

# Carbon clean-up needs energy revolution, leaders told

July 8 2014, by Richard Ingham

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A photo taken on October 31, 2013 in Haubourdin, northern France, shows smoke from a factory

More than two dozen scientific institutes, in unprecedented advice to world leaders, on Tuesday urged major economies to unleash an energy revolution for slashing carbon emissions to safer levels by 2050.

In a [report](#) issued ahead of the September 23 world climate summit, they

also warned time was short for meeting the UN's global-warming target but the goal must not be scrapped.

"The science is clear that [global warming](#) beyond two degrees Celsius (3.6 degrees Fahrenheit) carries the risk of grave and irreversible harm to human wellbeing and development prospects in all countries," they said.

The experts pointed to fossil energy as the big carbon spewer, calling for a revolution in favour of cleaner transport and architecture, and low-carbon fuels and electricity.

The collaborative effort was authored by around 30 institutes in 15 countries accounting for more than 70 percent of global emissions.

Earth's climate is on track for 4 C of warming or more by 2100—a scenario linked to ever greater risk of hunger, species loss and homelessness caused by rising seas, the experts warned.

If the 2 C target slips or is abandoned, they said, "there will be no realistic prospect" for setting another quantified goal.

"The 2 C limit is an invaluable tool for international mobilisation that must be preserved."

The interim report by the so-called Deep Decarbonization Pathways Project, or DDPP, aims at giving practical advice for the September summit in New York, a stepping stone to the December 2015 conference in Paris where the 2 C pact is supposed to be enshrined.

It was handed on Tuesday to summit chair UN Secretary General Ban Ki-moon and to the French government, hosting the 2015 conference under the UN Framework Convention on Climate Change (UNFCCC).



A photo taken on September 21, 2010 shows a flock of sheep grazing near the Brunsbuettel nuclear power plant on in Brunsbuettel, northern Germany

"Ambitious national action is critical to averting dangerous climate change," Ban said in a press release from New York. "This report shows what is possible."

## **Decarbonization**

To have a "likely" chance of meeting 2 C, and factoring in a global population set to rise from 7.2 billion to 9.5 billion by mid-century, countries must reduce average per capita carbon dioxide (CO<sub>2</sub>) emissions from 5.2 tonnes today to 1.6 tonnes in 2050, the report said.

It would mean that annual emissions should peak very swiftly and fall sharply thereafter.

"We are just about out of time for reaching this crucial limit," said Jeffrey Sachs, director of Columbia University's Earth Institute in New York, who also headed the network that authored the report.

The report sketched national "pathways" under which energy-related CO<sub>2</sub> emissions by the 15 major producers would fall from 22.3 billion tonnes annually in 2010 to 12.3 billion by 2050.

Yet even this would still be insufficient to make a 2 C goal "likely," meaning a more-than two-thirds likelihood of success.

The report suggested a three-pronged attack for "decarbonizing" national energy systems:

— Energy efficiency: Smarter transport, buildings and offices that are better designed to reduce energy use, and industrial processes that re-use wasted heat.

— Low-carbon electricity: Replacing conventional fossil-fuel power stations by hydro, wind, solar, geothermal or nuclear. If coal or gas continue in the [electricity](#) mix, they will have to be coupled with carbon capture and storage, a technology still only in the experimental phase.

— Fuel switching: Dirty fossil fuels used in transport and industry would have to be swapped for low-carbon sources, of which biomass should be a contributor.

Fixing this will require "massive" investment in clean technology, Sachs cautioned in a teleconference with journalists.

With an eye on carbon pledges that all countries are supposed to make early next year in the UNFCCC talks, the report said decarbonization required governments to think about the distant future.

"Deep decarbonization will not happen overnight and there is no silver bullet," it warned.

"(...) It requires major changes to countries' energy and production systems that need to be pursued over the long term. Decisions made today to, say, power generation and transport infrastructure will have a long-term impact on future greenhouse-gas emissions."

The final version of the report next year will include details of the costs and benefits of deep decarbonization.

The 15 countries comprised Australia, Brazil, Britain, Canada, China, France, Germany, India, Indonesia, Japan, Mexico, Russia, South Africa, South Korea and the United States.

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