RWE

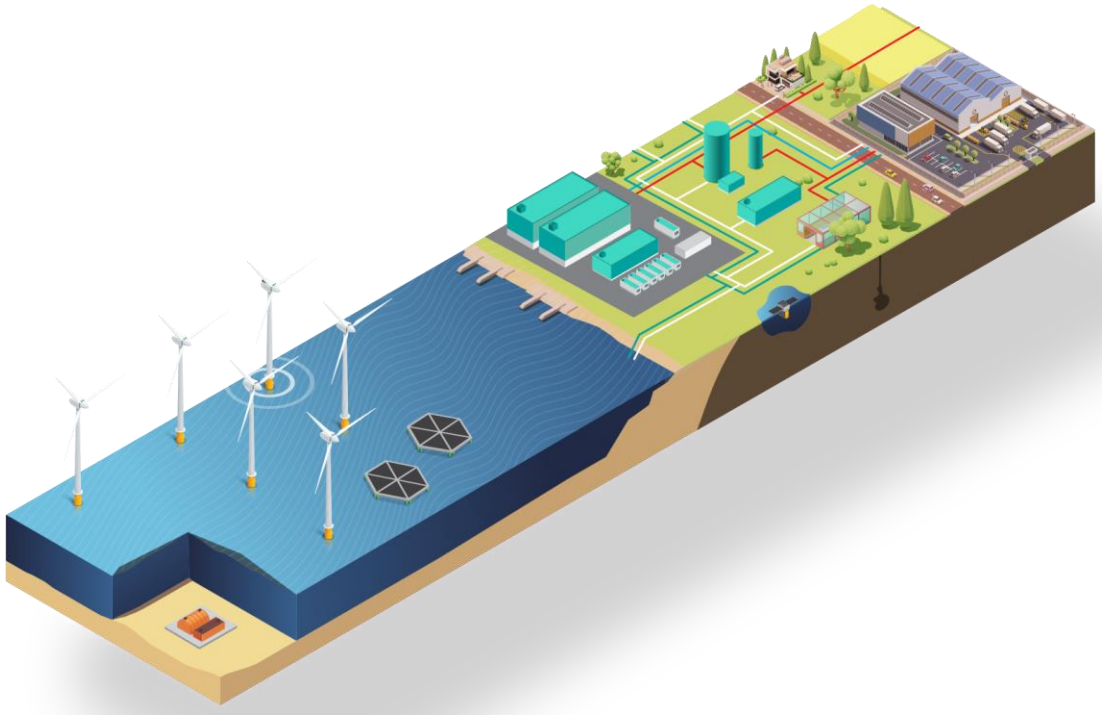
Quarterly report
Q3 2023

OranjeWind
The perfect match

RWE's OranjeWind offshore wind farm will be located 53 kilometers from the Dutch coast. To tackle the challenges of fluctuating power generation from wind and flexible energy demand, RWE has developed a blueprint for the integration of offshore wind farms in the Dutch energy system.

A combination of smart innovations and investments will be used to realise this perfect match between supply and demand.

Project status: in development

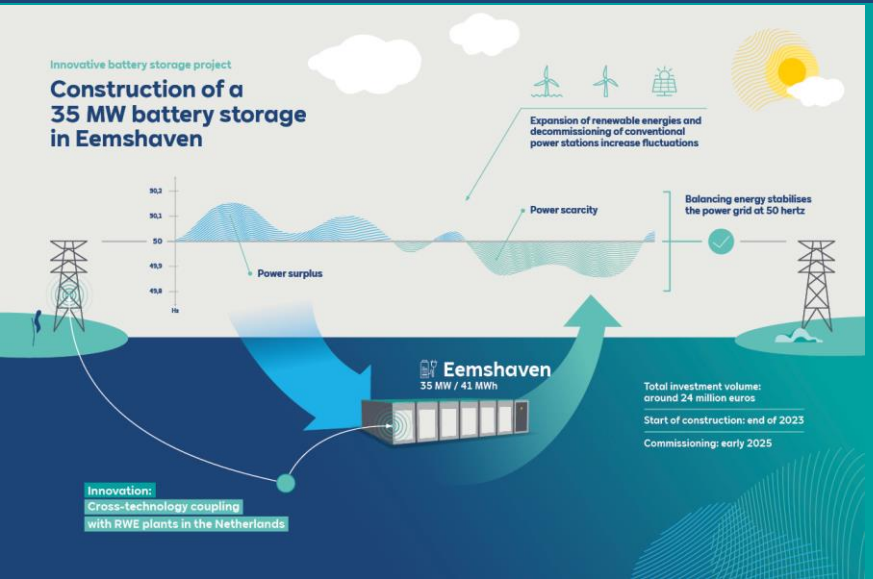


Latest news

RWE and TenneT sign agreements for connection of wind farm OranjeWind (HKW VII) in Dutch North Sea

Network operator TenneT and energy company RWE have signed agreements for an offshore grid connection of OranjeWind, a wind farm to be built 53 kilometres off the Dutch coast. The Connection & Transmission Agreement (CTA) and Realisation Agreement (REA) cover the realisation of the grid connection and the transmission of the electricity produced by RWE's wind farm on TenneT's platform. The agreements not only specify planning, but also how the electricity will be delivered from the wind farm to ensure stability in the grid. The connection will link to the high-voltage substation in Wijk aan Zee and will be operational by 2026.

Read the full article here



RWE gives green light for utility-scale battery storage project in the Netherlands

RWE is further expanding its battery storage business worldwide. The company has now finalised its investment decision for a Dutch battery storage project with an installed power capacity of 35 megawatts (MW) and a storage capacity of 41 megawatt-hours (MWh). A total of 110 lithium-ion battery racks are to be installed at RWE's biomass plant in Eemshaven. The battery project is an important step towards a portfolio of innovative demand assets to optimally integrate the weather-related fluctuating power generation profile of the OranjeWind offshore wind farm into the Dutch energy system.

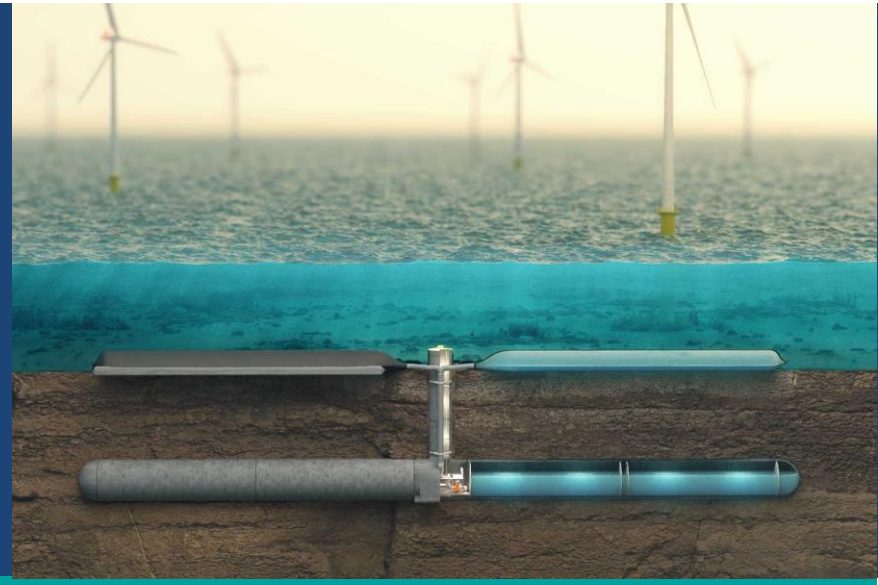
Read the full article here

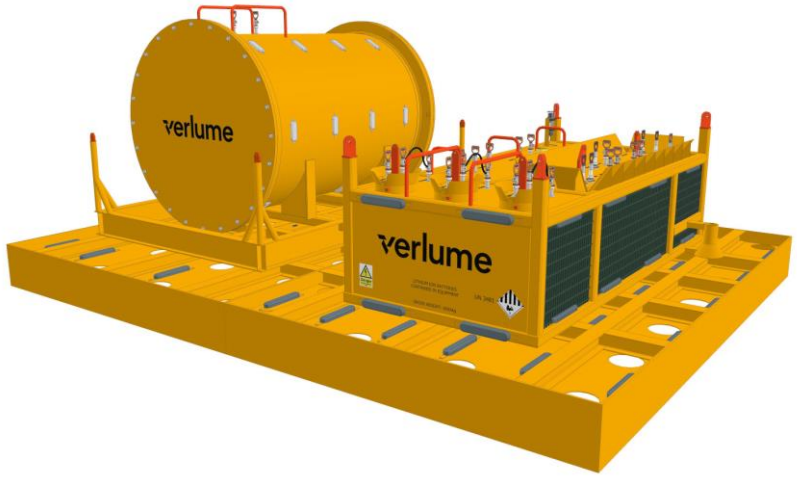
Innovations at OranjeWind (1)

Subsea pumped hydro storage power plant (Ocean Grazer)

Ocean Grazer's Ocean Battery is a scalable, modular solution for energy storage that is produced by renewable sources such as wind turbines and floating solar farms at sea.
To store energy, the system pumps water from the rigid reservoirs into the flexible bladders on the seabed to store it under high pressure. When there is demand for power, water flows back from the flexible bladders to the low-pressure rigid reservoirs, driving multiple hydro turbines to generate electricity. As part of project OranjeWind, Ocean Grazer will be further developed in an inland underwater testing location.

- **Status update**
  The cooperation agreement has been signed





Intelligent Subsea Energy Storage (Verlume)

Verlume is bringing multi-purpose storage solutions offshore through a subsea lithium-ion battery with integrated intelligent energy management, which has a modular and highly scalable design that will lead to a more balanced power output by shaving the peak power production offshore. Beyond preventing grid curtailment, the storage solution can provide multiple offshore services, such as frequency response, black start capability for wind turbines and charging of hybrid or fully electric service vessels and providing residency for Autonomous Underwater Vehicles (AUVs). This will enable further reductions of the CO2 footprint of offshore wind farms and associated logistics.

- **Status update**
  Concept design phase is completed
  Next step is Basic design phase

RWE engineers visit Verlume

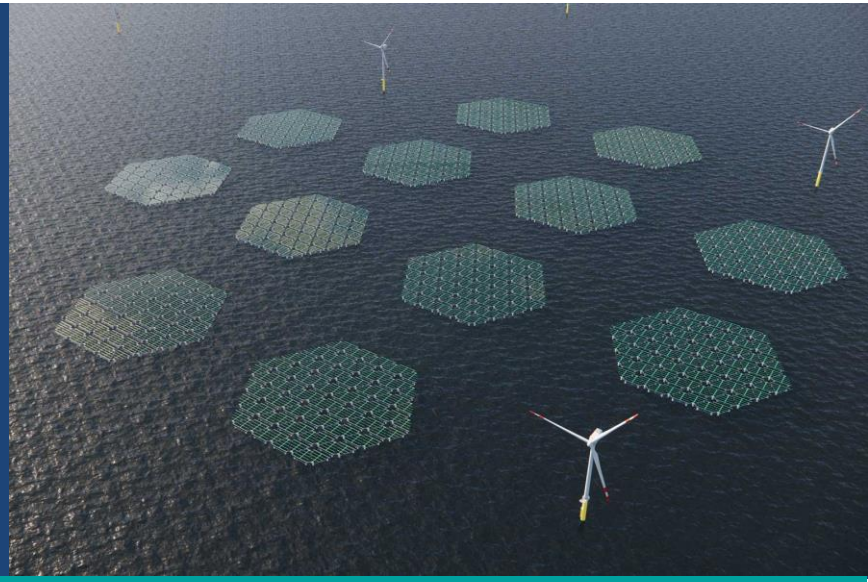
Innovations at OranjeWind (2)

Floating solar (SolarDuck)

The offshore floating solar technology, as developed by SolarDuck, provides an answer to increasing land scarcity for the generation of renewable energy. The integration of offshore floating solar into an offshore wind farm is a more efficient use of ocean space for energy generation and allows for synergies with regards to the construction and maintenance of the multi-source renewable energy plant. The result is a more balanced production profile due to the complementary nature of wind and solar resources. RWE and SolarDuck are cooperating for the first pilot installation off the Dutch coast; Project Merganser. This will lay the foundation for the larger installation at OranjeWind.

- **Status update**
  Merganser pilot project will start installation in 2023

Learn more about Merganser



LiDAR power forecasting (ForWind – Oldenburg University)

The innovative power forecasting methodology based on LiDAR (Light Detection And Ranging) has the potential to support grid stability and significantly improve the integration of wind power in future energy systems, by accurately forecasting sudden changes in power production caused by wind ramp events - strong variations of wind speed over a short period of time. Wind ramp events may cause sudden and strong changes in power leading to a significant and unexpected drop or increase of energy supply to the grid. If not forecasted accurately, both in timing and amplitude, these can result in critical grid imbalances and on the longer term hamper the further implementation of wind energy. With OranjeWind, we aim to demonstrate and further develop this innovative technology.

- **Status update**
  The cooperation agreement will be signed in the coming months

Communication & Dissemination (1)

Knowledge pact “Daar brandt nog licht”

The knowledge pact MBO Brabant started an initiative together with Curio, ROC Tilburg, Avans Hogeschool and partners from the business to work on education for the energy transition in Noord-Brabant. This initiative is called “Daar brandt nog licht”. The aim is to ensure there is a labor force with the right knowledge and skills by developing a future-proof curriculum, as well as developing an MBO Innovation and Expertise Centre Energy Transition.

RWE is proud to be a partner of this initiative and contributing to the education of a skilled Dutch ‘energy and system integration’ workforce.

Learn more about “Daar brandt nog licht”

Kennispact MBO Brabant

Energiehub050

RWE has become a partner of the Energiehub050, an initiative of MBO institutions Alfa-college, Noorderpoort and Terra in Groningen. At the Energiehub050 governments, companies, educational institutes and the community come together to educate students and laborers for the energy transition.

This is done at a unique location where state-of-the-art installations can be used to put theory into practice. RWE supports this initiative to ensure a perfect match between the needs of the business and the skills of the labor force.

Learn more about Energiehub050

ENERGIE HUB 050

Communication & Dissemination (2)

Energietalenten

Energietalenten is a programme within the energy sector, where master students and companies work together to improve the connection between education and business. RWE is partner for this programme and provides two scholarships for master students each year, as well as working with the students on interesting projects, workshops, excursions and internships.

This enables the students to develop a network of energy professionals, ensuring lasting cooperation on compex issues. RWE is proud to support these students and contributing to their education.

Learn more about Energietalenten

Smart Energy Delivery Lab Training

RWE is proud to have been part of a pilot of the Smart Energy Delivery Lab Training at Avans Hogeschool. The traing at their Smart Energy Delivery Lab will enable participants to build a strong foundation for working in the energy transition. There are modules for example about the workings of power plants, PV-systems, batteries, windturbines, energy distribution and grid stability.

In June 2023, RWE was part of a pilot for the Smart Energy Delivery Lab Training, to improve the lesson programme. RWE's expertise in the full energy system proved to be of high value.

Learn more about the Smart Energy Delivery Lab Training

Upcoming events

MBO Event

October 12, 2023, RWE is hosting an MBO event with 4-5 MBO institutions. During the event, RWE and the MBO institutions will discuss options to include (new) technologies in training programmes that are important for the energy transition. This way the future workforce needed can be trained to make the energy transition possible. This event will also include a site tour at Eemshaven so that the MBO institutions can see with their own eyes how RWE is shaping the energy transition.

- **Date: 12 October 2023**

Noorderpoort

ROC TILBURG

curio

Alfa-college

Sustainable Industry Challenge

Chemport Europe Edition

Sustainable Industry Challenge

The Sustainable Industry Challenge, organized by Chemport Europe, is offering a chance for global innovators to test and implement solutions in the Netherlands alongside local private and public bodies.

In RWE's innovation challenge, we are looking for system integration innovations for various industries. This includes flexible demand, energy storage, electrification and hydrogen innovations. Our goal is to explore and support breakthrough innovations, revolutionize industries and pave the way for a sustainable future

- **Date: 14, 15, 16 November 2023**

Sustainable Industry Challenge