



DECARBONISING **THE PORT AND INDUSTRIAL** **COMPLEX ROTTERDAM**

KEY PRIORITIES FOR EUROPEAN ELECTIONS 2019

Rotterdam is Europe's largest port with a transshipment of approximately 460 million tonnes per year, employing 175,000 people in the port and in the surrounding industrial area. Around 30,000 sea-going vessels and 110,000 inland vessels moor at our quays annually. The Port of Rotterdam is part of the bigger industrial cluster Rotterdam-Moerdijk which consists of around 60 companies, including five oil refineries, 36 chemical companies, four waste processing companies and 14 other industrial companies producing products and materials for the international and European market.

The Rotterdam-Moerdijk industry cluster produces almost €13 billion of added value to the Dutch economy with annual energy content of more than 2,000 petajoules (PJ). This energy consumption produces 18.6 megatons (MT) of CO₂ emissions (2016). Since 2005, captured CO₂ in our port has been delivered to the greenhouse horticulture sector, and steam and heat networks have been operational, allowing the reciprocal exchange of steam and the supply of residual heat to district heating networks. In the coming years the Port of Rotterdam aims to build upon these processes in order to further reduce the CO₂ emissions in the port's industrial cluster to help achieve the climate targets set for 2030 and 2050.

As the European elections take place in 2019, the Port of Rotterdam would like to highlight to the new European Commission and the newly elected Members of the European Parliament, our priorities for the coming years in the field of decarbonization. The Port of Rotterdam underlines a system change is necessary to facilitate the energy transition. We formulated priorities that should be central to the new Commission's agenda in the coming period in order to decarbonize Europe.

ENERGY TRANSITION

A three-step approach towards CO₂ reduction

In order to enable the industry to achieve the required CO₂ reductions and to make Europe a frontrunner in the global energy transition, we call upon the new European Commission and European Parliament to help us realize the necessary energy transition projects via a three-step approach.

1. Step 1 (now-2025) focuses on energy efficiency and developing the necessary infrastructure for steam, industrial heat and CO₂.
2. Step 2 encompasses the transition towards a whole new energy system. This phase (2020-2030) is mainly concerned



with making energy use by industry sustainable. Investments in this phase are needed to increase the capacity of the energy infrastructure for electricity and hydrogen. Also, market creation is necessary through a combined strategy of blue and green hydrogen.

3. Step 3 includes the renewal of raw materials and decarbonization of the fuel system (2030-2050). In this phase, large-scale supply of green electricity and green hydrogen will be connected to the industry cluster and Rotterdam will function as an international (chemical) recycling-, biomass- and hydrogen hub.

An integrated EU industrial- and climate framework with clear targets and incentives for industry

Pursuing CO₂ reduction requires an international approach, because the emission of CO₂ does not stop at national borders. The new European Commission needs to demonstrate leadership and provide meaningful incentives for parties to invest in CO₂ reduction measures and new low carbon technologies. European funds should be steered towards projects that provide innovative, clean and sustainable solutions and a clear policy framework for the phasing out of CO₂ must become an integral element of a new EU-wide roadmap for industrial policy. The EU must be clear on what will happen if Member States, market parties and consumers will not meet the reduction targets on time. The Port of Rotterdam calls for clear price signals (i.e. a fixed price in 2050 on carbon emissions if the market price fails to reach the price level necessary to direct investments towards low carbon technology), supplemented with grants and guarantees from the EU to make sure renewable alternatives can compete with fossil energy and feedstock.

BIOBASED AND CIRCULAR ECONOMY

Provide solutions and guarantees for new technology risks

The Port of Rotterdam houses the world's largest industrial cluster that uses biomass and waste as raw material. Production, trade, storage and transshipment of biofuels and biomass converge in Rotterdam. In order to reduce the climate impact, the Port of Rotterdam invests in the attractiveness of the business climate for biobased and waste-based industries. We stimulate the development of a chemical cluster that increasingly uses recycled or biobased feedstock. An example in this field is the waste-to-

chemicals plant¹⁾ that the Port of Rotterdam is developing together with a consortium of companies comprising Air Liquide, Nouryon and Enkern. This consortium intends to build the first plant in Europe that converts nonrecyclable plastics and mixed waste into new raw materials for the chemical industry. Investments like these stimulate the transition to a low-carbon circular economy as it processes non-recyclable household and industrial waste into methanol, an essential raw material for a large number of everyday products, but also sustainable fuel for (maritime) transport. As the project involves the promotion of new mechanisms and the scale-up of new technologies, the technological risks for the parties concerned are higher compared to traditional investments. To overcome impediments like these, the European Commission must solve the 'technology-risk' problem of the new economy and more than ever dare to guarantee investments in technology that could lead to a fundamental change of the European economy. In addition, bio-based and circular industry should not be more expensive than traditional production in the long term. European investment/finance instruments should help to bridge these gaps.

Build a stimulating European policy framework for renewable materials and chemicals

European policymakers should create a long term stimulating and stable policy framework for renewable materials/chemicals. For renewable energy and fuels derived from biomass, waste, industrial gases, etc. the Renewable Energy Directive provides a stimulating framework. Renewable energy in energy applications and transport is supported by targets for Member States and by the possibility to provide financial incentives for renewable energy production and use in electricity, heating and cooling and transport. For renewable chemicals and materials such a stimulating framework is currently absent, which undermines the replacement of fossil feedstocks by renewable materials or biobased feedstock. Producers of waste-derived materials and biobased chemicals need a consistent policy framework and financial support up to 2030 to enable rapid and sustainable development and scale-up of their low carbon products. Furthermore, an extensive action program is necessary with concrete actions to harmonize different policy frameworks in Europe (i.e. the Emission Trading System, energy and waste, chemical and product legislation) and adapt them to the needs and requirements of the new low carbon, circular economy.

Maximizing the possibilities for safe recycling

The Port of Rotterdam aims to become Europe's first waste-to-resource hub where residues are reprocessed into new secondary materials and where activities such as advanced sorting, chemical and mechanical recycling and remanufacturing take place on a large industrial scale. For various waste streams, including plastics, paper, textiles and wood, new opportunities emerge towards 2030 - through the development of (chemical) recycling technologies such as pyrolysis, gasification, depolymerization and solvolysis. These technologies offer the opportunity to convert (non-recyclable) waste into products such as polymers, monomers, fuels, waxes, aromatics or synthetic gases. In order to develop these initiatives leading to a smaller material footprint and lower CO₂ emissions in the entire production chain, companies and

circular initiatives need clear end-of-waste and byproduct routes. It is necessary to take measures at EU level to ensure that Member States interpret and implement the end-of-waste provisions of the Waste Framework Directive in a more harmonized way. Waste streams should be covered by clear, EU-wide rules describing the conditions for waste which must be met in order to no longer be considered as waste. Provisions of product legislation should be brought in line and efficient product and substance registration procedures are required. In addition, actual risks instead of the presence of substances of concern should determine the preconditions for safe recycling and both risks and benefits of recycling should be taken into account.



CARBON CAPTURE AND STORAGE (CCS)

CCS necessary to deliver on climate targets on time

CCS is a necessary technology to be able to reach European decarbonization targets. This is even more so in a highly fossil-fuel based cluster such as the Rotterdam industrial cluster, where for many industries there are no cost-effective alternatives for decarbonization within the next years. The Port of Rotterdam is working on the development of an independent transport and storage infrastructure, to which emitters can deliver their captured CO₂ for offshore storage in empty gasfields under the North Sea. We are aiming to build an infrastructure that's easily expandable to be able to accommodate captured CO₂ from other regions and even neighbouring countries such as Belgium and Germany. The new European Commission needs to confirm that CCS projects will remain an important part of the PCI list which is determined every two years. This gives our project the possibility to apply for CEF Energy funding. Funding remains crucial for all companies involved to be able to make investment decisions, especially as long as the ETS price is lower than the costs for CCS. It is also pivotal to set up a truly cross-border infrastructure and thereby creating a North-Western Europe CCS hub in the Port of Rotterdam area. The European Commission has to work on a solution for the London Protocol which so far prohibits cross-border transport and storage of captured CO₂. Furthermore, it might be necessary to amend the CCS directive with regard to the liability obligations for individual companies.

¹⁾ The plant will be able to process 360,000 tonnes of waste into 220.000 tonnes or 270 million litres of 'green' methanol. This is more than the total annual waste from 700,000 households and reduces CO₂ emissions by approximately 300,000 tonnes.

HYDROGEN AND RENEWABLES

Hydrogen as an enabler of the new energy system

The Port of Rotterdam sees great potential in hydrogen for electrification processes based on renewables. Hydrogen enables the large-scale renewables integration and power generation. Industrial companies in the port mainly use energy to generate heat for their production processes. On the way to 2050, the industry will switch to an entirely new energy system. Electrification based on energy from sun and wind or with hydrogen (made by electrolysis with sustainable electricity) then becomes an important energy carrier. Moreover, it allows parties to distribute energy across sectors and regions and acts as a buffer to increase system resilience. Next to functioning as an enabler of the renewable energy system, hydrogen also has the potential to decarbonize end uses. For example in transport, industrial energy use, heat and as renewable feedstock for the industry. In order to stimulate the hydrogen transition and power-to-heat processes, power-to-hydrogen processes and the necessary system integration, the European Commission must ensure that emission reductions with electrification can be recorded as CO₂ reductions, even if new supply and demand do not (immediately) match. Also, green hydrogen production connected with Power Purchase Agreements (PPA's) and/or certificates, should count as 100% renewable. In order to scale up the necessary investments in the development of hydrogen, hydrogen projects should become eligible to obtain a PCI-status (Project of Common Interest) under CEF funding.

DECARBONISATION OF TRANSPORT

Introduction of a price for CO₂ emissions of all transport modes

The Port of Rotterdam argues that distinct price signals and polluter-pays principles are necessary to make cleaner alternatives more attractive and ensure the necessary investments in clean transport and fuels. By putting a price on climate impact, and more specifically on the CO₂ emissions, stakeholders in the transport sector are incentivised to make use of the most sustainable modes of transport, efficient transport infrastructures and cleaner transport fuels. On the precondition that the income generated by such a price incentive flows back to the transport sectors, this could greatly reduce the climate effects of transport activity and moreover improve the fairness between different transport modes.

Increase the efficiency of ships and stimulate the use of low carbon fuels in shipping

In the short term, technical and operational measures can reduce CO₂ emissions for the maritime industry. Efficiency measures in fuel consumption can result in a 20% to 50% reduction. In the medium term, ships need to switch to electric propulsion, hydrogen and synthetic fuels such as methanol. LNG and biofuels can be used as transition fuel between 2020 and 2050. In light of current lack of feasible alternatives that are directly available for use, the Port of Rotterdam and other sea ports stimulate LNG as being a more sustainable alternative to heavy fuel oil. Furthermore, the infrastructure used for LNG purposes can also be used in the transition to bio-LNG in the longer perspective. The effect of bio-LNG on the CO₂ reduction is larger (approx. 90 %) than LNG. In order to scale up bio-LNG projects in the future, a comprehensive LNG infrastructure network is necessary with a clear transition path towards bio-LNG. On the European level, the Commission should stimulate the use of sustainable biofuels in inland shipping by proposing blending or drop-in obligations. The Rhine-Alpine corridor could function as a pilot corridor to test the effects of a blending obligation on a regional cross-border scale and become the first EU low carbon corridor for inland shipping.

Ensuring on-shore power supply

During the demurrage of ships in inland ports, power and heating for own use is produced through on-board diesel engines, which produces noise, emissions of nitrogen oxides and particulate matter in the immediate vicinity. As fossil fuel production for on-board electricity has lower costs than electricity, as it is tax exempted, a tax exemption for shore-side electricity is needed to decarbonize European ports and improve local air quality. There should be a permanent and EU wide tax exemption for the use of shore-side electricity under the Energy Taxation Directive, that would put it on an equal footing with electricity generated on board of ships produced from the combustion of tax-exempted marine fuel.

Port of Rotterdam Authority

The objective of the Port of Rotterdam Authority is to enhance the port's competitive position as a logistics hub and world-class industrial complex. Not only in terms of size, but also with regard to quality. The Port Authority is therefore leading the transition to sustainable energy and it is committed to digitalisation in order to make the port, and the supply chain, more efficient. The core tasks of the Port Authority are to develop, manage and exploit the port in a sustainable way and to deliver speedy and safe services for shipping.

More information

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