EPA1424 POLITICAL DECISION-MAKING – GROUP 16

Call to action

Incentivizing large-scale green wind energy and hydrogen production as sustainable solution for the energy transition

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Introduction

*These slides are strictly confidential and to be used by the Ministry of Economic affairs and Climate Policy in order to come up with a favourable solution regarding the reuse of the gas infrastructure in the north sea.

The primary focus of this study will be on identifying the project alternative which has the most benefit for the Netherlands in long term and the strategies the client, Ministry of Economic Affairs and Climate Policy, can use in the negotiation process in order to reach its goals.

First, the client's problem will be identified. Using a thorough non-technical risk assessment, the project alternative which creates the most value and thus the least amount of risks for the client will then be identified. At the end, a strategic management plan has been developed which includes the strategies and interventions which the client can use to address the risks and persuade the stakeholders in order to execute the desired alternative.

Chapter 1

Identifying the Problem

1.1 Problem situation
1.2 Problem perception
1.3 Problem statement

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1. Identifying the problem, *the case* (1/2)

1.1 Problem situation

In 2018, around 85% of the gas reserves in the North Sea, north of the Dutch Wadden area, have been exploited. Expectation is, that from 2023 onwards, it will no longer be economically viable to produce from these fields - meaning, that large parts if not all of the above mentioned platforms and pipelines in the area need to be decommissioned.

In light of the energy transition, there may be opportunities to reuse the existing infrastructure. Gas extractives, grid operators and Ministry of Economic affairs and Climate Policy have proposed potential plans on how to reuse the existing infrastructure in the North Sea. These plans include an Offshore wind energy production above TNG-1 and a Carbon capture and underground storage(CCS).

However, local inhabitants of the Wadden region and other parties operating in that area, such as the Ministries of Agriculture and Fisheries, Defence and Infrastructure, are protesting against their plans.

Furthermore, such plans would require significant investments in technological innovation, as well as a redesign of existing infrastructure. But in order to be able to reuse the current infrastructure, the actors have to cooperate.

However, it is still unclear what the non-technical risks and uncertainties are. All the uncertainties as well as opposing interests of stakeholders hinder the Ministry from smooth execution of the plan.

Thus there is a lot of uncertainty on how the discontinued gas infrastructure in the North Sea will be utilized to achieve long term sustainable development.

1. Identifying the problem, *the case* (2/2)

1.2 Problem perception

Based on the problem situation, the case can be framed as a *multi-issue game*. Multiple actors, with different incentives, form a network of relations and need to reach consensus whether to decommission or re-use the current infrastructure in the North Sea. Because of the many actors involved, which are interdependent on each other, the situation becomes complex very quickly. But in order to re-use the current infrastructure, the actors have to cooperate, as the cost of re-using the infrastructure is too high and the re-use could impose hindrance to actors which are currently operating within the Wadden area. Therefore, these actors might introduce new issues and form coalitions to hinder cooperation and impose deadlocks. The stronger this formed coalition is, the more likely the decision-making process will result in stagnation or a deadlock.

In order to mitigate deadlocks and reach consensus, cooperation is necessary. Therefore multiple issues need to be considered. Thus in order to come to the most valuable alternative decision, the Ministry should focus on the actors involved and on the process i.e. plan follows the negotiations.

1.3 Problem statement

Based on the problem perception, the following problem statement for the client has been formulated: ‘***’How can the Ministry of Economic Affairs and Climate Policy convince other stakeholder groups to implement the the most beneficial alternative?’’***

In the next chapter, a comparative business case will be developed to identify the most valuable project alternative.

Chapter 2

Comparative Business case

2.1 Key Stakeholder groups
2.2 Non-technical risk assessment
2.3 Most valuable project alternative

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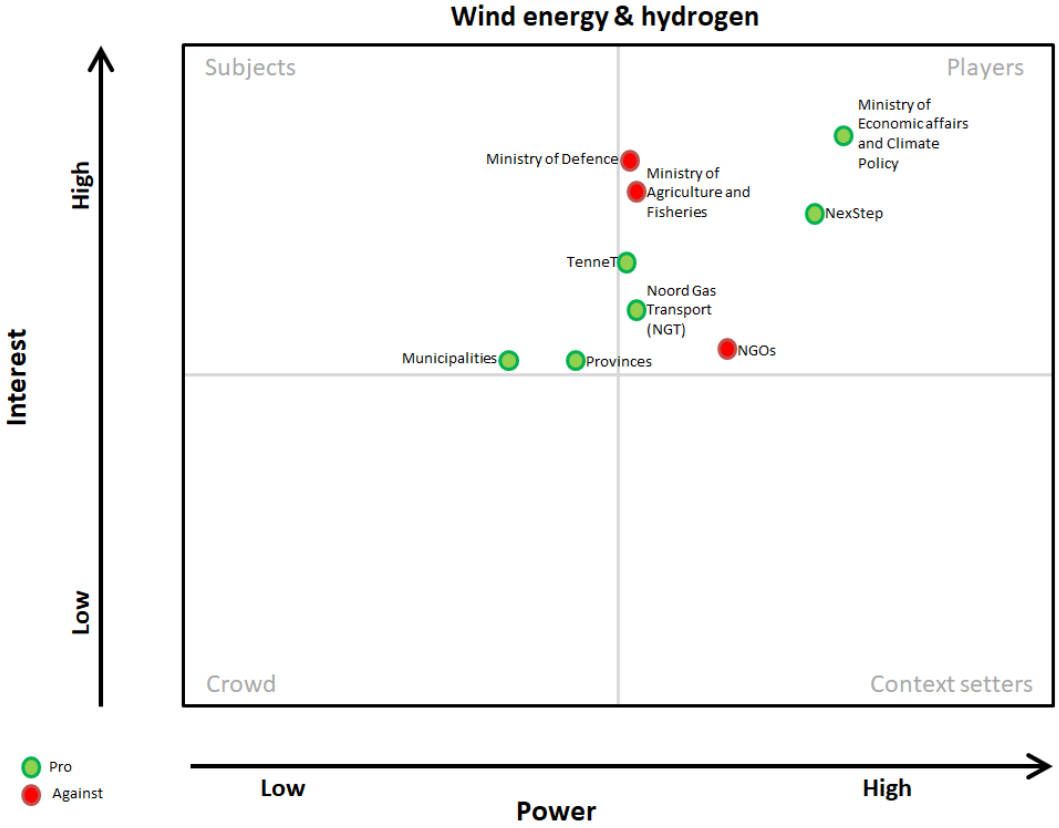
2. Comparative business case (1/5)

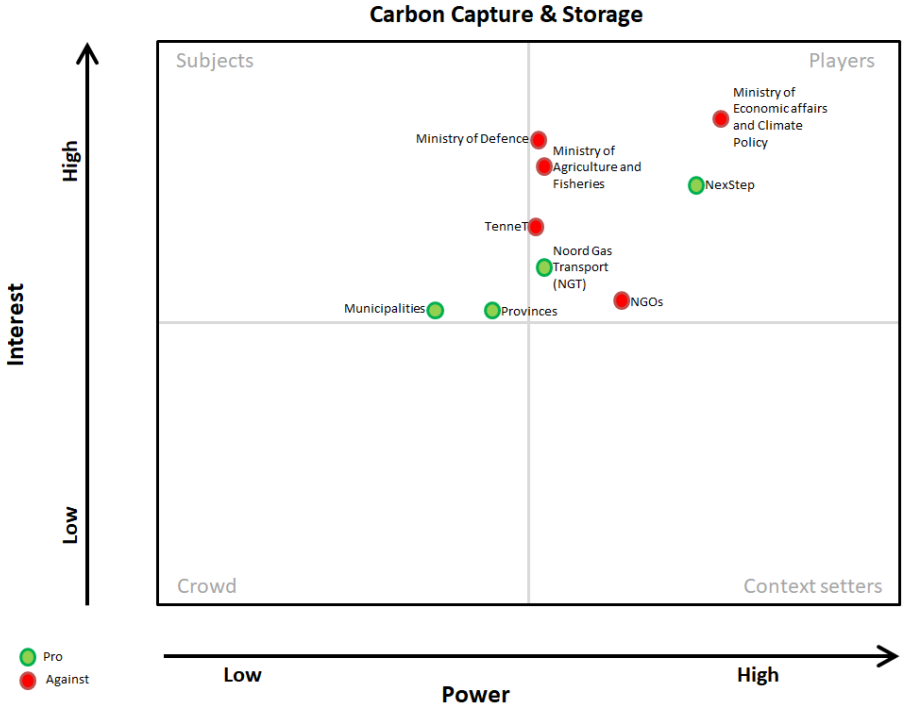
2.1 Key stakeholder groups

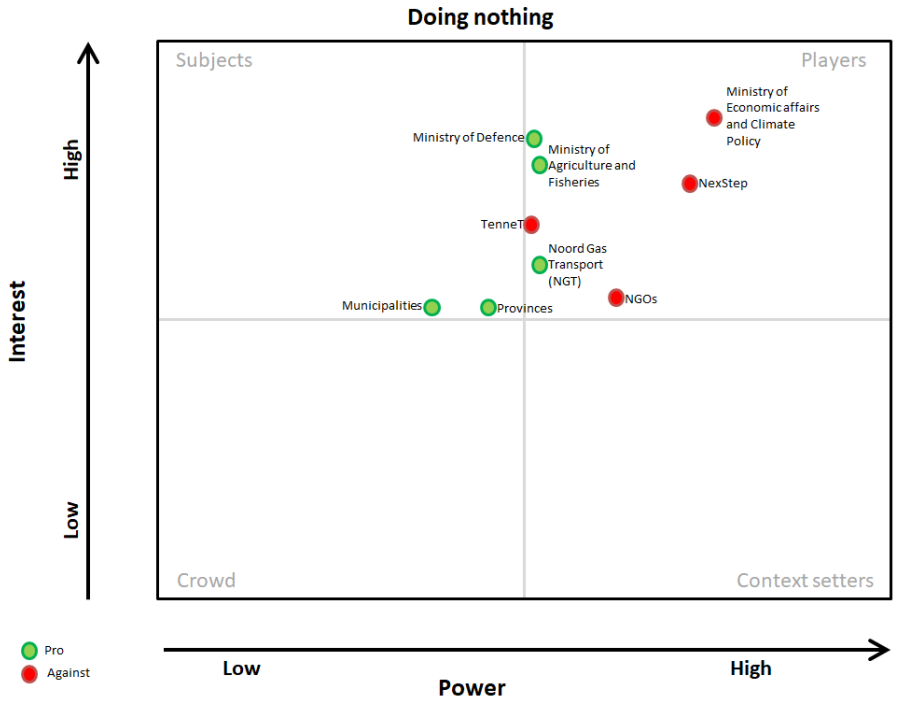
Many organisations and parties are involved in the case. Using the actor scan which can be found in Appendix 1, three **Colorized Power-Interest Grids** have been created. These grids show the important actors and their alignment with each of the considered alternatives. This alignment is visualized by the color of the actors. The position of the actors in the grid does not change for the different alternatives, as the interest and power are measured for the situation as a whole.

As the two most important players, including the Ministry of Economic affairs and Climate Policy and NextStep are against doing nothing, this alternative will not be considered from this point on. Also, it seems that most of the important actors have a preference for wind energy and hydrogen production rather than CCS.



2. Comparative business case (2/5)





2. Comparative business case (3/5)

2.2. Non-technical risk assessment (full analysis in Appendix B)

The seven dimensions in the table below will be used to assess the risk of the two proposed alternatives for offshore hydrogen production: wind energy and carbon capture and storage. One key element from each dimension is shown in this slide, while the full tables can be found in Appendix B.

Dimension	Wind Energy	Carbon Capture and Storage
Technological	Power intermittency and required grid connection	Platform size is small relative to CCS space requirements
Economical	E-grid is expensive but long-term profit potential is high because of potential to optimize the sale of power in peak hours	Long-term profit ceiling because of limited availability of depleted gas fields
Community/Societal	Unattractive seascape for nearby residents	Much less aesthetic damage to seascape
Institutional/Regulatory	E-grid requires additional permits to connect to platforms	Pipes need to be verified for CO_2 and hydrogen transport, the latter is also applicable to the wind alternative
Political	Favors a market solution but is much longer term	Results are seen earlier but are less sustainable
Environmental	Sustainable in the long run, but infrastructure may infringe on nature	Viewed by some NGOs as an unsustainable way to delay proper decommissioning
Time	Long-term with urgent early decision making	Short-term with many urgent decisions to be made throughout the process

2. Comparative business case (4/5)

2.3 Most valuable project alternative

First, before choosing a specific preferred alternative, it is important to emphasize to stakeholders the *costs of doing nothing*. As seen in the power-interest grid in chapter 2.1, there are a few key opponents to the idea of reuse, namely the Ministry of Defence, the Ministry of Agriculture and Fisheries, and the NGO's. As is further discussed in section 3 of this slide pack, it is crucial for the ministry to *frame her vision as a shared vision*, so that everyone is at the table for discussion.

https://english.rvo.nl/subsidies-programmes/offshore-wind-energy

Of the two alternatives (wind energy vs. CCS), wind energy is most favorable. More critical actors favour this alternative, but also three key factors from the seven dimensions used in the non-technical risk assessment (full tables can be found in appendix section B) drive this decision:

1. **Cost**
2. **Time**
3. **Sustainability**

These are further discussed in the next slide.

2. Comparative business case (5/5)

2.3.1 The case for wind energy

Cost: Although initial costs of introducing an e-grid are high, the profit potential of wind energy is higher than that of CCS due to the ability to optimize the sale of power vs. the production of hydrogen. There is also a ceiling on the profit that can be made from CCS because of the limit on storage capacity, which for some specific (depleted) gas fields is relatively small.

Time: The wind power alternative has a longer implementation time, whereas CCS sees results sooner. However, the burden of implementation is outweighed by the commitment to long-term climate goals. Finally, due to its nature, the political process will take significant time regardless, and thus it makes sense to aim for an alternative that will, over a long time, yield the best results.

Sustainability: The CCS alternative will more likely help in achieving the 2030 climate goals, it is however limited and may not help nearly as much for the 2050 goals as the wind energy alternative will.

The key stakeholders to consider are the Ministry of Defence, the Ministry of Agriculture and Fisheries, and the NGO's, as they have power, but are also against the preferred alternative. The strategy outlined in section 3 further discusses how to deal with these stakeholders throughout the decision making process.

Chapter 3

Strategic Management Plan

3.1 Decision-making arena
3.2 Design requirements
3.3 Decision-making process

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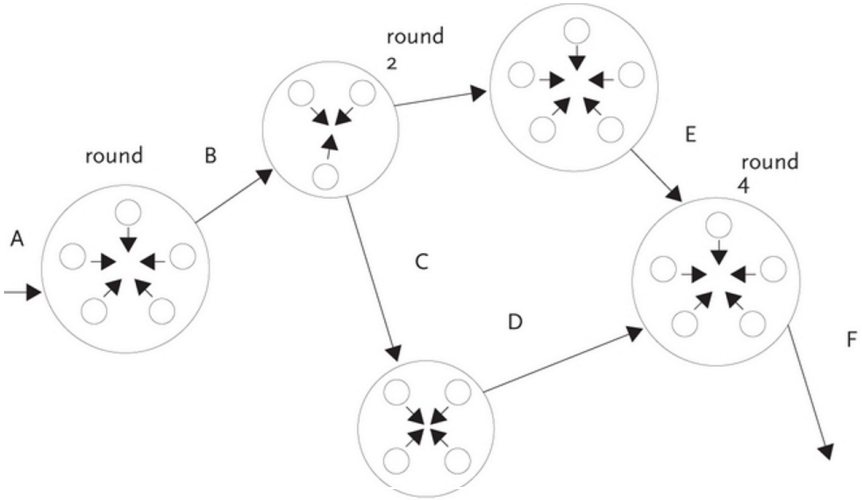
3. Strategic Management Plan (1/11)

3.1 Decision-making arenas

The previous chapter discussed the who and the complexities of a decision-making arena. From the comparative business case, it is clear that generation of electricity through offshore wind mills (plus the production of hydrogen) is the most viable option to reuse the gas infrastructure. While the focus has been on one problem, it should be clear that the Ministry of Economic Affairs and Climate Policy is in multiple arenas with no single starting or finishing point. Decision-making processes in multiple arenas are interwoven with each other (De Bruijn & Ten Heuvelhof, 2018), therefore arenas such as the Paris agreement or the gas industry in Groningen need to be considered as well.

This chapter will include content for the strategy to maneuver in this complex network. Now, the focus should be on how the Ministry should 'play the game' in order for her to get the most valuable project alternative (wind & hydrogen) implemented.



Rounds model conceptualizing different decision-making arenas (Enserink, et al., 2010)

3. Strategic Management Plan (2/11)

3.2 Design requirements

In order to develop a proper solution space for the problem, design requirements are drafted that define how the decision-making process should look like (De Bruijn, et al. 2010). The requirements are that the strategy design should incentivize actors to join the coalition, commit to it, and stay in it.

The first step is to make key players *join* the coalition. However, it is also important to include those who can complicate the process when not taken into account. Another criterium is to create a sense of urgency for early participation. Selection of actors plays an important role in demarcating the boundaries and managing complexity.

The second step is to make the parties *commit* to the process. This will ensure that the process taking place is guaranteed, without guaranteeing a specific result.

The third step is that the process will make parties *stay*, whether or not the proposed alternative was their initial preferred solution.

Join

The process should incentivize/convince parties to join the coalition

Commit

The process should incentivize parties to commit to the process

Stay

The process should convince parties to stay regardless of the alternative

3. Strategic Management Plan (3/11)

3.3 Decision-making process

Based on the previous defined requirements, the following decision-making process is drafted. Also, strategies are indicated through which the Ministry can address the aforementioned problem statement: ***'How can the Ministry of Economic affairs and Climate Policy convince other stakeholder groups to implement the the most beneficial alternative?'*** In this case, the most beneficial alternative is considered the large-scale implementation of wind energy and hydrogen production.

Incentivize parties to join a coalition

- ☐ Broadening the problem definition to establish a multi-issue agenda
- ☐ Use the window of opportunity to develop sustainable projects in the North Sea

Convince parties to commit to the plan

- ☐ Smart Command and Control only in terms of procedures to promotes the process of interaction
- ☐ Use negotiated knowledge to arrive at a good and supported picture of the problem(s)

Incentivize parties to stay in coalition

- ☐ Framing to change the perceptions of winners and losers
- ☐ Provide prospects of gain in future projects on the North Sea for possible losers

3. Strategic Management Plan (4/11)

3.3.1 Incentivize parties to form coalition

Broadening the problem definition to establish a multi-issue agenda

The problem lies in a network arena where actors have interdependencies. Thus, if an individual problem perception is the basis for a solution, other actors that disagree with this perception would hinder its implementation. In other words, *it is necessary to broaden the problem definition to encompass the perception of a multitude of actors that operates in the network*.

The problem definition, thus, should not be framed as only about the decommissioning and possibilities of re-use - it should consider the future of the North Sea as a whole. More specifically, when addressing this issue to other actors, the Ministry should explain the problem as: *'How the North Sea territory could be used to provide a better future for the Dutch society?',* also taking the economic and other aspects of the re-use into account.

Furthermore, each area of the North Sea is most valuable for a particular function. Despite the fact that there are overlaps, by broadening the agenda it is more probable that all actors are going to be satisfied by a better allocation of the area which in turn generates more value.

The bullets points in the right portion of this slide show non-exhaustive examples of how the most relevant actors may benefit from such a broad definition.

- Provincial states/Municipalities: Activities in the North Sea may create jobs in their territory
- Ministry of Agriculture: Extra territory can be used for fishing in the North Sea in the future
- Gas Extraction Companies: Decommissioning cost can be reduced by re-using the gas infrastructure
- Environmental NGOs: CO2 emission can be reduced by developing sustainable solutions in the North Sea
- General Public: Solutions that are sustainable are in demand for the general public and they can be involved in the Future of the North Sea project
- Ministry of Defense: Strategic spots that are used for gas extraction nowadays can be provided to the Ministry of Defense in the future
- Ministry of Infrastructure and Water Management: New shipping routes can be created in some parts of the decommissioned territory, room can be made to increase sea defences.

3. Strategic Management Plan (5/11)

3.3.1 Incentivize parties to form coalition

Window of opportunity

The present moment is perfect to propose the usage of green hydrogen at the North Sea for the following reasons:

- The offshore extraction of gas has a deadline and the decommission project should start in the upcoming years, which opens physical room to the development of wind farms
- The Paris Agreement became effective only three years ago (2016) and the Netherlands is committed to reduce its carbon dioxide emissions which puts pressure on the cabinet
- Dutch people's positive perception about sustainability policies is growing (Green Party is growing, there are protests against global warming, etc)
- Provincial state's residents (the locals) are worried and protesting about the increasing risk of earthquakes due to gas extraction activities and, thus, are more keen to accept the development of other ventures in the North Sea if this risk is reduced by the reduction of gas extraction
- Wind farms may open room for the creation of jobs which is one of the issues northern provinces have been protesting since they have been losing jobs over the last years

As a result, there is a unique opportunity to satisfy multiple actors in the project. However, *this opportunity only exists at the present moment* because the interest of the actors may shift over time.

A sense of urgency to use this *window of opportunity* is required. This can be accomplished by showing the *cost of doing nothing*:

- Gas extraction activities may continue for more time to compensate the rise of the cost of decommissioning which would increase earthquake risk and carbon emissions
- The aforementioned financial cost would also be shared with the taxpayers since the public sector has stakes in a significant portion of the offshore activity
- The job prospects are not going to increase if new projects are not developed in the North Sea

3. Strategic Management Plan (6/11)

3.3.2. Incentivize parties to stay in the coalition

Smart command and control in terms of procedures

The disadvantages of process-based strategies, such as dissatisfied outcomes and suboptimal processes which take too long mentioned in De Bruijn & Ten Heuvelhof (2018), can be mitigated with command and control measures due to the strong position of the Ministry of Economic Affairs and Climate Policy within the arena.

For the Ministry to exercise authority in this way, it needs to become more institutionalized with rigid governance rules outlining the influence that the Ministry can exert on participating parties. Parties are more willing to accept a command and control style as the *threat of non-decision-making* is disastrous, due to earlier priming with the cost of doing nothing.

One of the dangers of broadening the multi-issue agenda is that it becomes too vague (De Bruijn & Ten Heuvelhof, 2018), to the point where stakeholders will not participate. The solution here is for the Ministry to *make it clear that they intend to set up a project* in the North Sea regarding the decommissioning of platforms to draw in stakeholders as it affects them.

The following procedure guidelines are considered: In the rules, the Ministry can include an *exit option*, which can be used under certain conditions. Parties, for example, may not use the exit option before they have completed the process properly. Once the parties are intrinsically motivated, the Ministry should *freeze the rules of the game* so that parties know that they cannot easily step out of the coalition.

By providing such clear structures and rules, parties stay committed to the coalition. Therefore, the Ministry needs to maintain control and focus of discussion and thus become the leading authority in the decision-making arena.

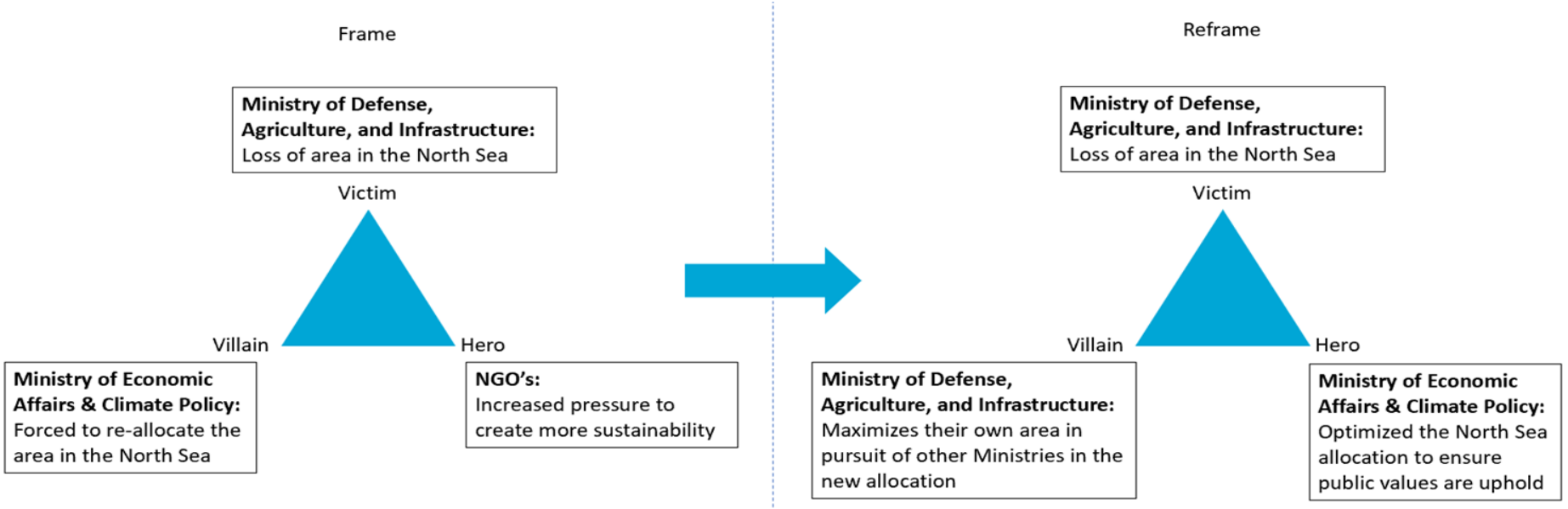
3. Strategic Management Plan (7/11)

3.3.2. Incentivize parties to stay in the coalition

Smart command and control in terms of procedures

Without command and control it is possible that the 'losers' of the game, such as Agriculture (fisheries) and Defence for whom most of the space that they expect to gain ends up going to reuse activities, will block the coalition no matter what.

However, by claiming that area is needed in the sea for re-use purposes, *it will not become an issue if space could be allocated in an optimal way that benefits all.* For example, Defence is victimized by both Agriculture and Infrastructure, as they are the villains that take away their space, which will make them rather think of how to maximize their new space (De Bruijn & Ten Heuvelhof, 2018).



3. Strategic Management Plan (8/11)

3.3.2. Incentivize parties to stay in the coalition

Negotiated knowledge

Knowledge in this problem situation is not necessarily agreed upon by all actors, due to the perspectives and demarcations of the system that different stakeholders have. De Bruijn & Ten Heuvelhof (2018) mention strategic behaviors than can arise from information-asymmetry between different stakeholders. These will now be applied to the current case to identify these strategies that can be used against the Ministry.

Certain operational companies, such as platform owners and decommissioning companies, in the North Sea hold more information on the technical details due to the complicated field they work in. The public, however, lacks a lot of information regarding the process. This creates mistrust between these parties, as confidence becomes low in upholding public values. Bad PR, stemming from terms such as *greenwashing*, can prevent willingness to reuse. An important strategy is to take control of the media narrative by being *transparent and publicizing the (positive) impact on the environment*. This creates an intrinsic motivation for reuse among the coalition members.

More importantly, the technical details of the project, can be twisted and changed into a narrative. The scope, risks, and uncertainties of such a complex issue can be chosen such that their preferred alternative comes out on top. While this is inherent to complex problems, the Ministry needs to *increase their own knowledge* so that they understand the intention of other actors.

Picture made by Ansonlobo from https://commons.wikimedia.org

3. Strategic Management Plan (9/11)

3.3.3. Convince parties to commit to the plan

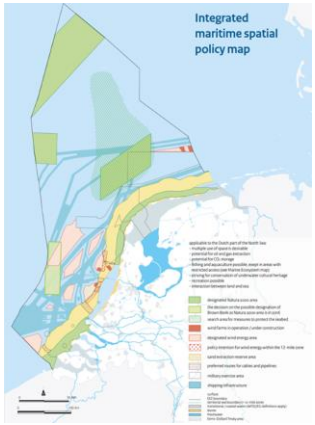
Framing to change the perceptions of winners and losers

It is very important that both the winners and losers are satisfied with the process. As continuation of the process might be important, winners should not distance themselves and losers should not sabotage the project (De Bruijn & Ten Heuvelhof, 2018).

The 'losers' of this situation will most-likely be the Ministries of Defence, Agriculture, and Infrastructure due to the loss of important areas in the North Sea. There are several techniques that can be applied to overcome them from really 'losing,' such as *framing* and a *prospect of gain*.

Framing is critical as these Ministries are representative of other parties in the North Sea, such as fisheries and ports. Therefore, they need a frame to keep their mandate. Reallocation of the North Sea can be seen as a loss of current areas, however it also offers the *opportunity for a better zoning plan than before*. The Ministries can all take advantage of this reallocation.

The *prospect of gain* will also mitigate the 'loss' these parties take. Not only is zoning affected but one could also perceive a loss in monetary value, because of the 60/40 split of a platform shared between private and public companies. respectively. That is why it is important to create a *prospect of gain with a viable business case* in the future. The viable business case offered by the Ministry could be subsidizing the wind and hydrogen alternative to remove starting risks. More examples follow in the next slide.



Map borrowed from Policy Document on the North Sea 2016-2021. (2015).

Icon made by Nikita Golubev from www.flaticon.com

3. Strategic Management Plan (10/11)

3.3.3. Convince parties to commit to the plan

Provide prospects of gain in future projects on the north sea

By providing prospects in future projects in the North Sea, two strategies can be countered: (1) possible losers that may want to hinder the execution of the deal would have less incentives to do so since they would enjoy benefits if they commit to the project on the long run; (2) winners that have already enjoyed their profits would continue to have benefits to profit in further projects discussed by the coalition and, thus, they would have less incentives to engage on post-decision opportunism.

It is difficult to precisely identify the losers before the package deal is defined but, surely, in the long term there is more flexibility to change the activities done in the North Sea and, thus, more opportunities available for these actors to profit. Besides, since the problem definition was enlarged, *considering a broad scope and large time frame at the same time multiplies the possibilities significantly*.

The bullets below give some examples of possible improvements in the North Sea that could be discussed/proposed for some possible losers to be implemented in the future

- Many possibilities of combination of activities that are not clear now can become clearer in the future, which may leave room for some actors to profit (e.g. a combination between wind farms and nature with existing marine fishing practices are expected to happen in the future and this projects can be prioritized if the fishing companies perceive themselves as losers)
- If the energy efficiency increases in the future and less physical space for energy generation in the North Sea is required, actors that perceived to had lost territory (possibly the Ministry of Defense, Ministry of Transport and Fishing Companies) could enjoy an enlargement of the area used for their activities.
- Areas that prove to have an exceptionally high value for a certain function can be allocated to actors that execute this functions - in the short term dramatic changes of activities like these are costly but in the long run, it is not when assets are depreciated and investments have already paid back.
- Since the North Sea coalition is likely be maintained in the long run, knowledge gaps are going to be addressed over time and, thus, when new possibilities arise, demands of actors perceived as losers can be prioritized (e.g. little is known about the use of decommissioned oil and natural gas platforms for nature and this research can be prioritized if green activists feel that they are losers so in the future they would profit from the coalition)

3. Strategic Management Plan (11/11)

3.3.4. What if the wind farm plan is not desired by other parties?

Despite the fact that we believe that the building a wind farm is the better solution for the long term as the comparative business case mentioned, it may occur that our perception was different than those of the actors involved. In this case, when the multi-issue game is happening, actors may state that they prefer other solutions (for instance, the total or partial implementation of CSS solutions). In this scenario, during the multi-issue game, the Ministry should adopt the alternative strategy if it fits its best interests and core values. *The Ministry should try its best to get to a mutual agreement that benefits the parties involved (including itself) even if this agreement does not seem to be the one that it anticipated as the best at start*.

Thus, if the multi-issue agenda proves that the green hydrogen would not satisfies the actors, instead of insisting on it, we suggest the Ministry to change it to the CSS (partially or totally depending on the actors opinion), as a Best Alternative to a Negotiated Agreement (De Bruijn & Ten Heuvelhof, 2018).

Picture by Nick Youngson from http://www.picpedia.org/highway-signs/p/plan-b.html

Chapter 4
Conclusion

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4. Conclusion (1/1)

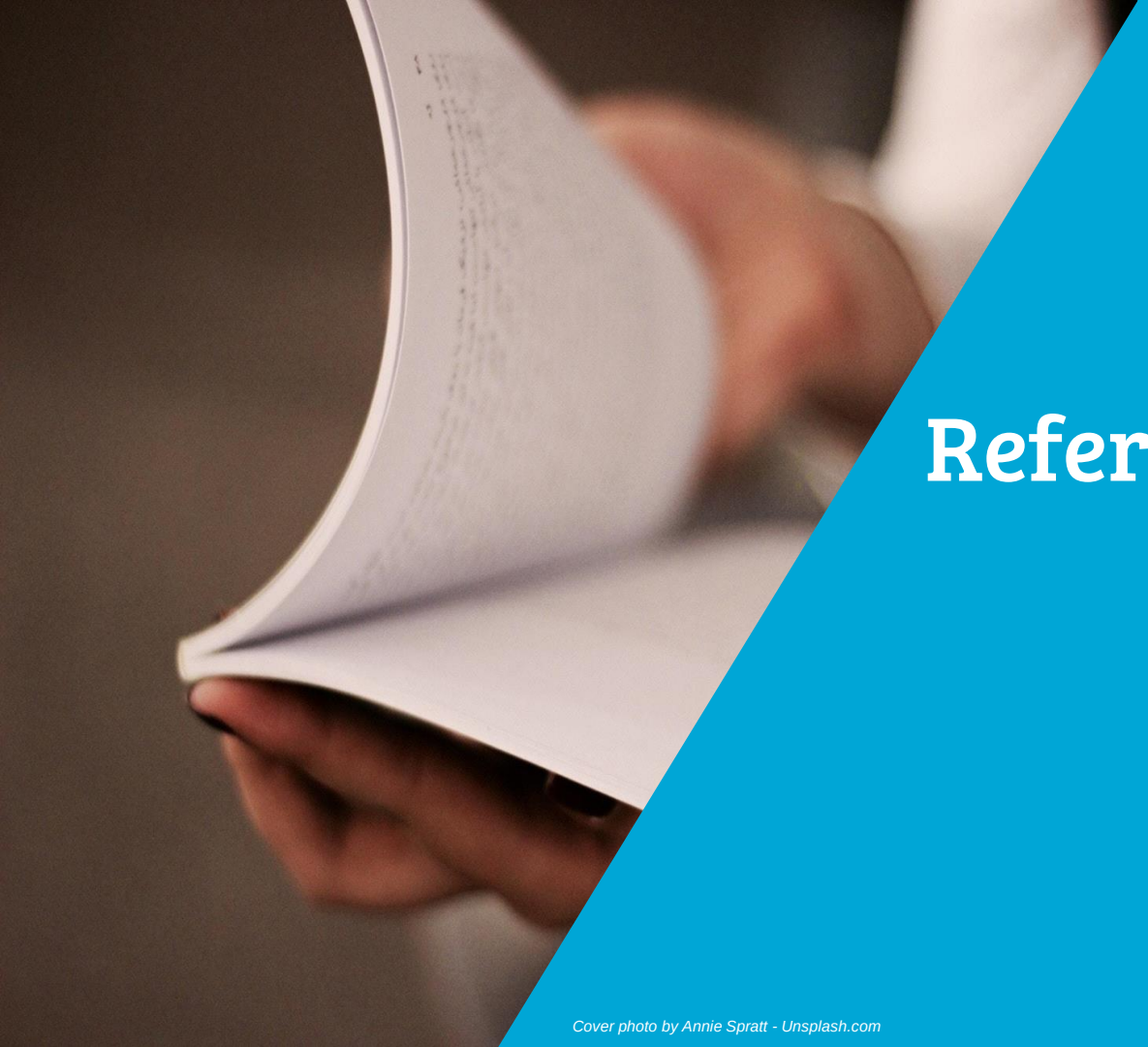
The problem statement as stated in this slide pack is: ‘***’How can the Ministry of Economic affairs and Climate Policy convince other stakeholder groups to implement the the most beneficial alternative?’***

After performing a case study, it is found that establishing large-scale production of wind energy and hydrogen is the most beneficial alternative, due to the sustainable character and the long-term vision. Also a possible strategic way of convincing the stakeholders to implement this alternative has been worked out and reported.

Ministerie van Economische Zaken en Klimaat

In order to increase the probability of successfully implementing the wind energy plan the Ministry should follow three essential design requirements. The first requirement is to make parties join the coalition by broadening the agenda and making use of the window of opportunity. The second requirement is to get the parties committed, which can be achieved with smart command and control and have measures in place to deal with negotiated knowledge. The focus here is that the process follows accordingly. The third requirement is for the parties to stay regardless of option chosen, by making sure the perceptions of winners and losers of the process is fair. This can be achieved with framing and prospect of gain.

It is important to realize that a strategy needs to be flexible in a network. While the main strategy allows the Ministry to have a grip on the direction, the complex situation they are in means that the process should have priority over the end result. The relations between parties need to be reliable for effective governance.



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Appendices

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Appendix A – Stakeholder analysis

APPENDIX A (1/17)

This Appendix covers three different techniques used to organize the actors involved in this problem and categorize them according to the part they play. First a broad actor list is made, which lists potential actors involved with the problem, which will serve as the base for further analysis.

In the second section, actors were tabled together with their objectives and interests and after that with the gap that they have regarding the topic, the existing solution they favour and lastly if they are aligned with the problem owner or not. Using the results of these tables a last table was created, containing the importance of the resources the actors have and also the level of dependency of the actors, which together led to the classifying the actors as critical- and non-critical actors.

Appendix A – Stakeholder analysis

APPENDIX A (2/17)

A.1 Actor list

This section contains the actors included in the analysis for the problem. The actors are chosen based on their (potential) role they can play in the possible re-use of the existing infrastructure. For each actor an explanation is given for their initial inclusion.
Client: Mark Hooftman of the Dutch Ministry of Economic affairs and Climate

International stakeholders

- EU:
  - Directorate-General Energy
- North Sea Alliance

National Dutch government

- NexStep - Dutch national platform for reuse and
- The Netherlands Ministry of Economic Affairs and Climate
  - Directorate-General for Climate and Energy
- The Netherlands Ministry of Agriculture and Fisheries
  - Directorate-General for Nature, Fisheries and Rural Affairs
- The Netherlands Ministry of Infrastructure and Water Management
  - Rijkswaterstaat
  - Inspectie Leefomgeving en Transport
- The Netherlands Ministry of Finance
  - The Directorate-General of the Budget
  - States-Provincial of North-Holland and Friesland
  - Municipal council of affected municipalities

Appendix A – Stakeholder analysis

APPENDIX A (3/17)

A.1 Actor list (continued)

Oil and gas stakeholders

- EBN - 40% owner of Dutch oil & gas production infrastructure. They execute parts of the climate and energy policy for the Ministry of Economic Affairs. Traditional focus on gas and oil but now also new energy.
- NOGEPA - (Special) Interest group for the Dutch oil-and gas industry.
- IRO - “The Association of Dutch Suppliers in the Oil and Gas Industry and Offshore Renewable Industry”
- NexStep - Dutch national platform for reuse and decommissioning where the sector gets together. Initiative by EBN and NOGEPA.
- Decom North Sea - “The Decom North Sea Member Directory contains details on our membership of 350+ *companies* working across the *decommissioning* sector”.
- NGT (NoordGasTransport)
- Nuon Magnum power plant

Regulators

- Staatstoezicht op de Mijnen (SODM) - Dutch public authority (independent supervisor) on safety of people and environment for energy production in soil.
- Netherlands enterprise agency

NGO’s

- Greenpeace
- Oceana EU
- Stichting De Noordzee
- TNO

Parties affected by operations in the North Sea

- Ministry of Defense
- Local residents
- TenneT (electricity)
- Ports

Appendix A – Stakeholder analysis

APPENDIX A (4/17)

A.2 Actor characteristics

In this section the list of actors will be analysed regarding their interest in the problem, but also their level of power and their important resources. The usage of the three different tables in this section will point out critical actors that will have to be taken into account in the arena. Note that some actors have been aggregated into one, such as the NGO's, as the individual actors have similar interests and power.

Actor objectives and level of interest

The interest of the actors can be analyzed by looking at their strategic and problem specific objectives (Keeney, 1992). Based on both objectives, a level of interest is formulated per actor. Note that the reported interest does not include a direction; A high interest can mean that the actor is either highly against the implementation or that the actor strongly supports the implementation. An overview of the actor's objectives and interests are shown in table 1.

Appendix A – Stakeholder analysis

APPENDIX A (5/17)

Actor objectives and level of interest (continued)

Table 1

Actor	Strategic objective (Values)	Problem specific objectives (Goals)	Interest level (L/M/H)
Ministry of Economic affairs and Climate	Progressive-liberal Minister and thus, prefers sustainable market solutions Economic growth (Strong competitive position, through stimulating innovation and exploit the economic and social opportunities of digitization. Aligning sustainability and economic development.)	In the 'Kilimaatagenda' the government is striving to contribute to climate change with a CO2 reduction of 80-95% in 2050 Re-use the North Sea area to achieve sustainable and economic growth.	High
Ministry of Agriculture and Fisheries	Fair and responsible agriculture and fisheries Recovery and preservation of Dutch nature	Farmers, gardeners and fishermen must have an economic perspective and produce in connection with values of sustainability and well-being. Keep the area used for fishing in the North Sea	High

Appendix A – Stakeholder analysis

APPENDIX A (6/17)

Actor objectives and level of interest (continued)

Ministry of Infrastructure and Water Management	Improving quality of life, access and mobility in a clean, safe and sustainable environment	Maintain good condition for maritime waterways	Low
Ministry of Finance	Ensure good financial health and prosperity of the Netherlands	To invest in an infrastructure alternative in the North sea which is financially viable and brings a high ROI for the Netherlands as a whole	Medium
Ministry of Defence	Create a world of freedom and security. Ensure safety of Dutch citizens	Ensure that marine operations are not disrupted due to infrastructure projects.	High
European Union	Sustainability Economic growth	Reach the Paris Climate Agreement for 2030: emit at least 49 percent less greenhouse gases in 2030 compared to 1990.	Low
North Sea Alliance	Accelerate the implementation of a resource-efficient Europe by strengthening the research and innovation potential of European regions	Strive towards efficient reuse of infrastructure in the north sea	Medium

Appendix A – Stakeholder analysis

APPENDIX A (7/17)

Actor objectives and level of interest (continued)

SODM	Committed to human safety and the protection of the environment in energy extraction and use of the subsurface	Safeguard the environment and the safety of workers in the process for developing new infrastructure for oil platform reuse	High
NGOs	Sustainability	Preservation of Natural Habitats	High
Local residents	Quality of Living Preservation of their region nature	Sustainability, preservation of the natural habitat Local jobs	Low
TenneT	Ensure reliable and uninterrupted supply of electricity	To efficiently transmit the electricity generated from offshore wind power to local grids	Medium
Ports	To enhance the port's competitive position as a logistics hub and world-class industrial complex	The project should not affect negatively ship's routes	Low

Appendix A – Stakeholder analysis

APPENDIX A (8/17)

Actor objectives and level of interest (continued)

Municipalities	Protection of the local population and environment Local economy	To create jobs, collect taxes and protect the environment	Medium
Provinces	Sustainable spatial development Regional economy	To create jobs, collect taxes and protect the environment	Medium
NexStep	Serve as an umbrella organization coordinates on the re-use and decommissioning agenda for oil and gas infrastructure in the Netherlands.	Reach a solution that involves re use of infrastructure in the north sea	High
Netherlands Enterprise agency	Stimulate entrepreneurs in sustainable, agricultural, innovative and international business	Assess tenders form different offshore wind companies and grand the bid and subsidies to the best tenders	Low
Noord Gas Transport (NGT)	Ensure safe transportation of gas from its production site to storage site	To transport the Hydrogen gas produced from electrolysis at TNG 1 to land for storage or for further usage	Medium

Appendix A – Stakeholder analysis

APPENDIX A (9/17)

Actor objectives and level of interest (continued)

Nuon Magnum power plant	Drive the transition to sustainable fossil free energy use	Interested in possibility of Hydrogen supply from the depleted gas platforms	Low
Decom North Sea	Enhance knowledge transfer and facilitate collaborative activities to deliver “innovative models” that minimise decommissioning costs	Provide technical support for the decommissioning of oil platforms	Low
IRO	Maintaining and strengthening the position of the Dutch Oil, Gas and Offshore Renewable industry with focus on efficiency, innovation and sustainability	Ensure that oil companies are not at loss in the process of decommissioning	Low

Appendix A – Stakeholder analysis

APPENDIX A (10/17)

Overview of actors' problem perceptions

With the interests and objectives of the actors known, an overview of actors' problem perceptions can be made. Table 2 provides information on how the each actor perceives the seriousness of the problem by looking at the existing gap. Furthermore, it will conclude which perceptions are aligned with the perceptions of the problem owner. If actors have similar causes for the gap and similar favoured solutions they agree on what the exact problem is and how to solve it. It gives insight into potential key actors.

Table 2

Actor	Existing gap	Causes for gap	Favoured solution	Alignment with client (S/N/O)
Ministry of Economic affairs and Climate	Time gap issue: decision is due in 2022 Paris agreement of 2030	Political decision making process, bureaucracy, regulatory mismatch, business conflict, incipient technology	Not decommissioning	Support
Ministry of Agriculture and Fisheries	Want to have more fishing area and fish reserves	There are regions that fishing are prohibited due to other activities like gas extraction	Decommissioning	Opposed

Appendix A – Stakeholder analysis

APPENDIX A (11/17)

Overview of actors' problem perceptions (continued)

Ministry van Infrastructure and Water Management	New infrastructure projects will impact the shipping routes and maritime defense	Reuse of existing infrastructure needs new infrastructure to be built	Decommissioning	Opposed
Ministry of Finance	CSS should be financed by private income Development of new offshore wind infrastructure might be too expensive	Companies would prefer the government to pay for the CSS infrastructure (at least part of it) New technology needed to expand the grid structure	Private financing of CSS or Wind mills Invest in knowledge groups to develop innovative methods	Support
Ministry of Defence	New infrastructure projects will impact the maritime defense operations	Reuse of existing infrastructure needs new infrastructure to be built	Decommissioning	Opposed
European Union	CO2 emission are higher than it should be	Energy transition is in low pace across Europe	CSS or Wind mills	Support

Appendix A – Stakeholder analysis

APPENDIX A (12/17)

Overview of actors' problem perceptions (continued)

North Sea alliance	There are many roadblocks to efficient re use of oil and gas infrastructure	Many stakeholders are opposed to offshore windmills	Wind mills	Support
SODM	Reuse of gas infrastructure could harm the marine environment	New infrastructure is needed to be set up to reuse the oil and gas production facilities	Decommissioning	Neutral
NGOs	Nature should be preserved and CO2 emissions reduced	Low pace for energy transition and degrading nature overtime	Decommissioning	Opposed
Local residents	Central government ignore local interests	Policies aimed at global problems (eg. climate change, migration) ignore local problems	No favoured solution	Neutral
TenneT	The grid is too small to absorb the electricity generated from offshore wind power	Scenario of expansion of offshore wind generation in North sea not foreseen	Transfer the overload electricity to TNG-1 and focus on expanding the existing grid	Neutral

Appendix A – Stakeholder analysis

APPENDIX A (13/17)

Overview of actors' problem perceptions (continued)

Ports	Planned projects affect port operations	Offshore windmills resulting in disruption of smooth operations	CCS	Opposed
Municipalities	New infrastructure projects affect the livability of the area, but gives opportunity for new jobs	Plans for reuse of infrastructure needs partially new infrastructure	A solution that does not require new infrastructure	Neutral
Provinces	New infrastructure projects affect the livability of the area as well as the natural environment, but gives opportunity for new jobs	Plans for reuse of infrastructure needs partially new infrastructure	A solution that does not require new infrastructure	Neutral
NexStep	There are many roadblocks to efficient reuse of north sea infrastructure	Many opposing stakeholders to proposed solutions of reusing the infrastructure	CCS or Wind mills	Support
Netherland enterprise agency	Electricity from offshore wind generation is only connected to land-based grid	No offshore grid infrastructure, TenneT controls the land-based grid	Re-use that facilitates offshore wind farms	Support

Appendix A – Stakeholder analysis

APPENDIX A (14/17)

Overview of actors' problem perceptions (continued)

Noord Gas Transport (NGT)	Largely only able to / familiar with the transport of natural gas (no infrastructure for transporting other materials)	New energy goals because of climate change, transition is ongoing	Work with TNG 1 and other stakeholders to coordinate the transport of Hydrogen to land	Support
Nuon magnum power plant	Not enough resources available to generate electricity by Hydrogen and natural gas	Less investments in Hydrogen power plants	Wind mills	Support
Decom North Sea	Decommissioning of the gas infrastructure is very costly	Exploring gas in North sea is no longer viable financially	Use innovative technologies to reduce decommissioning costs	Neutral
IRO	Decommissioning will put the oil and gas companies at loss	Exploring gas in North sea is no longer viable financially	CCS or wind mills	Support

Appendix A – Stakeholder analysis

APPENDIX A (15/17)

Critical actors based on resources

With the conclusions from tables 1 and 2 in mind, the next part of the scan focuses on the classification of actors as critical or non-critical. Critical actor are impossible to leave out of the decision-making (Enserink et al., 2010), which is why it is important to know what actors should be treated as such. The classification is done based on the resources actors have and the level of importance and substitutability of these resources. The results obtained are outlined in table 3.

Table 3. Identification of critical actors based on resources

Actor	Resources	Importance of resource	Concentration of control	Critical actor?
Ministry of Economic affairs and Climate	Financial resources, regulation	High	High	Yes
Ministry of Agriculture and Fisheries	Litigation against EZK to preserve fishing areas	High	High	Yes
Ministry van Infrastructure and Water Management	Litigation against EZK to preserve waterways	Low	Low	No

Appendix A – Stakeholder analysis

APPENDIX A (16/17)

Critical actors based on resources (continued)

Ministry of Finance	Financial resources	Medium	Medium	No
Ministry of Defence	Litigation against EZK to preserve training areas	High	Medium	Yes
European Union	Subsidies	Medium	Medium	No
North Sea alliance	Technology, Research	Low	Low	No
SODM	Regulatory power	Medium	Medium	No
NGOs	Protests, Litigation	Medium	Medium	Yes
Local residents	Local protesting can induce deadlocks	Medium	Low	No
TenneT	Infrastructure and Technology	High	Low	Yes
Ports	Protest and lobbying	Low	Low	No
Municipalities	Emit permission	Medium	High	Yes

Appendix A – Stakeholder analysis

APPENDIX A (17/17)

Critical actors based on resources (continued)

Provinces	Protest and litigation	Medium	High	Yes
NexStep	Lobbying	Medium	Medium	Yes
Netherlands Enterprise agency	Cognitive	Low	Low	No
Noord Gas Transport (NGT)	Technology, infrastructure	High	Low	Yes
Nuon Magnum power plant	Infrastructure, Technology	Medium	Low	No
Decom North Sea	Technology	Low	Low	No
IRO	Lobbying	Low	Low	No

Appendix B – Non-technical risk assessment

APPENDIX B (1/7)

Technical Dimension	Wind energy	Carbon Capture Storage
Reliability	Intermittency	Limited availability of natural gas and CO_2 storage capacity
Grid connection	Required but does not exist yet	Not necessary
Type of hydrogen production	Green hydrogen	Blue hydrogen
Electrolyzer technology	Limited offshore usage as of now	Limited offshore usage as of now
Longevity	Long-term	Dependent on availability of natural gas and CO_2 storage capacity
Required platform space	Less space required (no CCS or natural gas infrastructure)	Large space required for infrastructure for CCS, natural gas usage, and hydrogen production

Appendix B – Non-technical risk assessment

APPENDIX B (2/7)

Economical Dimension	Wind energy	Carbon Capture Storage
Electrolyzer installation cost	Lower total cost	Higher total cost (due to space requirements fewer electrolyzers may be fitted to platforms)
Additional infrastructure costs	E-grid, eventually more wind farms	CCS infrastructure
Platform decommissioning costs	Refurbishment of platform for new use case	Seen as a 'delay in decommissioning,' which ultimately saves money
Break-even prices	Dependent on hydrogen prices, potentially improved by the option to sell energy at peak hours	Dependent on value of storing CO_2, limited by size of depleted gas fields
Other	- No grid connection to shore from new wind farms is needed, only to reused platforms - Wind power can optionally be sold based on market fluctuations in power prices - Better long-term profit potential	- Limited scaling potential of offshore storage does not outweigh benefits of little to no CO_2 transportation costs

Appendix B – Non-technical risk assessment

APPENDIX B (3/7)

Community/Society Dimension	Wind energy	Carbon Capture Storage
Costs for taxpayers	Higher because of need for e-grid infrastructure which is publicly operated. However public saving can come in the form of new wind farms not needing to be connected to the shore, only the platforms.	CCS is costly (especially offshore) so private investors do not want to initiate investment
Space in the sea (local fishermen, Ministry of Defense, Ministry of Transport)	Becomes more limited due to need for additional wind farms	Fewer space restrictions introduced
Nearby residents	Wind farms make for an unattractive view	No change in seascape
Jobs	Expanding e-grid	Implementing CCS infrastructure

Appendix B – Non-technical risk assessment

APPENDIX B (4/7)

Institutional/Regulatory Dimension	Wind energy	Carbon Capture Storage
Financial	In both cases the ministry would need a form of subsidies to make the business case viable, which requires additional permits	
Grid permits	Additional permits needed to expand the grid to the platforms	Most existing infrastructure may be reused. Exceptions such as the gas pipelines, which may need to be refitted for hydrogen transport, are applicable to the wind energy alternative as well
Mijnbouwwet	No functional usage requires decommissioning of the platform, unless it is valuable for the transport system. The time gap between the end of current usage and re-use is very small. After its natural life, there is an obligation to 'secure' the platform, however disengaging from pipelines could disadvantage re-use.	

Appendix B – Non-technical risk assessment

APPENDIX B (5/7)

Political Dimension	Wind energy	Carbon Capture Storage
Party affiliation (currently progressive liberal minister)	Favors a market solution because of the option to optimize profit via dynamically selling power during peak hours.	Weaker business case because captured carbon (as of now) has very low intrinsic value.
Timescale of project	Longer term, meaning that it is more sensitive to changes in political affiliation	Shorter term, meaning that more can get done before a possible change in political affiliation
Sustainability	In the long run, the ‘green’ option is more sustainable	Short-term, CCS is still accountable for reducing carbon emissions, but is ultimately not sustainable
Other ministries (Defense / Agriculture)	Both parties do not wish to cede excessive operation space to additional wind farms	Far less space utilized for offshore CCS, which is more favorable to the other ministries.

Appendix B – Non-technical risk assessment

APPENDIX B (6/7)

Environmental Dimension	Wind energy	Carbon Capture Storage
Opinions of certain NGOs	More sustainable, but problems can include the introduction of wind farms and other infrastructure into natural environments	Some NGOs (eg. Greenpeace) are against CCS due to lack of long term sustainability. Viewed as a delay in decommissioning
Climate Change	More favorable for long-term goals	More favorable for short-term goals

Appendix B – Non-technical risk assessment

APPENDIX B (7/7)

Time Dimension	Wind energy	Carbon Capture Storage
Technical implementation	Longer because of the need for e-grid connected to platforms and later on additional wind farms	Shorter than wind, but difficulty in the installation of CCS infrastructure on platforms with limited space
Process management	Longer implementation time means that there is more time to make decisions between technical milestones. However, urgent decisions will have to be made in early stages to get the project started in anticipation of longer lead times.	Short implementation times mean that urgent decisions are needed throughout the process
Alignment with climate goals	More likely to achieve 2050 goals	More likely to achieve 2030 goals

EPA1424 POLITICAL DECISION-MAKING – GROUP 16

Call to action

Incentivizing large-scale green wind energy and hydrogen production as sustainable solution for the energy transition

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