



From large-scale supply of coal, biomass and LNG via increasingly sustainable electricity generation to practical reuse of waste: Rotterdam Energy Port is ready for the future.

## LNG

European demand for natural gas is increasing. The gas for the power stations is not only sourced from inland by pipelines, but also in liquid form from overseas by ships. The new Gate terminal of Vopak and Gasunie receives liquefied natural gas and turns it back into gas. The terminal's capacity is 12 billion cubic metres of gas. That corresponds with a quarter of the gas consumption in the Netherlands. Gate terminal is the start of the development of the port of Rotterdam into the LNG hub of Europe. The LNG will also be used to fuel ships and trucks in the near future. Gate is also a supplier for the Enecogen gas plant in Europoort.

## COAL AND BIOMASS

E.ON and GDF Suez are constructing ultramodern coal/biomass power stations on the Maasvlakte. Both power stations aim for climate-neutral operation in the future. By large scale co-firing with biomass the carbon footprint will decrease substantially. Biomass will become a new large cargo flow for Rotterdam, destined for the power plants in Rotterdam as well as other power stations in North-West Europe.

## CO<sub>2</sub> CAPTURE AND STORAGE

For CCS, E.ON and GDF Suez together established ROAD: the Rotterdam Storage and Capture Demonstration Project. A second CCS demonstration project in Rotterdam is the Green Hydrogen project of Air Liquide. In total the capture and storage of approximately 1.5 million tonnes of CO<sub>2</sub> per year is involved. The CO<sub>2</sub> will be stored in empty gas fields under the North Sea and may also be used in oil fields for enhanced oil recovery. A new CO<sub>2</sub> collection pipeline system in the port area will collect the CO<sub>2</sub> from energy and industry companies and bring it to the Maasvlakte, where the CO<sub>2</sub> will be transported by an offshore pipeline or a shipping terminal.

## CO<sub>2</sub> CAPTURE AND REUSE

Already, CO<sub>2</sub> is being captured and transported in the port of Rotterdam. OCAP, a joint venture of Linde Gas and Volker Wessels, supplies half a million tonnes of CO<sub>2</sub> per year from the Shell oil refinery and the Abengoa biofuel factory to greenhouse growers. It is an excellent example of virtual co-siting: the residual product from the one becomes a raw material for the other.

## STEAM

Energy efficiency and sustainability also come together in a new steam network in the Botlek. The excess steam from waste processing company AVR, part of Van Gansewinkel Group, forms the source of energy for other businesses. AVR will also supply its waste heat via pipelines to the city of Rotterdam for district heating purposes.

## WIND AND SOLAR

The port of Rotterdam is doubling its capacity for generating wind energy in the next few years. New turbines will be placed at seven locations, including the Maasvlakte 2 area. The 400 hectares of roof space and temporary available areas in the port - around 600 football fields - offer more than enough opportunity for solar energy.

## YOUR BUSINESS PARTNER

As Port Authority we can offer specialised knowledge and an extensive network. Our ambition is to strengthen the energy cluster in the port even further in a sustainable way. By providing an attractive business climate based at low costs, innovation and by creating extra space and facilities.

# Rotterdam Energy Port



## Europe's sustainable powerhouse

**Reliable, affordable and sustainable energy: the companies in the port of Rotterdam supply it. Rotterdam Energy Port is the North-West European hub for the arrival, production and distribution of energy streams. Originally conventional but quickly in a more and more sustainable mix, ensuring a reduced carbon footprint.**

## POWERFUL FOUNDATION

In the port of Rotterdam, it all comes together: coal, natural gas, biomass, heat, steam, wind and solar energy. It is the powerful foundation for an uninterrupted energy provision in all of North-West Europe. The power plants located in the port will soon have a productive capacity of some 7,000 megawatts. They will power a quarter of the industry and homes in the Netherlands. Moreover, from 2015, twice as much electricity will be generated by other power plants in North-West Europe from coal, biomass and natural gas imported via Rotterdam.

## PROVIDING BUSINESS OPPORTUNITIES

Rotterdam aims to further expand its prominent role as a sustainable European Energy Port. The Port of Rotterdam Authority is taking the lead in this and is creating the space, facilities and infrastructure in which energy-related companies feel very comfortable and are willing to invest, currently for more than five billion euros.

## CO<sub>2</sub> HUB OF EUROPE

Companies however not only invest in energy production, but also in the environment. Rotterdam is aiming at a 50% reduction in CO<sub>2</sub> emissions by 2025 compared to 1990. Companies invest in energy efficiency measures, use of renewable energy and capture of CO<sub>2</sub> for storage or reuse. The port is developing into the CO<sub>2</sub> hub of Europe: CO<sub>2</sub> will be collected with pipelines and ships and transported to offshore reservoirs.

## INNOVATIVE CLUSTER

All aspects of an uninterrupted, sustainable energy production for the region, the Netherlands and North-West Europe are united in the port of Rotterdam in an extensive, innovative cluster that is achieving economies of scale by its sheer size. Capacity, knowledge and technology all come together here.

## PORT OF ROTTERDAM AUTHORITY

The aim of the Port of Rotterdam Authority is to enhance the port of Rotterdam's competitive position as a logistics hub and world-class industrial complex. Not only in terms of size, but also quality. The core tasks of the Port Authority are to develop, manage and run the port in a sustainable way and to maintain a speedy and safe service for shipping.

## FOR MORE INFORMATION PLEASE CONTACT

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