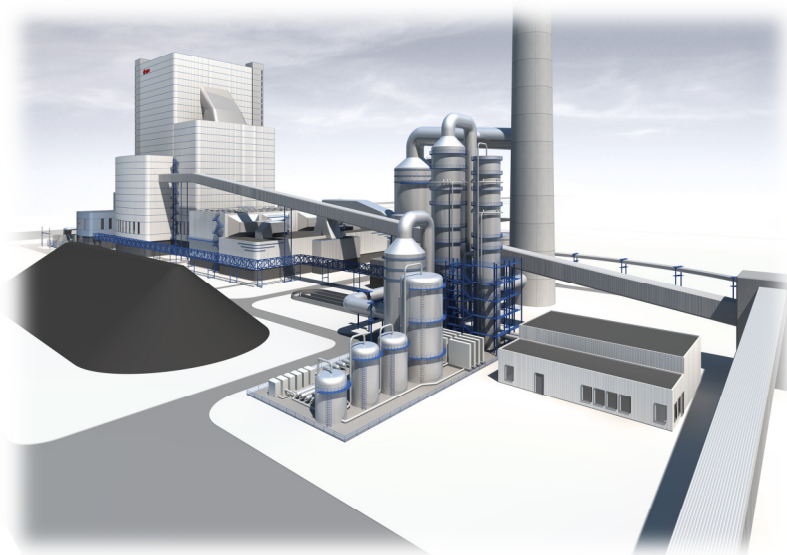


# Stakeholder Management ROAD

**Special Report for the Global Carbon Capture and Storage Institute**



**ROAD | Maasvlakte CCS Project C.V.**

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Special Report for the Global Carbon Capture and Storage Institute

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## Table of contents

<b>Executive Summary</b>	<b>1</b>
<b>1. Introduction</b>	<b>3</b>
<b>2. Project Factsheet</b>	<b>4</b>
2.1 Project Overview	4
2.1.1 Project objectives	4
2.1.2 Partners	4
2.1.3 Project specifications	4
2.1.4 Rationale for Rotterdam port and industrial area	5
2.1.5 Facts & Figures	6
2.1.6 Planning	7
2.2 Maasvlakte CCS Project C.V.	7
2.2.1 E.ON Benelux	7
2.2.2 Electrabel Nederland	7
2.3 Intended Partners	8
2.4 Financial contributors	8
<b>3. Stakeholder Management in ROAD-project</b>	<b>9</b>
3.1 Project Organisation	9
3.2 Functions in Stakeholder Management	9
3.2.1 Permitting	10
3.2.2 Regulatory Affairs	10
3.2.3 Communications and Public Engagement	11
3.2.4 Integration of Stakeholder Management	11
<b>4. Public Outreach Process</b>	<b>12</b>
4.1 Mapping of Key Issues and Stakeholders in Public Outreach Process	12
4.1.1 Mapping of social-political context and issues	12
4.1.2 Mapping of stakeholders	14
4.2 Development of Public Outreach Plan	16
4.3 Implementation of Public Outreach Plan	18
4.4 Lessons Learned	22
<b>5. Permitting Process</b>	<b>23</b>
5.1 Mapping of Key Issues and Stakeholders in Permitting Process	23
5.2 Development of Permitting Procedure Plan	26
5.3 Implementation of Permitting Procedure Plan	27
5.4 Lessons Learned	28
<b>6. Regulatory Process</b>	<b>30</b>
6.1 Mapping of Key Issues and Stakeholders in Regulatory Process	30
6.1.1 Approach	30
6.1.2 Political acceptance of CCS in the Netherlands	30
6.2 Implementation of Regulatory Process Plan	31
6.3 Lessons Learned	32
<b>7. Conclusions and Recommendations</b>	<b>33</b>
<b>Abbreviations</b>	<b>34</b>
<b>Argument Map on CCS</b>	<b>35</b>

## Executive Summary

ROAD is the Rotterdam Opslag and Afvang Demonstratieproject (Rotterdam Capture and Storage Demonstration Project) and is one of the largest, integrated Carbon Capture and Storage (CCS) demonstration projects in the world. The main objective of ROAD is to demonstrate the technical and economic feasibility of a large-scale, integrated CCS-chain.

ROAD applies the post combustion technology to capture the CO<sub>2</sub> from the flue gases of a new 1,100 MWe coal-fired power (Maasvlakte Power Plant 3) in the port and industrial area of Rotterdam. The capture unit has a capacity of 250 MWe equivalent and aims to capture 1.1 million tonnes of CO<sub>2</sub> per year. The capture installation is planned to be operational in 2015.

The captured CO<sub>2</sub> will be transported through a pipeline: 5 kilometres over land and 20 kilometres across the seabed to the P18-A platform in the North Sea. The pipeline has a transport capacity of around 5 million tonnes per year. ROAD plans to store the captured CO<sub>2</sub> in depleted gas reservoirs under the North Sea. These gas reservoirs are located in block P18 of the Dutch continental shelf, approximately 20 kilometres off the coast. The depleted gas reservoirs are at a depth of around 3,500 meters under the seabed of the North Sea and have an estimated storage capacity of approximately 35 million tonnes.

The ROAD project has a dedicated Stakeholder Management team focusing on the functions Communications and Public Engagement, Regulatory Affairs, Permitting, Funding and Knowledge Dissemination. Integration of the Stakeholder Management into the project team strengthens a multidisciplinary perspective of the organization and creates cross-functional teams. For a technical project it enhances taking non-technical aspects (e.g. stakeholder perceptions) into account in decision-making processes. However, such an approach also demands more co-ordination, planning and time management.

The key lessons learned from the public outreach process have been:

- The Stakeholder Management and communication function should be integrated in the project management since CCS projects have to deal with many issues that are non-technical and to large extent depend on stakeholder perceptions and interests. Ultimately Stakeholder Management is instrumental in creating necessary conditions for other project functions (e.g. capture, transport & storage).
- It is not only about (technical) knowledge and information, but also about social skills and empathy of personnel of the project organisation. Technical experts received trainings in presentation, conversation and how to adequately cope with emotional situations.
- Context is everything and perceptions are relative. In many cases historic events, affect and interests in local communities determine to a large extent perceptions and positions of stakeholders regarding the project.
- A near neighbour is better than a distant cousin. It is important to structurally inform key stakeholders that can act as ambassador and advocate for the project.
- Speech is silver, listening is golden. With a two-way communication strategy and getting an insight in expectations and mutual interests of stakeholders the project will be better able to secure public acceptance on the long term.
- It's also the economy,...! Not only focus on climate change, but also on the economic benefits of CCS and local value propositions it can offer to local communities.
- A picture is worth a thousand words. CCS is technical and complex and for local communities it's easier to understand and experience images and tangibles than words and numbers.

The key lessons learned from the permitting process have been:

- The Ministry of Economic Affairs, Agriculture & Innovation, despite its initial reluctance, was essential in coordinating the permitting stakeholders and showing the national relevance of the project via the State Coordination Scheme. Such a Scheme can be instrumental in improving quality and pace of permitting procedures involving multiple permitting authorities. Furthermore, CCS projects should engage the permitting authorities into the project by developing an active dialogue with these stakeholders.
- Permitting stakeholders not only want to be informed on procedures, but also want to be educated on technical details of the project, as early as possible. Convene early with the permitting authorities to discuss matters as a) how many commentary rounds should be included in the permitting process; b) what points are relevant for them; c) who will be contact person and d) how information exchange will take place. This builds up mutual commitment and trust.
- Make sure contact persons at the permitting authorities are well-connected and committed to the project. Lack of sufficient resources (e.g. time, knowledge) can severely delay the project. Visibility and support from the management of permitting authorities can secure needed resources. The coordinating permitting authorities should actively manage the time schedule of the involved permitting procedure in order to prevent delays.

The key lessons learned from the regulatory process have been:

- Close cooperation with authorities and regulations in an early stage of the project is essential due to the complexity of CCS regulation. CCS legislation is new and needs to be drawn from scratch.
- For a CCS project it is important that authorities and regulators are proactive and take their responsibilities regarding CO<sub>2</sub>-storage. Issues should be addressed in a coordinated way, in order to avoid a big delay of the legislative and regulatory process.
- Without an open and flexible legislation (tailor made approach) it is very unlikely that CCS demonstration projects will be developed.

From the Stakeholder Management approach described in this Special Report ROAD has formulated the following overall conclusions and recommendations:

- Often a specific legal and regulatory framework on capture, transport and storage technologies is missing or in development: this demands pro-activity, flexibility and close interaction with regulators and authorities. Managing expectations of stakeholders and developing a clear project vision are a prerequisite in that regard.
- CCS projects are driven by technology and can easily be caught up in technological tunnel vision. One of the biggest threats is losing track of stakeholders' views and interests. Instead CCS project should develop an outside in perspective, taking into account stakeholder expectations. By developing a stakeholder dialogue they create two-way communication with stakeholders that are relevant to the implementation of the project.
- As a consequence of diverse technologies in the CCS chain spread over different areas, multiple governments and authorities are involved in the projects. This demands an integrated Stakeholder Management approach comprising functions such as regulatory affairs, permitting and public outreach. Ultimately Stakeholder Management is instrumental in creating necessary conditions for other project functions (e.g. capture, transport & storage).

## 1. Introduction

In July 2009, Maasvlakte CCS Project C.V. ('MCP') submitted its project proposal to the European Commission, to apply for funding under the framework of the European Energy Program for Recovery ('EEPR'). This marked the start of the 'ROAD project' ('Rotterdam Opslag en Afvang Demonstratieproject'; Rotterdam Storage and Capture Demonstration project).

In this report, the Stakeholder Management function of ROAD is described. Stakeholder Management within ROAD comprises e.g. permitting, regulatory affairs, and communications and public engagement.

This report aims to help other carbon capture and storage ('CCS') projects with developing an integrated Stakeholder Management approach. In a broader sense it is envisioned that also other projects involving new technologies can learn from the analysis provided in this report.

The structure of this report is as follows:

- The project factsheet, providing a high level overview of the ROAD project, is presented in chapter 2.
- Chapter 3 starts with a description of the tasks and responsibilities of Stakeholder Management within the ROAD organisation.
- In the chapters 4, 5 and 6 successively the public outreach process, the permitting process and the regulatory process are described.

This report is part of the knowledge to be shared under the Funding Agreement between the Global Carbon Capture and Storage Institute ('Global CCS Institute') and Maasvlakte CCS Project C.V.

## 2. Project Factsheet

### 2.1 Project Overview

ROAD is the **Rotterdam Opslag and Afvang Demonstratieproject** (Rotterdam Capture and Storage Demonstration Project) and is one of the largest integrated Carbon Capture and Storage (CCS) demonstration projects in the world.

#### 2.1.1 Project objectives

The main objective of ROAD is to demonstrate the technical and economic feasibility of a large-scale, integrated CCS-chain. In the power industry, to date, CCS has primarily been applied in small-scale test facilities. Large-scale demonstration projects are needed to show that CCS is an efficient and effective CO<sub>2</sub> abatement technology within the next 5 to 10 years. With the knowledge, experience and innovations developed by projects like ROAD, CCS could be deployed on a larger and broader scale: not only on power plants, but also within energy intensive industries. CCS is one of the transition technologies expected to make a substantial contribution to achieving climate objectives.

#### 2.1.2 Partners

ROAD is a joint project initiated by E.ON Benelux N.V. and Electrabel Nederland N.V. (GDF SUEZ Group). Together they constitute the limited partnership Maasvlakte CCS Project C.V. The intended partners of ROAD are GDF SUEZ E&P Nederland B.V. for the CO<sub>2</sub> transport and TAQA Energy B.V. for the CO<sub>2</sub> injection and permanent storage. The ROAD-project is co-financed by the Government of the Netherlands, the European Commission within the framework of the European Energy Programme for Recovery (EEPR) and the Global CCS Institute.

#### 2.1.3 Project specifications

ROAD applies post combustion technology to capture the CO<sub>2</sub> from the flue gases of a new 1,100 MWe coal-fired power plant (Maasvlakte Power Plant 3) in the Rotterdam port and industrial area. The capture unit has a capacity of 250 MWe equivalent and aims to capture 1.1 million tonnes of CO<sub>2</sub> per year. The capture installation is planned to be operational in 2015.



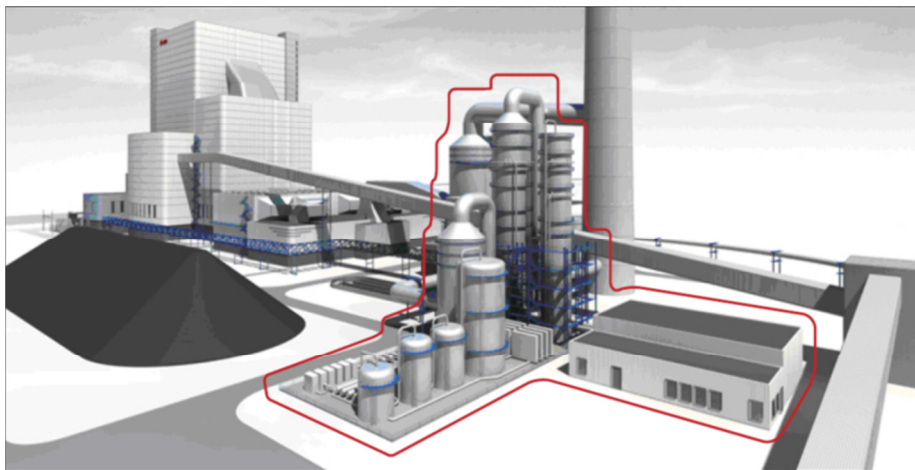
Location of ROAD CCS chain: Rotterdam port and industrial area and North Sea





*Location of capture unit: Maasvlakte Power Plant 3 (photo: E.ON)*

From the capture unit the CO<sub>2</sub> will be compressed and transported through a pipeline: 5 kilometres over land and 20 kilometres across the seabed to the P18-A platform in the North Sea. The pipeline has a planned transport capacity of 5 million tonnes per year. It is designed for a pressure of 175 bar and a maximum temperature of 80 °C.



*250 MWe capture unit (post-combustion)*

ROAD plans to store the captured CO<sub>2</sub> in depleted gas reservoirs under the North Sea. These gas reservoirs are located in block P18 (P18-6, P18-4 and P18-2) of the Dutch continental shelf, 20 kilometres off the coast. The depleted gas reservoirs are at a depth of 3,500 meters under the seabed of the North Sea. The CO<sub>2</sub> will be injected from the platform into depleted gas reservoirs. The estimated storage capacity is 35 million tonnes.

#### **2.1.4 Rationale for Rotterdam port and industrial area**

The Rotterdam port and industrial area has a number of advantages creating favourable conditions to implement a CCS demonstration project like ROAD. The Rotterdam port and industrial area has many CO<sub>2</sub> point sources. Several new power stations prepared for the application of CCS (capture ready) are under construction. It is relatively close to a large number of (almost) depleted gas reservoirs on the continental shelf under the North Sea, allowing for a small transport distance. These gas reservoirs meet the physical and geological properties for CO<sub>2</sub> storage and will become available in the next few years (from 2014 onwards). Furthermore, the Netherlands has a lot of knowledge and experience with both oil and gas extraction and storage of gas in aquifers and gas reservoirs. Finally, the complete CCS-chain (e.g. storage) is remote from inhabited areas. Stakeholders in the direct vicinity of the capture site and the



onshore pipeline are other industries. Municipalities neighbouring this part of the port and industrial area are e.g. Westvoorne and Hoek van Holland.



*P18-A platform at the North Sea (photo: TAQA)*

### 2.1.5 Facts & Figures

#### **Base installation: E.ON Maasvlakte Power Plant 3 (Rotterdam, The Netherlands)**

- Output : 1.070 MWe
- Efficiency : 46%
- Operational : End 2012
- Capture ready

#### **Capture Plant**

- Technology : Post-combustion
- Capacity : 250 MWe equivalent
- Capture rate : 90%
- CO<sub>2</sub> captured : ~ 1.1 megatonnes / year
- Operational : 2015

#### **Transport**

- Pipeline
- Diameter : 16 inch
- Distance : 5 km onshore, 20km offshore
- Capacity : Gas phase : 1.5 megatonnes/year  
Dense phase : 5 megatonnes/year
- Design specifications : 175 bar, 80 °C

### Storage

- Depleted gas reservoir : P18
- Operator : TAQA
- Depth : 3,500 meters
- Estimated capacity : ~ 35 megatonnes
- Available : 2014

### 2.1.6 Planning

The high level schedule of the ROAD project is as follows:

14 July 2009	: Application submitted for funding under European Energy Programme for Recovery
September 2009	: Project selected for funding by European Commission
May 2010	: Ministerial order Dutch funding published
	: Grant Agreement signed by European Commission and ROAD Project
September 2010	: Front-End Engineering Design studies Capture Plant completed
	: Starting note Environmental Impact Assessment published
June 2011	: Submitting Environmental Impact Assessment, permit applications
Q4 2011	: Final Investment Decision
Q4 2011	: Start execution phase (procurement, construction, etc.)
2014	: CCS chain mechanically complete
2015	: Start of operation CCS chain
2015-2019	: Demonstration operation phase CCS chain
2020	: Start commercial operation CCS chain

## 2.2 Maasvlakte CCS Project C.V.

The initiating parties of the ROAD project are E.ON Benelux and Electrabel Nederland / GDF SUEZ Group. Together they constitute the limited partnership Maasvlakte CCS Project C.V.

### 2.2.1 E.ON Benelux

E.ON Benelux concentrates on the production and supply of electricity and gas to private customers and business customers in the Netherlands and Belgium. E.ON Benelux is primarily an electricity-generating company; the company can trade internationally and has its own professional sales organisation. The company was established in 1941 and since 2000 has been part of E.ON Energie AG. E.ON Benelux's power stations with a total capacity of 1,850 MW are located in the province of South Holland, the economic heart of the Netherlands. The company has approximately 600 employees. E.ON Benelux is based in Rotterdam.

### 2.2.2 Electrabel Nederland

Electrabel Nederland is a leading player in the Dutch energy market and part of the GDF SUEZ Group. With six state-of-the-art production locations and a total capacity of 5,103 MW Electrabel is the largest electricity producer in the Netherlands. Electrabel is a supplier of electricity and gas to both private and business customers. Electrabel Nederland has 1,250 employees.

## 2.3 Intended Partners

Intended partners of Maasvlakte CCS Project C.V. are GDF SUEZ E&P Nederland for the CO<sub>2</sub> transport and TAQA Energy for the CO<sub>2</sub> injection and the permanent storage under the seabed of the North Sea.

### *TAQA Energy*

TAQA Energy is part of the Abu Dhabi National Energy Company PJSC (TAQA), an energy company that has worldwide interests in power generation, combined heat and water, desalination, upstream oil & gas, pipelines, services and structured finance. TAQA has a workforce of 2,800 employees and is located in Abu Dhabi, The Hague, Ann Arbor: Michigan, Aberdeen, Calgary and Amsterdam. In addition, TAQA has sustainable partnerships with companies in Africa, the Middle-East, Europe, North-America and India. TAQA is listed at the Abu Dhabi Securities Exchange (ADX).

In the Netherlands, TAQA Energy explores and produces gas and condensates from wells located onshore in the Alkmaar region and offshore in the Dutch North Sea. TAQA also operates a gas storage facility in Alkmaar and has interests in Dutch North Sea pipelines. 200 people work for TAQA directly and indirectly in the Netherlands both onshore and offshore.

### *GDF SUEZ E&P Nederland*

GDF SUEZ E&P Nederland is one of the largest operators in the Dutch sector of the North Sea. With more than thirty production platforms and 300 employees, it is at the basis of the provision of energy to the Netherlands and several other countries.

Since its first successful drilling results in the Dutch North Sea, approximately forty years ago, GDF SUEZ E&P Nederland has grown into a leading operator. It has ample expertise and experience, always chooses the safest option and is continuously working towards the development of new techniques and improved methods. Continuity is ensured through exploration, takeovers and acquisition.

## 2.4 Financial contributors

The ROAD-project is co-financed by the European Commission within the framework of the European Energy Programme for Recovery ("EEPR"), the Government of the Netherlands and the Global CCS Institute.

In response to the economic crisis, the European Council and the European Parliament adopted the Commission proposal for a European Energy Programme for Recovery ("EEPR") in July 2009. The EEPR funds projects in the field of gas and electricity infrastructure as well as offshore wind energy and CO<sub>2</sub> capture and storage (CCS). In total 12 CCS projects applied for assistance under the EEPR. In December 2009, the European Commission granted financial assistance to six projects that could make substantial progress with project development in 2010. These projects will receive overall funding of € 1 billion under the EEPR.

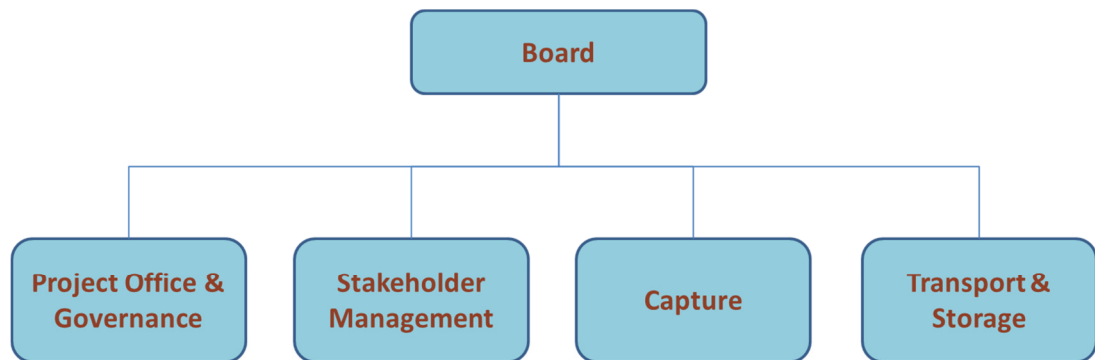
### 3. Stakeholder Management in ROAD-project

#### 3.1 Project Organisation

E.ON Benelux and Electrabel Nederland (GDF SUEZ Group) created the joint venture Maasvlakte CCS Project C.V., a limited partnership with a 50-50 division of shares. This project organization provides the technical, operational and economic management of the activities.

The Maasvlakte CCS Project C.V. has the following organizational structure:

- Project Office & Government;
- Stakeholder Management;
- Capture; and
- Transport & Storage.



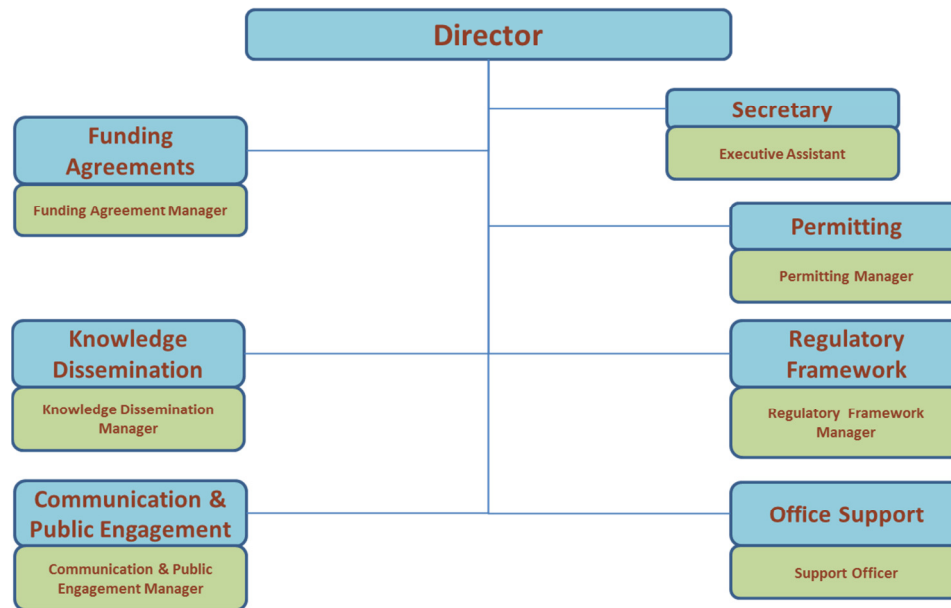
*Project Organisation of Maasvlakte CCS Project C.V.*

The entire project organization is accommodated on the same location. All project teams have a shared office space on one floor.

#### 3.2 Functions in Stakeholder Management

The ROAD project organisation has a dedicated team focusing on Stakeholder Management covering the following specialisms:

- Communications and Public Engagement;
- Regulatory Affairs;
- Permitting;
- Funding Agreement Management; and
- Knowledge Dissemination.



*Stakeholder Management within Maasvlakte CCS Project C.V.*

The members of the Stakeholder Management team of ROAD are responsible for managing and coordinating relations with key stakeholders of the project. The Director Stakeholder Management is member of the Board of Directors of ROAD.

### 3.2.1 Permitting

The Permitting team is responsible for managing the Environmental Impact Assessment (EIA) procedure and permitting application process of the ROAD-project. The Permitting team coordinates all the relations with the relevant authorities: the Ministry of Economic Affairs, Agriculture and Innovation (EA&I), the DCMR Rijnmond Environmental Agency (DCMR), the Department of Construction and Transport of the City of Rotterdam, Province of Zuid-Holland, State Water Authority of Zuid-Holland, State Water Authority of the North Sea and the Netherlands Commission for Environmental Assessment. The Permitting team members are from the parent companies E.ON Benelux and Electrabel Nederland, intended partners TAQA Energy and GDF SUEZ E&P Nederland and is supported and advised by an independent technical consultancy.

### 3.2.2 Regulatory Affairs

The Regulatory Affairs team is responsible for identifying all relevant legislative dossiers and managing these dossiers in a way the ROAD project can become operational. Not only the identification of legislative dossiers is important, monitoring the regulatory risks and opportunities is at least as important. Furthermore, the Regulatory Affairs team aims to support all relevant stakeholders to develop an effective legislative and regulatory framework for deploying large scale CCS projects in the Netherlands. The Regulatory Affairs team shares knowledge and experience with a range of stakeholders.

Regulatory Affairs is a specialism within Stakeholder Management, however, close cooperation with other (technical) experts of the ROAD project is essential. Particularly, there are close ties with Permitting and Communication and Public Engagement. In addition, the Regulatory Affairs team works closely with the Regulatory and Public Affairs specialists from the parent companies. Together they formulate positions and coordinate contacts with e.g. government officials and members of Parliament.

### 3.2.3 Communications and Public Engagement

The Communications and Public Engagement team is responsible for the communication objectives, strategy, key messages, activities and materials. Responsibilities, roles and procedures on internal and external communication of ROAD have been clearly defined in an internal communication policy document. It also describes coordination procedures with the parent companies and partners on communication activities and materials with a (potential) high impact or visibility (e.g. press interviews, public presentations, advertisements).

External communication activities and materials with (possible) high exposure for stakeholders are reviewed by technical specialists on accuracy of facts and figures. External (formal) documents (e.g. Environmental Impact Assessment) are checked by Communication and Public Affairs specialists on potential political and reputation issues for the project. In addition, technical specialists have received presentation trainings for public events, given the experience that technical specialists tend to focus on the content of their message and less on delivery. This has increased their awareness and sensitivity for potential perception issues.

The Communications and Public Engagement team of ROAD and the communication officers of the parent companies and the intended partners periodically meet within a communication taskforce. The taskforce is used as a platform to regularly exchange views on communication objectives, strategy, key messages, on-going activities and materials of the project. In addition, regularly updated insights from stakeholder contacts are taken into account in order to enhance an outside-in perspective and create positions which are mutually beneficial.

### 3.2.4 Integration of Stakeholder Management

The Stakeholder Management team shares an open office space with other project teams. This cultivates bilateral and cross-functional contacts between teams. In addition, specialists of the Stakeholder Management team frequently participate in meetings and working groups of capture, transport and storage teams.

The Stakeholder Management team also contributes to the risk register of ROAD. The team is responsible for identifying and assessing causes and effects of potential stakeholder and reputation risks. Furthermore, they are accountable for planning and managing mitigating and response measures. Ultimately, the director Stakeholder Management and the management board of ROAD authorize whether stakeholder risks are deemed acceptable or unacceptable.

Integration of the Stakeholder Management into the project team strengthens a multidisciplinary perspective of the organization and creates cross-functional teams. For a technical project it enhances taking non-technical aspects (e.g. stakeholder perceptions) into account in decision-making processes. However, such an approach also demands more co-ordination, planning and time management.

**Lessons learned:** *The Stakeholder Management and communication function should be integrated in the project management since CCS projects have to deal with many issues that are non-technical and to large extent depend on stakeholder perceptions and interests. Ultimately Stakeholder Management is instrumental in creating necessary conditions for other project functions (e.g. capture, transport & storage).*

**Lessons learned:** *It's not only about (technical) knowledge and information, but also about social skills and empathy of personnel of the project organisation. Technical experts received trainings in presentation, conversation and how to adequately cope with emotional situations.*



## 4. Public Outreach Process

### 4.1 Mapping of Key Issues and Stakeholders in Public Outreach Process

#### 4.1.1 Mapping of social-political context and issues

The ROAD project integrates the full CCS-chain. The capture unit of ROAD is planned in the Rotterdam port and industrial area, in the Western part of the Netherlands. The captured CO<sub>2</sub> will be stored in depleted gas reservoirs under the North Sea, 20 km off the coast of Rotterdam.

The greater Rotterdam area is known as the Rijnmond region: an urbanized and industrialized area of 800 km<sup>2</sup>. It inhabits approximately 1.2 million people in 16 local communities. It also hosts important economic activities including heavy industries such as refineries, chemical plants, transport, power plants and other energy-intensive industries.

Economic activities in the Rotterdam port and industrial area put a considerable demand on environment and space in the region. In the Rijnmond area activities in the port-industrial complex compete with other social-economic functions such as living, working, mobility and leisure. Also the environmental effects by heavy industry and road transport put substantial pressure on the living environment in the Rijnmond region.

#### *Rotterdam Climate Initiative*

In 2007, a number of governments and authorities in the Rotterdam area initiated a joint programme to ambitiously reduce CO<sub>2</sub> emissions in the region. Initiators of the so-called Rotterdam Climate Initiative (RCI) are: the Port of Rotterdam Authority, the City of Rotterdam, Deltalinqs (port and industry organization) and DCMR Environmental Protection Agency Rijnmond. RCI has two objectives: reduce 50% of the CO<sub>2</sub> emissions by 2025 as compared with 1990 and become 100% climate proof by 2025.

Rotterdam offers a favourable location for a CCS network due to the concentration of industrial emissions in the Rotterdam port and industry area and its proximity to (significant volumes of) storage capacity, primarily offshore (on the Dutch continental shelf). CCS is an essential part of RCI's strategy to reduce CO<sub>2</sub> emissions by 50% in 2025 as compared with 1990 levels. RCI invests in energy efficiency, sustainable energy, and large-scale implementation of CCS. Compared to a business as usual scenario Rotterdam has to decrease its CO<sub>2</sub> emission in 2025 by 34 megatonnes/year, whereas 20 megatonnes/year is expected to be achieved by implementing CCS.

The RCI has begun working with a core group of potential CCS network participants, including large emitters (amongst others E.ON Benelux and Electrabel Nederland), gas and CO<sub>2</sub> transport companies and operators of hydrocarbon fields, with the objective of producing a detailed CCS business plan and model. Both E.ON Benelux and Electrabel Netherlands have signed a Letter of Cooperation (LOC) with RCI in order to investigate the integration of the potential capture facilities with a CO<sub>2</sub> transport infrastructure and permanent CO<sub>2</sub> storage in depleted gas reservoirs under the North Sea.

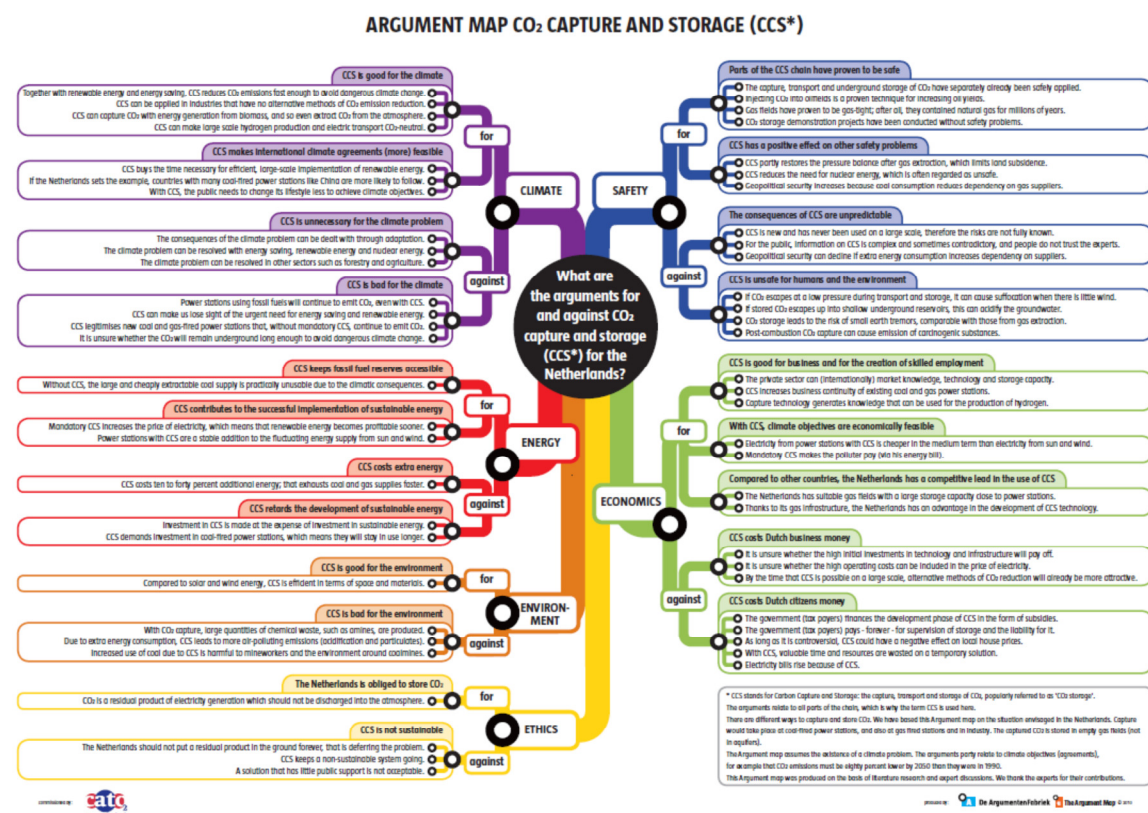
#### *Political context*

At the initiation of the ROAD-project, the political and public debate on CCS was evolving into a climax (especially onshore CO<sub>2</sub> storage). The public turmoil around the CO<sub>2</sub> storage projects in Barendrecht and the Northern provinces moved public acceptance as necessary condition for onshore CO<sub>2</sub> storage high on the political agenda. It also became clear that support and involvement of local and regional governments is a prerequisite for a successful implementation of a CCS project. In addition, NGO's positioned CCS in the public debate as legitimacy for new coal-fired power plants.

ROAD conducted an issues and stakeholder analysis in which the following relevant developments were identified for the ROAD project:

- Mid 2010 climate change was not at the top of the political agenda anymore (also as a consequence of the financial and economic crisis)
- A sustaining opposition from environmental NGO's against new coal-fired power plants and conflicting opinions on the need and necessity of CCS within the transition to a sustainable energy supply (e.g. public funds allocated to CCS competing with renewable energy investments).
- Strong and emotional resistance of local residents in Barendrecht and Northern provinces against onshore CO<sub>2</sub> storage in inhabited areas.
- Following the national elections in June 2010, the new government and coalition agreement stated that local support should be a necessary condition for onshore CO<sub>2</sub> storage.
- General public relatively uninformed on fact-based risks and advantages of CCS.

In order to map relevant issues ROAD also used the CCS Argument Map presenting an overview of the pros and cons on CCS used the public debate in the Netherlands. The CCS Argument Map, as is attached to this report, was produced by CATO-2 (the Dutch national R&D program for CCS) and is available on the CATO2-website ([www.co2-cato.nl](http://www.co2-cato.nl)).



CCS Argument Map

The Barendrecht CO<sub>2</sub> storage project showed that public outreach and pro-active Stakeholder Management is a critical factor for successful implementation of CCS projects. Key lessons learned from the Barendrecht project were:

- Early start of communication activities
- Timely, sufficient and transparent information
- Involvement of relevant stakeholders
- Two-way communication (e.g. active listening, responsiveness)
- Involvement of stakeholder interests in decision-making process
- Clarity on objectives and expectations

From the Barendrecht case also became clear that good and open relations with local governments (e.g. aldermen) are a valuable asset for CCS projects. Local government representatives can act as bridgehead between local communities and a CCS project. In an early stage ROAD established contacts with relevant representatives and informed them on facts and figures of the project. ROAD maintains regular contacts with these representatives also to be kept informed on local developments.

Beside technical issues directly related to Health, Safety, Environmental (HSE) effects of CCS, also (potential) non-technical issues are relevant for the ROAD project:

- Further pressure on liveability and quality of life in the Rotterdam region (including living conditions, physical and mental health, recreation, leisure time, nature and landscape).
- Lack of support from local-regional governments and authorities caused by resistance from local residents.

Experiences from the construction of the new coal-fired power plant have taught that local communities have worries about effects of industrial activities that impact the liveability of their direct environment (e.g. hinder and nuisance such as noise, air pollution, dust, traffic), beside external safety issues.

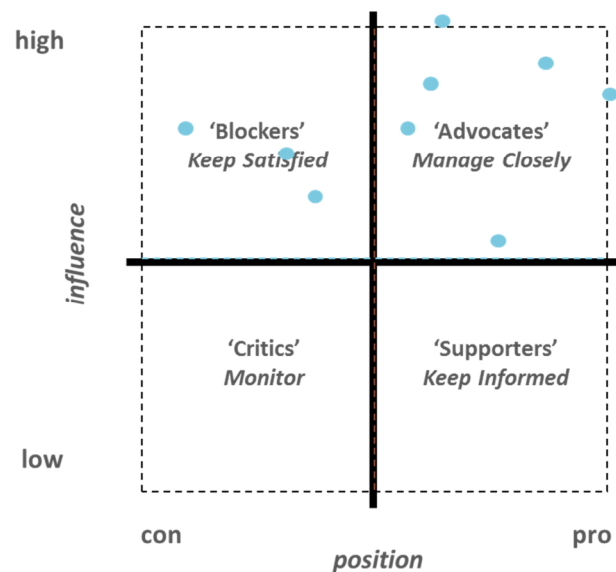
**Lessons learned:** Context is everything and perceptions are relative. In many cases historic events, affect and interests in local communities determine to a large extent perceptions and positions of stakeholders regarding the project.

#### 4.1.2 Mapping of stakeholders

In an early stage ROAD defined the key stakeholder groups and their perceptions of CCS and related issues. The project could tap into relevant issues and stakeholder insights which the parent companies acquired during the construction of the new power plants in the Rotterdam port and industrial area. Also the experiences the Port Authority of Rotterdam from the development of the new Maasvlakte 2 (large-scale land reclamation) was a valuable reference for mapping local and regional stakeholders.

Both cases provided helpful insight into relevant stakeholder groups, perceptions and potential issues for large-scale (infrastructure) projects in the Rijnmond region. ROAD has on-going contacts with specialists from other organizations and projects. In order to keep the issues and stakeholders map up to date ROAD regularly conducts (internal) workshops, also with specialists from parent companies. In addition, ROAD is developing structural relations with other local communities platforms in order to monitor stakeholder developments.

ROAD used these insights to map the force field of stakeholders. A force field map (see graphic) is instrumental in plotting the relative positions of stakeholders on relevant issues concerning the project.



Stakeholder map

ROAD identified an extensive list of local, regional and national stakeholders and made an analysis of the force field. The following categories of stakeholders were listed:

- local communities and civic groups;
- regional NGO's (e.g. environmental);
- local and regional governments and authorities;
- regional business platforms (port and industrial area);
- national government and parliament;
- local and national media;
- national NGO's; and
- knowledge institutes.

Important (regional) ambassadors for the ROAD-project are the Alderman of the City of Rotterdam and the director of the Port of Rotterdam Authority. Both in the Rotterdam region and the national government level they have actively endorsed and advocated for the project.

Furthermore, ROAD used the following research sources in order to get a more in-depth understanding of the perceptions of relevant stakeholder groups on CCS:

- opinion surveys and focus groups;
- consultations of regional stakeholders;
- NEARCO2 research project (e.g. Energy Centre of the Netherlands) on public perceptions of CCS; and
- consultation of the Global CCS Institute on public engagement.

One of the outcomes was that ROAD-project should primarily focus on local and regional stakeholders (also following the projects in Barendrecht and the Northern provinces). The alignment of local and regional stakeholders was seen as primary condition for the implementation of the ROAD-project. Furthermore, being an active partner of the envisaged Rotterdam CCS network would create a strong local value proposition for the ROAD-project: contributing to the sustainable economic development of the Rotterdam port and industrial area.

**Lessons learned:** A near neighbour is better than a distant cousin. It's important to structurally inform key stakeholders that can act as ambassador and advocate for the project.

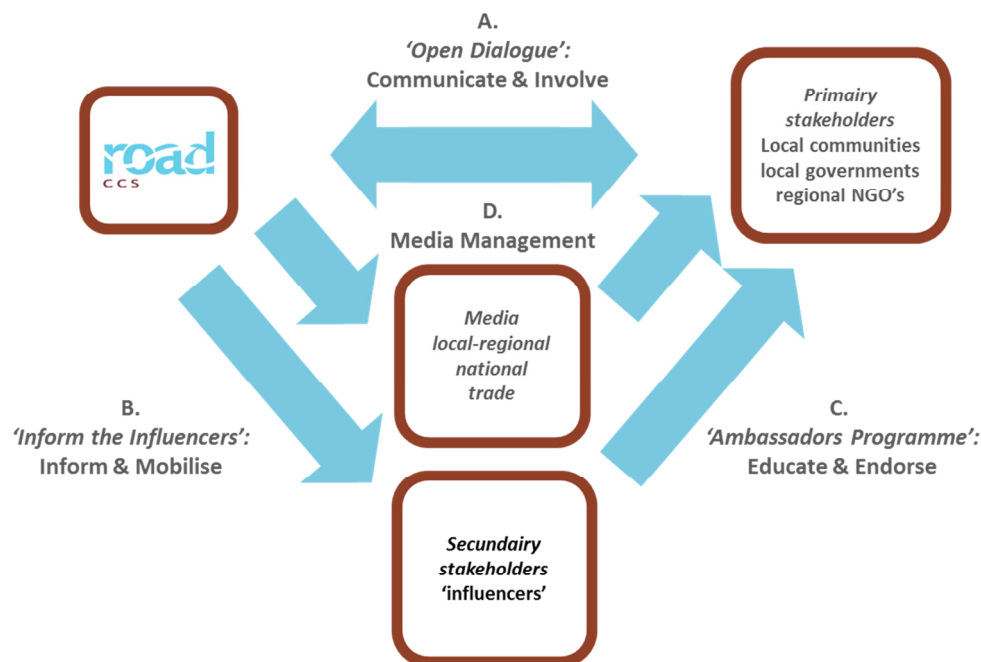
## 4.2 Development of Public Outreach Plan

Although the capture unit and storage location are remote from residential areas, ROAD chose to develop a stakeholder outreach plan that focused to a large extent on local and regional stakeholders. Experiences and perceptions from Barendrecht and the Northern provinces taught local acceptance was perceived as necessary condition for (onshore) CO<sub>2</sub> storage. After the cancellation of Barendrecht and the Northern provinces, offshore CO<sub>2</sub> storage was being perceived as a better option for demonstration projects. Nonetheless, the ROAD-project considers public engagement activities as important for the feasibility of the project.

Furthermore, large-scale infrastructure projects in the Rotterdam port and industrial area, like the development of Maasvlakte 2 and the construction of new (coal-fired) power plants, have put pressure on the living environment in the Rijnmond region. The perception could emerge that a CCS demonstration project like ROAD would further degrade the local and regional living environment.

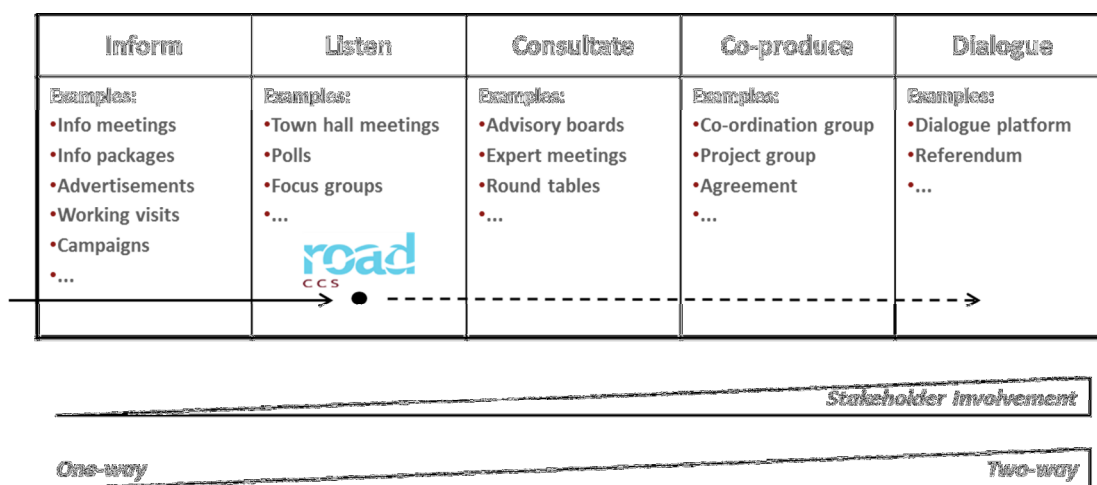
Within this context, ROAD developed an integral outreach strategy and communication plan for the long term. The communication strategy mainly focused on three stakeholder groups:

- Primary stakeholders: local communities, local governments, regional NGO's.
- Secondary stakeholders: local and regional influencers and opinion-leaders (e.g. scientists, officials, regulators, authorities, interest groups)
- Intermediary stakeholders: local, regional and national media



*Stakeholder outreach strategy*

The outreach strategy of ROAD is aimed at gradually involving local communities in the project. In the first stage (e.g. design and permitting) of the project communication activities are generally aimed at informing stakeholders with balanced and objective information on the project (e.g. brochure, website).



The probing phase is focused on listening to what general perceptions, opinions and positions of stakeholders are. The consulting phase is aimed at obtaining community feedback on analysis, alternatives or decisions. With the co-production phase relations with local communities become more direct and structured in order to ensure that concerns and aspirations are understood and considered. Finally, in the dialogue phase the relationships with local communities develop into a close partnership in each aspect of the decision-making process, including the development of alternatives and the identification of the preferred solution.

As the ROAD-project evolves, relationships with relevant stakeholder will become more regular and intense. This should gradually build up a dialogue with local communities. On the long term the outreach strategy is focused on creating a structural platform via a so-called Community Advisory Panel (CAP) and building and securing mutual understanding and trust. On the longer term, the development of a CAP should also offer an on-going platform for an open, constructive dialogue between ROAD and its stakeholders and to monitor developments in public perceptions.

In general, CAP's can be seen as a best practice in the chemical industries. In the 1980, the global chemical industry was confronted by a number of major accidents at chemical facilities. These accidents severely undermined public trust and confidence in the chemical industry. In response, the CAP's were initiated to rebuild public confidence in the industry. Meanwhile, they have proven to be very effective in (re)building relationships and trust between chemical plants and local community members.

The CAP offers a platform for an open, constructive dialogue between a company or project and its stakeholders. It is composed of approximately 10 members representing local communities (not representing interest groups. It is presided by an independent chair and meets ca. 4 times a year. The CAP formulates its own agenda and has independent financial and communication means, but also has periodic meetings with the management of the company or project (incl. working visits to the production site). Topics that the CAP could cover are: external safety, environment, hazard and risks, hinder and nuisance, monitoring and alarm systems, external communication, incident and complaint procedures.

**Lessons learned:** Speech is silver, listening is golden. With a two-way communication strategy and getting an insight in expectations and mutual interests of stakeholders the project will be better able to secure public acceptance on the long term.



### 4.3 Implementation of Public Outreach Plan

At the start of the implementation of its public outreach programme, ROAD defined a clear vision and mission statement for the project. This vision and mission statement should drive all communication and corresponding key messages. It also clearly defined the position of ROAD vis-à-vis its parent companies on general energy issues. The vision and mission of ROAD is as follows:

- *Vision:* “In transition to a sustainable energy supply we will have to rely on various transition technologies (and-and) in order to secure a reliable, efficient and clean energy supply.”
- *Mission:* “Demonstrating that a large-scale, integrated CCS-chain (offshore) can be applied in a reliable and efficient way within 10 years (2020) and can make a substantial contribution to the climate change objectives, and share knowledge and experiences with other industries and countries.”

Within the framework of the vision and mission statement ROAD formulated a number of positioning statements that should drive key communication messages:

- industrial, integrated CCS chain;
- offshore;
- reliability (safe);
- transition technology (reliable, efficient, clean);
- public engagement and dialogue
- ‘knowledge development and innovation;
- Rotterdam CCS network and sustainable economic development; and
- Dutch and European (financial) support.

**Lessons learned:** *It’s also the economy,...! Not only focus on climate change, but also on the economic benefits of CCS and local value propositions it can offer to local communities.*

ROAD developed various basic communication materials to support its outreach strategy such as: project brochure with background information, website, exhibition materials and animations of how the CCS chain (capture, transport and storage) works. For public events like town hall meetings the technical specialists also used core samples in order to show how stone from the gas reservoirs looks and feels.

All materials were reviewed by the technical team. However, materials are easy to read and understand and mostly visualized. If possible they have been endorsed by independent research institutes and/or scholars and scientists. The information is not only specifically on the ROAD-project and CCS, but also includes background information on climate change.

ROAD periodically reviews its positioning and key messages in several ways:

- surveys and focus groups;
- media monitoring;
- regular talks with stakeholders; and
- meetings with research institutes (e.g. ECN, the Global CCS Institute).

**Lessons learned:** *A picture is worth a thousand words. CCS is technical and complex and for local communities it’s easier to understand and experience images and tangibles than words and numbers.*

## Basic outreach efforts:

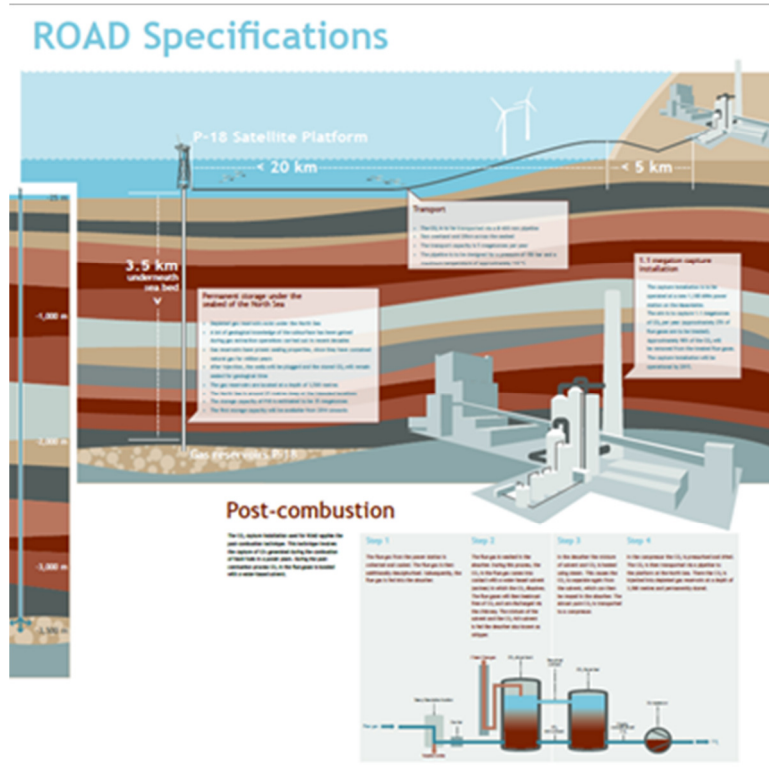
### *Individual presentations to key stakeholders*

One of the first communication activities ROAD implemented were individual presentations to key stakeholders in the Rotterdam region. Main objective of these one-on-one meetings was to inform these stakeholders on the ROAD-project and to lay a basis for a long-term relationship. It also provided further insight into relevant stakeholder groups, perceptions and potential issue for the project.

Included stakeholders were: aldermen and council members of communities in the Rijnmond region, representatives of relevant regional authorities (Port of Rotterdam Authority, DCMR) regional business platforms like Deltalinqs, local communities and civic groups and regional NGO's. In addition, ROAD gives presentations at existing local platforms and community information meetings. ROAD also used a so-called 'snow-ball' approach by asking key stakeholders for stakeholder referrals to be included for one-on-one meetings.

### *Project brochure*

On the basis of the presentations used for the one-on-one meetings, ROAD produced a compact project brochure with a variety of content on the project and relevant backgrounds. The Information in the brochure covers topics like climate change, EU policies, need and necessity of CCS and ROAD objectives and planning. It also offers a lot of details on the planned capture, transport and storage technologies.



### *Project brochure*

The brochure uses a lot of graphics in order to visually support the facts and figures and make the presented information more accessible and understandable.

### *Project website*

In line with the project brochure, ROAD developed a dedicated project website ([www.road2020.nl](http://www.road2020.nl)). It explains the ROAD objectives, core activities, planning and details on the planned capture, transport and storage technologies. Furthermore, it contains relevant backgrounds on national and EU climate change policies, need and necessity of CCS, etc. In addition, the website links to social media like Facebook, Twitter and LinkedIn.

### *Frequently Asked Questions*

In order to align messages on various CCS related topics, ROAD drafted a document with Frequently Asked Questions (FAQs). This document listed relevant questions and answers with the purpose of informing and coordinating positions and statements on topics and issues both internally with experts and with specialists from the parent companies and partners. The FAQs were identified and answered in close cooperation with e.g. parent companies and the national government. ROAD also compared its FAQs with those of other stakeholders in order to identify potential gaps and issues.

### *Town hall meetings*

After submitting the starting note of the Environmental Impact Assessment (EIA), ROAD organized two town hall meetings in communities closest to MPP3 in October. These town hall meetings are mandatory in the EIA procedure and were organized in close cooperation with relevant authority's (e.g. Ministry of Economic Affairs, Province of Zuid-Holland, DCMR and the City of Rotterdam).

The town hall meetings were set up as information markets with a number of information stands on various topics. ROAD consciously chose for this format instead of a plenary setting with central presentations in front of an audience with local inhabitants. The format of an information market allowed more personal and dedicated interaction and dialogue with interested stakeholder showing up at the event. Technical experts also used exhibits like drill cores from the gas reservoirs in order to explain technical details.



In preparation of the town hall meetings, the technical experts got a special presentation and conversation training in order to improve their deliverance and strengthen their active-listening capabilities.

### *Working visits*

For several individual and groups of stakeholders ROAD arranged a number working visits to the MPP3 in the Rotterdam port and industrial area. These visits comprised a guided tour on the building site of the new power plant and of the planned capture plant.



*E.ON Visitors Centre*



ROAD used the E.ON visitors centre next to the building site to facilitate stakeholders meetings and presentations. The visitors centre also offers information and education on energy related topics, such as: climate change, fuel mix, emissions, energy efficiency, CCS, etc.

### *Press releases*

ROAD externally communicated achieved milestones of the project by distributing press releases to local, regional and national media. ROAD sent out press releases on e.g. submitting the starting note of the EIA and the advice of the Netherlands Commission for Environmental Assessment.

### *Media briefings*

Following the intense media coverage on CO<sub>2</sub> storage projects in Barendrecht and the Northern provinces, ROAD had one-on-one briefings with journalist from local, regional and national media. Objective of these briefings was to inform and educate them on ins and outs of the ROAD-project and relevant backgrounds. Although these briefings were not primarily aimed at generating media publicity, they provided the journalist the necessary (factual) information to build a well-informed opinion of the ROAD-project.

### *Op-ed articles and advertorials*

In October 2010, Greenpeace sent an op-ed article to one of the local newspapers in Rijnmond region. In the article Greenpeace suggested that ROAD plans to store CO<sub>2</sub> under their backyards and that there would be local resistance. ROAD instantly responded with an op-ed article refuting the incorrect statements made by Greenpeace. ROAD also distributed its response to relevant stakeholders in order to inform them on the publicity.

### **Specific outreach efforts:**

#### *Stakeholder round-table*

In September 2010, ROAD initiated a round-table with key stakeholders from e.g. government, authorities, industry and science to discuss several CCS related topics. One of the issues raised at this meeting, was the need and urgency to more closely coordinate CCS initiatives in the Rotterdam port and industrial area. Consequently, a number of participants of the round-table decided to initiate a regional stakeholder platform: the Regional Advisory Committee on CCS.

#### *Regional Advisory Committee on CCS*

Members of the Regional Advisory Committee on CCS (RAC CCS) are the Port of Rotterdam Authority, the City of Rotterdam, regional industry organization Deltalinqs, DCMR Rijnmond Environmental Agency and CCS projects and initiatives. These stakeholders closely cooperate in order to create necessary conditions (regulatory, permitting, public engagement) for the development of CCS activities in the Rotterdam port and industrial area. Various experts of involved stakeholder meet on a regular basis and share relevant information and knowledge. The RAC CCS also plans to initiate a Community Advisory Panel to structurally and closely involve local and regional communities in CCS project and initiatives in the region.

## **4.4 Lessons Learned**

To date, stakeholders in general have responded positively the information and activities of ROAD. A number of communication activities have to a certain extent been driven by stakeholder information needs and fine-tuned to specific stakeholder preferences. However, information provided to stakeholders can raise new questions and increase the information need. Overall learning has been that stakeholders appreciate being kept informed on new developments on a personal and direct basis.

In summary, the key lessons learned from the public outreach process have been:

- The Stakeholder Management and communication function should be integrated in the project management since CCS projects have to deal with many issues that are non-technical and to large extent depend on stakeholder perceptions and interests. Ultimately Stakeholder Management is instrumental in creating necessary conditions for other project functions (e.g. capture, transport & storage).
- It's not only about (technical) knowledge and information, but also about social skills and empathy of personnel of the project organisation. Technical experts received trainings in presentation, conversation and how to adequately cope with emotional situations.
- Context is everything and perceptions are relative. In many cases historic events, affect and interests in local communities determine to a large extent perceptions and positions of stakeholders regarding the project.
- A near neighbour is better than a distant cousin. It's important to structurally inform key stakeholders that can act as ambassador and advocate for the project.
- Speech is silver, listening is golden. With a two-way communication strategy and getting an insight in expectations and mutual interests of stakeholders the project will be better able to secure public acceptance on the long term.
- It's also the economy,...! Not only focus on climate change, but also on the economic benefits of CCS and local value propositions it can offer to local communities.
- A picture is worth a thousand words. CCS is technical and complex. For local communities it's easier to understand and experience images and tangibles than words and numbers.



## 5. Permitting Process

### 5.1 Mapping of Key Issues and Stakeholders in Permitting Process

The permitting process of the ROAD project comprises a wide range of relevant permitting authorities. The following overviews summarize the involved permitting authorities, their competences and the relevant advisors. Also the English translation (UK) is displayed.

#### *Permitting authorities and competence*

Permitting authority	(UK)	Competence	(UK)	SCS
DCMR Milieudienst Rijnmond (DCMR)	DCMR Rijnmond Environmental Agency	Milieutoestemming	Environmental consent	No
Dienst Stedenbouw en Verkeer, Gemeente Rotterdam (dS+V)	Department of Construction and Transport, Municipality of Rotterdam	Bouwtoestemming	Building consent	No
Provincie Zuid-Holland (PZH)	Province of South Holland	<ul style="list-style-type: none"> <li>Natuurbeschermingswetvergunning</li> <li>MER Afvang</li> </ul>	<ul style="list-style-type: none"> <li>Nature Protection Act Permit</li> <li>Capture EIA**</li> </ul>	No
Rijkswaterstaat Dienst Zuid-Holland (RWS DZH)	State Water Authority of South Holland	<ul style="list-style-type: none"> <li>WATERVERGUNNING Afvang</li> <li>MER Afvang</li> </ul>	<ul style="list-style-type: none"> <li>Water Permit Capture</li> <li>Capture EIA</li> </ul>	No
Rijkswaterstaat Dienst Noordzee (RWS DNZ)	State Water Authority of the North Sea	<ul style="list-style-type: none"> <li>WATERVERGUNNING Transport</li> <li>MER Transport</li> </ul>	<ul style="list-style-type: none"> <li>Water Permit Transport</li> <li>Transport EIA**</li> </ul>	Yes
Ministerie van Economische Zaken, Landbouw en Innovatie (EL&I)	Ministry of Economic Affairs, Agriculture and Innovation (Ministry of EA&I)	<ul style="list-style-type: none"> <li>Ontheffing Flora- en faunawet Transport</li> <li>Ontheffing Flora- en faunawet Platform</li> <li>Milieutoestemming Platform</li> <li>Rijksinpassingsplan</li> <li>Rijkscoördinatie-regeling (RCR)</li> <li>Opslagplan</li> <li>Opslagvergunningen <ul style="list-style-type: none"> <li>- Platform MER</li> <li>- Opslag MER</li> <li>- Integraal MER</li> <li>- Plan MER</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Endangered Species Permit Transport</li> <li>Endangered Species Permit Platform</li> <li>Environmental consent Platform</li> <li>State Zoning Plan ****</li> <li>State Coordination Scheme (SCS) <ul style="list-style-type: none"> <li>- Storage plan</li> <li>- Storage permits</li> <li>- Platform EIA**</li> <li>- Storage EIA**</li> <li>- Integral EIA**</li> <li>- SEA***</li> </ul> </li> </ul>	Yes

\* SCS = State Coordination Scheme; \*\* EIA = Environmental Impact Assessment; \*\*\* SEA = Strategic Environmental Impact Assessment; \*\*\*\* Together with the Ministry of Infrastructure and Environment as second competent authority



### Key advisors to permitting authorities

Advisor	(UK)	Advisor to	Competence
Bureau Energieprojecten	Energy Projects Agency	Ministry of EA&I	Permitting procedures
Brandpreventiecommissie	Fire prevention committee	Department of Construction and Transport, Municipality of Rotterdam	Fire prevention
Staatstoezicht op de Mijnen (SodM)	State Supervision of Mines	Ministry of EA&I	Integrity of subsoil and wells
TNO Bouw en Ondergrond (TNO)	TNO Building Construction Division	Ministry of EA&I	Integrity of subsoil and wells
Dienst Landelijk Gebied (DLG)	Government Service for Land and Water Management	Ministry of EA&I	Endangered species

Of the mentioned authorities, the Ministry of EA&I and the Energy Projects Agency are the key (coordinating) authorities. As a consequence of the wide range of involved permitting authorities and advisors the permitting process for ROAD is complex and time-consuming. The most important reasons are:

1. The Netherlands has a government structure comprising four layers of governments: local (municipalities), regional (water authorities), regional (provinces) and national (ministries and national advisors). Within the permitting process these governments and authorities need to align their permitting procedures and activities.
2. Five new environmental acts came into force during the permitting process of ROAD. As consequence, ROAD had to change its permitting plan in some cases or permitting authorities were obligated to set new demands. These five new acts were:
  - a. The *Decision on the State Coordination Scheme Energy Infrastructure Projects* came into force on 1 March 2009. Although this was before the initiation of the ROAD project, only the consultant of ROAD had experience with the State Coordination Scheme. In addition, the Regulation on the State Coordination Scheme (SCS) that mandates the implementation of the Decision (Electricity Act and Mining Act) only came into force on 1 April 2010, when permitting process was already in progress. Under the State Coordination Scheme, the Ministry of EA&I may take over the permitting process from lower governments and authorities. In addition, a coordinated public review of all permits falling under the Scheme, in combination with the Crisis and Recovery Act (in effect since 31 March 2010), may lead to faster rulings in court cases.
  - b. The *Act on Modernising the Environmental Impact Assessment* changed the EIA procedure. After the law came into force on 1 July 2010, there were two procedural routes to choose from: one for regular and one for complex projects. Because one should have some knowledge in advance on the outcomes of the studies in order to choose the simpler path, ROAD took the safer option and chose the procedure for complex projects, including the optional advice by the Commission on Environmental Impact Assessments, since the opinion of this Commission is always weighed heavily in court cases.

- c. The amendment of the *Mining Act* (implementation of the EU CCS Directive 2009/31/EC) will come into force in the second half of 2011. This revision of the Mining Act (as mandated by the European Directive on Geological Storage) leads to a more complex permitting process for the storage permits, with review rounds by the European Commission, public review and the option by other companies to put forward competing permit applications. In addition, the storage permit for the P18-4 field would originally be issued in June 2010, way before the implementation deadline for the EU Directive on Geological Storage would come into force. This made the Ministry of EA&I hesitant to issue the permit and to accept the accompanying storage plan, since the public could have a bad perception of issuing the permit just before new and more stringent rules come into force. In addition, there is not a lot of policy around storage of CO<sub>2</sub> yet. The storage permit for P18-4 is the first of its kind in the Netherlands, and the accompanying storage plan was therefore under extreme and detailed scrutiny of the Ministry and its advisors. This demanded a lot of work by ROAD, its consultant and TAQA.
- d. The *Act on General Conditions in Environmental Law* came into force on 1 October 2010. The implementation of this Act had already been postponed twice and introduced a single permit application for all actions taken in the environment. This permit includes several consents that grant actions such as construction, impacting the environment/nature/endangered species, removing trees, demolishing, etc. The Act also introduced digital submission of permit applications through a web-based service. Since both ROAD consultants and authorities had only worked with both the Act and the web-based service in a controlled environment or during courses, there were a number of ambiguities in the Act and bugs in the web-based service to be solved. Later on in the permitting process, the new permitting process actually helped since the Act also mandates the several permitting authorities to coordinate their permitting procedure.
- e. The *Decision on the Environmental Impact Assessment* came into force 1 April 2011. This Decision was amended to reflect rulings by the European Court of Justice. Although it led to some work for ROAD and its legal advisors to assess the impact on the permitting process, it soon became clear it had minor impact.

In November 2009, E.ON Benelux commissioned an environmental consultant to carry out a first scan of necessary permits and yield an overview of these permits and their respective authorities. This overview was used in the request for proposals from consultancy firms that could advise and support in drafting the EIA and the permit applications. This initial overview was revised a number of times and ultimately it appeared some permits were not necessary or were only necessary in a (much) later stage (e.g. emission permit in 2014). A second opinion of the permit overview in January 2011 taught ROAD that the overview was exhaustive and all necessary permits were covered.

In January 2010, a first consultation with the DCMR pointed out the project would probably qualify for the State Coordination Scheme. As a consequence, lower governments and authorities are directed by the Ministry of EA&I. In case of non-cooperation, the Minister of EA&I can overrule and take over the permitting authority from the provincial or municipal authorities. In addition, if spatial planning actions are needed, the Ministry of EA&I could undertake these and, again, overrule lower-ranking authorities and zoning plans. In October 2010, it became clear that the Ministry was willing to take this coordinating role in the 'State Coordination Scheme' for the transport, platform and storage parts of the ROAD project. The capture part stayed outside the Scheme since the capture plant did not exceed the level of 300 MWe equivalent of captured CO<sub>2</sub> (e.g. the capture unit captures the equivalent of 250 MWe in

CO<sub>2</sub>). The Ministry arranged meetings with all the permitting authorities on the role it could play.

The involvement of the Ministry of EA&I and its Energy Projects Agency seriously helped ROAD in mapping the wide range of permitting authorities. The Ministry organised meetings and started informing the permitting authorities about the procedures being involved. In October 2010, the Ministry and ROAD organised two town hall meetings. The Ministry, DCMR, Province South Holland, State Water Authority of South Holland, ROAD and its consultants gave information to the public on the ROAD project.

In November 2010, ROAD and the Ministry organised a meeting for all involved permitting authorities to inform them on objectives, technical details of the project and planning. Within this meeting relevant authorities also gave their feedback on the permitting procedures. In break-out sessions, ROAD experts, permitting consultants and government officials exchanged knowledge and information on the project.

Starting in November 2010, the Ministry of EA&I also took the lead in drafting the State Zoning Plan. This was necessary to make the passage of the CO<sub>2</sub> pipeline through dunes, embankments and a waterway possible. The Ministry of EA&I took the lead in developing this zoning plan, consulting its stakeholders and keeping them informed. ROAD actively supported the Ministry by participation in the mandatory SEA.

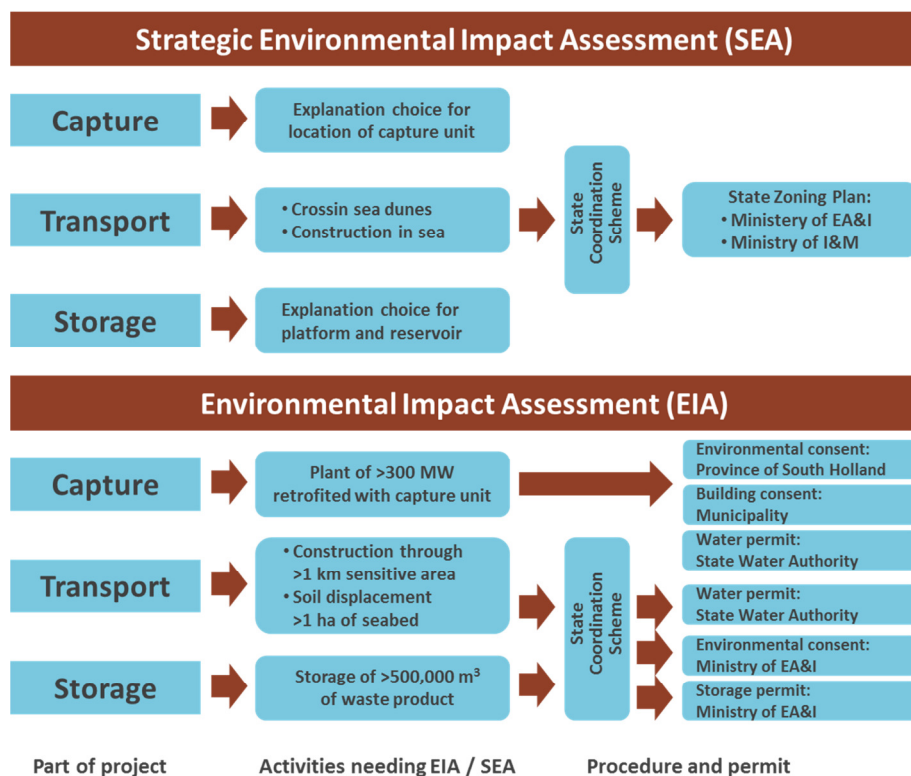
## 5.2 Development of Permitting Procedure Plan

In November 2009, ROAD sent out a request for proposal to four environmental consultancy firms for a proposal on the EIA and permit applications. This request for proposal included a preliminary overview of the expected permits. Based on this overview, these firms submitted a proposal including a planning. The permit overview, the consultancy proposal and the planning together could be considered the permitting procedure plan. The outline of this plan was as follows:

- *Permit overview*: only minor changes were made during the project. The consultant was asked to check the overview at the beginning of his assignment and propose adjustments if necessary.
- *Consultancy proposal*: the consultant outlined the necessary studies that would underlie the EIA and the permit applications, one draft version and the necessary input for the studies and the permitting documents. The list of effect studies included the following items:
  - acoustics (on land and under water);
  - air (emissions, dispersion and deposition);
  - ecology (both habitats and endangered species);
  - cooling water dispersion;
  - soil;
  - geology (for storage part only); and
  - external safety.

- *Planning*: the originally proposed planning was:
  - February 2010: submission of the EIA Notification.
  - April 2010: submission of the first, general EIA chapters and collection of the EIA Guidelines as based on the EIA Notification.
  - July 2010: submission of the chapters on considered alternatives.
  - September 2010: submission of the underlying studies and draft EIA and permit applications.
  - December 2010: submission of the final EIA and permit applications.
  - April 2011: draft permits open to comments from ROAD and public.
  - June 2011: final permits open to appeal.

#### SEA and EIA mandatory activities



### 5.3 Implementation of Permitting Procedure Plan

In February 2010, the implementation of the permitting procedure plan started (one month late). The review of the initial permit overview did not generate new insights and the overview was deemed exhaustive. Next, a meeting on the State Coordination Scheme was planned. Since this Scheme was relatively new at the time, internal discussions on the necessity of this Scheme evolved. In addition, the Ministry of EA&I seemed reluctant to take the coordinating role under the Scheme, as other CCS projects were facing substantial local resistance.

However, the Ministry started to convene meetings to inform the permitting authorities about the procedures. As of August 2010, ROAD and its consultant were also present during these meetings to give background information on the project. Based on the information needs of the permitting authorities (both procedural and technical) a 'ROAD show' was held in November 2010 in order to inform the permitting stakeholders on the project. Actively involving the permitting authorities in drafting of the EIA and permit applications effectively improved quality and speed of the permitting process. It resulted in a strong commitment of the permitting

authorities to the final versions of the applications and the EIA since they had significantly discussed and contributed to former versions.

ROAD immediately started working on the EIA Notification after starting the project. However, since the ROAD project was in full development it was difficult to ‘freeze’ the Notification. It took until July 2010 to submit a final draft to the Ministry of EA&I. The Ministry came back with a number of comments, one of which was that the Notification had to be a common document under the auspices of both the Ministry and the Province of South Holland.

After implementing these remarks, ROAD could submit the final version of the EIA Notification in September 2010. From this point onwards, both the Ministry and the Province of South Holland were the key stakeholders driving the EIA process. ROAD further focused on gathering the necessary information for the underlying studies. This proved to be difficult, since engineering studies had just recently started. By starting the studies using preliminary data this problem was partly solved. As results from the engineering studies came available the EIA studies were adapted. Alongside, ROAD wrote the first general chapters of the EIA and discussed these with the Ministry of EA&I and the Province of South Holland in November 2010.

Just before submitting draft EIA, permit applications and underlying studies in December 2010, the Province of South Holland – supported by other permitting stakeholders – demanded a second round of commenting: after a first draft in December, a second (final) draft at the end of January. The permitting authorities wanted to be certain that their remarks would have adopted correctly in the documents before they would receive the final documents. Consequently, submission would be delayed from February 2011 (a delay of one month due to a late start of underlying studies) until March 2011. Despite this delay, ROAD found it important to give the permitting authorities the comfort they needed, and agreed to this additional round of comments. Most permitting authorities promised to give comments as fast as possible. This mutual commitment was illustrative of the good mutual understanding that had evolved between the permitting authorities, ROAD and its consultant by that time. This mutual respect also paid out in the accessibility of the permitting authorities, which was very high and instrumental for ROAD and its consultants.

Despite this extra round of comments, the permitting authorities wanted an extra ‘check’ in the process. In February 2011, they proposed to send the EIA to the Netherlands Commission on Environmental Assessment. This Commission, being part of the Ministry of I&M, normally gives important advice to the authorities on the quality of the EIA after drafting the permit. The authorities, again led by the Province of South Holland and the Ministry of EA&I, wanted to submit the EIA to the Commission on EIA before final submission of all permitting documents. In this way ROAD could adopt the Commission’s views and implement these in advance. ROAD decided to take this proposal into account and submitted the EIA to the Commission in April 2011. While the Commission was studying the EIA, ROAD further improved the EIA’s consistency and removed some last loose ends. The Commission hearing was in May 2011 and there it appeared that the Commission was satisfied with the EIA. ROAD submitted the EIA and the permit applications after adopting the Commission’s comments in June 2011.

## 5.4 Lessons Learned

In summary, the key lessons learned from the permitting process have been:

- The Ministry of Economic Affairs, Agriculture & Innovation, despite its initial reluctance, was essential in coordinating the permitting stakeholders and showing the national relevance of the project via the State Coordination Scheme. Such a Scheme can be instrumental in improving quality and pace of permitting procedures involving multiple permitting

authorities. Furthermore, CCS projects should engage the permitting authorities into the project by developing an active dialogue with these stakeholders.

- Permitting stakeholders not only want to be informed on procedures, but also want to be educated on technical details of the project, as early as possible. Convene early with the permitting authorities to discuss matters as a) how many commentary rounds should be included in the permitting process; b) what points are relevant for them; c) who will be contact person and d) how information exchange will take place. This builds up mutual commitment and trust.
- Make sure contact persons at the permitting authorities are well-connected and committed to the project. Lack of sufficient resources (e.g. time, knowledge) can severely delay the project. Visibility and support from the management of permitting authorities can secure needed resources. The coordinating permitting authorities should actively manage the time schedule of the involved permitting procedure in order to prevent delays.



## 6. Regulatory Process

### 6.1 Mapping of Key Issues and Stakeholders in Regulatory Process

#### 6.1.1 Approach

The team of Regulatory Affairs started with mapping the dossiers that were on the agenda of the Dutch and European Parliaments. In addition, after consulting the Regulatory Affairs staff of the parent companies and key stakeholders (e.g. politics, government, industry, NGOs), a list of dossiers was complemented with (potentially) impactful issues that were not (yet) on the Parliamentary agenda. The list contained a lot of different dossiers which had to be prioritized. A lot of dossiers, like renewable policies, emission trading system, etc. have had important indirect effect on CCS. However, due to the prioritizing ROAD agreed to only monitor these indirect dossiers and share its views and insights with the regulatory specialists of key stakeholders (e.g. parent companies) – ROAD did not actively manage these indirect dossiers. The key dossier for ROAD was the implementation of the CCS Directive, while it could have the biggest impact on the project.

Next step was to map key stakeholders in the force field. ROAD identified a wide range of stakeholders – both on the local, regional, national and international level – a variety of interests. However, not all stakeholders were actively involved in the implementation process of the CCS Directive (e.g. NGO's did not actively participate in the process). Based on the overview of dossiers, stakeholder, interests and positions, ROAD defined its positions on these dossiers. ROAD drafted position papers, held internal discussions and did some external research. In addition, ROAD contacted stakeholders, informed them on the ROAD positions and tried to build coalitions.

In the Netherlands, CCS had been a hotly debated political topic when ROAD started in 2010. Members of Parliament (MPs), political assistants and the relevant ministries were therefore important stakeholders for the ROAD project. ROAD started to inform some political assistants. Informing their assistants was an effective first step communicating the ROAD interests and positions on relevant dossiers. Additionally, in June 2010 elections for the Dutch House of Representatives (Second Chamber) took place. After these elections, some MPs did not return in Parliament or did not return as energy spokesman for their party. The new MPs needed to dig into numerous new dossiers.

As mentioned above, also the government officials of the involved ministries (especially the Ministry of EA&I) were important stakeholders. In ROAD's experience they were very approachable and willing to discuss CCS developments. Within the ministries, many different sections are involved, including an interdepartmental Task Force CCS.

#### 6.1.2 Political acceptance of CCS in the Netherlands

At the start of the ROAD project CCS was already an important topic in Dutch politics. Shell prepared a demonstration project with CO<sub>2</sub> storage in a depleted gas reservoir under the municipality of Barendrecht. Throughout 2010, there were a lot of local protests against this onshore CO<sub>2</sub> storage project. Also Greenpeace protested against this demonstration project. The national political parties were heavily pressed to demand from the Minister of EA&I to cancel this project.

The discussion concentrated mainly on safety issues and even more important: the permitting process. Local residents and local governments stated that the national authorities did not take notice of their concerns and would continue no matter what. To a lesser extent, there was discussion about the necessity of CCS. Especially the green parties stated that there are better alternatives like wind en solar energy. Above this, CCS was in their opinion not sustainable and

only a legitimacy for new coal-fired power plants. Furthermore, capturing CO<sub>2</sub> costs a lot of energy, hence, significantly decreasing the energy efficiency of coal-fired power plants.

Despite these protests and disapproving position of several political parties, the Ministers of I&M and EA&I still wanted to grant a permit to Shell. However, the elections for the Dutch House of Representatives (Second Chamber) on 9 June 2010 change the political landscape. A new coalition of VVD (Liberal Party) and CDA (Christen Democrats) was formed, with the support of the PVV (Party for Freedom). Although CDA also had been in the former government and strongly advocated the development of CCS, they accepted demands from VVD and PVV regarding Barendrecht. The Coalition Agreement between CDA and VVD stated that “in order to reduce the CO<sub>2</sub> emissions and to become less dependent on energy import, new nuclear power plants are necessary. Furthermore, CO<sub>2</sub> storage in the Dutch underground is possible, provided that this storage meets strict safety criteria and the local community supports the storage. Finally, storage is only possible after a permit for a new nuclear power plant is approved”.

Referring to the necessary condition of local communities supporting CO<sub>2</sub> storage, the new Minister of EA&I decided to cancel the Barendrecht project. Another CCS project in the Northern provinces was also cancelled by the Minister because of the same reason. However, he stated that the national government would further support offshore CO<sub>2</sub> storage projects.

After the cancellation of the projects in Barendrecht and the Northern provinces, CCS gradually began to fall from the national political agenda. CCS was only discussed a few times in relation to connected energy discussions. In these few discussions on CCS, some political parties opposed CCS for the energy efficiency loss and the public funding of CCS demonstration projects. Especially since a lot of budget cuts are proposed by the government (also on renewable energy). Although several political parties oppose CCS, the majority of Parliament does not oppose demonstration projects.

The Ministry of EA&I continues to actively support CCS, in particular offshore demonstration projects. In the latest Energy Report (this report outlines the Dutch energy policy for the nearby future), the Minister states that CCS is essential to achieve the emission reduction objectives. In hearings with MPs, the Minister always advocates the necessity of CCS in order to achieve the climate change objectives. Not only referring to the emission reductions, but also to the fact that the EU subsidized these Dutch project(s) and to the potential for the sustainable economic development of the Rotterdam port and industrial area.

## 6.2 Implementation of Regulatory Process Plan

The legislative proposal for the implementation of the CCS Directive of the European Union was discussed throughout 2010 and 2011 in the Dutch Parliament. Regarding the CCS Directive, it became clear that the national government fully supports the development of CCS (e.g. supporting demonstration projects). However, the oil and gas industry seemed to have doubts on CCS because offshore CO<sub>2</sub> storage could threaten the core activities. A number of NGOs oppose CCS in relation to legitimizing new coal-fired power plants.

Regarding the implementation of the CCS Directive, key question was whether the Directive would be strictly implemented or that the national government would add national CCS provisions to the legislative proposal. The Directive gives a general regulatory framework to ensure permanent containment of CO<sub>2</sub> and, where this is not possible, eliminate possible negative effects and any risk to the environment and human health. The Directive introduces several key elements such as a monitoring plan, financial security provisions, provisions for the handover of responsibility and the financial mechanism. The Directive only gives a high-level

description of these elements. The interpretation of these elements is up to the Member States of the European Union.

The corresponding Guidance Documents (300 pages) give no sufficient clarity and are especially applicable on storage in aquifers. Above all, the final versions of the Guidance Documents were published when the Dutch legislative proposal was already drawn and discussed in the Parliament. They were published too late to support the Dutch government with the implementation of the Directive. The Dutch Ministry decided to implement the Directive strictly (no additional national provisions). The proposal did not contain any further interpretation of the key elements (e.g. monitoring plan). ROAD fully endorsed this approach, while each CCS project has its own specific characteristics and in order to have a proper assessment of a project proposal, a tailor-made approach is essential. Most stakeholders agreed upon an open and flexible legislation. The requirements for the storage of CO<sub>2</sub> – set by the Government – should be based upon the specific characteristics of each storage site. A tailor made approach per project is necessary for a successful deployment of several CCS demonstration projects. This means that the key elements of the CCS Directive will be mainly addressed in the storage permit.

### 6.3 Lessons Learned

In summary, the key lessons learned from the regulatory process have been:

- Close cooperation with authorities and regulations in an early stage of the project is essential due to the complexity of CCS regulation. CCS legislation is new and needs to be drawn from scratch.
- For a CCS project it is important that authorities and regulators are proactive and take their responsibilities regarding CO<sub>2</sub>-storage. Issues should be addressed in a coordinated way, in order to avoid a big delay of the legislative and regulatory process.
- Without an open and flexible legislation (tailor made approach) it is very unlikely that CCS demonstration projects will be developed.

## 7. Conclusions and Recommendations

From the Stakeholder Management approach described in this Special Report ROAD has formulated the following overall conclusions and recommendations:

- Often a specific legal and regulatory framework on capture, transport and storage technologies is missing or in development: this demands pro-activity, flexibility and close interaction with regulators and authorities. Managing expectations of stakeholders and developing a clear project vision are a prerequisite in that regard.
- CCS projects are driven by technology and can easily be caught up in technological tunnel vision. One of the biggest threats is losing track of stakeholders' views and interests. Instead CCS project should develop an outside in perspective, taking into account stakeholder expectations. By developing a stakeholder dialogue they create two-way communication with stakeholders that are relevant to the implementation of the project.
- As a consequence of diverse technologies in the CCS chain spread over different areas, multiple governments and authorities are involved in the projects. This demands an integrated Stakeholder Management approach comprising functions such as regulatory affairs, permitting and public outreach. Ultimately Stakeholder Management is instrumental in creating necessary conditions for other project functions (e.g. capture, transport & storage).

## Abbreviations

CCS	Carbon Capture and Storage
CAP	Community Advisory Panel
EEPR	European Energy Programme for Recovery
EIA	Environmental Impact Assessment
Global CCS Institute	Global Carbon Capture and Storage Institute
HSE	Health, Safety and Environment
Institute	Global Carbon Capture and Storage Institute
MCP	Maasvlakte CCS Project C.V.
RAC CCS	Regional Advisory Committee on CCS
ROAD	Rotterdam Opslag en Afvang Demonstratieproject
RCI	Rotterdam Climate Initiative
SEA	Strategic Environmental Impact Assessment

## Argument Map on CCS

### ARGUMENT MAP CO<sub>2</sub> CAPTURE AND STORAGE (CCS\*)

