Federal Ministry
for Economic Affairs
and Climate Action

Energiewende direkt

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Energy savings for greater independence

The „energy efficiency work plan" is intended to help save energy and improve energy efficiency. Both private households and companies will benefit. **Find out more**

Energy savings for greater independence

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At the latest since the start of Russia's war of aggression against Ukraine, energy sovereignty and energy independence have taken on new importance in Germany. Saving energy, and living and working in an energy-efficient way, is no longer just the decent thing to do: it also makes Germany less dependent on energy supplies from Russia.

Federal Minister Habeck outlined the idea behind the work plan: „We are currently pulling out all the stops to lessen our dependence on energy from Russia. As important as it is in the short term to find alternative sources for gas and to build the necessary infrastructure, the cheapest and most efficient way to become more independent is to use less energy. Cutting energy consumption is a matter of urgency to combat climate change, and also helps to reduce the high costs, given the horrendous prices for fossil fuels – a huge burden especially for low-income families. Energy prices are a burden on companies, too. That is why we are working very hard to improve energy efficiency – through funding and incentives, with the proper framework and information. Saving energy and shifting to renewables – that is the task. Not just since today, but especially today."

The energy efficiency work plan (German only) points out efficient ways to lessen dependence, advance climate change mitigation and sustainability, and cut costs. It contains a catalogue of clear measures ranging from financial incentives and targeted funding to changes to the regulatory framework. Timetables are set for the individual measures and instruments.

These include **financial support for households and companies**, in particular the Federal Funding for Efficient Buildings (BEG) scheme. In future, this will focus on the energy-efficient retrofitting of buildings.

However, only with the correct **regulatory framework** and effective economic incentives will it be possible to reduce energy consumption sustainably for the long term. The minimum energy performance standards for new buildings will soon be raised. From 2024, renewable energy must account for at least 65 per cent of new heating systems. This will be possible, for example, with solar thermal energy, the installation of pellet heating systems or the use of heat pumps. Under the new rules, solar panels on roof-tops will be the norm.

Germany intends to cut its energy consumption by 24 per cent by 2030. **An energy savings campaign** is to be launched to improve the information available to companies, business people and consumers – with lots of practical tips and individual advice services, for instance on installing solar roof panels.

You can read the energy efficiency work plan here (German only).

FURTHER INFORMATION

- BMWK press release „Habeck presents energy efficiency work plan: energy savings for greater independence" (German only)
- „Energy efficiency work plan" (PDF download, 349 KB) (German only)
- Information about energy efficiency (German ony)
- Information about the energy transition in the building sector (German only)

Racing towards energy independence

Within just a few years, the EU wants to end dependence on Russian fossil fuels and to accelerate the European energy transition. In Brussels in mid-May, it presented its strategies for reaching these goals with the REPowerEU Plan.

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As early as the end of 2022, gas imports from Russia could drop by two-thirds and imports of oil from Russia could cease. By 2027, Russian energy supplies to the EU are to have been phased out altogether. Europe no longer wants to be dependent, but to pursue various strategies to ensure its energy supply itself. The REPowerEU Plan, presented in Brussels on 18 May, outlines everything to be done to that end.

The Plan is the EU's response to the disruptions and huge price increases on the global energy markets, exacerbated and in part caused by Russia's invasion of Ukraine. It is also a contribution towards tackling the climate crisis and ensuring European security of supply. „The green transformation will strengthen economic growth, security, and climate action for Europe and our partners," says a press release from the European Commission.

Broad support from the European public

The majority of Europeans support the EU's actions. According to Eurobarometer, 85 per cent believe that the EU should reduce its dependency on Russian gas and oil as soon as possible to support Ukraine.

The EU intends to do this by diversifying energy supplies, improving energy efficiency and accelerating the roll-out of renewable energy to replace fossil fuels in homes, industry and power generation.

In order to enhance energy savings, for instance, the Energy Efficiency Target could be increased from

9 per cent to 13 per cent. So that the energy supply can rest on several pillars in future, there must be substantial diversification, the paper continues. This will include the development of new LNG infrastructures and the use of alternative pipeline gas and biomethane, as well as the ramping up of the hydrogen market and the development of an EU-wide hydrogen infrastructure. In order to procure the alternative energy resources, the REPowerEU Plan will optimise the gas infrastructure, create a common EU Energy Platform and build long-term energy partnerships.

Accelerating the energy transition

In order to speed up the energy transition, the headline 2030 target for renewables is to be increased from 40 to 45 per cent. One of the measures to that end is to shorten and simplify permitting processes for the scaling-up of renewable energies and networks. In its Plan, the Commission further proposes the gradual introduction from 2026 of a legal obligation to install solar panels and a complete ban on the sale of gas and oil-fired heating systems by 2029 at the latest.

The EU wants to revive local value chains, for instance through new Important Projects of Common European Interest (IPCEIs) in the fields of solar energy, wind energy and heat pumps. These are important transnational projects of common European interest which, with state funding, make a very important contribution to economic growth, jobs and competitiveness for Europe's industry and economy. Such IPCEI projects are already ongoing for hydrogen technologies, battery cells and microelectronics.

Additional investment of €210 billion needed

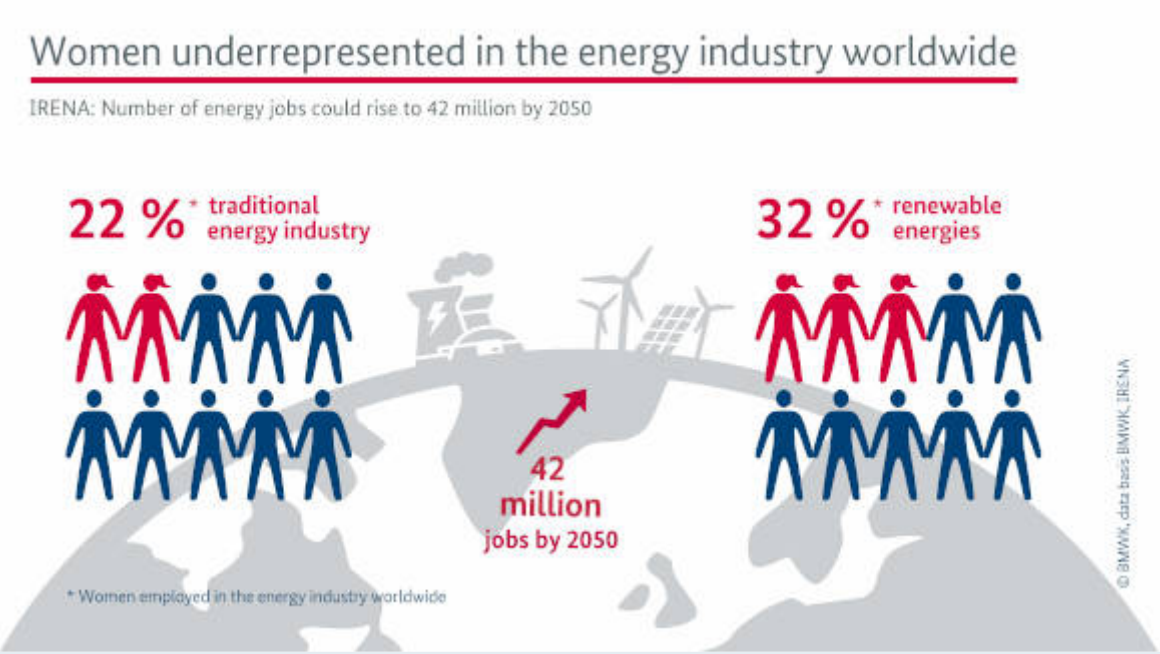
The European Commission puts the additional investment needed for REPowerEU at around €210 billion between now and 2027. This, it says in a statement, is less than the EU currently spends on Russian energy. The bulk of the money is to go to scale up renewables and networks and support measures to improve energy efficiency. The Commission suggests that Member States could, for example, finance this by channelling unused funds from the Recovery and Resilience Facility (RRF, COVID recovery fund), the Common Agricultural Policy (CAP) and the Structural Funds. Tax measures are also possible, for instance in the form of tax deductions or credits, as incentives to save energy and switch to renewables.

FURTHER INFORMATION

[→ REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition

Opportunities for women in the energy industry

IRENA forecasts that the number of jobs in the global clean energy transition could rise to 42 million by 2050. At the moment, though, women are still underrepresented in energy jobs around the world. The issue was discussed at the first „Women Energize Women" conference.



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How can the proportion of women in the energy sector be increased and how can they be more empowered? This was one of the most important questions discussed at the first „Women Energize Women" conference, which was held in Munich on 12 May on the fringes of Europe's biggest energy industry platform (The Smarter E Europe). The conference also looked at the important role women play in shaping the global energy transition.

A report by IRENA suggests that the number of jobs in the energy industry could rise from 13 million to 42 million by 2050 (Global Renewables Outlook: Energy transformation 2050). The forecast highlights the huge economic potential of the energy transition. However, women are still underrepresented, particularly in decision-making positions or technical fields. 78 per cent of employees in the traditional energy sector and 68 per cent in renewables are men. This is especially critical as there is a shortage of skilled workers in the field of renewable energies.

The conference programme, including discussions, motivational speeches and workshops on current energy issues (such as hydrogen, renewables, access to energy), with only women speakers, gave both women and men the chance to look at the energy transition from a female perspective and consider gender equality in the energy industry.

One particularly impressive feature of the conference was the large delegation from the initiative „Women in Energy United for Ukraine", who attended at the invitation of dena (German Energy Agency). The women spoke about the terrible destruction in their country and discussed the options

for reconstruction.

„Women Energize Women" is organised in the framework of the bilateral energy partnerships by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the German Renewable Energy Federation (BEE). It is directed at women worldwide, but focuses on countries with which Germany has energy partnerships.

FURTHER INFORMATION

- Website of the „Women Energize Women" conference
- Information about the „Women Energize Women" campaign on the portal of the German Renewable Energy Federation (BEE)
- „Women Energize Women" on Twitter
- „Women Energize Women" on LinkedIn
- „Women Energize Women" on Instagram
- „Women Energize Women" on YouTube
- BMWK article on „energy partnerships and energy dialogues"
- Initiative „Women in Energy United for Ukraine"

„European power stations"

Denmark, the Netherlands, Belgium and Germany want to speed up the expansion of wind energy in the North Sea, harness new potential for green hydrogen and develop joint „energy islands".

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These aims are set forth in a declaration signed at the North Sea Summit in Esbjerg (Denmark) on 18 May. The Heads of State and Government and the Energy Ministers of Germany, Denmark, the Netherlands and Belgium were joined at the meeting by European Commission President Ursula von der Leyen und EU Energy Commissioner Kadri Simson. Business representatives from all participating countries also attended.

In the declaration, the participating countries agreed to develop joint „hybrid" offshore cooperation projects connecting wind farms with several states at once, thus forming „energy islands" in the sea. The aim is for the North Sea to emerge as a „Green Power Plant of Europe" and to supply the EU with green electricity.

Minister Robert Habeck said: „The agreement reached by the Energy Ministers today is an important milestone in cross-border cooperation. It is the basis for the first genuinely European power plants – and, what's more, they will be producing electricity from renewable energy. Working with our partners, we can expand offshore wind energy in the North Sea even more quickly and efficiently and open up new potential for green hydrogen. In this way we are consolidating the expansion of renewables in Europe and thus further reducing our dependence on gas imports." (To read how an offshore wind farm actually works, click here (German only).)

Generation capacities in the North Sea could grow tenfold by 2050

Together the four countries set themselves the target of expanding generation capacities for offshore wind energy in the North Sea by at least 65 gigawatts (GW) by 2030 and 150 gigawatts (GW) by 2050. This would mean increasing today's generation capacity fourfold by 2030 and tenfold by 2050. Other goals agreed include electricity market rules at EU level that enable electricity generated from wind energy to be effectively integrated into the grid, and a fair cost-benefit split in cooperation projects among the participating countries. Participants in the summit in Esbjerg also discussed the importance of financing instruments and the acceleration of approval procedures at EU level.

At the same time, cooperation on the future production of green hydrogen from offshore wind energy and on the development of the hydrogen infrastructure in the region is to be stepped up. Federal Minister Habeck and Danish Energy Minister Dan Jørgensen also agreed to work closely together on green hydrogen and on the development of cross-border infrastructure. Read the Letter of Intent with Denmark here.

FURTHER INFORMATION

[→ Press release by the Federal Ministry for Economic Affairs and Climate Action: „Energy Ministers of the four North Sea littoral states sign agreement on cooperation on offshore wind energy and green hydrogen" (German only)
[→ The Declaration of Energy Ministers on The North Sea as a Green Power Plant of Europe (PDF Download, 708 KB)

How does an offshore wind farm work?

Wind, waves, alternating and direct current: offshore wind energy is regarded as a cornerstone of the clean energy transition and supplies millions of people with green electricity. But how does an offshore wind farm work? And how does the electricity get from sea to land? Come and pay a quick visit.

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This is what it's all about: offshore wind farms off the coast of the North Sea and Baltic Sea produce green electricity for millions of people.

In 1991, even before the word „Energiewende" (energy transition) appeared in a German dictionary, the world's first ever offshore wind farm was established off the Danish island of Lolland. It was not until almost 20 years later that the first offshore wind farm in open water began operations – alpha ventus. When it comes to the future of wind energy off the shores of Germany, the North Sea is still the focus. It might increase its generation capacity tenfold from now till 2050. Germany wants to increase its capacities to at least 30 gigawatts by 2030, and 70 gigawatts by 2045. For more information, please click here.

Sea as far as the eye can see

Many areas cannot be considered for wind farms for reasons of nature and species conservation or other activities, such as shipping, fisheries or military uses. Suitable areas are therefore identified as part of marine spatial planning and special planning for offshore wind energy. This planning ensures that the delineated areas are used as efficiently as possible and that the offshore wind farms and offshore grid connections to transport the electricity to land go onstream at the same time.

Staying with the wind

On the high sea, the wind blows much more constantly than on land, but the wind energy installations need to be much more resilient. Because unlike installations on land, a large part of these marine giants is below the surface and is thus exposed not only to the strong sea winds, but also to currents, waves and tides.

Today, turbines with a capacity of eleven megawatts (MW) are already being installed, and it is expected that capacities of 15 MW and even up to as much as 20 MW will be operating before the end of this decade. The total capacity of offshore wind farms is therefore several hundred megawatts, and in future will generally pass the one gigawatt mark.

The wind blowing over the sea sets the huge rotor blades in motion. This movement is converted into energy in the generator nacelle as follows: the rotor blade turns the main shaft and a gear unit transfers the rotational motion to a fast-rotating high-speed shaft. To this shaft is attached a magnet that rotates inside the generator between coils made of conductive wire. This produces electricity.

How the electricity is transported depends on where the wind farm is

The electricity generated in the turbines at the wind farm is fed into an offshore converter station, which transports it to land as direct current via high-voltage cables. Transferring the electricity as direct current minimises transmission losses. As offshore wind energy installations can nowadays produce direct current on the 66 kV voltage level, there is no longer any need to build a substation especially for the wind farm to collect the electricity and transform it to a higher voltage level. Once it reaches dry land, the electricity from the sea is transformed into alternating current in a substation, transformed to the correct voltage, and fed into the public grid.

If a wind farm is not far from the shore, a submarine cable will take the electricity to the next onshore connection point. Here the electricity is transferred via alternating current cables at a low voltage (220 kV). This is the case for all offshore wind farms in the Baltic Sea, for instance, because they are built closer to the shore.

Over the past few years, the costs of electricity production – installation and maintenance costs, for instance – from offshore wind energy have sunk rapidly, partly as a result of acquired knowledge. At the same time, the energy yield has grown many times over, without the overall costs increasing to the same extent.

FURTHER INFORMATION

[→ Information Portal on Renewable Energies (German only)

Submit your funding applications now!

Within the framework of the National Climate Action Initiative, the BMWK supports innovative municipal climate action projects We are now launching a

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new call for applications for CCUS (carbon capture, utilisation and storage) technologies.

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BMWK supports innovative municipal climate action projects

In 2022, the Federal Ministry for Economic Affairs and Climate Action (BMWK) is again funding innovative climate action projects under the National Climate Action Initiative. The idea is that projects are designed specifically for municipalities, not primarily developed by them. Further information on the call for applications for innovative climate action projects and details of the application procedure can be found here (German only).

New ACT call for applications for CCUS technologies

The international consortium Accelerating CCS Technologies (ACT) has published a new call for applications from the field of CCUS technologies. The call is directed at research establishments, higher education institutions, companies and other institutions applying for funding with at least one partner from another country. The closing date for project applications is 12 September 2022. Further information can be found here. For further information, please click here.

FURTHER INFORMATION

[→ More about the ACT call for applications for CCUS technologies (German only)
[→ More about the call for applications for innovative climate action projects (German only)

What the press say

This time in 'What the press say': Why a rejection of globalisation would be the wrong move, how Germany will get LNG supplies in future, and how the energy transition is still gathering pace worldwide.

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sueddeutsche.de, 29 May 2022: „Habeck: Reorient globalisation and trade policy"

In an interview with Süddeutsche Zeitung, Federal Minister Habeck warns against isolationism in trade policy and against economic nationalism.

sonnenseite.com, 29 May 2022 „Energy transition gathers pace – worldwide"

The energy transition is still gathering pace worldwide, reports sonnenseite.com, pointing to the „Global Energy Perspective 2022" published by management consultancy company McKinsey.

G7: More climate action and more ambitious environmental policy

In the communiqué from their two-day meeting in Berlin on 27 May, the G7 climate, energy and environment ministers commit for the first time to the goal of predominantly decarbonised electricity sectors by 2035. They also commit for the first time to phasing out coal-fired power generation. The G7 is thus sending a strong message for more climate action with a view to the 1.5C limit and solidarity with the countries hit hardest by climate change. Their communiqué is regarded as an important precondition for making urgently needed progress

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within the G20 and at the next UN Climate Change Conference (COP 27) in Sharm El-Sheikh (Egypt) in November.

Research for the energy transition on Twitter

The Twitter channel @energieforschen is a source of exciting news from the field of applied energy research supported by the Federal Ministry for Economic Affairs and Climate Action as part of the 7th Energy Research Programme. Alongside research news, the team posts exciting project results and interviews, as well as background information on current issues, interesting events and sources of funding.

Experience the Solar Decathlon Europe live

The Solar Decathlon brings together university teams from all over the world under the motto „Design - Build – Operate" to plan, build and operate solar houses with a carbon-neutral or even a positive energy footprint. In 2022, the competition can be experienced live in Germany for the first time. Sixteen teams from eleven countries will be presenting their innovative housing ideas not merely on paper, but as fully functioning prototypes in Wuppertal. The aim is to advance the energy transition in urban neighbourhoods. From 20 May till 2 June, the teams will abandon their university lecture theatres for the construction site. For two weeks from 10 June, visitors can then see the houses, take tours and attend various events around the Solar Decathlon Europe 21/22.

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