
DEALING WITH DECARBONISATION

CHALLENGES IN THE ROTTERDAM REGION

**ROTTERDAM.
MARITIME CAPITAL
OF EUROPE.**



**Learn about business climate,
sustainability challenges and innovation
opportunities in the maritime sector
and why settling down in the greater
Rotterdam area will benefit your
company or project.**

ROTTERDAM, YOUR BUSINESS AND DECARBONISATION

WHAT'S HAPPENING? WHY SETTLE HERE? WHY NOW?

THE DUTCH ARE WORKING HARD TO DECARBONIZE AND TRANSITION TOWARDS A LOW-CARBON, CIRCULAR ECONOMY.

"THE DUTCH CULTURE FACILITATES CONNECTING. PEOPLE AND COMPANIES CAN QUICKLY SET UP PARTNERSHIPS OR JOIN CONSORTIA TO GRAB MARKET OPPORTUNITIES. GENERALLY SPEAKING, THE ROTTERDAM MENTALITY IS NO-NONSENSE AND FLEXIBLE. WE CONTINUOUSLY DEVELOP NEW PROPOSITIONS THAT CAN BE SCALED AT SPEED, WHICH IS ALSO STIMULATED BY THE GOVERNMENT."

Rene Peters, Business Director Gas Technology at TNO (Netherlands Organisation for Applied Scientific Research)



THE DUTCH CLIMATE AGREEMENT AIMS TO REDUCE GREENHOUSE GAS EMISSIONS BY 49% BY 2030 AND CO2 EMISSIONS BY 95% BY 2050. THIS REQUIRES EFFORTS ACROSS ALL MARITIME AND OTHER INDUSTRIES.

"THERE IS A HUGE CHANGE COMING IN ROTTERDAM, BOTH IN THE PORT INDUSTRIES AND THE WIDER MARITIME SECTOR. LARGE CAPEX, BIG PROJECTS. IT'S A LEADING CLUSTER HERE, INCLUDING FINANCING. SOLUTIONS DEVELOPED HERE, WILL BE SPREAD OUT ACROSS THE GLOBE."

Jamie Frew, Founder of 12toZero (hydrogen technology scale-up)

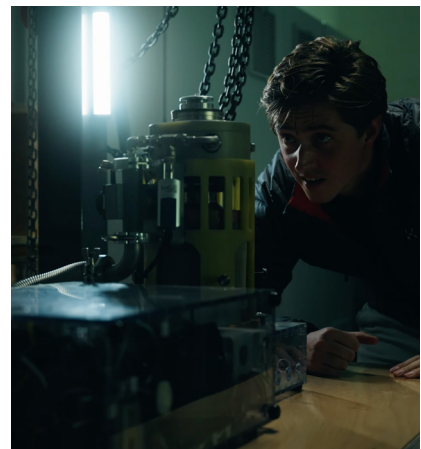
BEING AN OPEN, INNOVATIVE ECONOMY, ROTTERDAM WELCOMES INITIATIVES FROM ABROAD, AS WE'VE ALWAYS DONE. HENCE, WE WELCOME YOU!

WHAT IS DECARBONISATION?

DECARBONISATION REFERS TO THE PROCESS OF REDUCING OR ELIMINATING CARBON EMISSIONS FROM VARIOUS SOURCES, SUCH AS POWER GENERATION, TRANSPORTATION AND INDUSTRIAL PROCESSES. THE MAIN GOAL OF DECARBONISATION IS TO TRANSITION TOWARDS A LOW-CARBON ECONOMY.

From a technological point of view, decarbonisation can be achieved through various measures, such as increasing the use of renewable energy sources like wind and solar power, improving energy efficiency in processes, buildings and transportation, adopting carbon capture and storage (CCS) technologies and transitioning to low-carbon fuels like hydrogen, ammonia or biofuels.

The **shipping, port and other maritime industries** are significant contributors to global greenhouse gas emissions, with shipping alone responsible for around 3% of global CO₂ emissions. Decarbonising these industries is essential for achieving global climate goals. This requires continuous, high-paced innovation and that requires collaboration and coordination between major industry players, innovative scale-ups, governments, investors and other stakeholders.



DECARBONISATION IN THE NETHERLANDS

Globally, every society will have to play its part. The international **Paris Agreement** aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels. Decarbonisation is seen as a crucial step towards achieving this goal.

The **European Union** has committed itself to achieve carbon neutrality by 2050. To achieve this, renewable energy, clean technologies and smart production processes have to be put in place. With **'Fit for 55'**, a package of new climate laws, the EU aims to reduce its CO₂ emissions by 55% by 2030. **Large ships must reduce their CO₂ emissions with up to 80% by 2050.** This creates the challenge of supplying sufficient green fuels to power these vessels, as their availability will determine the success of Fit for 55. In addition, from 2030, ships in EU ports will be required to use electricity while docked, eventually aiming for zero emissions when in port.

The **Dutch Climate Agreement** aims to reduce greenhouse gas emissions by 49% by 2030 and 95% by 2050 compared to 1990 levels to limit global warming. The country has set specific goals, such as generating 70% of its electricity from renewable sources by 2030 and achieving a carbon-neutral energy system by 2050.

The greater **Rotterdam region** (with a strong maritime cluster of owners, manufacturers, service providers, investors and knowledge institutions) is committed to contribute to these goals and is actively looking for partners and technologies to bring this about.

INNOVATIONS AND TECHNOLOGIES

THE DECARBONISATION OF OUR SOCIETY REQUIRES A WIDE RANGE OF SOLUTIONS. IN THE ROTTERDAM REGION, BOTH ON LAND AND ON WATER, THERE IS ALREADY A LOT HAPPENING, BUT: WE WANT TO DO MORE AND WE WANT TO DO IT MORE EFFICIENT.

In order to introduce new technologies at scale, Rotterdam facilitate both small and big companies to settle in the region and get going with research, projects and technologies to:

- improve energy efficiency
- develop and deploy alternative power sources, such as green hydrogen
- implement Carbon Capture and Storage technologies
- effectively store energy and integrate these systems into the grid
- make the circular economy a reality

IF YOU'RE LOOKING TO EXPAND YOUR NETWORK IN THE PORT OF ROTTERDAM COMMUNITY, THE PORT AUTHORITY IS THE PLACE TO BE. THEIR STAFF WILL GET YOU IN TOUCH WITH THE RIGHT PEOPLE. IN ADDITION, IF YOU'RE A SCALE-UP, THE PORTXL ACCELERATOR PROGRAMME IS GREAT. THEY HELPED US ENTER THE MARKET, POSITION US AND CONNECT US TO INTERESTED COMPANIES.

Timo Pael, Business Development at QuinteQ
Energy storage (flywheel technology scale-up)



REGIONAL CHALLENGES

THE NEED FOR NEW TECHNOLOGIES IS DIRECTLY LINKED TO THE CHALLENGES THAT REGIONAL PORTS AND THEIR RELATED INDUSTRIES FACE. TO NAME A FEW:

- Dependence on fossil fuels. Rotterdam is home to the largest port in Europe and has a huge industry that depends on fossil fuels. Increasing the availability of alternative fuels is key, as they are not yet widely available.

- High energy requirements. The offshore and other industries require a lot of energy.

- Size. The industrial complex is enormous. How can we decarbonise faster and in a coordinated way?

- Infrastructure. While local infrastructure is (very) efficient as such, it is not yet sufficiently developed to allow the transition to renewable energy sources at scale. New infrastructure to produce alternative fuels and port facilities is needed.

SO, ARE YOU INVOLVED IN DECARBONISATION? YES? READ ON!

No? Do you want to be involved in decarbonisation in the maritime industry? Then, read on and get in touch as soon as possible with the partners of the Rotterdam Maritime Capital of Europe network via maritime@rotterdam.nl for a conversation about opportunities, contacts and advise on concrete steps you can take.



A GOOD PLACE FOR BUSINESSES

THE ROTTERDAM PORT REGION OFFERS SEVERAL ADVANTAGES FOR BUSINESSES AND ORGANIZATIONS INVOLVED IN DECARBONISATION AND THE BROADER ENERGY TRANSITION. THIS MAKES THE REGION AN ATTRACTIVE LOCATION FOR SCALE-UPS TO MOVE UP THE LADDER AND FOR INNOVATION OR RESEARCH PROJECTS OF LARGER COMPANIES.



1. STRATEGIC LOCATION

The Rotterdam port region is situated at the mouth of the Rhine and Meuse rivers and is a crucial connection between Europe and the rest of the world. This makes it a strategic location for businesses that are active in the energy and maritime sectors.

2. ACCESS TO FUNDING

The region has a vibrant financial sector with a wide range of banks and investors that can provide funding for maritime scale-ups.

3. SUPPORTIVE ECOSYSTEM

The port area, and its hinterland, is teeming with marine-, offshore- and energy-related companies as well as research institutes and universities.

Funding opportunities for innovators can be found here and there are several organizations that offer practical assistance with things like finding office space, legal and financial advice, and networking opportunities. The large pool of skilled workers is a further advantage for companies to tap into.

All in all, the region has a supportive ecosystem for companies working on decarbonisation solutions.

“ROTTERDAM IS EUROPE’S BIGGEST PORT. YOU’LL FIND THE ENTIRE MARITIME, (PETRO)CHEMICAL AND LOGISTICS INDUSTRIES HERE. ALL OF THEM TRY TO SOLVE THE SAME CHALLENGES WHEN IT COMES TO REDUCING THEIR ECOLOGICAL FOOTPRINT. AT PORTXL, WE HELP START-UPS AND SCALE-UPS TO CONNECT WITH THESE COMPANIES. OUR ANNUAL PROGRAMME PREPARES INNOVATORS TO ACCELERATE THEIR GROWTH AND MATCH THEM WITH COMPANIES THAT WANT A SPECIFIC PROBLEM SOLVED. FOR THE COMPANIES THIS IS A COST-EFFECTIVE WAY TO GET TO THE INNOVATION THEY NEED. FOR START-UPS IT IS A GREAT WAY TO VALIDATE THEIR SOLUTION IN PRACTICE AND SCALE-UPS CAN FIND NEW CUSTOMERS. ALL PARTIES GAIN THE KNOWLEDGE AND EXPERIENCE WITH WHICH THEY CAN MOVE TO THE NEXT LEVEL.”

Hedi Visscher, Managing Director PortXL

4. INFRASTRUCTURE

There is an extensive infrastructure for the transport and storage of goods, including pipelines, terminals and storage tanks. More infrastructure is being developed to serve renewable energy sources. This process is far from finished and offers opportunities for small and large solution providers. Additionally, there are excellent road, rail and air connections.

Is there more?

- Oh, yes: the close proximity of many suppliers of maritime equipment and services makes it easier for companies to source what they need.
- All of this provides a competitive advantage for young and established businesses looking for a suitable environment to settle down and get-things-done.

5. COLLABORATION

You'll probably experience it from day one: there is strong collaboration between business-owners, builders, suppliers, knowledge institutions, associations and government organizations in the wider Rotterdam area. When it comes to sustainability, this results in a joint effort to transform the region into a low-carbon economy.

6. VIBRANT SCALE-UP ECOSYSTEM

The region is home to young companies and to programmes that support them. This is on top of the presence of large, international companies. You'll be working in a multicultural environment and can tap into a diverse pool of talent and ideas.

"The Netherlands has ambitious targets that must be met, but there are incentives and subsidies to do so. Take offshore wind farms; the entire cluster - from planning and design to installation, transport, storage and maintenance - can be found here and they all need to collaborate. These processes need an integrated approach to make the supply chain carbon-neutral. Hence, we are continuously searching for innovative solutions. Rotterdam and partners actively contribute to this process and its development."
(Rene Peters, Business Director Gas Technology, TNO)

7. QUALITY OF LIFE

The Netherlands is known for its high quality of life, with excellent healthcare, education and social support systems. This makes it an attractive place for employees and their families. Rotterdam itself is a dynamic city, providing more than enough opportunities for entertainment and cultural experiences. Proof of this can be found in, for example, this Quality of Life ranking report (source: numbeo.com) In addition, Rotterdam offers a range of resources for businesses looking to establish themselves in the region, including tax incentives, access to funding and support for scale-ups.

WHY 'ROTTERDAM'?

"THE PORT OF ROTTERDAM IS A DISNEYLAND FOR INDUSTRIAL CHEMISTS. IF YOU, LIKE ME, BELIEVE GREEN HYDROGEN WILL HAVE A HUGE ROLE TO PLAY IN DECARBONISATION AS THE TECHNOLOGY MATURES, THEN THIS REGION IS A GREAT PLACE TO WORK. DID YOU KNOW THAT HOLLAND CONSUMES MORE HYDROGEN PER CAPITA THAN ANY OTHER COUNTRY IN THE WORLD? THAT HYDROGEN NEEDS TO BE PRODUCED AND STORED, AND EVERYTHING AROUND THAT MUST BE OPTIMISED. SINCE WE CAME TO ROTTERDAM AND PARTICIPATED IN THE PORTXL PROGRAMME, WE HAVE PERFORMED OUR 1ST PROOF-OF-CONCEPT TESTS OF OUR HYFLOAT FLOATING HYDROGEN CONCEPT WITH MARINE RESEARCH INSTITUTE MARIN. NOW WE ARE PERFORMING OTHER PROOF-OF-CONCEPT TESTS WITH SUPPORT FROM LOCAL FIELD LABS. THERE ARE A LOT OF OPPORTUNITIES HERE FOR INNOVATION COMPANIES."

(Jamie Frew, founder of 12toZero, CleanTech expert)

Overall, the Rotterdam port region offers businesses and scale-ups access to markets, a wealth of knowledge and expertise, innovation opportunities, excellent infrastructure and a supportive ecosystem. Combined, this results in a favourable business climate that helps companies grow and succeed.

Interested which opportunities Rotterdam Maritime Capital of Europe can offer you and your company? Let us know at maritime@rotterdam.nl.

ABOUT 'ROTTERDAM MARITIME CAPITAL OF EUROPE'

ROTTERDAM'S REGIONAL PORT CLUSTER AND WIDER MARITIME ECOSYSTEM IS HOME TO ONE OF THE MOST COMPLETE, INTEGRATED AND INNOVATIVE MARITIME NETWORKS IN THE WORLD. OUR GOAL IS TO WORK TOGETHER ON PIONEERING SOLUTIONS THAT CONTRIBUTE TO THE SECTOR'S ENERGY TRANSITION, DIGITALISATION AND CIRCULAR ECONOMY.

WANT TO SEE FOR YOURSELF?

Have a look at the Rotterdam [Interactive Transition Map](#).

It shows 70+ projects aiming to achieve a CO2-neutral port.

To achieve our ambitious decarbonisation goals, we team up and pull resources to create the most innovative and sustainable maritime cluster in the world. And you can become part of it too.

Is your company active in the maritime, offshore, port or energy industries, then contact us today!

Please reach out via maritime@rotterdam.nl or visit www.rotterdammaritimecapital.com.

Our specialists will answer your questions and/or get you in touch with partners and stakeholders that will help you 'set up shop'. We're here for you!

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