Press release

RWE and Kawasaki plan to build one of the world's first 100% hydrogen-capable gas turbines on industrial scale in Lingen, Germany

- **From 2024 onwards 34 megawatt plant could reconvert green hydrogen to power**
- **In future, H2-fuelled power plants will contribute significantly to green security of supply**

Essen, 9 December 2021

Roger Miesen, CEO of RWE Generation: "One of the greatest challenges of the energy transition is to ensure a secure CO_2-free electricity supply at all times - even when wind and sun are not sufficiently available. Hydrogen-fuelled, gas-fired power plants will make an important contribution to ensuring this in the future. In order to gain experience with the operation of such plants, Kawasaki and RWE are planning a pilot project with a hydrogen-powered turbine in Lingen. With this, we intend to create the basis for being able to convert green hydrogen back into electricity in the future, if required."

As part of its "Growing Green" strategy, RWE announced in November that it would add at least 2 gigawatts (GW) of gas-fired power plant capacity to support the energy transition with flexible power. These new plants will be provided with a clear decarbonisation pathway. For existing plants, RWE is developing a roadmap to convert them ready for clean operations.

Now comes the next step: together with Kawasaki Heavy Industries (Kawasaki), one of the world's leading turbine manufacturers, RWE Generation SE (RWE) is planning to build a hydrogen-powered gas turbine in Lingen, Germany. It shall be used to test the conversion of hydrogen back into electricity at RWE's Emsland gas-fired power plant. The project is one of the first worldwide to use a gas turbine to convert 100% hydrogen into electricity on an industrial scale. The plant, with an output of 34 megawatts (MW), could become operational in mid-2024.

Kawasaki's gas turbine provides maximum fuel flexibility: it can operate with 100% hydrogen, 100% natural gas and with any combination of both. This is indispensable because the amount of green gas available for reconversion will fluctuate frequently during the ramp-up of the hydrogen economy before continuous operation with it will be possible.

During the pilot project, the turbine is planned to be tested across varying operating load ranges, between 30% and 100%. This corresponds to typical load curves of gas turbines that

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can be

expected in a power grid with an increasing share of renewable energies, which are subject to fluctuations due to weather conditions.

In the course of the project, it is planned to use two combustion systems developed by Kawasaki. Both have already been tested in 1 MW variants in a demonstration project in Kobe, Japan. In Lingen, these technology principles would be scaled up to industrial scale for the first time.

When it comes to the future topic of hydrogen, RWE has all the options under one roof: from green electricity production and the know-how to produce and store green hydrogen, to energy trading, which can provide the fuel to industrial customers as needed. RWE is already active in over 30 hydrogen projects with strong partners.

The Lingen site plays a key role in RWE's hydrogen strategy: as part of the GET H2 project, the company plans to build the first 100 MW electrolysis plant there by 2024, which will produce green hydrogen using offshore wind power from the North Sea. The capacity of this plant is to be expanded to 300 MW by 2026 and to 2 GW by 2030. The aim of the GET H2 project is to work with national and European partners to create the critical mass needed to kick-start the development of a supra-regional European hydrogen infrastructure and develop a strong European hydrogen market.

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RWE

RWE is leading the way to a green energy world. With an extensive investment and growth strategy, the company will expand its powerful, green generation capacity to 50 gigawatts internationally by 2030. RWE is investing €50 billion gross for this purpose in this decade. The portfolio is based on offshore and onshore wind, solar, hydrogen, batteries, biomass and gas.
RWE Supply & Trading provides tailored energy solutions for large customers. RWE has locations in the attractive markets of Europe, North America and the Asia-Pacific region. The company is responsibly phasing out nuclear energy and coal. Government-mandated phaseout roadmaps have been defined for both of these energy sources. RWE employs around 19,000 people worldwide and has a clear target: to get to net zero by 2040. On its way there, the company has set itself ambitious targets for all activities that cause greenhouse gas emissions. The Science Based Targets initiative has confirmed that these emission reduction targets are in line with the Paris Agreement. Very much in the spirit of the company's purpose: Our energy for a sustainable life.

Kawasaki Heavy Industries, Ltd.

Together with about 100 group companies in Japan and overseas, Kawasaki Heavy Industries oversees the formation of a "technology corporate group." Our technological capabilities, polished over a history that exceeds a century, send diverse products forth into wide-ranging fields that go beyond land, sea, and air, extending from the ocean depths to space. We are also active in wide-ranging businesses driven by diverse and high-level engineering technologies, including generators such as gas turbine and gas engine, environmental and recycling plants, industrial plants, precision machinery, industrial robots, and infrastructure equipment. Through the development of unique and broad businesses unmatched elsewhere, we will continue to create new values that solve the issues facing our customers and society.

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