



SDG7 Energy Compact of RWE Generation SE

A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030. *[Please select all that apply, and make sure to state the baseline of each target]*

(Member States targets could be based on their NDCs, energy policies, national five-year plans etc. targets for companies/organizations could be based on their corporate strategy)

<input type="checkbox"/> 7.1. By 2030, ensure universal access to affordable, reliable and modern energy services.	Target(s): Time frame: Context for the ambition(s):
<input type="checkbox"/> 7.2. By 2030, increase substantially the share of renewable energy in the global energy mix.	Target(s): Time frame: Context for the ambition(s):
<input type="checkbox"/> 7.3. By 2030, double the global rate of improvement in energy efficiency.	Target(s): Time frame: 2021/22-2025-26 Context for the ambition(s):
<input type="checkbox"/> 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	Target(s): Time frame: Context for the ambition(s):
<input type="checkbox"/> 7.b. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programs of support.	Target(s): Time frame: Context for the ambition(s):

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050. *[Please describe below e.g., coal phase out or reforming fossil fuel subsidies etc.]*

Target(s):

- *Group level: Climate neutral by 2040.*
- *Hydrogen specific: Current hydrogen funnel includes project ideas that shall result in a significant market share in our core markets Germany, the Netherlands and UK by 2030.*

Time frame:

- *Group level: By 2040*
- *Hydrogen specific: Until 2030*

Context for the ambition(s):

Hydrogen is considered a beacon of hope for climate-neutral power generation and can play an important role in a successful energy transition. Green hydrogen is completely CO₂-free and represents a key technology for the objective of carbon neutrality. For energy-intensive industries such as steel, chemicals or cement, hydrogen will be a crucial step towards carbon reduction, both as an energy source and as a raw material. As well as reducing CO₂ emissions in industrial processes, hydrogen could become a sustainable fuel for the transport sector and, in the medium term, a sustainable fuel for heat supply. In addition, hydrogen also enables the large-scale storage of the variable supply of solar and wind energy.

Since RWE is well positioned along the entire value chain, the company can make an excellent contribution to exploiting this enormous potential: As a leading producer of electricity from renewables, RWE can deliver the clean electricity needed to produce hydrogen, and moreover possesses the expertise required to produce green hydrogen in-house. Furthermore, RWE can trade hydrogen internationally and store hydrogen temporarily in gas storage facilities. RWE's own gas power stations are potential green hydrogen buyers.

Given this background, RWE is driving the development of the hydrogen economy forward by implementing a series of integrated projects across the entire value chain:

- *Initial development and operation of electrolyzers in core markets (GER, NL, UK)*
- *RWE is cooperating with strong partners from industry and the scientific community to drive forward currently 30 hydrogen projects (i.a. Eemshydrogen, NL; AquaVentus, GER; HyTech Harbour Rostock, GER; GETH2 IPCEI, GER) in these three countries*
- *The realisation of all projects requires the corresponding regulatory framework and grants*

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1. *[Please add rows as needed].*

Description of action (please specify for which ambition from Section 1)

- *General: RWE is involved in the development of currently 30 hydrogen projects. Primary objective: Installation of electrolyser capacity to foster green hydrogen production as well as the supply of renewable electricity.*
- *Selection of specific projects (projects are currently in different development stages):*
 - *The **AquaVentus** initiative's mission is to operate offshore electrolyzers with a total capacity of 10 GW with electricity from offshore wind farms by 2035. Another objective is to transport the green hydrogen to the mainland via a pipeline. A first pilot project plans to install an innovative offshore wind hydrogen turbine in the coastal waters off Heligoland (Germany). The first 300 MW are planned for 2028.*

Start and end date

- *As of July 2021, the hydrogen funnel includes project ideas that shall result in a significant market share in our core markets Germany, the Netherlands and UK by 2030. All 30 projects, in which RWE is involved, are*

- With the **“GET H2 IPCEI” project**, the partners aim to build-up large-scale electrolysis capacities of 300 MW (plus 100 MW at Salzgitter) until 2026 growing to potentially 2 GW until 2030. Furthermore, a public dedicated hydrogen grid, a hydrogen storage cavern as well as the large-scale off-take in various industries shall be realized until 2030.
- **The Dutch project Eemshydrogen** (which is expected to operationally start in mid-2024) aims at 50 MW and has the potential for build out up to 1 GW at RWE’s power plant location in Eemshaven. It demonstrates a flexible electrolyser operation in line with wind speed-dependent electricity from the existing RWE Westereems onshore wind farm. Synergies with the power station site will be leveraged: a.o. demin water, firefighting water, sewer, I&C, O&M, etc. Furthermore, there are signed term sheets for offtake with two chemical companies in the port of Delfzijl. The TSO plans to repurpose its existing natural gas infrastructure to hydrogen transport to Delfzijl (northern part of the hydrogen backbone).
- **HyTech Harbour Rostock** is a large-scale hydrogen venture with a total capacity potential of 1 GW until 2030. Until 2025, 100 MW electrolyser capacity shall be realized. The first 100 MW shall be used to produce green ammonia to decarbonize the local fertilizer plant.

currently in different development stages.

- **AquaVentus:**
 - Offshore electrolysers with a first 300 MW capacity by 2028.
 - An overall capacity of 10 GW by 2035.
- **GETH2 IPCEI:**
 - **2024:** 100 MW electrolyser at the RWE Lingen power plant site, a dedicated hydrogen infrastructure from Lingen to the Ruhr region and the supply to refineries.
 - **2025:** 2nd 100 MW electrolyser at Lingen, supply to refineries and pipeline connection to the Netherlands.
 - **2026:** 3rd 100 MW electrolyser at Lingen, the H2-storage cavern in Gronau-Epe as well as pipeline towards Salzgitter in the East and Duisburg in the South. At Salzgitter: additional 100 MW electrolyser, DRI plant and electric arc furnace.
 - **2030:** Hydrogen pipeline connection to Salzgitter realised.
- **Eemshydrogen:** Flexible 50 MW electrolyser capacity by mid-

		2024 with the potential for build out up to 1 GW. <ul style="list-style-type: none"> • HyTech Harbour Rostock: 1 GW of onshore electrolysis capacity potential by 2030.
	Description of action (please specify for which ambition from Section 1)	Start and end date
	Description of action (please specify for which ambition from Section 1)	Start and end date
	Description of action (please specify for which ambition from Section 1)	Start and end date

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for **each** of the actions from section 2. *[Please add rows as needed].*

Outcome	Date
<ul style="list-style-type: none"> • General: As of July 2021, the hydrogen funnel includes project ideas that shall result in a significant market share in our core markets Germany, the Netherlands and UK by 2030. All 30 projects, in which RWE is involved, are currently in different development stages. • AquaVentus: Offshore electrolyzers with a total capacity of 10 GW by 2035. The first 300 MW are planned for 2028. • GETH2 IPCEI: 300 MW electrolyser (plus 100 MW at Salzgitter) by 2026 and up to 2 GW by 2030. • Eemshydrogen: Flexible 50 MW electrolyser capacity by mid-2024 with potential for up to 1 GW. • HyTech Harbour Rostock: 1 GW of onshore electrolysis capacity potential by 2030. Capacity ramp-up of 100 MW by 2025. 	Please see column "outcome".

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for **each** of the actions in section 2.

Currently, hydrogen projects are not economically feasible without subsidies. To ramp-up the hydrogen market, suitable subsidy schemes covering both CAPEX and OPEX are necessary. RWE looks primarily at grants and not at low-interest loans and intends to finance the non-subsidised part using equity and/or shareholder loans. A dedicated team within the hydrogen department of RWE develops individual and tailor-made funding concepts for each of our individual projects. Moreover, the produced hydrogen will meet the EU's taxonomy requirements (< 3 t CO₂eq/t H₂).

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

<input type="checkbox"/> Financing	Description
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<input type="checkbox"/> In-Kind contribution	Description
<input type="checkbox"/> Technical Support	Description
<input type="checkbox"/> Other/Please specify	Description

SECTION 5: IMPACT

5.1. Countries planned for implementation including number of people potentially impacted.

Focus on hydrogen projects in core countries DE/NL/UK and in a next step on European market. Further support for int'l renewables focus markets foreseen (MoU between Naftogaz (UKR) and RWE).

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how **each** of the actions from section 2 impact advancing the SDGs by 2030.
[up to 500 words, please upload supporting strategy documents as needed]

The 2030 Agenda for Sustainable Development was launched to end poverty and to set the world on a path of peace, prosperity and opportunity for all on a healthy planet. The 17 Sustainable Development Goals (SDGs) demand nothing short of a transformation of the financial, economic and political systems that govern our societies today to guarantee the human rights of all. The energy system transformation is one of the biggest driver for a sustainable world and crucial for the achievement of the SDGs by 2030. This change will boost economic development and job creation, lower greenhouse gas emissions and enable people in all geographies to thrive.

RWE is committed to the 2030 Agenda for Sustainable Development and the SDGs: Spearheading the acceleration of renewable energy, we are engaged in achieving SDG 7 by relying clean and affordable energy to our customers. By the way we do our business, we have indirect impact on more SDGs, e.g. through ambitious climate action, promotion of women and an ethical corporate governance. This energy compact highlights RWE' ambition and progress on green hydrogen: As an expert in power generation and with a global footprint, we are perfectly equipped to investigate and scale the potential. Green hydrogen will be an important cornerstone of a sustainable world, as well as being crucial to the further expansion of renewables. Achieving global net-zero emissions by 2050 will require about 306 million tonnes of green hydrogen derived from renewable energy each year, according to the International Energy Agency (IEA) report "Net Zero by 2050 – A Roadmap for the Global Energy Sector".

Hydrogen is, besides renewable electricity, a systematic element for the long-term decarbonisation objective. Hydrogen will replace fossil fuels in many industrial processes and will be used in transportation in cases where batteries are unsuitable. With our hydrogen projects (like Eemshydrogen, AquaVentus, HyTech Harbour Rostock, GETH2 IPCEI), RWE is helping in scaling-up hydrogen technologies by large-scale applications in green hydrogen generation, thus, playing an active part in the energy transformation towards a climate-neutral future. Besides visible impacts on SDG 7, green hydrogen will – once mature – be an important factor in the global energy transition with interlinkages to other goals of the 2030 Agenda: The development will create new jobs, advance gender equality, and empower people, communities, and societies. Based on the concept of 'leaving no one behind', a just and inclusive energy transition will enhance human well-being, health, and capabilities, increase resilience, and drive innovation towards a sustainable society at all levels, while also driving huge investments. Safeguarding industrial value creation and decarbonization of otherwise hard to decarbonize industries.

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how **each** of the actions from section 2 align with the Paris Agreement and national NDCs (if applicable) and support the net-zero emissions by 2050. [up to 500 words, please upload supporting strategy documents as needed]

RWE is one of the few energy companies to have Science-based Targets for climate protection. Based on climate science, the Science Based Targets Initiative (SBTi) has attested that RWE's targets are in line with the Paris Agreement which aims to limit global warming to well below two degrees Celsius. Specifically, this means that RWE on the group level has committed to achieve a 50% reduction in specific greenhouse gas emissions from Scope 1 and 2 by the year 2030, compared to the base year 2019. We aim to reduce Scope 3 emissions by 30% by 2030. By that, RWE is on track to become climate-neutral by 2040.

This objective will be achieved not only with our renewable activities (RWE is one of the world's leading companies in terms of renewables and one of the key players globally in offshore wind), but moreover RWE is strongly involved in the area of hydrogen technology. Together with renowned partners from industry and the scientific world, RWE is pushing ahead with over 30 hydrogen projects in Germany, the Netherlands and the UK. Green hydrogen will be an important cornerstone of a sustainable world, as well as being crucial to the further expansion of renewables. In many sectors, hydrogen is needed to decarbonise sectors that are not suitable for electrification. Hydrogen will replace fossil fuels in many industrial processes and will be used in transportation in cases where batteries are unsuitable. With our hydrogen projects (like Eemshydrogen, AquaVentus, HyTech Harbour Rostock, GETH2 IPCEI), RWE is helping in scaling-up hydrogen technologies by large-scale applications in hydrogen generation and replacing grey with green hydrogen, thus playing an active part in the energy transformation towards a climate-neutral future.

SECTION 6: MONITORING AND REPORTING

6.1. Please describe how you intend to track the progress of the proposed outcomes in section 3. Please also describe if you intend to use other existing reporting frameworks to track progress on the proposed outcomes.

RWE prepares a detailed time schedule and other supporting documents (e.g. business plan incl. cash flows, risk matrix) for each of its projects that includes all relevant information and milestones. Any information affecting the project is evaluated and taken into account by a dedicated project team. Relevant information is shared with the other project teams.

SECTION 7: GUIDING PRINCIPLES CHECK LIST

Please use the checklist below to validate that the proposed Energy Compact is aligned with the guiding principles.

I. Stepping up ambition and accelerating action - Increase contribution of and accelerate the implementation of the SDG7 targets in support of the 2030 Agenda for Sustainable Development for Paris Agreement

I. 1. Does the Energy Compact strengthen and/or add a target, commitment, policy, action related to SDG7 and its linkages to the other SDGs that results in a higher cumulative impact compared to existing frameworks?

Yes No

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? Yes No

I.3. Does the Energy Compact consider inclusion of key priority issues towards achieving SDG7 by 2030 and the net-zero emission goal of the Paris Agreement by 2050 - as defined by latest global analysis and data including the outcome of the Technical Working Groups? Yes No

II. Alignment with the 2030 agenda on Sustainable Development Goals – Ensure coherence and alignment with SDG implementation plans and strategies by 2030 as well as national development plans and priorities.

II.1. Has the Energy Compact considered enabling actions of SDG7 to reach the other sustainable development goals by 2030? Yes No

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps? Yes No

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? Yes No

III. Alignment with Paris Agreement and net-zero by 2050 - Ensure coherence and alignment with the Nationally Determined Contributions, long term net zero emission strategies.

III.1. Has the Energy Compact considered a timeframe in line with the net-zero goal of the Paris Agreement by 2050? Yes No

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? Yes No

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? Yes No

IV. Leaving no one behind, strengthening inclusion, interlinkages, and synergies - Enabling the achievement of SDGs and just transition by reflecting interlinkages with other SDGs.

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? Yes No

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? Yes No

IV.3. Does the Energy Compact consider measures that address the needs of the most vulnerable groups (e.g. those impacted the most by energy transitions, lack of energy access)? Yes No

V. Feasibility and Robustness - Commitments and measures are technically sound, feasible, and verifiable based a set of objectives with specific performance indicators, baselines, targets and data sources as needed.

V.1. Is the information included in the Energy Compact based on updated quality data and sectoral assessments, with clear and transparent methodologies related to the proposed measures? Yes No

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? Yes No

V.3. Has the Energy Compact considered issues related to means of implementation to ensure feasibility of measures proposed (e.g. cost and financing strategy, technical assistant needs and partnerships, policy and regulatory gaps, data and technology)? Yes No

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

RWE Generation SE - Green Hydrogen Energy Compact


8.2. Lead entity name (for joint Energy Compacts please list all parties and include, in parenthesis, its entity type, using entity type from below)

RWE Generation SE
RWE Platz 3
45141 Essen, Germany

8.3. Lead entity type

- | | | |
|--|---|--|
| <input type="checkbox"/> Government | <input type="checkbox"/> Local/Regional Government | <input type="checkbox"/> Multilateral body /Intergovernmental Organization |
| <input type="checkbox"/> Non-Governmental Organization (NGO) | <input type="checkbox"/> Civil Society organization/Youth | <input type="checkbox"/> Academic Institution /Scientific Community |
| <input checked="" type="checkbox"/> Private Sector | <input type="checkbox"/> Philanthropic Organization | <input type="checkbox"/> Other relevant actor |

8.4. Contact Information


Essen, 31.08.2021

Dr. Sopna Sury
Chief Operating Officer Hydrogen of RWE Generation SE

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8.5. Please select the geographical coverage of the Energy Compact

- Africa Asia and Pacific Europe Latin America and Caribbean North America West Asia Global

8.6. Please select the Energy Compact thematic focus area(s)

- Energy Access Energy Transition Enabling SDGs through inclusive just Energy Transitions Innovation, Technology and Data Finance and Investment.

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc.

[Hydrogen projects \(rwe.com\)](https://www.rwe.com/en/energy/hydrogen-projects)

