

Clean energy solutions: making the most of all our planet's energy resources.

Answers for energy.



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How can we make the most of nature's elementary forces?

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When is the right time to go clean?

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Rationalizing will not help: the swift adoption of maximally clean and sustainable forms of power generation, transmission, and distribution is a matter of survival for our planet's ecosystem and, therefore, for all of us. The good news is that the technology to make the entire energy system cleaner and at the same time even more efficient is readily available. Siemens, the world's only integrated energy company, supplies a wide range of products, solutions, and services that make it possible to act right now.

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Highly efficient combined cycle power plants (CCPP)

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The newest generation of Siemens gas turbines makes possible CCPPs with efficiency rates above 60 percent.



Carbon capture and storage

Siemens has developed two different technologies for pre- and postcombustion carbon capture and storage.



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Environmental services

Siemens supplies integrated solutions for clean, reliable power production that increase efficiency while mitigating environmental impact.

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Plant modernization and upgrades

Targeted modernization measures help increase the efficiency of power plants, thus lowering emissions and saving fuel.



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The Siemens clean energy portfolio

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Making energy a cleaner business throughout the entire energy conversion chain



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Nuclear energy

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Siemens is a partner for the conventional island and will intensify its engagement in the entire field of business.

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HVDC transmission solutions

High-voltage direct current transmission systems make possible the long-range low-loss bulk transmission of renewable power.

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Offshore wind power

Siemens pioneered the offshore installation of wind turbines and is the world market leader on the offshore wind market.



Onshore wind power

A specially designed Siemens wind turbine with a 101-meter rotor helps optimize the energy returns in areas with limited average wind speeds.



Concentrated solar power plants

Concentrated solar power plants from Siemens tap the largest energy source on our planet most efficiently.



Large-scale photovoltaic projects

Siemens' high-efficiency photovoltaic plants are much more efficient than customary units of a comparable size.



Combined heat and power plants (CHP)

Siemens CHP plants operate at much higher efficiencies than other forms of power generation, thus reducing costs and making power generation cleaner.

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Unlocking the entire potential of the energy mix

Three steps towards mastering the energy challenge

Turning the resources nature has provided us with into clean and sustainable energy supplies that meet future demands requires the consistent utilization of all possibilities in the energy mix. Siemens is banking on three key steps: optimization of the energy mix, efficiency enhancement along the entire energy conversion chain, and a systemic optimization of the entire energy system. Throughout the entire energy conversion chain, Siemens supplies the technology that helps make energy a much cleaner business than ever before. And all this technology is readily available today.

Optimization of the energy mix

To provide sufficient amounts of clean and sustainable energy it is critically important to continually optimize the energy mix. This includes steadily increasing the share of renewable energy sources such as wind and solar power - one of the focal points of Siemens' research and development today. Offshore wind farms are especially promising, and Siemens is leading the field in offshore wind technology. But Siemens also puts great effort in the further optimization of fossilfired power generation. Carbon capture technology from Siemens, for instance, can capture more than 95 percent of the total carbon dioxide amount in fossil fuels. And gas-fired combined cycle power plants from Siemens with quick startup capability can help compensate for fluctuations in renewable infeed and in grid loads. In addition, nuclear energy will be an indispensable provider of lowcarbon power, especially for low-emission base load.



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Efficiency enhancement along the entire energy conversion chain

Generally speaking, greater energy efficiency means cleaner energy. Innovations from Siemens help reduce the consumption of fossil fuels and increase the output from renewable energy sources. One example: modifications and updates substantially increase the efficiency of fossil power plants. Emissions are lowered, and more electricity can be generated from the same amount of fuel, resulting in genuinely "green" megawatts.

Great efficiency potential can also be leveraged in the area of power transmission. The natural losses of electrical energy during its transport in power grids can be significantly reduced by using power electronics. This helps bring clean energy from remote areas right into the centers of consumption. In China, for example, Siemens is currently building the world's first 800 kV HVDC transmission link with a transmission capacity of 5,000 megawatts. It will transmit clean and economical hydroelectric power over a distance of more than 1,400 kilometers.

Systemic optimization

Intelligent energy management systems from Siemens pave the way to Smart Grids that help make the entire energy system cleaner and more efficient by managing central and distributed power generation of all kinds. Small generation units are bundled into so-called virtual power plants, for instance. And surplus electricity from renewable sources can be stored in mass storage units such as heat pumps or networked electric cars. The real-time monitoring of power consumption with smart meters will also have a positive effect, since people in private households can check their personal consumption on a daily basis and take measures to reduce costs.

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