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Public Private Partnerships as a tool for reaching goals of the Regional Energy Strategy

A private sector view on the elaboration and implementation of the Regional Energy strategy for large scale solar Public Private Partnerships in congested regions.

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Colophon

Title:	Public private partnership as a tool for reaching goals of Regional Energy Strategy
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Summary

In current times, there is a strong emphasis on the transition towards renewable energy sources. To achieve the climate goals described in the Dutch Climate Agreement (Klimaatakkoord), a transition has to be made to renewable energy sources. Together with electrification of loads, the emergence of renewable energy results in congestion on the electricity grid. In the Climate Agreement, the Dutch government decided to decentralize the task of reaching environmental goals in the Regional Energy Strategy (RES). To achieve the RES goals for large scale solar, the Dutch government emphasized the role of Public- Private Partnerships (PPPs). Nevertheless, they did not involve investors and developers of large scale solar in the elaboration of the RES. In this thesis will be investigated how the RES goals could be achieved by a PPP in congested regions and which Critical Success Factors (CSFs) are desirable to achieve the highest potential of PPP. When CSFs are assured, they will result in Potential Benefits (PBs) for PPP. Since the subject of CSFs for PPPs in energy infrastructure is not extensively researched, existing literature will be used to link PBs of successful PPP to the relevant CSFs. Semi-structured interviews are used to determine which PBs are relevant to achieve the RES goals and which CSFs are desired to achieve these PBs in congested regions. According to the analysis based on the interviews, transparent procurement and appropriate risk allocation/sharing, are the most desired CSFs that need to be implemented in the RES. Together with the other CSFs, these CSFs need to be assured in the RES for achieving the relevant PBs and thus the goals of the RES in congested regions. The most relevant PBs for achieving the goals of the RES are: Increased value for money and improved quality/efficiency of projects. The transition towards renewable energy sources will require private sector involvement. RES should accommodate private sector involvement and assure the relevant CSFs to achieve the highest potential of PPPs.

Key words: Public-Private Partnerships, Potential Benefits, Critical Success Factors, Regional Energy Strategy, Grid Congestion.

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1. Introduction

1.1 Background of research

In the Dutch Climate agreement (Klimaatakkoord) the government decided to aim for reduction of greenhouse gas emissions to 49 percent in 2030 and reduction to 95 percent in 2050 (MEZK, 2019b). In the current system, the majority of the greenhouse gas emissions is produced by the conventional fossil fuel powered energy sector. To reduce these greenhouse gas emissions, the energy landscape has to change to a renewable energy powered sector. Renewable energy demands space, especially in a densely populated country as the Netherlands, this change requires a local oriented approach. For this local approach, the Dutch government decided to decentralize the regulatory strategy task for reaching their climate goals. These strategies are called Regional Energy Strategies (RES). The RES strives for local corporations and stimulation of private party initiatives, both subsidized by the government. The growth of renewable energy will lead to congestions on the electricity grid, a situation in which requests for physical electricity deliveries cannot be fulfilled within the safety limits of the electricity grid (van Blijswijk & de Vries, 2012). This problem especially occurs in areas where the land prices are low. On these locations, private parties are interested to invest in solar parks because of the low land prices. However, in these areas the electricity grid is less dense, which results in higher rates of grid congestion. In a letter to the parliament, minister of Economic Affairs and Climate Policy Eric Wiebes, addressed the hindrance of grid congestion for further growth of renewable energy. In his letter, he addressed that there is already grid congestion in areas where SDE++ (Stimulering Duurzaam Energieproductie++) subsidy for large scale solar is already appointed. On the short term, these projects cannot be fulfilled and the SDE subsidy cannot be transferred to more installed PV-capacity (MEZK, 2019a). The different RES documents are not published yet, but Public Private Partnership (PPP) is included as a tool for a better distribution and implementation of renewable energy (MEZK, 2019a). In the Dutch Climate Agreement, PPP is proposed as an important way of achieving the environmental goals (MEZK, 2019b). According to Sanders and Heldeweg (2014), the transition towards renewable energy requires private and public involvement (Sanders & Heldeweg, 2014).

1.2 Research objectives and research questions

This thesis will investigate how the RES goals could be achieved by a Public-Private Partnership (PPP) in congested regions and which Critical Success Factors (CSFs) are desirable to achieve the highest potential of PPP. To achieve a successful PPP, several Potential Benefits (PBs) are relevant for accomplishing the goals proposed in the Regional Energy Strategy (RES). To achieve this PBs, CSFs for successful PPP have to be assured. Since the subject of CSFs for energy infrastructure PPPs is not extensively researched, general PPP CSFs researched by Osei-Kyei and Chan (2015) will be used in this thesis. Academic literature is used to research the causal relationship between the PBs and the CSFs described by Osei-Kyei and Chan (2015). For this research a comparative case study has been done between private party initiators, developers and investors, active in large scale solar in congested regions in the Netherlands. Semi-structured Interviews were conducted to research which PBs are relevant for achieving the goals of the RES, and which CSFs are desirable to achieve these PBs. The overall objective for this thesis is to examine which CSFs are important for the implementation of PPP for achieving the goals of the RES in congested regions. In order to understand how a PPP can contribute for achieving the RES goals in congested regions, it is useful to research the PBs and CSFs that are desired for achieving the goals of the RES. In addition, the underlying relationship has to be investigated to get a more well-rounded view on how a PPP could contribute to achieve the RES goals. To research the aforementioned, the following research question has been formulated:

- *How can PPP contribute to achieve the Regional Energy Strategy goals in grid congested regions in the Netherlands?*

In order to answer the research question, the following secondary questions have been formulated:

- *Which benefits of successful PPPs are relevant for achieving the goals of the RES?*
- *How could Critical Success Factors achieve the relevant Potential Benefits of a PPP?*
- *What are the most important Critical Success Factors of a PPP that are relevant for achieving the goals of the RES in congested regions?*

1.3 Reading guide

For this research, the following items will get covered in this specific order. First, the policy document of the RES will be discussed combined with the specific RES goals for large scale solar parks. Next, the concept of PPP will be explained in the context of large scale solar. In the same chapter, relevant PBs of PPP will be discussed followed by the relevant CSFs for achieving these PBs. Emphasize will be put on the causal relationship between the PBs and the CSFs. In chapter four the methods of data-collection and analysis will be elaborated. In the fifth chapter the results of the primary data collection will be discussed. The PBs, assumed relevant for each RES goal, will be compared between the respondents. For every RES goal the most relevant PBs will be determined in combination with the CSFs that are desirable for achieving these PBs. The results will be concluded in chapter 7. In this chapter the main- and secondary research questions will be answered and compared to the theories examined in chapter 3. In addition, this chapter contains a discussion and suggestions for further research will be given.

2. The Regional Energy Strategy

For this research, it is relevant to discuss the Regional Energy Strategy (RES), in Dutch: Regionale Energie Strategie. The RES is a strategy for implementation of the Dutch Climate Agreement. The Dutch government decided to decentralize the task of the implementation of the Climate ambitions toward 30 different regions. Every region will develop their own strategy to achieve the climate goals, including renewable energy goals. The strategies are translated to regions, projects and to the implementation and execution of the projects. The RES will be a strategy and operational tool with multiple functions. First, RES as a tool where every region describes which energy-goals have to be achieved in a perceived time scope. Secondly, RES as a tool for spatial allocation of renewable energy projects in and their public involvement. Thirdly, RES is long term collaboration between every regional authority.

In the Dutch Climate agreement, the RES has some common aims considering ground mounded renewable energy facilities. This ground mounded renewable energy facilities include large scale solar parks. As mentioned in the introduction, PPP is desired to achieve the goals of the RES. For investigation if the RES goals could be achieved by a successful PPP, the conducted interviews will be used to determine which PBs and CFSs are relevant for implementation of the RES for PPPs. The RES goals are:

a) Achieving the best performance of spatial implementation of renewable energy projects.

b) A cost-assessment framework has to be implemented to frame the additional costs that could derive from spatial implementation of location or a set maximum level of generation. On this way spatial inequality between regions will be solved.

c) Local initiatives are valuable for the RES. To stimulate local involvement and resolve the boundaries of lack of knowledge and financial resources, an expertise center should be developed. Financial instruments supported by the government have to fulfil the necessary financial resources.

d) SDE+, a subsidy for investment in renewable resources, will be available until the year of 2025. At this moment in 2025 the cost price of renewable generated energy is expected to level the cost price of conventional generated energy. Involved parties have the common task to aim for this cost reduction.

e) The last goal of the RES considers that all the generated electricity should be delivered to the grid. The planning of grid reinforcements and planning of large-scale renewable production facilities should be more adapted to each other.

The previous part consists of a summary of the relevant aspects of the RES all retrieved from the Dutch Climate Agreement (MAZ, 2019b). In this thesis will be investigated how these goals could be achieved by a successful PPP.

3. Theoretical framework

In this part the following relevant concepts and theories will be discussed: Definition of Public-Private Partnership (PPP), Potential Benefits (PBs) of successful PPP and Critical Success Factors (CSFs) of PPP in relation to the relevant PBs.

3.1 Definition of Public- Private Partnership

In academic literature there is a debate on the meaning of PPP (Hodge and Greve, 2007). PPPs are a well-known governance tool in the sector of infrastructure. According to Hodge and Greve (2007), PPPs are institutional arrangements for cooperation expressed through the establishment of new organizational units. In the infrastructure sector, PPPs are seen as financial models that enable the public sector to use private financing for the establishment of infrastructural projects (Hodge and Greve, 2007). Since the subject of this thesis is not focused on infrastructural projects, the meaning of PPP is based on the relation between the private- and public sector in renewable energy projects. For this thesis the definition of PPP is based on research of Heldeweg et al. (2015). This research defined PPP as: the specific collaboration between the government (who is responsible for the RES) and a private party in which the government and private actors contribute on an issue of public interest (Heldeweg et al., 2015). These PPPs bring private- and public sectors together in a long-term relationship with a mutual benefit (Leiringer, 2006). The public interest in the PPPs analysed in this thesis will be the environmental goals that should be achieved by the RES. When implemented correctly, PPPs are a tool to make an effective planning and manage a wide variety of uncertainties (Brinkerhoff and Brinkerhoff, 2011). PPP projects in renewable energy require long-term investment certainty, however if a PPP is suitable depends on a variety of factors (United Nations, 2018). PPP could be a solution for achieving the climate goals without raising the public debt (Fantozzi et al., 2014). For the subject of large-scale solar parks, the regular governmental authorities are public authorities as well as, the ones that are responsible for the RES and the grid operators. The private party is the initiator or investor in large scale solar including local corporations.

3.2 Benefits of Successful PPP

A successful PPP is accomplished when a PPP complies with required conditions to achieve the different PBs (Kwak et al., 2009). These required conditions are called CSFs and will be discussed in section 3.3, as well as their causal relationship. Kwak et al. (2009) collected previous research findings, that facilitate a more comprehensive description of PBs for PPP. In their research they discuss the definitions, types, examples obstacles and the benefits of PPP. This thesis is interested in the benefits that could be achieved by PPP. In the interviews, the goals of RES will be reflected to the benefits of PPP described by Kwak et al. (2009). These benefits will be used to investigate which CSFs are desirable for the RES. According to Kwak et al. (2009) the following PBs for PPP are most relevant:

1. *PPP can increase the" value for money" spent by providing more-efficient, lower-cost and reliable services. According to Grimsey et al. (2005), value for money could be defined as achieving the optimal combination of costs and benefits in delivering reliable services (Grimsey et al., 2005).*
2. *A PPP allow the public sector to avoid up-front capital costs and reduce public sector administration costs. This PB reflects to legal process costs made by the public authority.*
3. *PPP helps to keep the public sector budgets, and especially budget deficiencies, down.*
4. *A PPP facilitates innovation in project developments.*
5. *The public sector can transfer risks related to consortium, finance and operation of projects to the private sector. As mentioned before, especially the financing can be shared between the public and private parties (Wojewnik-Flipkowska & Trojanowskim, 2013).*
6. *A PPP can improve the quality and efficiency of projects.*
7. *A PPP can promote local economic growth and employment opportunities.*

3.3 Critical Success Factors of PPP

Critical success factor are requirements that are critical for success and can create opportunities to increase the performance of a PPP (Dewulf & Garvin, 2020). According to Rockart (1979):" …. *CSFs are the limited number of areas in which results, if satisfactory, will ensure a successful completive behaviour for the organizations"* (Rockart, 1979 p.8). Since the subject of CSFs in energy infrastructure is not extensively researched in academic literature, the CSFs researched by Osei-Kyei and Chan (2015) are used to determine the CSFs that will be used to analyse the interviews. This research consists of general PPP CSFs, which are applicable for this thesis. In this chapter the five CSFs, researched as most important by Osei-Kyei and Chan (2015), are compared to the relevant PBs of the previous section. When implemented correctly the CSFs causally ensure the PBs to occur in a PPP (Jamali et al., 2004). Increased value for money is relevant for every critical success factor, since the CSFs ensure PPPs to strive for the optimal combination of benefits and costs (Grimsey et al., 2005). In figure 1, the PBs described in the previous section 3.2, are compared to the CSFs described by Osei-Kyei & Chan (2015).

Critical Success Factors (Osei-Kyei & Chan, 2015)					
Potential Benefits (Kwak et al., 2009)	1.Appropriate risk allocation and sharing	2.Strong private consortium	3.Political Support	*4.Public/ Community support*	*5.Transparent Procurement*
Increase the value for money	x	x	x	x	x
Avoid public up-front capital cost/administration costs	x		x		x
Helps to keep public sector budgets down		x	x		x
Facilitation of innovation in project developments		x	x		x
The public sector can transfer risks to private sector	x	x			x
Improve quality and efficiency of projects	*x*			x	x
Local economic growth and employment opportunities				x	x

Figure 1: Relevant CSFs for each PB

The five most important CSFs are:

1.Appropriate risk allocation and sharing

Risk allocation involves allocation of identifying risks and appropriately sharing it among the public and private parties. According to Leiringer (2006) risks should be allocated to the party that is able to control and manage that specific risk. It is important for the public party to refrain from the idea of transferring all the project risks to the private sector (Osei-Kyei & Chan, 2015; Leiringer, 2006). According to Bing et al. (2015), risks could be categorized in three different levels of risks: macro level, meso level and micro level. Macro level PPP risks, are risks sourced outside the project boundaries, i.e. risks that occur due to political and legal conditions or weather. Meso level risks are risks sourced within the project boundaries, these risks consider the implementation problems, location or technologies. The micro level risks are in essence on the same level as the meso level risks because the risks are also within the project boundaries. However, these risks are party related and focus on the stakeholder relationship in the procurement phase (Bing et al., 2015). According to their research, macro level risks, such as site availability and political risks, should be solved by the public sector. Micro- and meso level risks within the project boundaries have to be dealt with by private actors (Bing et al., 2015). For implementation of renewable energy, it is the task of the local government and the grid operator, to reduce the risks for private parties to invest in renewable energy (Cedric & Long, 2017; Steenhuijsen & de Bruijne, 2015). When risk allocated and shared appropriately between the public and private actors, as previously described by Bing et al. (2015), several PBs of PPP could be accomplished. Increased value for money, avoid public up-front capital costs, the opportunity for the public sector to transfer risks to the private sector and increased efficiency/quality are relevant to this CSF. Clear agreement on the allocation of risks could increase the value for money, since the costs and benefits are maximized when the risks are allocated appropriately (Grimsey et al., 2005). Up-front capital costs by the public sector could be minimalized if all the risks are allocated to the party that is able to control and manage the risks (Leiringer, 2006). “The reduction or elimination of economic risks is often a precondition for attracting potential investor interest” (Dinica, 2008 p. 3563). A well-structured PPP can contribute to a more reliable, transparent and more efficient process (Wojewnik-Flipkowska & Trojanowskim, 2013)

2.Strong private consortium

A reliable and well-structured private sector company is crucial for PPP success. The complexity of PPP projects makes it difficult for one private party to execute a project, this is one of the reasons why different parties come together to form a consortium (Osei-Kyei & Chan, 2015). Consortiums should have strong technical, operational and managerial capacity to be able to undertake reliable and well-structured PPP projects (Zhang, 2005). For the public party, PPP is an instrument to achieve technical expertise and the complementary sharing of resources (Brinkerhoff and Brinkerhoff, 2011). Complementary sharing of resources relates to the sharing risks for operation and financing. A strong private consortium relates to the aim of a PPP described by Brinkerhoff and Brinkerhoff (2011). When consortiums do have the required technical, managerial and operational capacity assured, several PBs could be accomplished (Zhang, 2005). A strong private consortium, can help to increase the value for money, helps to keep public sector budgets down, it can facilitate innovation in projects and let the public sector transfer risks to the private consortium. As mentioned by Leiringer (2006) in the previous paragraph, innovation occurs due to collaborative working between private sector parties (Leiringer, 2006). This collaborative working has to be achieved within the consortium itself where innovation should be stimulated. It is a political choice to use private finance in engineering projects (Hodge & Greve, 2009). Using private party financial resources, allows the public sector to transfer risks to the consortium. When these consortiums are competent, they have the required technical, managerial and operational capacity assured for these risks (Zhang, 2005). When the private party is competent to cope with these risks, the public sector can transfer risks, and thus creates opportunities for the public sector to reduce their budgets (Kwak et al., 2009).

3.Political support

PPP and politics are directly related to each other. Without necessary political support, an approval for public expenditure on public projects and work, would not be granted (Osei-Kyei & Chan, 2015). Within a PPP in renewable energy projects, public interests do have a major influence on the end goal. Private actors contribute to reaching policy goals, the goals of the Climate Agreement in the case of large solar parks (Heldeweg et al., 2015). According to Nicolini & Tavoni (2017), political support for renewable electricity have been effective in promoting renewable electricity in Europe in the last decade (Nicolini, & Tavoni, 2017). With the necessary political support, a PPP could accomplish the public party to avoid up-front capital costs, which helps to keep the public sector budgets down and facilitate innovation. The government has an administrative role for creating opportunities and conditions for private parties to invest (Wojewnik-Flipkowska & Trojanowskim, 2013). According to Wojewnik-Flipkowska & Trojanowskim (2013), these opportunities and conditions reflect to regulations that create legal leeway for PPPs to work more efficiently (Wojewnik-Flipkowska & Trojanowskim, 2013). When implemented correctly, these conditions will result in private sector involvement. With private sector involvement, the cost for the public sector will be reduced, and so will be the up-front capital/administration costs. According to Leiringer, innovation increasingly occurs in PPPs with long term political commitment (Leiringer, 2006). So, to achieve innovation in PPP projects, long term political commitment is required.

4.Public/Community support

The acceptance and understanding by the public community i.e. media, trade unions, civil societies and other non-governmental organization are important in ensuring the progress of PPP (Osei-Kyei & Chan, 2015). According to Boyer (2019), public work projects are difficult to implement because they are highly visible and impactful (Boyer,2019). When public and community support is assured, this CSF can cause increased value for money, improved quality/efficiency of projects, local economic growth and employment opportunities to occur. Community support is fundamental for achieving public participation in large-scale projects (Quick & Feldman, 2011). Public participation in large scale solar parks can facilitate energy cost savings beneficial for society, which creates local economic growth (Buso & Stenger, 2018). Furthermore, this local economic growth and employment opportunities will be beneficial for the public/community support. The quality and efficiency of spatial implementation of large scale solar could be improved because of the participation in the realization phase will give local inhabitants the possibility to intervene with the private and public sector (Boyer, 2019).

5.Transparent procurement

PPP is considered as a procurement process, procurement is defined as: the process of finding and agreeing to terms, and acquiring goods, services, or works from an external source (Osei-Kyei & Chan, 2015). Transparency has to be taken into account to the whole process of PPP to be successful (Dewulf and Garvin, 2020). According to Jamali (2004), transparent and sound regulatory framework is needed to ensure to make PPP operate more efficient and optimizing the resources needed (Jamali, 2004). Since procurement relates to agreeing to terms, transparent procurement relates to all the PBs described in section 2.1 if, these PBs are discussed in the procurement phase (Osei-Kyei & Chan, 2015).

3.4 Conceptual model

In the following conceptual model, the relationship between CSF's and the PB's of a successful PPP is visualized. For this research these two concepts combined will be the relevant concepts that will be evaluated in the context of a PPP for large scale solar parks in congested regions. The conceptualization of the PBs and CSFs is visualised in Appendix 8.4

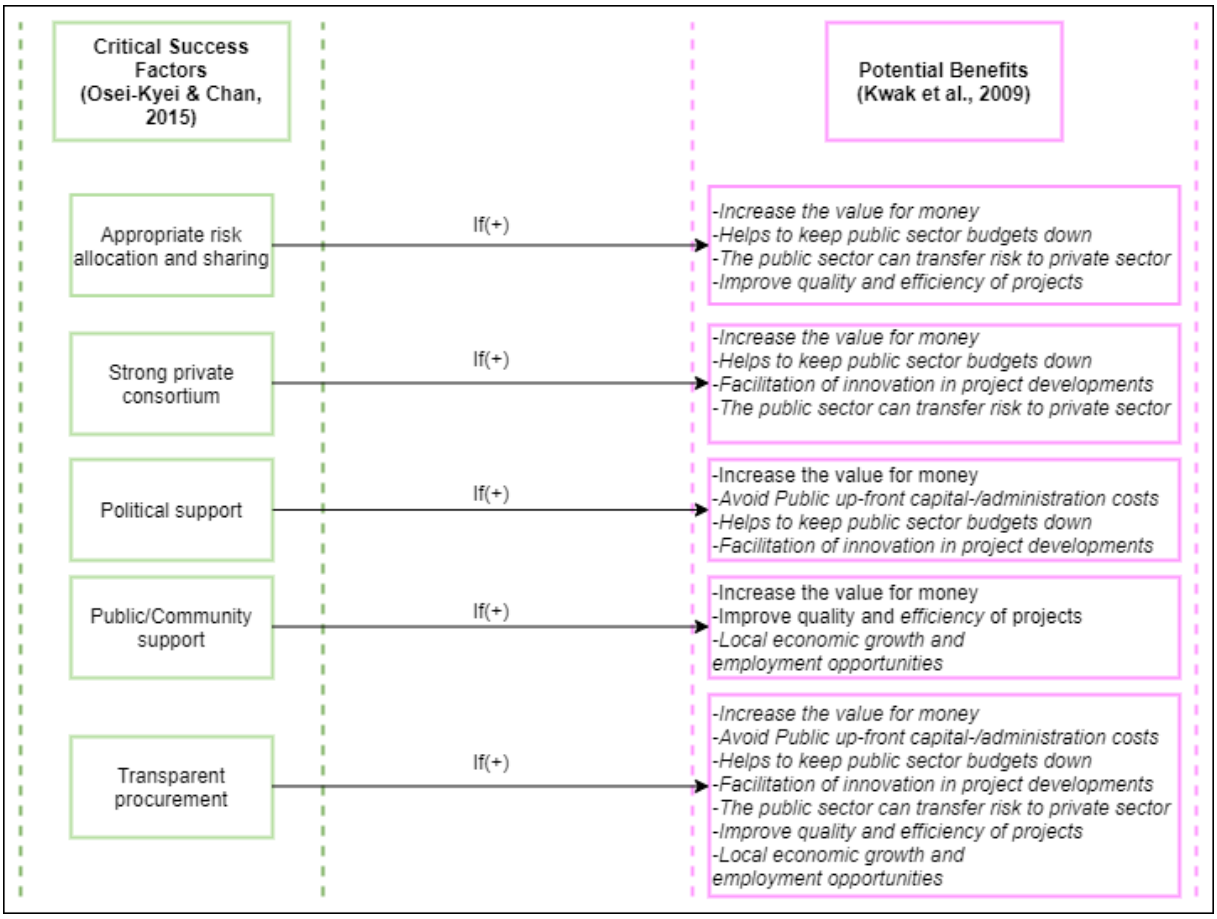

Figure 2: Conceptual model

4. Methodology

4.1 Methodology of data collection

To obtain the required data for answering the main- and secondary questions, a comparative case study have been done. A comparative case study is useful to assess generalizations across different cases (Knight, 2001). This comparative case study is needed since the subject of CSFs for energy infrastructure is not researched this specific yet. Semi-structured interviews are used for the comparative case study. This interview method is chosen because of the possibility for the participants to elaborate more on subjects they find important (Clifford et al., 2016). To retrieve the relevant data of the respondents, semi-structured interviews allow deviation in to subjects presumed more relevant by the respondents. For this research, this method of data collection is relevant since the respondents have different occupations in large scale projects, which requires flexibility in interviews. To research the different perceptions of the respondents needed for comparative case study, the rationale behind the answers have to be examined. A semi-structured interview allows the examination of this rationale (Dunn, 2010). Due the Covid-19 virus, it was not allowed to be physically present at the interviews. Thus, the interviews were held as video-call interviews, on the platform of Google Meets. In the one-on-one interviews every goal of the RES will be discussed, to examine which PBs are relevant to the specific goals of the RES and which CSFs are desired to achieve these PBs.

4.2 Instruments for data analysis

The recorded interviews are transcribed using the software of Otranscribe. These transcripts are coded using a code tree made beforehand (Appendix 8.3). This code tree is a representation of the concepts of PBs and the relevant CSFs for achieving these specific PBs, described in the theoretical framework. The transcripts were first analysed on the relevant PBs for each RES goal. Afterwards, the interviews were analysed on which CSFs are needed to accomplish these relevant PBs for each RES goal. This code structure is used to find patterns in the answers given by the different interviewees and do a comparative case study. To visualize these patterns, a table have been used for every goal of the RES with the relevant PBs the interviews were recorded, transcribed and then coded using the software of ATLAS.ti. The interview can be found in appendix 8.1.

4.3 Ethical Considerations

To act ethically, several considerations where taken in to account. Before the interviews the interviewees were briefly informed about the research aim and the data procession of the interviews. A description of the interview and a consent form (Appendix 8.4) were sent beforehand, which the respondents had to sign. In this document the essence of the interview was explained in combination with the rights of the respondents. One of the rights is the opportunity to stay anonymous in this thesis. After the interview the respondents had the opportunity to check the transcribed interview on technical inconveniences. Regional congestion is assumed as a politically charged subject. According to Clifford et al. (2016), political charge could have influence on the honesty of the respondents (Clifford et al., 2016). Since the RES is not completely elaborated yet, there is the possibility of misinterpretation of the different RES goals. To forestall this misinterpretation of the goals, a brief explanation of the different RES goals was given before these goals were addressed in the interviews.

4.4 Case Selection

For this thesis, seven solar parks are selected in congested regions in the Netherlands. Congestion of the electricity grid occurs in a situation in which requests for physical electricity deliveries cannot be fulfilled within the safety limits of the electricity grid (van Blijswijk & de Vries, 2012). The increasing renewable energy production will result in more grid congestion, especially in places where the density of the electricity grid is low. In combination with renewable energy, the rapid electrification of loads will result in grid congestion (Haque et. al., 2017). In figure 2, the area in which congestion is a problem is visualized by the grid operators responsible in the north of the Netherlands. In the red marked areas, there is not any transport capacity available. In yellow, the areas are marked with limited transport capacity. As shown in figure 3, there are major transport capacity issues in the north of the Netherlands. Both grid operators planned to increase their transport capacity for the decentral electricity grid (MEZK, 2019a).

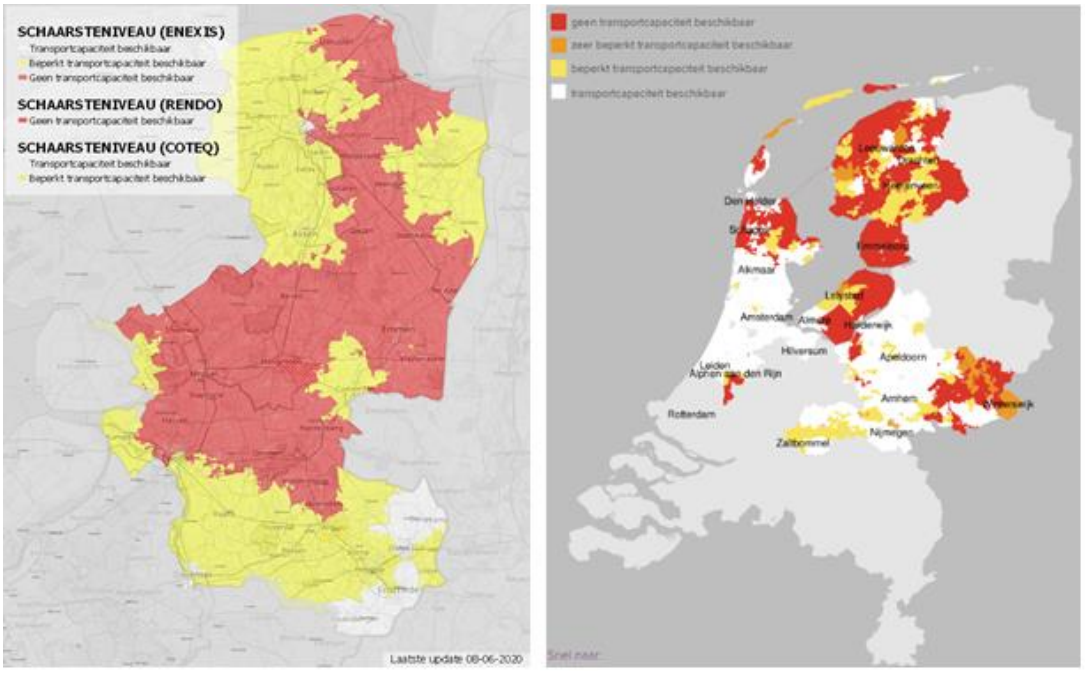

Figure 3: Map of available transport capacity of Enexis(left) and Liander(right)

The respondents represent different organizational forms, local initiatives, large scale investors/project developers and a platform for buying shares in solar parks. These interviews together will give different insights how a PPP could contribute to achieving the RES and which CSFs are important for PPP in grid congested regions. For all the seven cases, one respondent had been interviewed per case. The cases are located in the congested regions, visualized in the pictures above. In this area sample, the interviewees are selected on availability for interview. One of the respondents requested to stay anonymous. The six other cases researched in this thesis are: Zonnepark Lange Runde, Zonnepark Ter Apel Kanaal – AVEBE, Zonnepark Coevorden, Zonnepark Oranjepoort Emmen, Zonnepark de Lichtkiem and Zonneweide Familie Groen. In figure 4, the projects used for this thesis are shown combined with their installed capacity and company name. In figure 5, the information of the respondents is provided.

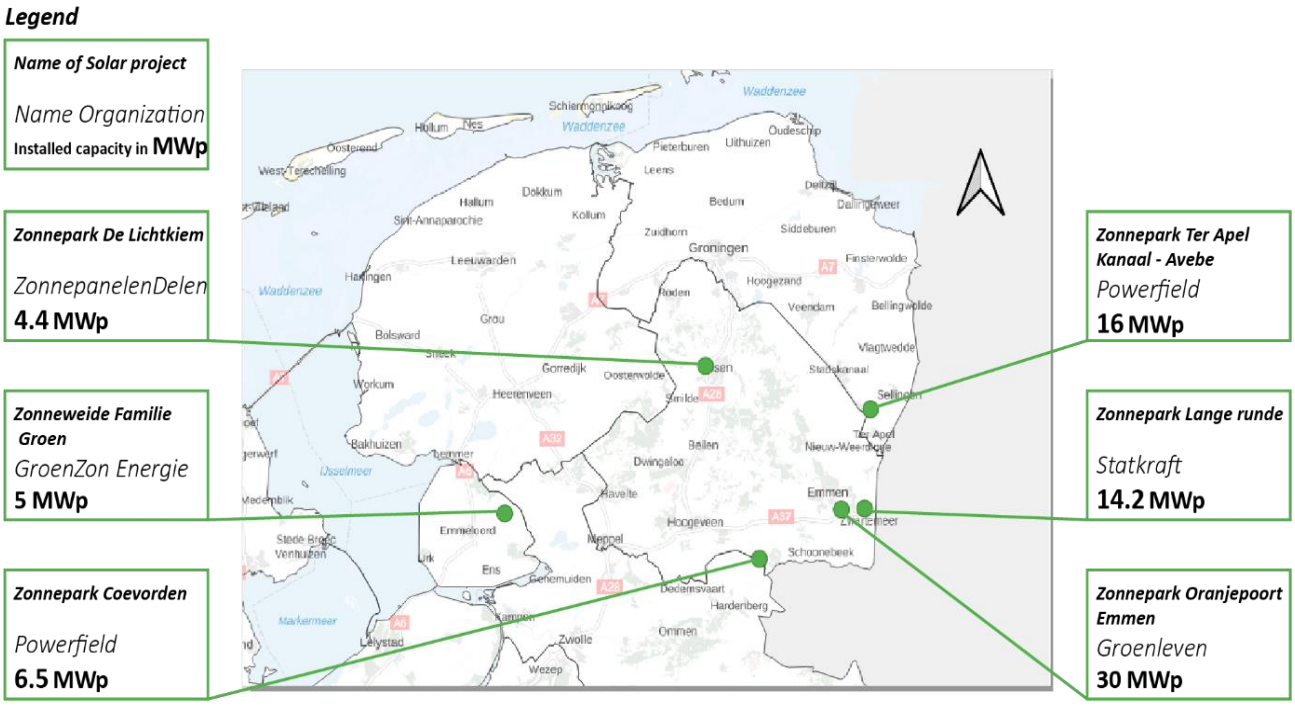

Figure 4:Map with locations of interviewed solar parks

Name solar park	Name interviewee	Organization	Occupation	Name in thesis	Date of interview
Zonnepark Lange Runde	Niels van der Linden	Statkraft	Manager wind and sun Netherlands	R1	1-5-2020
Anonymous	-	-	-	R2	7-5-2020
Zonnepark Ter Apel Kanaal - AVEBE	Jaco van Leeuwen	Powerfield	Projectmanager	R3-1	20-5-2020
Zonnepark Coevorden	Jaco van Leeuwen	Powerfield	Projectmanager	R3-2	20-5-2020
Zonnepark Oranjepoort Emmen	Maarten de Groot	Groenleven	Manger Marketing and Communication	R4	22-5-2020
Zonnepark de Lichtkiem	Matthijs Olieman	Zonnepanelendelen	Founder of Zonnepanelendelen	R5	10-6-2020
Zonneweide Familie Groen	Theo Groen	GroenZon Energie	Initiator and Director-major stakeholder	R6	16-6-2020

Figure 5:Information of respondents. (In the results R3 will be used for General statements of R3-1 and R3-2)

5. Results

In this chapter the PBs will be discussed that are assumed the most relevant by the respondents. For every of the five RES goals, a table will be provided with the relevant PBs assumed by the respondents, these relevant PBs could contribute to achieving the RES goals. These tables will be used to distinguish patterns between the different respondents. For each goal these patterns will be discussed to determine the most relevant PBs for achieving the RES goals. Together with these patterns, the causal related CSFs as discussed in section 3.3, are used to determine which CSFs are desired for achieving the different goals of the RES. A combination of the relevant PBs and the CSFs will be used for answering the main research question. In figure 6, the PBs and CSFs considered most relevant by the respondents are visualized. As to be seen in figure 6, Improve the quality/and efficiency of projects and increase the value for money are assumed the most relevant PBs for reaching the different RES goals. Appropriate risk allocation and sharing and transparent procurement are both considered as most relevant CSFs for four of the RES goals.

Regional Energy Strategy goals
(§5,1) *The best performance of spatial implementation*
(§5,2) *Frame the additional costs of location*
(§5,3) *Expertise center for local initiatives*
(§5,4) *Cost reduction of ending SDE*
(§5,5)*Achieve better adaption of grid reinforcements*

Potential Benefits (Kwak et al., 2009)	**(§5,1)**	**(§5,2)**	**(§5,3)**	**(§5,4)**	**(§5,5)**
Increase the value for money	x		x		x
Avoid public up-front capital-administration costs					
Helps to keep public sector budgets down		x		x	
Facilitation of innovation in project developments				x	x
The public sector can transfer risks to private sector			x	x	
Improve quality and efficiency of projects	x	x	x		x
Local economic growth and employment opportunities	x				

Critical Success Factors (Osei-Kyei & Chan, 2015)	**(§5,1)**	**(§5,2)**	**(§5,3)**	**(§5,4)**	**(§5,5)**
Appropriate risk allocation and sharing	x	x	x	x	
Strong private consortium			x		x
Political Support		x		x	
Public/Community support	x				
Transparent Procurement	x	x	x		x

Figure 6: PBs and CSFs relevant for each goal of the RES

5.1 Increase the performance of spatial implementation of large-scale solar parks

The first goal of the RES is increasing the performance of spatial implementation. Solar parks will have physical impact on their surroundings, and local acceptance and understanding is needed. In the table underneath the PBs considered as relevant for this RES goal by the interviewees are marked with (x).

Potential Benefits	R1	R2	R3-1	R3-2	R4	R5	R6
Increase the value for money	x	x	x	x	x		
Avoid public up-front capital-administration costs							x
Helps to keep public sector budgets down		x			x		x
Facilitation of innovation in project developments							
The public sector can transfer risks to private sector	x				x		x
Improve quality and efficiency of projects	x	x	x	x	x	x	x
Local economic growth and employment opportunities		x			x	x	

Figure 7: PBs for RES goal Spatial Implementation

In the Netherlands spatial implementation is important because of the scarcity of space(R4). As figure 7 shows: increased value for money improved quality/efficiency are assumed the most relevant PBs for spatial implementation. According to the interviewees, spatial implementation is already very important in the current situation. Local initiatives facilitate early process involvement, whereas large scale Investors or developers use participation meetings or one-on-one meetings in the implementation phase. In current solar park development implementation of multiple functions becomes trending (R4 & R5). Including different functions to the location of solar parks i.e. recreation, grazing or creating bio diversity, will add value and quality to the location. The new to be implemented Omgevingswet will facilitate local involvement. However, according to R6 the Omgevingswet is expected to result in higher costs and an increased process time which could result in lower efficiency for spatial implementation of large-scale solar parks.

Early process collaboration, where the municipality, RES, local inhabitants and the private investor, together search for the best location, will increase the amount of feasible realizable solar parks in congested regions (R1). To achieve the most efficient and qualitative utilization of space, and increased value for money, public and community support have to be achieved. Early process collaboration, between the public and private parties, is important to improve the quality and efficiency of projects. “Better collaboration will result in higher quality and a more efficient way of realization” (R5). In dialogue with the local inhabitants, the highest quality has to be strived to accommodate the highest level of local support. Private parties could also facilitate local inhabitants to participate in projects, which stimulates local economic growth (Buso & Stenger, 2018). In the Climate Agreement, efforts to 50 percent of local ownership should have more priority (R2). Part of the RES should be a regulatory framework for establishing local participation and local embedding, to achieve the highest quality and efficiency of spatial implementation (R2). For this regulatory framework, transparent procurement has to be taken in account for agreeing to terms whit the local community and the local government. When transparent procurement and public/community support are assured, the value for money, quality and efficiency for spatial implementation of large-scale solar parks will increase.

5.2 Frame the additional costs of location

As mentioned before, part of the RES is the framing of the additional cost needed for realizing additional infra or other costs bounded to location. In the table underneath the PBs considered as relevant for this RES goal by the interviewees, are marked with (x).

Potential Benefits	R1	R2	R3-1	R3-2	R4	R5	R6
Increase the value for money			x	x	x		
Avoid public up-front capital-administration costs		x				x	
Helps to keep public sector budgets down	x	x				x	x
Facilitation of innovation in project developments		x	x			x	
The public sector can transfer risks to private sector	x	x				x	
Improve quality and efficiency of projects	x	x	x	x		x	x
Local economic growth and employment opportunities							

Figure 8:PBs for RES goal: Frame the additional costs of location.

As to be seen in figure 8, increased efficiency, increased quality and keep the public budgets down, are the most relevant PBs for this RES goal. These two PBs relate to the in-efficient usage of the current grid, which results in higher costs for the public- and private sector. In current times, the grid operators are not transparent about the possibilities on the electricity grid. Grid capacity is reserved by large investors resulting in “virtual congestion”, a situation in which grid capacity is being reserved by large investors and developers without realizing solar parks (R2). Only in the new SDE++ subsidy, a transport indication has to be granted by the Grid operator before receiving SDE++. According to R3:” Decreasing subsidies and limited grid capacity already results in location choices in proximity to substations”. Facilitation of innovation in project developments is mentioned by two respondents (R2 & R5) for this RES goal. They both mentioned the importance of energy storage and decentral electricity grids as PPP solutions for this RES goal. Electricity storage could help to relieve the grid and balance the supply and demand. With decentral independent electricity grids, the electricity will be distributed in a local area, i.e. single households, local enterprises and electricity demanding industries, will be connected to large scale solar in these decentral electricity grids(R1&R3). When implemented correctly, storage and decentral electricity distribution will allow the public grid operator to transfer the operational risks of grid connection to the private sector. This could result in lower public expenditures and thus, helps to keep the public sector budgets down.

First, more efficient use of existing cable infrastructure should be part of this RES goal. “Virtual congestion” could be solved by more efficient grid management by the grid operator grid. Transparent procurement should be assured, in which the public grid operator is transparent about the available grid connection and capacity. Additional costs for cable infrastructure will determine if it is feasible on specific locations to invest in large scale solar (R6). For successful PPP, these macro- and meso level risks that determine if a project’s business case is feasible or not, have to be allocated to the party that is able to control and manage these risks. For implementation of renewable energy, it is the task of the local government and the grid operator, to reduce the risks for private parties to invest in renewable energy (Cedric & Long, 2017; Steenhuijsen & de Bruijne, 2015). As previously mentioned, storage and decentral electricity grids are solutions without a grid connection. According to R5 and R6, these techniques are too expensive and not yet viable to implement in large scale solar business cases. When these techniques proven to be viable, locations are not dependent on grid connection anymore and allocation could be based on spatial implementation and acceptation. Especially in grid congested areas, the RES has to create conditions for private involvement with minimalizing macro-, meso- and micro level risks for implementing these innovative techniques. Long term political commitment is needed to secure innovation in project developments (Leiringer, 2006).

5.3 Expertise center

The third goal of the RES is to develop an expertise center to stimulate local initiatives to gather the needed knowledge and financial resources. In the table underneath the PBs considered as relevant for this RES goal by the interviewees, are marked with (x).

Potential Benefits	R1	R2	R3-1	R3-2	R4	R5	R6
Increase the value for money	x	x				x	
Avoid public up-front capital-administration costs							
Helps to keep public sector budgets down							
Facilitation of innovation in project developments					x		
The public sector can transfer risks to private sector	x		x	x	x	x	x
Improve quality and efficiency of projects	x	x				x	
Local economic growth and employment opportunities		x					x

Figure 9:PBs for RES goal: Expertise Center

As to be seen in figure 4, increase the value for money, the public sector can transfer risks to the private sector and improve quality/efficiency are considered as most relevant PBs for this RES goal. According to R1 and R5, local support is enabled most efficiently by local initiatives. This will result in higher quality of the spatial implementation of large scale solar, and thus create the highest value for money. Local corporations accommodate local inhabitants to invest in shares in solar parks or buy their electricity on platforms to invest in local initiatives. According to R4, “striving for 50% local, deals with a certain vision regarding local participation. In practice we see that people do not want ownership but a local fund”. In a local fund there will also be local economic growth, since the yield of the solar park will be spent locally (R4). There are also platforms that sell shares in solar parks across the whole country. In this way people get grip on their own source of electricity. If local initiatives are able to cope with the risks of large scale solar, the public authority can transfer risks of operation and financing to these local initiatives. According to R1, R4, R5 and R6, local corporations are not able to cope with the macro- and meso level risks on their own. Especially since the financial-, juridical- and technical knowledge for large scale solar are not in the capability extend of local initiatives(R5).

Transparent procurement, appropriate risk allocation/sharing and strong private consortiums are needed to ensure the expertise center to be effective. The RES should consist of a clear regulatory framework to facilitate local initiatives and corporations to form consortiums with large scale investors/developers. Majority of the interviewees emphasized that transparent procurement has to be taken in to account for elaboration of this regulatory framework. In this consortium, influences of local initiatives will result in higher public/community support and increased quality in the spatial implementation process. Whereas, large scale investors/developers do have the required technical, juridical and financial resources for realizing large scale solar and cope with the macro- and meso level risks. Especially the size is decisive if realization of large scale solar by local corporations reasonable. Realization of large scale solar is more efficient when done by large investors and developers (R1, R5 & R6). Intensive collaboration between local corporations and investors/developers will result in more efficient and qualitative implementation of large scale solar. When implemented correctly the best of both is used to strive to the overall goals of the RES.

5.4 Cost reduction because of ending SDE

In 2025 the SDE++ subsidy is ending in which the most commonly used subsidy will be stopped. In the table underneath the PBs considered as relevant for this RES goal by the interviewees are marked with (x).

Potential Benefits	R1	R2	R3-1	R3-2	R4	R5	R6
Increase the value for money							
Avoid public up-front capital-administration costs	x		x	x			
Helps to keep public sector budgets down	x	x	x	x	x	x	x
Facilitation of innovation in project developments	x	x	x	x	x		x
The public sector can transfer risks to private sector	x	x	x	x	x	x	x
Improve quality and efficiency of projects						x	
Local economic growth and employment opportunities							

Figure 10: PBs for RES goal: Cost reduction because of ending SDE

According to all the interviewees, If the progress of cost reduction continues, it will be commercially feasible to realize large scale solar parks at the end of 2025 without subsidy. Especially when the subsidy flow to the conventional electricity facilities stops, i.e. coal- and gas power plants, renewable electricity will become more lucrative (R2). The cost of solar energy technology is decreasing, which makes the share of public subsidies needed, decreasing as well. Innovation simultaneously occurs due the announced ending of the SDE++ subsidy (R3). Solar and wind generated energy are expected to be part of the future sustainable energy mix. Reduction of costs is a natural market activity in which it is not only reduction of the costs but it is optimizing yield(R6). The interviewees expected the market itself to ensure this cost reduction needed. When investing in solar will not be cost-effective anymore, private parties will not invest anymore. According to all the respondents, with the current expectation of future energy price, the public sector can transfer the risk of financing to the private sector at the end of 2025.

To achieve the most relevant PBs visualized in the table above, emphasize have to be put on appropriate risk allocation/sharing and political support. Those two CSFs are closely linked to each other. As mentioned previously, risks could occur which could have influence on the feasibility of ending the SDE++ subsidy. When these risks are not manageable by the private sector, public sector intervening will be essential. With the ending of the SDE++ subsidy, energy transition will remain the greatest attention. As mentioned before, conditions for investment have to remain to facilitate the energy transition to continue. Since spatial allocation will be part of the RES, the prices of suitable land will increase(R1). According to R3, when land prices are too high, projects will not be feasible anymore, which will result in not reaching the climate goals. The increased land price is a meso level risk which could make large scale solar parks not be economically feasible for private party involvement. When large scale solar projects won't be feasible any more, private party involvement will stagnate which results in stagnation of the energy transition(R6). The RES should imply a political framework, were a minimum feed-in tariff have to be guaranteed in which a minimum price has to ensure private party involvement, and make their business cases economically feasible(R6).

5.5 Better adaption of grid reinforcements

Together with the goal of frame the additional costs of location, this RES goal is especially having to be applied in grid congested regions. In the table underneath the PBs considered as relevant for this RES goal by the interviewees are marked with (x).

Potential Benefits	R1	R2	R3-1	R3-2	R4	R5	R6
Increase the value for money	x	x		x			
Avoid public up-front capital-administration costs	x						
Helps to keep public sector budgets down							
Facilitation of innovation in project developments					x		x
The public sector can transfer risks to private sector		x				x	x
Improve quality and efficiency of projects	x	x	x	x	x	x	x
Local economic growth and employment opportunities							

Figure 11:PBs for RES goal: Better adaption of grid reinforcements

As to be seen in the table above the quality and efficiency of projects are desired PBs of PPP for this goal. Especially the efficiency of grid reinforcement implementation could be improved, according to the interviewees. For receiving the current SDE++ subsidy, a transport indication has to be issued by the grid operator. In this transport indication, the grid operator declares if a grid connection is feasible. However, the actual grid connection is not directly there yet. High up-front costs and latency for realization this grid connection will result in risks for the private sector to invest in large scale solar (R5&R6). Even when grid connection to existing cable infrastructure with the required capacity is feasible, the connection will not be realized. According to R6, existing cable infrastructure is not used efficiently. Private parties and the grid operator have to invest in new cable infrastructure despite an equivalent cable is already there. R4 acknowledges that grid operators are careful because they are spending public money without certainty if the projects will be realized. R4 & R6 emphasized innovation as a possible solution for increasing the efficiency of grid reinforcements. Especially when decentral electricity grids and storage prove to be viable, a grid connection will not be decisive. When implemented, these innovations will relieve the tasks of the grid operator.

Transparent procurement and strong private consortiums are the most relevant CSFs to achieve the PBs relevant for this goal. The grid operators have to be transparent and shares grid data, especially in regions with grid congestion (R1&R5). According to Dewulf and Garvin (2020), transparency have to be taken in to account the whole process of PPP to be successful (Dewulf and Garvin, 2020). In the current situation, this transparency is missing and has to be provided by the grid operators. Collaboration between the different shareholders in this problem will be key, according to the majority of the interviewees. The grid operator should encourage there facilitating role in the energy transition. R5 mentioned: “I think the most important is that the grid operators should focus on their main task”. Together with grid reinforcements, clear regulatory frameworks and legislation should be part of this RES goal. Collaborative working will result in innovation, i.e. storage technologies or decentral electricity grids (Leiringer, 2006). According to R4: “the energy transition will be a major challenge and we have to do it together” (R4). Together the responsible Public and Private parties have the common goal to achieve the aims of the Climate Agreement.

6. Conclusion & Discussion

6.1 Conclusion

Successful Public- Private Partnership (PPP) can contribute to achieving the goals of the Regional Energy Strategy (RES) in congested regions. To establish the goals of the RES, all the Potential Benefits (PBs) as described by Kwak et al. (2009) are relevant for achieving these goals. For the different goals of the RES, Improved quality/efficiency and increased value for money, are assumed most relevant by the respondents. Improved quality is relevant for spatial allocation of large-scale solar parks. Improved efficiency is relevant for more efficient implementation of large scale solar in congested regions. Improved efficiency relates to more efficient utilization of space and grid capacity. PPP could accomplish increased value for money, in which the optimal combination of costs and benefits is achieved. Increased value for money is relevant for the goals of the RES, since the goals of the RES should establish the public and private financial resources spend as efficient as possible. In the current situation, public subsidies are not spent efficiently in congested regions. Together with the other PBs described in this thesis, Improved quality/efficiency and Increased value for money, could contribute to achieve the goals described in the RES in congested regions.

To establish the relevant PBs for the RES, several Critical Success Factors (CSFs) have to be assured. The five CSFs, as described by Osei-Kyei & Chan (2013), are relevant for achieving the different goals of the RES. According to the respondents, transparent procurement and appropriate risk allocation/sharing are the two most important CSFs that have to be assured in the RES. The RES should consist appropriate risk allocation/sharing to ensure private sector involvement. Especially in congested regions, the public sector has to refrain from the idea of transfer all the project risk to the private sector. The risks have to be allocated to the sector that is able to manage and operate the specific risks. For the RES, site availability and political risks, should be on occasion of the public sector. Risks occurring within the project boundaries should be on occasion of the private party, since they should have the required juridical-, technical- and manageable capabilities to mitigate these risks. The second most important CSF is transparent procurement. As mentioned in the chapter 3, transparent procurement is relevant for all the PBs, since it considers agreeing to certain terms. Transparent procurement, includes transparent information provision and clear regulatory frameworks. Transparency has to be taken in to account in the whole process of PPP to be successful. According to the respondents, clear regulatory frameworks for each RES goal should result the different goals to be reached as efficient as possible.

Together with the other relevant CSFs described in this thesis, appropriate risk allocation/sharing and transparent procurement have to be assured to achieve the goals of the RES with PPPs. Since the major challenge of energy transition, collaboration will be key. The RES should contain the desired CSFs in the different goals to facilitate this transition as efficient as possible.

6.2 Discussion

Discussion

Intentionally, the interviews were planned as physical meetings with the respondents. However, due to the COVID-19, the interviews took place in videocalls on the platform Google Meets. These virtual interviews could have negative influence on the results since, there was not an opportunity for non-verbal communication. There are criteria against comparative case studies, especially the relevance of the cases and interpretation of the information to make generalizations (Knight, 2001). Different firms have been interviewed with different business forms active in large scale solar. This selection of cases resulted in a more well-rounded view on the subject of PPP in large scale solar, however some guidance was needed to get to the point needed for comparison of the cases. The results of this thesis could help to create a better understanding of CSFs, relevant for large scale solar. Especially for large scale solar projects in congested regions, this research could be used to create a framework to achieve the highest potential of successful PPP. This thesis confirms the potential of PPP for achieving goals of the RES in congested regions. Since the RES will be a Dutch strategy, the results are applicable for PPPs in large scale solar in the Netherlands. In this thesis the PBs and CSF relevant for PPP in large scale solar in congested regions are examined. This thesis confirms, the relevance of the CSFs researched by Osei-Kyei (2015) and the PBs researched by Kwak et al. (2009), for PPP in large scale solar. These two concepts could be used for research in PPP in large scale solar in the Netherlands.

Further research

The subject of CSFs in energy infrastructure is not extensively researched. Since this thesis considers the private perspective of achieving the RES goals by PPP, it would be interesting to test these CSFs for the public sector. This public party perspective is needed to create more established and well-rounded understanding of CSFs for energy infrastructure. Further research should be done on the public party perspective of the elaboration and implementation of PPP in energy infrastructure. Since PPP is considered important for achieving climate goals, further research should be done on the subject of CSFs in energy infrastructure. These CSFs can be used to create conditions for PPP that will accommodate private sector involvement needed for the energy transition.

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Images

Figure 3(Enexis): https://www.enexis.nl/zakelijk/duurzaam/beperkte-capaciteit/-/media/cc37baf8eb1442e1abe2e15953fd7a72.ashx?modified=00010101000000

Figure 3(Liander): https://www.liander.nl/transportschaarste/beschikbaarheid-capaciteit

8. Appendices

8.1 Interview

Voor het starten van de opname

- *Introductie van mijzelf*
- *Toelichten van mijn onderzoek*
- *Uitleg van interview opzet*
- *Vragen naar de tijd die beschikbaar is*
- *Terugblikken op het opgestuurde document met de rechten*
- *Starten opname*

Introductie

1. *Wat is uw rol in het project? (Vragen om kort voor te stellen)*
2. *Kunt u een korte omschrijving geven van het project? (Omvang vermogen in wattpiek, locatie, elektriciteitsnet aansluiting, energie regio)*
3. *Heeft u last gehad van beperkingen van het elektriciteitsnet in uw project?*
4. *Hoe was de samenwerking met de overheid?*
5. *Was deze samenwerking van belang voor uw project?*
6. *Had u deze samenwerking liever anders gezien?*

Ruimtelijke implementatie

- *Het eerste doel van de RES is een betere ruimtelijke implementatie van de grootschalige projecten binnen de verschillende energie regio's. Regio's met een lagere elektriciteitsnet dichtheid hebben vaak lagere grondprijzen. Dit zorgt ervoor dat het voor investeerders aantrekkelijk is om hier te investeren maar het niet mogelijk is in verband met het overbelaste elektriciteitsnet.*

7. Hoe bent u tot deze locatie gekomen voor uw project?
8. Heeft u voor de realisatie ook contact gehad met de omwonende?
9. En heeft u deze ook op één of andere manier betrokken bij u project?
10. Heeft u tijdens het project voldoende informatie ontvangen van de overheid en netbeheerder?
11. Had dit beter gekund?
12. Duidelijke afspraken over de ruimtelijke implementatie van een grootschalig zonnepark kunnen bijdragen aan een efficiëntere aanpak met meer kwaliteit, is dit ook van toepassing geweest op uw project?

Extra kosten gebonden aan keuze van locatie

- *U heeft uw project kunnen realiseren, maar andere projecten zouden dat niet kunnen op locaties waar het elektriciteitsnet vol is. Een van de doelen van de RES is het in kaart brengen van extra kosten die gebonden zijn aan de keuze van de locatie.*

13. Denkt u dat dit invloed heeft op de keuze die een bedrijf zal maken om zich op een bepaalde locatie te vestigen?
14. Zou dit dan kunnen zorgen dat er passende en eerlijke verdeling is van de grootschalige zonneparken?
15. , En een meer efficiënt gebruik van de subsidies?
16. Had deze in kaart gebrachte informatie invloed gehad op de locatiekeuze van uw project?

Lokale initiatieven

- *Als eerder benoemd heeft u wel/geen contact gehad met de omwonende. De RES hecht grote waarde aan lokale initiatieven en betrokkenheid. Een grote barrière zijn dan ook de financiële middelen en informatiemiddelen. Dit willen ze behalen door het inrichten van een expertisecentrum en financiële instrumenten.*

17. Hoe ziet u bedrijf de opkomst van lokale initiatieven?
18. Denkt u dat u als bedrijf bij kan dragen aan het vergeven van informatie en of financiële middelen voor het inrichten van een expertisecentrum?
19. Wat denkt u wat de grootste barrière is voor lokale (Financieel/Kennis) initiatieven en waarom?
20. Ziet u een kans om hier een rol in te betekenen als bedrijf?

Reduceren van kosten door eindigen van SDE+

- *In het jaar 2025 zal de SDE+ subsidie ten einde komen. Op dit moment worde verwacht dat de kostprijs van zonnestroom gelijk zal zijn aan conventioneel opgewekte stroom. Een belangrijke eis is dan wel dat de kosten voor het opwekken van zone stroom zal verminderen.*

21. Heeft u gebruik gemaakt van de SDE+ subsidie?
22. Denkt u dat het reduceren van de kosten van zonnestroom tot 2025 haalbaar is?
23. Bent u ook met deze reductie bezig?
24. Is het voor uw bedrijf haalbaar om na 2025 nog steeds haalbaar is om te investeren in het opwekken van Zonne stroom?
25. Wat moet de overheid doen als dit alsnog mogelijk te maken?

Afstemming uitbreiden elektriciteitsnet en realisatie Zonne parken

- *Het laatste doel van de RES is het ervoor zorgen dat al de opgewekte stroom op het net geleverd kan worden. De netbeheerder en investeerders moeten hiervoor beter op elkaar afstemmen.*

26. Is het bij uw project voorgekomen dat u geen elektriciteit kon leveren omdat het net vol was?
27. Heeft u hieraan hinder ondervonden?
28. Hoe denkt u dat deze afstemming beter kan worden vormgegeven?
29. Had dit achteraf kunnen resulteren in een andere locatie van uw zonnepark?

Afsluiting

30. Denkt u dat een betere samenwerking met de overheid kan bijdragen aan het halen van de doelen van de Regionale Energie strategie?

Einde opname

- *Bedanken voor de tijd*
- *Mening vragen over het interview*
- *Wijzen op het recht dat, hij/zij de transcriptie kan controleren op versprekingen van technischer aard.*

8.2 Consent form

Betreft onderzoek naar de mogelijkheid van het implementeren van de Regionale energiestrategie doelstellingen in de vorm van een Publiek private samenwerking bij grootschalige zonne-parken in gebieden waar het elektriciteitsnet vol zit.

Ik begrijp dat:

O *Gegevens, als u wilt, anoniem worden verwerkt en gebruikt worden in dit onderzoek.*

O *U na afloop van het interview alleen nog de mogelijkheid heeft tot wijzigingen van technische aard (Cijfers)*

Ik verklaar hierbij op voor mij duidelijke wijze te zijn ingelicht over de aard, methode en doel van het onderzoek

Ik verklaar dat:

O *geheel vrijwillig bereid ben om mee te werken aan dit onderzoek*

O *de uitkomsten van dit interview verwerkt mogen worden in een verslag of wetenschappelijke publicatie*

O *toestemming geef om het interview op te nemen*

Respondent

Handtekening: ……

Naam: ……

Datum: ……

Onderzoeker

Ik heb mondeling toelichting verstrekt over de aard, methode en doel van het onderzoek. Ik verklaar mij bereid nog opkomende vragen over het onderzoek naar vermogen te beantwoorden

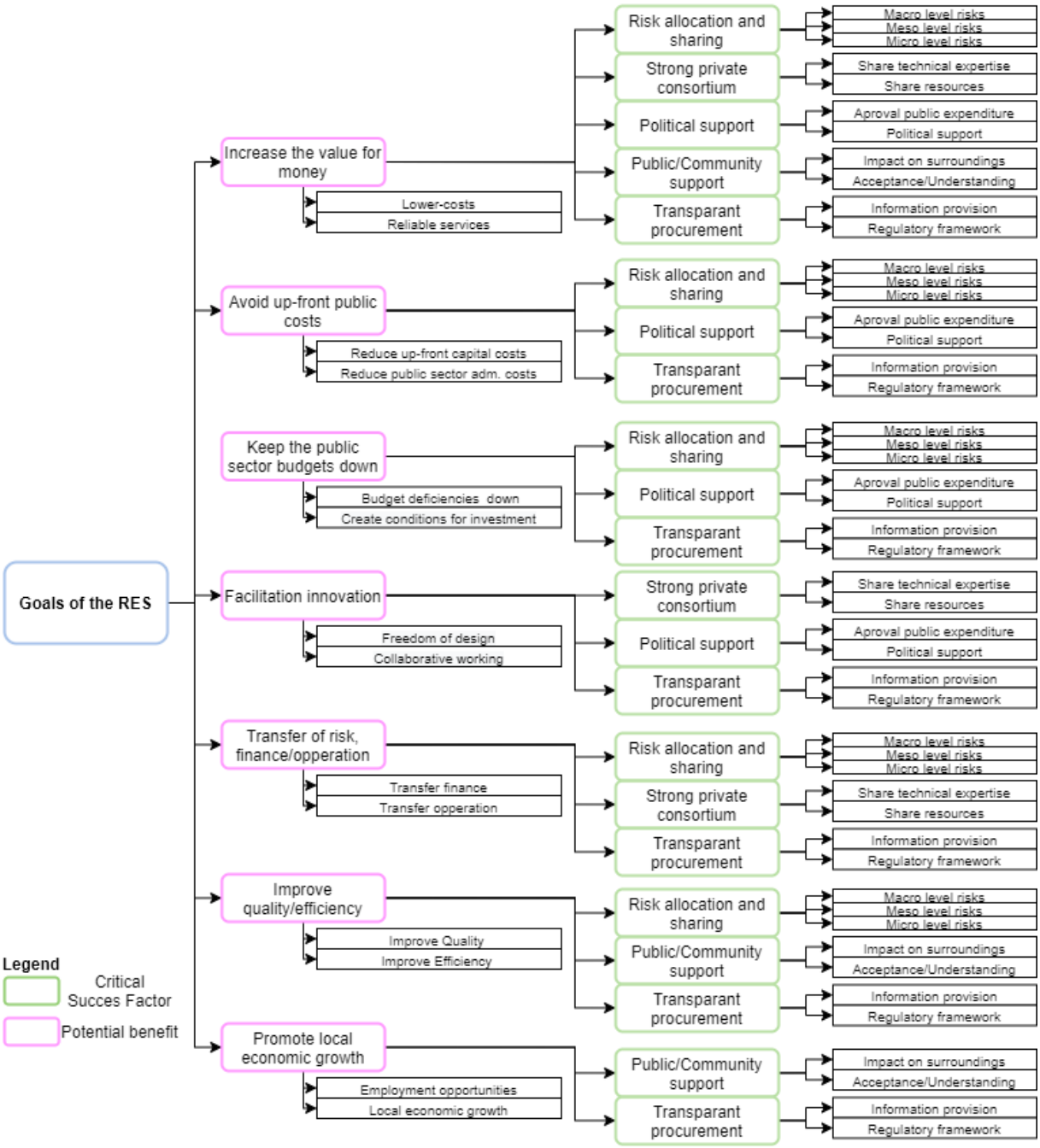
Handtekening: 

Naam: *Jasper Roest*

Datum: ……

rijksuniversiteit groningen

8.3 Code tree


Goals of the RES
Increase the value for money
Lower-costs
Reliable services
Avoid up-front public costs
Reduce up-front capital costs
Reduce public sector adm. costs
Keep the public sector budgets down
Budget deficiencies down
Create conditions for investment
Facilitation innovation
Freedom of design
Collaborative working
Transfer of risk, finance/opperation
Transfer finance
Transfer opperation
Improve quality/efficiency
Improve Quality
Improve Efficiency
Promote local economic growth
Employment opportunities
Local economic growth
Risk allocation and sharing
Strong private consortium
Political support
Public/Community support
Transparant procurement
Macro level risks
Meso level risks
Micro level risks
Share technical expertise
Share resources
Aproval public expenditure
Political support
Impact on surroundings
Acceptance/Understanding
Information provision
Regulatory framework
Legend
Critical Succes Factor
Potential benefit

8.4 Conceptualization of Critical Success Factors and Potential Benefits

Critical Success Factors

Source: Osei -Kyei and Chan, 2015		**Source:**
Risk allocation and sharing	Macro level risks	*Bing et al., 2015*
	Meso level risks	*Bing et al., 2015*
	Micro level risks	*Bing et al., 2015*
Strong private consortium	Share technical expertise	*Osei-Kyei & Chan, 2015*
	Share resources	*Brinkerhoff & Brinkerhoff, 2011*
Political Support	Aproval public expenditure	*Osei-Kyei & Chan, 2015*
	Political support	*Heldeweg, 2015*
Public/community support	Impact on surroundings	Bojer, 2019
	Acceptance/Understanding	*Osei-Kyei & Chan, 2015*
Transparant procurement	Information provision	*Dewulf and Garwin, 2020*
	Regulatory framework	*Jamali, 2004*

Potential Benefits

Source: Kwak et al., 2009		
Increase the value for money	Lower costs	*Kwak et al., 2009*
	Reliable services	*Kwak et al., 2009*
Avoid up-front public costs	Reduce up-front capital costs	*Kwak et al., 2009*
	Reduce public sector adm. Costs	*Kwak et al., 2009*
Keep the bublic sector budgets down	Budget deficiencies down	*Wojewnicik-Flipowska & Trojanowskim, 2013*
	Create conditions for investment	*Wojewnicik-Flipowska & Trojanowskim, 2013*
Facilitation innovation	Freedom of design	*Leiringer, 2006*
	Collaborative working	*Leiringer, 2006*
Transfer of risk, finance/operation	Transfer finance	*Wojewnicik-Flipowska & Trojanowskim, 2013*
	Transfer risks	*Hodge & Greve, 2009*
Improve Quality/Efficiency	Improve quality	*Wojewnicik-Flipowska & Trojanowskim, 2013*
	Increase efficiency	*Wojewnicik-Flipowska & Trojanowskim, 2013*
Promote local economic growth	Employment oppertunities	*Kwak et al., 2009*
	Local economic growth	*Buso & Stenger, 2018*