and the feasibility of those future plans. Previous paragraphs described the complex situation the Dutch government is in regarding the energy sector. Different actors and stakeholders on different scales and power levels with the central state in the middle of it all make is extremely hard for the central state to implement their plans. The rest of this chapter will focus on possible solutions of the energy problem and try to give some future prospects for the Dutch government.

Problems

In the Netherlands the traditional energy companies still shape the Dutch energy systems (Rotmans, 2010; Rotmans, 2011; Van Alem & Wilbrink, 2012; Van Haga, 2012). Mainly because of the hegemony of the traditional energy companies there are a numbers of reasons to be distinguished that prevent transition to sustainable energy in the Netherlands. First, like stated before, the central state makes €10 billion a year from natural gas profits (Rotmans, 2010). Second, according to Rotmans (2010), the influential parties are also the ones who invested most money in the current energy infrastructure. The same influential persons (making their money with 'classic fuels) are also the ones occupying the 'knowledge forum' initiated by the Dutch government. Furthermore the international policies concerning emission rights provide too few incentives for companies to actually reduce CO2 output. Also there seems to be a "lock-in" situation: all current infrastructures (cars, grids, houses) are suited to work with conventional fuels, not (yet) with renewable fuels.

Solutions

According to the IEA (2012), A lot of the 'solutions' given are either end-of-pipe solutions, unable to compensate for the full scale of the problem, or need major technological breakthroughs before being able to be competitive. Furthermore the price of fossil fuels is lower than that of 'green' fuels. This is mainly due to the big energy companies still making too much money with fossil fuels so making it unnecessary for them to invest in green fuels. The government however does subsidies development of green energy plants. Van Haga (2012) argues that it is probably for the better to stop

with that. He states that it is only costing the government a lot of money, investing in unprofitable energy sources, while disturbing the market and reducing the incentive for companies to invest in renewable energy sources as they are provided with money anyway. The better solution for this one would be to invest it in research to make green energy sources financially more attractive (ANP, 2012; IEA, 2012). This could and should not only be done by the government. Main point here is that a transition in public attention is needed to facilitate such research and development (more in chapter 3). When public attention is achieved, it is expected that private parties start innovating by themselves, without help/constraints from the government. A good way to achieve this could be to reflect the *real* costs of fossil fuels in the energy price (IEA, 2012). This means taking into account the ecological footprint the generation of fossil energy leaves behind. According to the IEA report a big chance also lies in a more efficient way of producing, transporting and using energy. The ministry of Economic Affairs (2011) however, states in their Energierapport 2011 on the one hand that a broad transition is needed, but on the other hand that the focus will be on wind energy and biomass. This focus is remarkable as they do acknowledge a broad transition is necessary. A broad transition will not be achieved when focusing so heavily on a few options.

The future

According to the National Environmental Plan (SER, 2001) and De Jong et al. (2005) the real keyword of Dutch energy policy is '*sustainable development*' and the way to achieve it is via transition management (for more information about the theoretical ideas behind transition management see: Rotmans, 2010 and other works by Jan Rotmans et al. (2001 for example)).

The Dutch government worded their strategy as following: according to the National Environmental Plan (2001): *"The government doesn't view transitions (to a sustainable energy system) as an issue of the central state alone, but as a challenge for the whole society. But the government does have a clear and strong leading role in this transition"*

From this quote it seems there is a discrepancy between the wordings of the central government and their actual strategy. Although this document is from 2001, it is a strategic plan going as far as 2030, still making it relevant. This is a recurring theme in this research: the way the government presents their strategy (multi-level transition) versus the way the governments executes actual strategy (top-down/centralized policy implementation).

When reviewing the IEA said about the Netherlands the following quote emerges (2008, p.15):

"The government has recently laid out an ambitious energy and climate agenda under its Clean & Efficient program and its Energy Report 2008. This agenda calls for a 30% reduction in greenhouse gas emissions by 2020 from 1990 levels, 20% renewables in the energy mix, annual energy efficiency improvements of 2% (double the current rate) and completing a big step in the transition towards a more sustainable energy system by 2020. Coal-fired power plants with carbon capture and storage (CCS) are foreseen to play a very prominent role in the country's energy mix in 2030. The future for nuclear, which provided 3.5% of electricity in 2006, is less clear."

This goal and strategy has been updated into the following recent recommendation for the Dutch government (IEA, 2014, p.14): *"The government of the Netherlands should (...) ensure timely implementation of the Energy Agreement for Sustainable Growth by establishing a process for regular progress review in co-ordination with all stakeholders involved"*

For even more information on the future of (Dutch) energy systems have a more detailed look in for example: Rotmans et al. (2001), the National Environmental plan (2001), IEA documents (2008+2012+2014), De Jong et al. (2005), the Energierapport 2011 (2011) and numerous other authors and reports describing their view on the subject. The main remark in all documents seems to be that a change is needed and that the Netherlands and the world need a transition to a more renewable, secure, reliable and affordable energy system.

5. Dutch energy policy in practice: policy documents, cases and reactions

In this chapter the actual strategy of the Dutch government will be analyzed. First an exploration of an external overview by the IEA of the Netherlands will be given, to see an international view on the energy policy of the Netherlands. This review will be compared to a national review by the Dutch PBL, to analyze whether international and national reviews of the policy will come up with the same conclusions on the Dutch policy. Next the earlier mentioned Energieakkoord (SER, 2013a) will be reviewed, to reveal the strategy of the central government. This policy document is recent, and currently leading in the way the energy transition is happening in the Netherlands. The document will be analyzed and reactions to the agreement will be collected and explained. Besides all the agreements and documents, the central government is busy with actual spatial plans in trying to achieve their clean energy goals. The main focus of these plans is the construction of big windmill farms on land or at sea near the coast. The government has made a strategic plan, in cooperation with provinces, and is busy implementing these plans and constructing windmills. The way of planning these plans will be explored, as well as the reactions to those plans, which have a big impact on the planning process and the implementation.

5.1 An international and a national review of Dutch energy policy

The IEA is the International Energy Agency. They are an autonomous organization with almost 200 experts, consisting of 29 member countries (mainly in Europa and Northern America). They work to “ensure reliable, affordable and clean energy for its 29 member countries and beyond.” (IEA, 2014). Not only do they keep statistics of member countries, they also review their policies, follow the latest trends, perform in-depth analysis of energy projects and advise governments and other parties alike. They publish numerous articles and reviews every year about the state of the energy transition (on multiple scales) and are said to stand central in the global energy debate. Their four main points of the organization are about: Energy security, economic development, awareness and global engagement. The Netherlands is one of the founding members of the IEA and the IEA has been important in the energy developments of the Netherlands since the founding in 1973, advising and analyzing the decisions made and, in the beginning, making sure there would be a reliable energy source, since the IEA is founded as reaction on the oil crisis in the early 70’s. For a full history review of the IEA see their extensive works on their website (www.iea.org/aboutus/history).

The PBL is the Netherlands Environmental Assessment Agency (or the Planbureau voor de Leefomgeving). According to their website (<http://www.pbl.nl/en/aboutpbl>) the PBL “is the national institute for strategic policy analysis in the fields of the environment, nature and spatial planning.” The PBL is an independent research agency which is part of the Dutch government, mostly tied to the ministry of economic affairs. The agency reviews all kinds of policy, tracks its progression and performs studies, analysis on these policies. In the end those publications are used to inform and advice the Dutch government on their policies and the way they work out. In the end the goal is to improve the policies and help the government achieve the goals they have set.

The IEA did a large-scale review of the Dutch energy systems and policies in 2008. Parts of this review have been described in previous chapters. But 2008 is already 6 years ago, and in the meantime a lot happened in the Netherlands, which was the trigger to write and new review of the latest developments in the energy systems. Of this review an executive summary (IEA, 2014) is made which addresses the main points of interest for the Dutch energy policy. Not only did a lot happen in the Netherlands, but also in terms of global processes like the economic crisis the country was being

affected. In the past 6 years, the Dutch energy systems have become more open, more liberal and more competitive, and the country is making some form of progress towards lowering greenhouse gas emission and empowering sustainable energy initiatives. According to the IEA (2014) the Netherlands act as a central hub in the European energy network and are leading in knowledge on the functioning of an energy system. This system though, is mainly operated by the central government, in a centralized way. The PBL on the other hand, continuously reviews different parts of the policy of the Dutch government, not limited to energy policy. They place the reviews they perform in a broader spectrum of the spatial living environment. The biggest topic on which they write is climate change (<http://www.pbl.nl/en/publications>), and the way they view the Energieakkoord and Dutch policy is for a big part linked to climate change, and according to PBL (2014a) they link the (energy) policies to the actual physical environment, while also trying to look for reasons why different policies have different impact and why they succeed or not.

The Netherlands made progress with a new energy agreement, which is said to be consensus-driven, bottom-up and is supported by large parts of the community (IEA, 2014). It fits the needs of many different parties and stakeholders and promotes security, competition and is a big step towards a sustainable energy system in general. The PBL (2014a) agrees on these points, adding that the current change has to come from the society now more than ever. Supporting that point, the PBL also states that it is not only a responsibility for the central government to make sure all the stakeholders are involved and that communication is ensured. Instead, they put responsibility and challenge in the role of lower governments, smaller companies, and local groups.

One of the main goals of the government in the Energy Agreement is to support local initiatives, and give them possibilities to start their own energy companies and thus help in the energy transition (IEA, 2014), which fits nicely into the transition idea the government has. The goals of the Netherlands are said to be fine, but the IEA acknowledges that there is some work to be done to achieve them. One of the points of advice of the IEA is the following: *“The government can maintain stability up to 2020 by ensuring a process for the progress review and for the co-ordination of the actions set out in the Agreement through a continuous dialogue with all stakeholders involved.”* (IEA 2014, pp. 11). The PBL (2014a) build further on this point by again show the ambiguous role the government has in this energy transition. They highlight that on one hand it is important that the central government gives enough space to the local parties so they don't become a nuisance. On the other hand it is a possibility that different (local) market initiatives can be conflicting with each other. As described in chapter 4, the Dutch government has a history of regulating the market when conflicts arise, and chapter 2 highlighted the importance of a central government being present when the market fails. So this means the central government has a hard time positioning itself, as it is balancing on a thin line between pulling too much power to itself and making sure they pull enough power to themselves.

The main point here is the mentioning of involving all the stakeholders involved, which is essential when trying to perform a transition. This confirms and complements the recurring view on the strategy chosen by the Dutch government. As described in chapters 2 and 3, a multi-level, co-evolutionary, (partially) bottom-up approach is needed to perform a successful transition. In the case that the central government would involve all the stakeholders involved, the central government clearly needs to involve for example local energy initiatives and people (in)directly affected by the plans of the central government. An example of involved stakeholders could be people living near potential windmill farm locations. The only problem is, where does the responsibility of involving all the stakeholders lie? Both the IEA (2014) and the PBL (2014a) seem to agree to a certain extent that this responsibility lies with the central government. But as we have seen in chapter 3, it is important that the change comes from the bottom as well. When taking parts from chapters 2 and 3 and reviewing the reviews on the Dutch energy policy, some links can be seen that uses the theory from

chapter 2 and 3 to explain the complex situation the government is in and the change they have to make to achieve their set goals for 2020 and in the end perform the actual energy transition.

A last, point of critique/attention on the policy the Netherlands employ is the fact that subsidizing clean energy may result in some form of disturbance in the current 'open' energy market of the Netherlands. What this could mean in the bigger picture of the transition, is that bottom-up initiatives which get less or no funding, could have a harder time initiating than initiatives by the central government. Furthermore the IEA (2014) warns that the state needs to anticipate on the depletion of the gas field in Groningen to make sure there will be a secure and stable supply of energy for consumers and industries during the transition. The central government does acknowledge this point in their Energieakkoord (SER, 2013a) and state the need to rely on other sources as well. It might be that having clear top-down plans and a selective funding system could prove counterproductive to new initiatives, but time will have to tell.

5.2 Het Energieakkoord (the energy agreement)

The Dutch government, as described in chapter 4, is currently busy deploying a new *Energieakkoord* (energy agreement) to set out the strategy in the energy transition for the coming decades. This agreement is being developed by the central government in cooperation with companies and local parties. It is composed by the SER (2013A) and is in the process of implementation. A few main points are addressed: They want *more* cooperation with local parties and the keywords are *growth* and *sustainable*. They seem to be mainly addressing *what* they are planning to do instead of actually doing something (More information: SER, 2013B). A read-through of the agreement learns that there is no lack of nice words and good plans. The IEA views the Energieakkoord as an excellent first big step towards achieving the goals set for 2020. In the mainstream media however, there were a lot of mixed reactions on the agreement. A look at the website (SER, 2014) gives an overview of a lot of positive reactions:

- The agreement boosts employment rates
- The agreement offers clarity for the partners and the people
- Countless organizations (from different branches) and individuals support and sign the treaty
- More cleaner energy through the agreement (Greenpeace approves)
- The agreement is deemed necessary for growth, economic arguments and a look to the future.
- Ministry of defense: "Energy agreement *gives/provides* energy"

There is, however, also some critique on the agreement. This critique was not as popular as the compliments for the agreement. Even most people/organization whom criticized the agreement were to some extent positive about the historical value of the agreement, and were glad that the government had some form of plan (for example; Eickhout, 2013). Eickhout is member of the Groenlinks party, note that they are not part of the government signing the agreement. He sees the agreement as a step forward, but a small step. He criticizes the fact that the agreement doesn't really look farther then 2020. The government set their goals and it is good that they start to work towards them, but what are they doing after the goal has been achieved? Eickhout denounces the lack of actual long-term vision. He also writes that the goals set aren't even that ambitious and large scaled as they could be. The socialist party of the SP and the liberals of D66 agree with Groenlinks. Meanwhile, there is also critique from different directions. Both the PVV and de D66 criticize the lack of financial planning in the agreement. There are a lot of 'open ends' in the agreement of which the costs are unclear still. The PVV goes even further by stating the agreement is way too expensive anyway and that they fear the people will pay the price. Numerous different people come with different costs for the agreement, for example Wolters (2013) stated that the signing parties have no idea of the actual costs, and use manipulated numbers when presenting the agreement and the plans which come with it. The EIB (2013) calculated the whole plan and come with their own conclusion: there will be a net loss of 6(!) billion euros, and the agreement probably produces 5.000 less jobs

than stated by the government. Gijs Den Brinker from the Financial Dagblad (2013) argues that these are the 'hidden' costs the Dutch government (indirectly the people) pays for a cleaner energy system.

In the agreement itself, looking specifically at the points about decentralized initiatives, the SER (2013B) regards more room and freedom for decentralized parties one of the ten main subjects of the agreement. As we have seen earlier and will see in 5.3, the government used to be in the way of decentralized parties to deploy their energy activities they wanted. In the agreement the government explains their plans on how to make it easier for small parties to produce and distribute their own energy. Main points which are work in progress are for example:

- Make it easier for local producers to get permits
- Adapt spatial plans to fit local demands
- Renew building legislature to fit initiatives for energy production
- Shorten the time to attach local producers to the net.

Positive is the fact that the central government acknowledges the local demands and initiatives, and wants to incorporate them in their plans. What is important to mention is however, is that the government rarely actually makes a mention of what exactly is going to happen to make local initiatives easier to deploy. The main bullet points in the explanation feature terms like: "Research has to be done about..."; "analyses will be made..." For example when mentioning they are helping local initiatives, they state that "*local initiatives (...) will be supported with knowledge, information and material, where there will be connection to local infrastructure and there will be constructive cooperation*" (translated from SER, 2013B, pp 81). Nowhere is stated what kind of knowledge will be shared, who will share this knowledge, what infrastructure they mean to connect or what is exactly meant by a constructive cooperation. A lot of the agreement is thus still open to some form of interpretation. The government has to prove that their promises and ideas will be executed in a satisfactory way for all parties. Even the PBL (2013) writes that a lot of the agreements and ideas of the Energieakkoord need further elaboration. They argue that the only way the Energieakkoord will be successful is if this elaboration is going to be done securely, and in cooperation with different parties and experts. This concept is supported by the parties of the CDA, the VVD (ANP, 2013). Also Shell states the energy agreement is a good step, but there is still work to be done for the future (Shell, 2013). Furthermore the IEA (2014) and the PBL (2014a) support this view, that the filling in of the details of the energy agreement is crucial in a successful implementing the policy. Constant evaluation and fine-tuning with all stakeholders is deemed necessary for a successful agreement. This fits within the multi-level and co-evolutionary ideas of transition theory in combination with the advantages described by bottom-up policy implementation described in chapter 3.

The process of implementing the Energieakkoord is facing some difficulties. It has been over a year since the plan was presented, in the meantime some parts of the agreement have been implemented, but there seem to be some struggles. According to the NOS (2014) some deals aren't as easy to deploy in practice, as they seemed to be on paper. For example, just like the IEA warned, there are some difficulties with competition rules: the government can't just shut down some (polluting) power plants in order to subsidize windmills, without getting checked by the Authority on Competition. The definition of biomass is still argued about, and the government faces difficulties with local parties protesting against the plans for windmill farms. In the latest progress evaluation the government also addressed these problems, as well as problems with communication support and synchronization between different parties involved in the agreement (SER, 2014). Interestingly enough, nowhere is stated how exactly the government is going to solve communication, support and synchronization issues. And according to the evaluation, 139 of the 159 parts of the agreement have already been initiated in some way, making it look like the implementation of the agreement is almost completely finished. Which is misleading, as even small parts about which only an exploratory starting deal has been made, or on which the minister sent a letter to the parliament, is already checked as 'started' and being in-progress.

There are a few points which are described very clearly in the plan though. For example they are planning to standardize the costs for local energy production (and consumption) to access the net, as well as standardize the procedure for joining the net. Besides, the costs for producing for the net and consuming of the net are being lowered, for all types of producers and customers, with the focus on making it easier and cheaper for local initiatives to access the net. However, exact amounts of discounts are not mentioned in this case. An exact amount which is mentioned is a tax discount of €0,075/kWh. This discount is specifically meant sustainable energy produced by local co-operation and consumed by the local market. According to the PBL (2014b) a large step has to be made in formulating actual goals to facilitate the local energy initiatives. The government is putting a lot of trust in local initiatives to develop, and counts on local initiatives to help in achieving the goals for the energy transition. In the meantime however, we have seen that the central government could prove to be a nuisance (chapter 3.2) to local parties instead of a facilitator. There could be different reasons for this, according to the PBL (2014b) the legislature is an important limiting factor in the growing of local energy companies. This in combination with fairly slow returns on investment, a lack of active involvement and the providing of decent information are all factors which influence the current amount of local involvement in the energy sector.

To wrap up, the new energy agreement seems to be step in the right direction. The government has signed a plan in which they have a lot of ideas for a more sustainable energy system. Critique however, comes in the form of lack of long-term vision and unknown costs of the agreement, which are feared to become a lot higher than anticipated. When looking at the transitional and policy implementation side of things, the ideas behind the plan fit really well with a multi-level (transitions) and hybrid (policy implementation) approach. But the lack of long-term vision, the setting of non-ambitious goals, the focus on windmill farms, and the centralized and top-down way of designing the agreement makes clear that the actions and the words of the central government are different from each other.

5.3 Centrally and top down plans in the Energy Agreement

The goal of the paragraph is to highlight one example of an actual plan implemented in order to achieve the energy goals set by the energy agreement. A windmill farm is chosen as that seems to be one the biggest goals for the central government to transition to green energy while at the same time producing a lot of media attention and all kinds of reactions by local parties. One example will be briefly covered by explaining the planning process involved. After this plan is explained, the research will continue about the resistance against other large scale windmill farms planned to be build or already under construction by the central government. The big windmill farms are all planned in similar fashion, thus the planning process remains the same, while producing the same kinds of reactions/resistances all across the country.

Introduction

The example being described is the case of a big windmill farm which is built in the Noordoostpolder, near the town of Urk. Urk is a village with about 18.000 inhabitants, and is a historical and traditional village, the only one in the province of Flevoland. The village houses a lot of monuments which are to be protected according to the law. A lot of tourists visit the village. A windmill farm will be built as close as 1,6km from the historical center of Urk. The windmill farm will consist of 86 windmills, capable of producing 1, 4 billion kWh of electricity per year. This is enough to supply 400.000 households in the Netherlands with green and sustainable energy. The windmills are placed in a region where about 50 windmills are standing

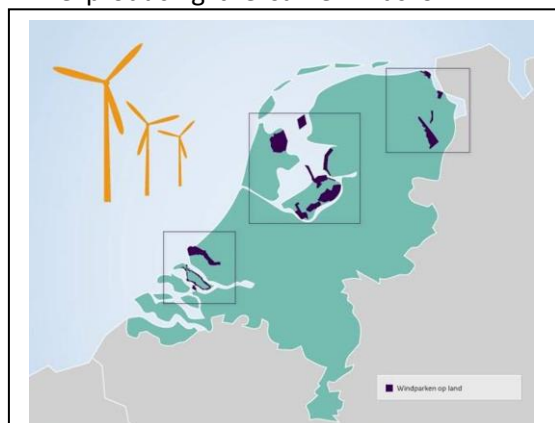


Figure 2: Plan locations of big windmill farms (Rijksoverheid, 2014)

This map shows the 11 locations which are appointed by a deal between the national government and the provinces. All locations are said to have “Lots of wind and little people (Rijksoverheid, 2014)”.

already, a big concentration of windmills on land in the Netherlands. Along the “Westmeerdijk” there are already about 50 windmills on land. Those windmills are planned to be removed, in favor of 86 new windmills on land and on sea. According to the Volkskrant (April 2014) this windmill farm is to be one of the prime examples of Dutch energy policy. It will be the first (of many) ‘mega’ windmill farms to rise in relative thinly populated areas in the Netherlands, mostly around the IJsselmeer, in the southwestern part of the Netherlands and in the (north)eastern part of Groningen (see figure 2).

Planning process of the windmill farms

As stated in the introduction, the plan about windmills in the Noordoostpolder was designed with an “inpassingsplan” (Ministerie van Economische Zaken, Landbouw & Innovatie & Ministerie van Infrastructuur en Milieu, 2010). With this kind of plan, the central government is the one in charge of designing and implementing the plan, while also being the one responsible for the permits and the funding of the plan. Although an EIA was made, it was the same government which made this EIA that was the one who needed to judge it, which is remarkable to say the least. In this EIA a lot of factors were taken into consideration, but the factors which were researched, and the norms to which they were tested, were also formulated by the central government. All in all, this specific plan is comparable with other windmill farm projects (SER, 2013a) and bears all the characteristics of a centrally planned, top-down project (as described by, for example Ryan (1995), Matland (1995) and Prud’Homme (1994).

Also, the “inpassingsplan” overrules existing plans made by municipalities. The plan states that the local government doesn’t have any right to change the plans in the area for the next seven years. This means the central government has given itself a lot of power in deciding what happens on the locations where the windmill farms are planned. The plan also states that it is a product of a joint venture of the involved departments, farmers with big companies and an energy company. This means there was no coordination or cooperation with the municipality or local citizens at all. The actual location was already set in 1996, after which the province was forced to incorporate the location in their spatial plans; meanwhile the local parties were not informed. Furthermore, there was only one actual moment of officially protesting against the plan, which is said to be publicly announced. A total of 693 official amendments were handed in during this moment. According to Hoving (Rengers, 2014) the local citizens tried everything to amend the plans, but the central government just didn’t listen, and continued with implementing the windmill farm.

Resistance to windmill farms

In the case of the windmills in the Noordoostpolder, inhabitants, local governments and general opposition of windmills have gathered in the group *Urk Briest*. This group works together with other groups in the region trying to protest against windmills (e.g. Tegenwind & Stichting Rotterdamse Hoek). This group enlisted a couple of reasons why they oppose the windmill farm. The most important reasons for this article are about the process in which the windmill farm was planned. Reason 3 + 4 (translated from www.urbriest.nl) say that the local inhabitants are not being heard at all in the process, and that they are being fooled. Not only didn’t they have any participation in the planning process, they aren’t even informed properly about the plans and the impact of the plans. This fits within the theory of policy implementation, as for example described by De Vries (2000). Lack of involvement from local parties, which do face the disadvantages of the project, generally raises resistance. The group Urk Briest mentions an ‘undemocratic’ way of working, and is amazed by the working ways of the national government. Besides, the group states that they are being fooled. They mean that the government was too positive in their sketches of the plan area and the impacts the plan will have. According to Urk Briest the windmills are taller than drawn in sketches, they are close to the village than ever and there are more windmills planned than expected. Furthermore, the windmills are said to make more noise than the government states and have big impact on the local environment and wildlife. Piet Reinders from Stichting Rotterdamse Hoek (Rengers, 2014) supports that view and states that all forms of government put everything aside to plan and build the windmill

farms. Most important for the government is achieving their goals (the 14% sustainable energy goal for 2020 in this case) and the negative impacts of the windmills are being unevenly distributed amongst the local inhabitants. Besides the group Urk Briest, there are multiple different groups opposing windmill farm plans in different locations in the Netherlands. The different windmill farms in different locations in the Netherlands are planned in a similar way as the windmill farm near Urk, thus creating the same kinds of reactions all across the country. According to Rengers (2014) and RTL nieuws (2014) there are over 100 organized groups in the Netherlands protesting against windmills. Besides these organized groups there are numerous individuals, political parties and wildlife organizations. The organized groups tend to arise where there are large windmill farms planned, as can be seen on the map in figure 2. All these locations for windmill farms have at least one organized group opposing the windmills. Here are some examples of groups opposing windmills and their goals/background:

- “Stichting Don Quichot”: Action group dedicated to prevent any windmill from being built in the Friesland side of the IJsselmeer. The action group seems to consist of mostly elderly white people trying to protect their view, and the village of Makkum. Besides, multiple arguments about the environment, the fishermen and the maritime services are given to support their case. They already did some public action to gain attention for their case by closing the Afsluitdijk in April 2014 (<http://www.grootsneek.nl/102991/don-quichot-legt-verkeer-afsluitdijk-plat/>). Interestingly enough, their plans are supported by the local governments, like the municipalities of Sudwest-Fryslan and Hollands Kroon. The windmill farm plans are supported by the national government and the provinces. The resistance of the municipalities looks like a discrepancy between the different layers of government.
- Tegenwind n33 (<http://tegenwindn33.nl/>). This is an action group in the province of Groningen, protesting against the construction of windmills nearby villages. Main points of interest are the noise pollution which will be generated, as well as the lack of listening by the governmental plan-makers. According to their website the government says they listen to the inhabitants and review their plans based on their opinions. However, the reviewed plans are received as being even worse than the original plans, which makes it seem like the government isn't listening as closely as they say they do.
- NKPW (<http://www.nkpw.nl/>). The NKPW is the Nationaal Kritisch Platform Windenergie, or the National sceptical platform on wind energy. It is platform raised by scientists, who want to prove that wind energy cannot be the solution to solving the problems in the energy sector. Their main goal is to provide truthful information about windmills to the larger public. They have contact with politicians on different scales and local parties opposing windmills. A scan of their website shows that their information is very one-sided to be as critical as possible towards wind energy. They write a lot about technical aspects, which aren't that applicable for this thesis, but they also gather much information on juridical aspects of the planning process of windmill farms and topics like subsidy structures.
- PVV. This political party seems to be the only one on the national and the provincial level to oppose the plans of the government on those levels. A quick search learns that all local factions of the PVV are actively protesting against windmills in their provinces, and the national part of the PVV is protesting in the parliament. Main point of protest is the fact that wind mills are said to be too expensive, and need too much extra funds to be able to operate. An example of this protest in the province of North-Holland (e.g. ANP, 2014). The party asks the government to actually listen to the protests of the people and redesign the plans based on the opinions of the people. While the party is notoriously known for protesting against everything, they might have a point in wanting the government to listen to the local people before they make plans which have such impact.

Those four groups are only a small selection of people opposing wind energy. In an ideal transition (Rotmans et al., 2001), the local groups would not be opposing the transition in process. This can mean that either the way the government is performing the transition is raising resistance or the

actual content of the strategy is raising resistance. When reviewing the critics on wind energy and the energy agreement in general, it looks like a combination of both. The way the government performs the transition is raising resistance, as local parties didn't have any way to participate in the plans (as explained in chapter 2), and meanwhile the local parties that are trying to participate and develop local initiatives struggle with the central government and their legislature. Public participation and bottom-up influences (Matland, 1995; Ryan, 1995; De Vries, 2000) are crucial when planning large scale projects, as the local inhabitants experience the local effects of the plan. In the case of windmills this is often about noise pollution and pollution of the view, along with other environmental aspects like the effects on the birds for example. Also the actual content of the strategy is raising resistance, as few groups have had the chance to participate in developing the content of the strategy and the central government seems so tunnel a bit in making large windmill farms this important. This also doesn't fit well within transition theory, as it asks for a co-evolutionary approach in which all kinds of initiatives and ideas are dynamically being tried and adopted alongside each other. Thus, the idea of choosing one strategy beforehand and trying to make it work does not fit within this approach.

Another point to consider is the question is the question whether large scale public participation is always feasible in large scale energy projects like large windmill farms. The advantages and drawbacks of both bottom-up and top-down have already been discussed in chapter 2 (Matland, 1995; Ryan, 1995; DeLeon & DeLeon, 2002; O'Toole, 2000). But when looking at large scale windmill farms, those are projects which call for expertise, big funding and resources which maybe cannot be gained by local parties only, or which are not comprehended by the local citizens for example. It could be possible that even with an open planning process and decent public participation; the central government still can't find a suitable location for windmills as every location has its drawbacks and its own inhabitants whom are resisting the building of the windmills. All these different people with different ideas and different reasons to resist or contribute call for a tailor made approach by the government. The government thus has to look for the right way of public participation, before just letting anyone influence the planning process. Too many actors will slow and complicate the planning process, but the central government can't ignore the local effects and thus has to look for a good balance between top-down and bottom-up.

As we can see in this paragraph, the national government has some big plans regarding windmills. 6.000mW of electricity per year is to be produced by wind energy on land. Right now this number is around 2.000mW (VNG, 2013) so the capacity is to be tripled. The government has made it clear that their focus on wind energy is their way of achieving the 14% goal in 2020. The question here is: at what cost? The goal itself is important to achieve, but successful plans have to take into account the interests of local parties. The sheer number of groups protesting against the windmills could be an example of the government not having the desired planning process. The national government and local parties clearly don't the best relationships in these plans. As stated earlier, the plans for the windmill farms are implemented as fast as possible with as little opportunity as possible for participation. This quick planning process leads to a distorted relationship between the central government and other parties. Local governments even protest against higher-level governments because they don't agree with their plans. Before there will be looked at some local plans, one quote describes the feelings of a big part of the protesting parties: *"We don't oppose wind energy, but we dislike the way the government planned it"* Henk Hoving and Piet Reinders in the Volkskrant (April 24th 2014, pp. 11). It seems that the way the government planned these windmill farms doesn't fit within the idea of making a transition. The importance for local power, support and initiatives has been highlighted in chapter 3, and the central government is considered more of a nuisance to local parties than a help, all while failing to implement their own plans with decent local support. So after reviewing different analyses on the Dutch energy policy, in combination with reviewing the policy itself and reviewing the effects of implementing their strategy, the next chapter will link all this to the theoretical perspectives and the research questions posed in this thesis.

6. Rounding up

6.1 Linking theory and practice

We have covered multiple theoretical views on the role of the government in policy implementation, and also in the (Dutch) energy sector. We have come from a description of the Dutch energy systems, concluding that the transition to a system based on green energy isn't happening quite as expected yet (chapter one). From there we went through policy implementation theory and transition theory and discovered we need a large scale long term change on different levels and over different periods. The multi-level view from transition theory is supported by policy implementation theory, although viewed from a different angle. The general idea in both theories is that in complex situations like the energy transition you need a facilitating central government which allows for room to maneuver for local parties on local levels. These local parties need to be actively involved in implementing and designing the policy, to increase support and thus lower resistance, speed up the process and in the end help achieve the transition. While the government calls their strategy a transition, the Dutch government still seems to favor a centralized approach, as can be seen in the studied policy documents (mainly the energy agreement), spatial plans and reactions to those.

The Netherlands do have a need for a more clean, green and sustainable energy system, not only is it their own goal, but also a result of global and, more important, European agreements. Besides, fossil fuels will run out sometimes, so something has to happen. To achieve this different energy system, the central government is putting effort in a transition to a more sustainable energy system in the Netherlands. The prime example of this effort is the fairly recent Energieakkoord presented by the SER (2013a) last year. The agreement mentions empowerment of local parties and improved communication with the people to let the transition succeed. In theory this does match with the transition theory (e.g. Kemp, 2010). The government seems to realize they can't completely make the transition by themselves. Although they do state that they feel they have some form of leading/commanding role (SER, 2013a). Looking at the policy implementation theory, they want a mix between top-down and bottom-up as well as a mix between centralized and decentralized initiatives, with a slight touch towards top-down/centralized. They even acknowledge the need for the locale to cooperate in the Energieakkoord, and the need for improved communication with the locale. According to the IEA (2014) the Netherlands have tried to focus on a bottom-up approach when developing the newest Energy agreement.

In practice however, the central government seems to have a lot more impact than they say they want to have. The Netherlands come from a top-down/centralized tradition when talking about energy systems and this is not easily changed. The government has set a clear goal (which is a top-down way of doing things; Ryan, 1995) and they make sure the policy is developed by them (which is a centralized way of doing things; De Vries, 2000). When looking to transition management, this strategy is the opposite of starting a transition by giving the niches the space to develop first. Just like in the examples of transitions described in chapter 3.1 the macro developments are already there: the technology is present or underway and the international community feels the urge for change. Meanwhile the meso and micro levels aren't operating like expected in a transition. The urge to change and the effort and money needed on the micro levels seems to be there to some extent (SGGV, 2001; VNG, 2013), but the meso level is lacking in terms of connecting with the other levels (by putting themselves as the main initiator of the transition).

The way they play this leading role in practice is by deciding on what terms and conditions local parties can participate in the energy systems, while themselves clearly defining their way of achieving the 14% sustainable energy goal: Windmill farms. The SER firmly wants to give a bigger role to the locale by taxing improvements or legislature change. In practice, since the start of the energy

agreement, a lot of requests for local energy initiatives have been turned down, while only *one* new plan was being accepted. So even though the government seems to realize a transition is multi-level (Rotmans et al., 2001) and they need a (partly) decentralized and bottom-up approach (Gershberg, 1998; Matland, 1995), they don't seem to be succeeding in their ambitions. This could be, because in multiple policy documents and evaluations, they only state that they want more communication and local support, but rarely define how they are going to achieve this (SER, 2013a).

Meanwhile, the government seems to be putting a lot of effort in planning the windmill parks in a top-down, centralized way. The government wants to triple the production of wind energy, which is one of their main points in the energy agreement. While the effectiveness of wind energy is a discussion for a different research, the way they implement these plans is disappointing. The fact that over 150 organized groups have been formed to oppose the windmill plans is a clear sign something is going wrong. The drawbacks of a top-down and centralized way of planning show clearly in the mismatches between groups like Urk Briest and the central government, and even between different levels of government. This also clearly doesn't fit within the transition management idea of co-evolution, in which the different actors and parties change simultaneously. This means that all levels are influencing each other and have certain cause-effect-cause cycles (Kemp et al., 2007). The national government decided on a national and provincial scale which locations are 'fit' for the construction of windmill farms, without doing proper local research. As stated in chapter 2, this way of implementing policy can raise a lot of unwanted resistance. Thus the government is creating a cause – effect cycle in which the micro level is discouraged to perform and develop, and the meso level is becoming too prominent.

All the while, the government is still not being *that* ambitious in their goals, and even constantly putting their goals down. The initial 2020 goal was 20% renewables, toned down to 16% to meet European standards. The goal was toned down to 14% to make it more realistic and achievable, while achieving 16% in 2023. In comparison to other European countries the Netherlands are behind, making the urge for more ambition even larger.

The government is criticized by different parties for their lack of ambition, and their focus on the wrong ways to achieve the goals. Political parties in the opposition as well as independent research as well as civilian organization oppose the government in ways. Be it in the way they make their plans, the way they execute their plans as well as the financial part, the government is receiving critique. And this critique is to some extent on-point, as the government is still struggling to achieve their own-set goals. Even an organization like the IEA advises the Netherlands to step their game up and make more effort in achieving their goals.

6.2 Conclusion

In this part the research question will be answered. The research question is: *“To what extent does the Dutch government follow the approach to the energy transition as explained in the theory on transition management, and how does this explain the current progress in making the energy transition?”* The chapter builds further on the theoretical chapters two and three, the practical chapters four and five and the combining of this theory and practice in chapter 6.1.

To summarize, the government says they are in the middle of a transition, while in practice not showing that they make enough effort to include all levels of a transition in their plans. The central government seems to take too much control itself, which doesn't fit in the ideas of transition theory. Their relation with local parties is seemingly not good enough to have a local basis to support their plans. The government should make more effort to obtain a relationship with the local parties. More local knowledge and tailor-made solutions are necessary. As stated in an interview with Henk Hoving (Rengers, 2014): *“We don't oppose wind energy, but we dislike the way the government planned it”*.

The need for a transition is widely acknowledged, but sometimes the government can't synchronize with the local needs to provide in this transition. The government should find other ways to achieve their goals. They could make effort to really simplify the access to electricity by local parties, while creating more and broader support for their plans. In the end, the government wants to achieve their goals (very much a characteristic of top-down policy implementation rather than a strategy based on transition management). They are trying to do this by shortening planning procedures and making less time for local involvement, which is the opposite of the transition thinking. The niches (Rotmans et al., 2001) should be facilitated, instead of oppressed. There should be co-evolution and a multi-level development (Kemp et al., 2007) instead of a centralized, top-down way of setting goals and making policy (see chapter two). All the protests however could mean that in the end, it is costing even more time (and certainly more effort) to deal with the protest than if the government would have listened to local demands in the first place. Furthermore, when stating that you want to simplify legislature and one year later only *one* initiative has come through, something isn't quite right yet. The current policy implementation way the Dutch government tries to achieve their goals, could be the actual problem limiting the current transition. As the short-term and top-down character of the plans is vastly different from the way complete transitions work, it seems like that way of planning is for a large part responsible for not achieving their own set goals.

The question is, whether not following the ideas of transition theory is the explanation for the slow pace of the transition. All in all, based on all the information presented and reviewed, it can be concluded that a lack of following the approach on transitions as explained in transition management can explain (at least to some extent) the current failing in making the energy transition in the Netherlands. There is potential for more local involvement and initiatives (chapter 4.2), but it seems like the central government doesn't give those initiatives enough space (chapter 5.2). It is likely that if the government actually gave more space, responsibility and empowerment to the local parties the transition to green energy would be going faster than it is going now (chapter 3.2 and 3.3). Besides failing to facilitate the local powers, another point can be made that the central government maybe didn't consider the planning process of developing the big windmill farms carefully enough. They have been facing a lot of resistance from different parties, and apart from the transition, the actual policy design involved and the way the decisions have been made leave some things to be desired (as explained in chapters 2.2 and 5.3). So in the end I think it is a combination of on the one hand the central government being too strict, too distant and too powerful when trying to plan big projects and on the other hand the government drawing too much power to themselves and leaving too little room for local initiatives to grow and develop. Not following transition theory is partly the explanation, but I think it is more about the way the central government has actually positioned itself in relation to the goals they have set for themselves. I don't think the government would have the perfect solution if they would blindly follow whatever transition theory says they should do. The Netherlands has a top-down tradition in the energy policies and have of course an established energy sector, with a lot of infrastructure and companies and rules and regulations accompanying this tradition. The Dutch government needs to look for more local empowerment to facilitate their energy transition, the plans and ideas are already partially there, but the government has to make sure that the actual step is taking towards making specific and fitting rules, regulations, appointments, funding and motivation for the local parties to join the central government's tradition rather than opposing it.

Based on the theoretical ideas covered in this thesis and the way the Dutch energy policy is working out, it seems that the Netherlands is too fixed on achieving their set goals instead of actually making a transition. After determining this core of the problem, a step can be made to advice the Dutch government on changes which could be made to streamline the process.

- An important change in strategy for the central government could be to drop the short term goals for 2020, and look for a more long-term and multi-level approach towards changing the Dutch energy system to a system based on green and renewable energy. If the end goal of the central government is to make the energy transition, the short term goals performed in a top-

down way are probably not going to be the way to achieve the transition. It could be better to set more long-term goals, and adapt to a strategy which is based around more local empowerment, more communication, and more information to and from the local public. All the while, the government needs to make sure that it is possible for local initiatives to rise, and provide meaningful information, infrastructure, funding and support for all ideas and initiatives. This way the government is not limited to short-term goals they must achieve, and the transition is actually coming as much as possible from bottom-up (if needed in combination with larger scale public/private projects), which makes sure the transition is actually supported by as much of the society as possible, and has the most chance of succeeding.

- In case the central government is not able to drop the 2020 goals on energy for a long term vision, as there are some international agreements which they are committed to, there is another option. If the goals have to be achieved as quickly as possible there are multiple ways to achieve them. One way could be to not only say that you open up for local energy production initiatives, but also actually make sure they have an easy time setting up their company and gaining access to the electricity grid. Lessening legislature and possibly give more funding could provide a quick and meaningful way to provide local initiatives with the tools they need. As stated in chapters 4 and 5 there is more potential for local, renewable energy production, so a good way to achieve the energy agreement goals would be to make some more progress in facilitating these local initiatives.
- Besides facilitating local initiatives, more effort could be made to streamline the planning process for big planning projects like windmill farms. I can imagine the central government has the need to implement and develop large scale projects to make big steps in producing green energy. I also can imagine that large scale projects will always face some kind of resistance, as large scale projects cover a large area with a lot of involved stakeholders. The central government however, can make as much effort as possible to actively try to minimize resistance. It is certainly possible to make large scale, top-down planned projects to succeed and be built without mass resistance. A way to do this is promoting involvement and participation of local parties. As explained in chapter 2, this opens up for usage of local knowledge, and can provide the government with insights they didn't have before. More participation does have the potential of slowing down the start of the process and the decision making involved. But when you are implementing a plan which has a broad support of local, regional and national stakeholders, the process of implementing the plan will be much smoother. So it could be better for the central government to look at more long-term goals as opposed to short-term success.

6.3 Evaluation/discussion

This research has collected and confirmed existing data on the Dutch energy transition. The outcome is useful, because comparing the words the government write, together with what organizations like the PBL, SER and the IEA write, with the actual policy and plans the government implements and the reactions on these plans, give useful insight in what is happening in the energy transition, namely too little. The government clearly is influenced by the scientific literature on transitions and policy implementation when composing their vision, plans and ideas. In practice however, it has been made clear by the existing protest and negative reactions that there is something going not quite right. The central government takes too much control, and is trying to force a transition while implanting top-down policy. Furthermore, the goals of the transition, towards a more green energy system and to reduce greenhouse gas pollution are yet to be achieved, which will remain a problem.

When planning this research, it started out as a research focused on the strategy of the central government on planning large windmill farms. As I was researching information about the windmill farms and planning the term energy transition emerged from policy document and scientific literature I was scanning. This term proved to be a broader research perspective to analyze the strategy of the central government as a whole. While busy researching and writing about the strategy, the idea came to link policy implementation theory with transition management theory. About both subjects there is already an extensive amount of scientific literature written and research performed. But a link between the two has not encountered my path, so I think that is a strong and unique point of this thesis. I think it is good to look critical at the practice part of the thesis, as I haven't spoken personally to people involved in the process of the energy transition. This could potentially provide some meaningful insight and would open up the opportunity to raise questions and confront them with the local problems encountered during this research. This flaw is compensated by extensively reviewing current policy documents and reaction articles on the energy agreement/strategy. Chances are that if I would have spoken a writer of the energy agreement, he would just tell me the same things I can read in the agreement. And if I spoke to a critic of the agreement who wrote an opinion article, he probably already stated his points in the article, so further questioning is not automatically that useful. Besides, a lot of direct reactions to the agreement have already been collected and published in newspapers, used in television debate, or is already covered in the politics. So I chose just to use these sources instead of doing research which already has been done.

6.4 Recommendations for further research

This thesis is itself a look at the strategy of the Dutch government performing an energy transition. When looking at the subjects addressed by this thesis, and how they could develop in the future, different directions of additional research could be thought of:

- Comparing the Netherlands with different countries. Other countries (in Europe) seem to be doing better than the Netherlands in the transition. Why is that? Some reason could be obvious (like the abundance of mountains and hydroelectricity) but other reasons could be very interesting to learn about and pick up in our own policy.
- The gas field in Groningen *will* deplete. How are we going to fill that gap up? We are making some progress in living with using less gas, but someday we have to learn to live without it. More research could be required.
- What is the actual combined power generated by all the local initiatives? Right now it seems to be a small portion, a research could collect all the local energy companies and calculate what their production is, and after that: how can we increase the production?
- If the Netherlands wants a top-down way of transitioning to a clean energy system, is wind energy the way to go? What are alternatives? Are they feasible?
- And if wind energy is the (or one of the) best alternative(s), how can the government implement it in a better way with less resistance? This kind of research could focus more on a spatial planning approach on the subject.

7. Literature overview

- Allmendinger, P. (2002) Towards a Post-Positivist Typology of Planning Theory, *Planning Theory*, vol. 1(1): pp. 77-99
- ANP. (2012). 'Pensioenfondsen moeten beleggen in windmolens'. Retrieved May 2012, from Volkskrant: www.vk.nl
- ANP. (2013). *Uiteenlopende reacties op energieakkoord*. Retrieved March 2014, from www.vroegevogels.vara.nl
- ANP. (2014). *PVV: zet die windmolens maar in je eigen achtertuin*. Retrieved April 2014 from: www.rtvnh.nl
- Den Brinkers, G. (2013) *Twijfel aan energieakkoord*. Retrieved March 2013, from www.fd.nl
- Cherp, A., Jewell, J. & Goldthau, A. (2011) *Governing Global Energy: Systems, Transitions, Complexity*. Global Policy Vol. 2: pp.75-88
- CBS (2014, June), *Energiebalans; aanbod, omzetting en verbruik*, Den Haag/Heerlen. Retrieved September 2014 from www.statline.cbs.nl
- De Jong, J. J., Weeda, E. O., Westerwoudt, T. & Correljé, A. F. (2005). *Dertig jaar energiebeleid. Van bonzen en polders via markten naar Brussel zonder koolstof*. Den Haag: Clingendael International Energy Programme
- De Roo, G. & Voogd, H. (2007) *Methodologie van planning*. Bussum: Uitgeverij Coutinho
- De Vries, M.S. (2000) The rise and fall of decentralization: A comparative analysis of arguments and practices in European countries, *European Journal of Political Research*, vol. 38(2): pp. 193-224
- DeLeon, P. & DeLeon, L. (2012) What ever happened to policy implementation?, *J-PART*, vol. 12(4): pp. 467-492
- EIB (2013) *SER Energieakkoord, Macro-economische doorwerking*. Amsterdam.
- Eickhout, B. (2013) *Een halfvol of halfleeg Energieakkoord?* Retrieved July 2014, from www.groenlinks.nl
- Eurostat. (2000) *Share of renewable energy in gross final energy consumption %*. Retrieved June 2014 from epp.eurostat.ec.europa.eu
- Geels, F. (2005) Co-evolution of technology and society: The transition in water supply and personal hygiene in the Netherlands (1850–1930)—a case study in multi-level perspective, *Technology in Society*, Vol. 27: pp. 363-397
- Gershberg, A.I. (1998) Decentralization, Recentralization and Performance Accountability: Building an Operationally Useful Framework for Analysis, *Development Policy Review*, vol. 16: pp 405-431

- Healey, P. (1992) Planning through debate--the communicative turn in planning theory, *Town Planning Review*, Vol. 63(2): pp. 143-162
- IEA. (2008). *The Netherlands 2008 review*. Paris: IEA publications
- IEA. (2012). *Tracking Clean Energy Progress*. Paris: IEA publications
- IEA. (2014). *Energiebeleid van IEA-landen, Nederland 2014 Landenanalyse: samenvatting*. Paris: IEA publications. (Dutch version)
- Kemp, R., Loorbach, D. & Rotmans, J. (2007a) Transition management as a model for managing processes of co-evolution. *International Journal of Sustainable Development and World Ecology*, vol.14: pp. 78–91
- Kemp, R. (2010) The Dutch energy transition approach. *International Economics and Economic Policy*, vol 7: pp. 291-316
- Leach, G. (1992) The energy transition. *Energy Policy* 20 (2): pp. 116-123
- Matland, R. (1995) Synthesizing the Implementation Literature: The Ambiguity-Conflict Model of Policy Implementation, *Journal of Public Administration Research and Theory*, Vol. 5(2): pp.145-174
- Mazamanian, D., P. Sabatier, (1983) *Implementation and Public Policy*, Scott, Foresman, Glenview, IL.
- Ministerie van Economische Zaken, Landbouw & Innovatie (2011) *Energierapport 2011*, Den Haag
- Ministerie van Economische Zaken, Landbouw & Innovatie & Ministerie van Infrastructuur en Milieu (2010) *Inpassingsplan "Windenergie langs de dijken van de Noordoostpolder"*
- Ministerie van Infrastructuur & Milieu (2011, June). *Beleidsbrief eenvoudig beter*. Den Haag: Ministerie van infrastructuur en milieu
- Ministerie van Infrastructuur & Milieu (2012) *Verkenning Energietransitie en Ruimte*, Den Haag
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu (1989) *Nationaal Milieubeleidsplan*, Den Haag
- Nuon. (n.d.). *Hydropower*. Retrieved may 2012, from Nuon: www.nuon.nl
- O'Toole, L.J. (2000) Research on Policy Implementation: Assessment and Prospects, *Journal of Public Administration Research and Theory*, vol. 10: pp. 263-288
- Pachauri, S., Jiang, L. (2008) The Household Energy Transition in India and China, *Energy Policy* 36: pp. 4022-4035
- PBL (2013) *Het Energieakkoord: wat gaat het betekenen? Inschatting van de gemaakte afspraken*, Den Haag
- PBL (2014a) *Balans van de leefomgeving 2014*, Den Haag, september.

- PBL (2014b) *Energiecoöperaties: ambities, handelingsperspectief, en interactie met gemeenten*, Den Haag, april.
- Prud'Homme, R. (1994) *On the dangers of decentralization*, in: Policy Research Working Paper. World Bank, Washington DC
- Rengers, M. (2014, April 24th) *Steeds meer weerstand tegen windmolens*. Volkskrant, pp. 10-11
- Rijksoverheid (2012). *Crisis- en herstelwet*, Retrieved november 2012, from Rijksoverheid: www.rijksoverheid.nl
- Rijksoverheid (2014). *Windmolenparken op lan*. Retrieved july 2014, from Rijksoverheid: www.rijksoverheid.nl
- Rotmans, J. (2010). *Transitieagenda voor Nederland*. Nieuwkoop: Ecodrukkers.
- Rotmans, J. (2011). *De staat van de energietransitie*. Rotterdam.
- Rotmans, J., Kemp, R. & Van Asselt, M. (2001). More evolution than revolution: transition management in public policy. *The journal of futures studies, strategic thinking and policy*, vol 3, pp. 1-17
- Ryan, N. (1995) Unraveling conceptual developments in implementation analysis. *Australian Journal of Public Administration*, vol. 54(1). pp, 65-80
- SER (2001). *Nationaal milieubeleidsplan 4*. Den Haag
- SER (2013A). *Energieakkoord voor duurzame groei*. Retrieved July 2014, from SER: www.energieakkoordser.nl
- SER (2013B). *Naar een Energieakkoord voor duurzame groei*. Retrieved July 2014 from SER: www.energieakkoord.nl
- SER (2014). *Reacties... Energieakkoord voor duurzame groei*. Retrieved July 2014, from SER: www.energieakkoord.nl
- Shell (2013) *Shell onderstreept belang Nationaal Energieakkoord*. Retrieved march 2014, from www.shell.nl
- SGGV (2001). *Verkenning Decentrale Energieopwekking*, Den Haag
- Sheshinski, E., López-Calva, L.F. (2003) Privatization and its benefits: Theory and evidence. *CESifo Economic Studies*, vol. 49(3), pp. 429-459
- Stichting Erfgoed Urk (2010) *Waarom Briest Urk?* Retrieved july 2014 from www.urkbriest.nl
- TNO. (2008). *National report on the Dutch energy regime*.
- Van Alem, C. & Wilbrink, M. (2012, February 4th). *Moeizame weg naar duurzame energie*. *Noordhollands Dagblad*.

- Van Haga, W. (2012, April 6th). '*Stop met subsidies voor alternatieve energie*'. Retrieved April 2012, from Volkskrant: www.vk.nl
- Verbong, G., Geels, F. (2007). The ongoing energy transition: Lessons from a socio-technical, multi-level analysis of the Dutch electricity system (1960-2004). *Energy Policies*, vol. 35, pp. 1025-1037
- VNG (2013) Lokaal energiek: Decentrale duurzame elektriciteit
- Von der Dunk, T. (2012, May 6th). '*De rechtse hekel aan schone energie*'. Retrieved May 2012, from Volkskrant: www.vk.nl
- Wolak, F.A. (2003) Diagnosing the California Electricity Crisis, *The Electricity journal*, vol. 16(7), pp. 11-37
- Wolters, T. (2013) *Ondertekenaars Energieakkoord hebben geen flauw benul van kosten*. Retrieved March 2014 from www.energieexpert.nl
- World Commission on Environment and Development (1987) *Our Common Future*. Oxford: Oxford University Press
- Zuidema, C. (2015, in print) *Post-Contingency; Making Sense of Decentralization in Environmental Governance*, Ashgate, Farnham – Surrey
- Zuidema, C., G. de Roo (2015, in print) *Making Sense of Decentralization, Coping with the Complexities of the Urban Environment*, in: Fra, E., Risk governance. The articulation of hazard, politics and ecology, Springer, Berlin