

Exposé

Best practice approaches from Hamburg for G20 challenges

Climate Change

After the G7 expressed its commitment to adopting an ambitious world climate agreement aimed at limiting global warming to a maximum of 2°C, the G20 has sent out a further signal in support of this goal. The United Nations Climate Change Conference in Paris in December 2015 adopted a legally binding international climate agreement, which is designed to keep global warming significantly below 2°C. Germany adopted its national climate plan even before the end of the 2016 conference in Marrakesh. In 2011, the City of Hamburg was awarded the title of European Green Capital. Up until today Hamburg and the Hamburg Metropolitan Region have been moving forward with ambitious best practice projects that demonstrate how environmental goals can foster innovation, stimulate the economy and increase quality of life.

Keywords: energy transition, Industry 4.0, digitisation, smart grid, climate politics

NEW 4.0: Test run for the energy transition

Using Industry 4.0 know-how, North German region is going 100% renewable

An energy system of the future will be developed in Northern Germany as part of the large-scale project NEW 4.0. From 2035, around 4.5 million residents in the federal states of Hamburg and Schleswig-Holstein will be provided with power by renewable energy sources alone. Applying Industry 4.0 systems, the project will demonstrate how imbalances in production and consumption can be offset based on renewable energies.

Northern Germany is playing an important role in Germany's energy transition: Schleswig-Holstein as an energy supplier with an ever increasing number of onshore and offshore wind farms, and the city state of Hamburg as a location for industry and large power consumers. As part of the NEW 4.0 project, the states of Hamburg and Schleswig-Holstein have been merged into one consistent energy region. The overall objective is to serve as a showcase for Germany and to demonstrate within a European context that the energy transition is indeed feasible: NEW 4.0 will showcase how a region with 4.5 million residents can be supplied with regenerative energy as early as 2035 using 100% safe, affordable, eco-friendly and socially acceptable energy sources that can lead to a reduction in CO2 emissions by 50 to 70%.

Prof. Werner Beba, project coordinator of NEW 4.0., explains: *"This is the first time that the interplay of different technological approaches, the targeted integration into the energy market and the application of the regulatory framework will be tested in an orchestrated manner as part of this large-scale practical trial, and this is what makes NEW 4.0. both unique and challenging. The findings of this project will contribute to making the necessary transformation of the entire energy system a success."*

NEW 4.0 is an unparalleled project initiative that unites stakeholders from industry, science and

politics. “NEW” stands for *Norddeutsche Energiewende* (North German energy transition), and “4.0” signifies the threshold of the fourth industrial revolution, i.e. the digitisation of industry, which will play a key role also with regard to the energy transition as intelligent system networks are developed.

To this end, about 60 regional and transregional partners have formed an “innovation alliance” that aims to overcome the challenges of the energy transition based on integrated technological expertise. The project is supported by the state governments of Hamburg and Schleswig-Holstein as well as by the Federal Ministry for Economic Affairs (BMWi). Around EUR 90 million will be invested by the project partners within the next four years, and the BMWi is supporting this showcase project (SINTEG – Smart Energy Showcase) to the tune of EUR 44 million. The overall strategy, some 100 individual projects as well as 30 demonstrators have been developed over the course of the project’s three-year preparation phase.

Along this development path towards the energy system of the future, 70% of the region is to be supplied with safe, reliable renewable electricity as early as 2025. What is more, NEW 4.0 aims to support the process further based on its sector coupling concept. As part of the project, renewables will be gradually used for heat supply and industrial processes that previously ran on fossil fuels such as gas. Schleswig-Holstein and Hamburg are thus using the current power shift as the starting point for accomplishing the energy transition in the medium term.

First and foremost, this large-scale project aims to demonstrate how the full integration of renewable energies can be accomplished even in a region characterised by pronounced, growing imbalances between production and consumption. This will require the comprehensive synchronisation of (fluctuating) production and consumption. To achieve this, the project will use an innovative approach for integrating and orchestrating all of the stakeholders and components of the production, transport, distribution, storage and consumption stages by means of intelligent network technologies. At the same time, the market-oriented system integration will be tested in the context of advanced market rules and regulatory conditions.

Stakeholders from all industries and along the energy sector’s entire value chain have joined forces for the NEW 4.0 project. Participating companies will be able to tap new market and export opportunities with product innovations and solutions developed in the context of the project and to boost their competitiveness within a highly innovative growth market. Based on this project, the states of Schleswig-Holstein and Hamburg aim to strengthen their regional economies and to create new industrial value chains, which will contribute to securing and creating jobs in the region. And, finally, the project will enable Hamburg and Schleswig-Holstein to sharpen their profile as a leading innovation location for the energy sector in particular.

Further information

www.new4-0.de

www.haw-hamburg.de/english/research/energy-sustainability/cc4e/new-40.html

Facts & figures

- NEW 4.0 demonstrates the full integration of renewable energies in a region characterised by pronounced, growing imbalances between production and consumption

- NEW 4.0 develops the blueprint for the energy system of the future by means of intelligent network technologies
- NEW 4.0 is a collaboration of the two neighbouring federal states of Hamburg and Schleswig-Holstein, with 4.5 million residents living in the model region
- By 2035 full switch to renewables in the model region
- By 2025 70% of the model region is to be supplied with renewable electricity
- NEW 4.0 integrates activities of more than 60 regional and transregional partners
- Around EUR 90 million will be invested by the project partners within the next four years
- The Federal Ministry for Economic Affairs (BMWi) is supporting this showcase project (SINTEG – Smart Energy Showcase) to the tune of EUR 44 million

Picture material

www.marketing.hamburg.de/mediaserver-result/media/911.html

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About Hamburg and the G20

On 7 and 8 July, the heads of state and government of the world's leading 20 industrialised and emerging economies and their delegations are meeting in Hamburg, Germany. The exhibition grounds of Hamburg Messe in the very heart of the city will serve as the main venue for the summit. Hamburg, the "gateway to the world" with a port that is connected to 950 ports in some 180 countries worldwide, will be the first German city to play host to a G20 summit. In addition to the venues at the exhibition grounds, the Elbphilharmonie Hamburg, the city's new landmark, will also play a special role. The new concert hall officially opened its gates in January. In the context of the summit, Germany's Chancellor Angela Merkel has invited the heads of state and government as well as the representatives of the participating organisations to a concert on the night of the first day of the summit.

As part of its G20 presidency, Germany will be addressing traditional G20 issues relating to the global economy, trade, financial market regulations and fiscal policy, which have been included in the agenda ever since the financial crisis of 2008/2009. In addition, Germany aims to draw public attention to today's global challenges, such as combating pandemics, work safety, the promotion of women, ways of dealing with displacement and migration, prospects for African economies, as well as policy measures in the areas of climate protection, energy, and sustainable development. In Hamburg all of these topics have been of relevance and the city can offer many best practice examples and innovative projects connected with the G20 topics.

Further information, text material, statements, photos and footage, exposés and comprehensive media services by the City of Hamburg relating to the G20 are available at www.marketing.hamburg.de/q20.html

For G20 accreditation, themes and topics, please visit the official G20 website at www.g20.org

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