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EXPLORER

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The End of Fossil Fuels in Europe?

See page 6





Heads of delegations at the 2015 United Nations Climate Change Conference (COP21), which led to the signing of the Paris Agreement. Many of the new energy policies out of Europe stem directly from the Nationally Determined Contributions pledged by countries under the accord. Photo by Presidencia de la República Mexicana.

The End of Fossil Fuels in Europe?

Can government policies trump market forces?

News out of Europe late last year delivered some eye-popping jolts to the global oil and gas industry.

In December, the World Bank Group announced in Paris that it will stop financing upstream oil and gas projects in the world's poorest countries after 2019.

During the same month, the French Parliament approved a law banning exploration and production of oil and gas within France and its territories by 2040.

And European countries continued to target the phase-out of gasoline and diesel vehicles. The Netherlands said it will mandate electric vehicles sales only, starting in 2025. Norway will sell only electric and hybrid vehicles starting in 2030. Scotland plans to eliminate sales of gasoline and diesel cars in 2032, the rest of the United Kingdom and France in 2040.

But on second glance: Is there less here than meets the eye?

The actions by the French Parliament and the World Bank were seen as more symbolic than impactful, and Europe's ability to eliminate gasoline and diesel vehicles looks questionable, at best.

"My read of history and ongoing tracking of oil substitution and efficiency policy suggests governments are better at announcing dramatic energy transitions than actually achieving them," said Robert McNally, president of the Rapidan Energy Group in Washington, D.C.

McNally served as senior director for international energy on the National Security Council and special assistant to the president on the National Economic Council in the George W. Bush White House.

A member of the U.S. National Petroleum Council, he was an energy consultant for the campaigns of 2008 presidential candidate Mitt Romney and Florida Sen. Marco Rubio in 2010.

Columbia University Press recently published McNally's book "Crude Volatility: The History and the Future of Boom-Bust Oil Prices," an examination of the



McNALLY

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supply and demand swings that have characterized the oil industry since its beginning.

"While I do not question public and leadership concerns about emissions, I expect Europe will relearn that proclaiming peak oil demand is much harder than achieving it," McNally predicted.

"To significantly crimp oil consumption, an affordable competitor must first arrive, and when that happens government policy won't be needed. The private sector will lead the way with alacrity," he said.

Europe in Proportion

If France does end oil and gas exploration and production, it shouldn't make much of a ripple in the global oil market.

France ranks only 57th among the world's oil producers, according to the U.S. Energy Information Administration, generating less than half as much crude as Japan. For perspective, it produces less oil per year than Saudi Arabia produces in 9 hours.

The World Bank Group, with headquarters in Washington, D.C., is made up of five organizations including the World Bank. This group does not fund large-scale E&P. Instead, it provides loans and guarantees to developing countries for mostly small-scale energy projects. The bank's entire annual spending on energy is a small fraction of the world's total yearly

E&P expenditures.

Moreover, it left itself a loophole in curtailing E&P spending, pledging to stop funding upstream oil and gas projects in poorer countries "except under exceptional circumstances."

Many of the new energy policies out of Europe stem directly from the Nationally Determined Contributions pledged by countries under the Paris Climate Accord of 2015, noted Egil Tjøland, head of the Department of Geoscience and Petroleum at NTNU, the Norwegian University of Science and Technology in Trondheim.

"We have of course no guarantee that these pledges will be honored. An obvious example of this is the U.S. withdrawal from the Paris Agreement in May 2017," Tjøland said.

"However, if these pledges are honored, there could be a significant increase in electric motor-driven systems for light-duty vehicles. To achieve this, a likely subsidy scheme for such vehicles will be needed," he added.

Slowing Oil Consumption Growth

European countries that encourage use of electric vehicles and hybrids typically give sales of those vehicles large financial advantages over gasoline-powered models. One example is Denmark, which had exempted EVs from a 180-percent import tax on cars with internal combustion engines.

When the Danish government started reducing the tax break, sales of EVs in that country fell by more than 60 percent.

In Norway, 29 percent of all new car registrations in 2016 were EVs or plug-in hybrids, far and away the highest rate in Europe, according to the International Energy Agency. Norway gives EVs attractive tax breaks and numerous cost exemptions.

See [Electric](#), page 12 ►



“Oil will remain the lifeblood of modern civilization for the coming decades because it offers a vastly more affordable and energy-dense fuel for transportation, a vital sector for economic growth, living standards, and security.”

Electric
from page 6

Andreas Halse, environmental spokesman for Norway’s Labour party in Oslo, was quoted by the “Financial Times” as saying, “What we have proven in Norway is that if you give enough subsidies and impose enough restrictions on fossil fuel vehicles, people will buy electric.”

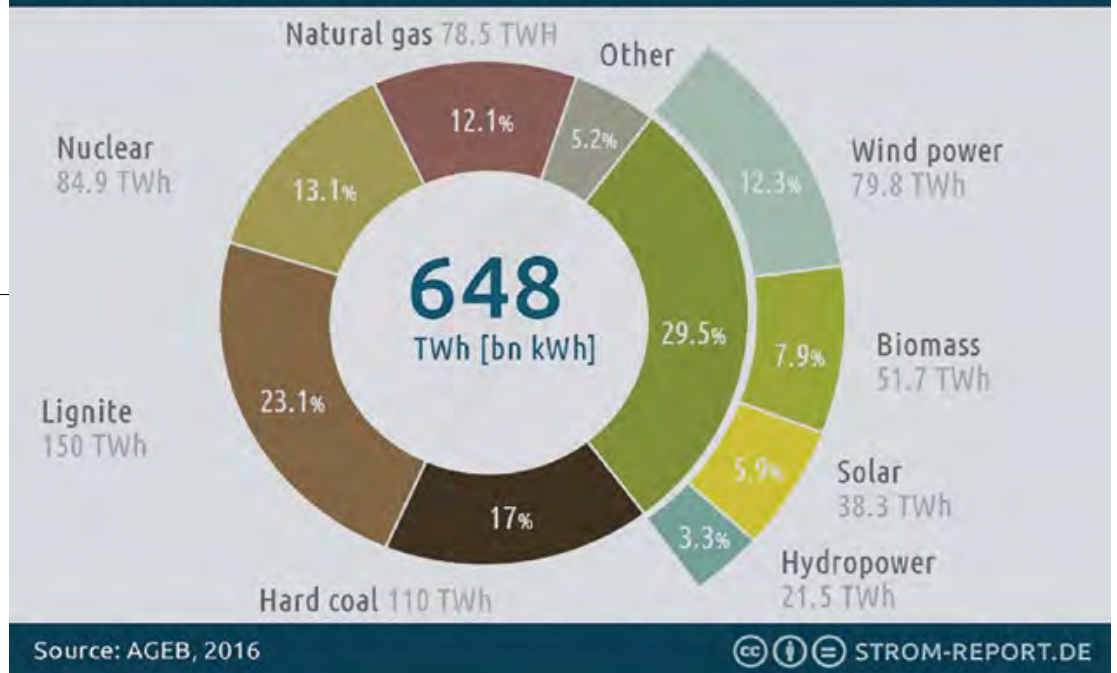
Policymakers will continue trying to address real concerns about emissions and environmental impacts, McNally said. He thinks governments might be successful in controlling ambient emissions, such as particulates, because cost-effective regulatory solutions can be found.

“But for climate change it will be more difficult, since there are no affordable regulatory options to meaningfully replace oil use with alternative fuels or power trains,” McNally observed.

“Officials have tried to force biofuels and electricity into the transportation fuel. And they have mandated more efficient cars. But these efforts have not significantly slowed growth in oil consumption,” he said.

GROSS POWER GENERATION MIX GERMANY 2016

Share of energy sources in German power production



The Grid

Then there’s the question of powering EVs. “One of the critical factors for a transition to electrical vehicles is affordable electricity. For a country like Germany, with its ‘Energiewende,’ electricity is generated from renewables, gas, nuclear energy and coal,” Tjåland observed.

“Even when renewable energy increased to nearly 30 percent of electric power generation in 2016, a substantial amount

of coal – 40 percent, where 27 percent is brown coal in 2016 – has been used in times of low wind- and solar-power generation, and also to replace the phase-out of nuclear power,” he said.

Germany’s current policy of Energiewende – literally, “energy transition” – began as an attempt to move away from nuclear power and to add more electric-generating capacity from renewables. But the country’s centralized electric grid has had problems dealing with the more widely

distributed renewable power sources.

The German government acknowledges that significant infrastructure investment will be needed in the future, leading to higher grid costs.

Forecasts

For forecasting the effects of European energy policies, Tjåland cited IEA’s 2017

Continued on next page ▶



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◀ Continued from previous page

World Energy Outlook. The outlook contains several scenarios projecting future global energy consumption.

In the most ambitious scenario based on climate change policies, called the Sustainable Development Scenario, IEA gave the following forecasts to the year 2040:

- Oil demand: down 25 percent.
- Gas demand: up 15-20 percent.
- Coal demand: down 53 percent.

But, "in a New Policies Scenario, which aims to provide a sense of where today's policy ambitions seem likely to take the energy sector, the following forecasts are given," Tjåland noted.

- Oil demand: up 11 percent.
- Gas demand: up 45 percent.



TJÅLAND

Coal demand: up 5 percent.

The IEA's outlook emphasized the effects of China's future energy policies much more than European policies, or policies anywhere else in the world. "When China changes, everything changes," the report said.

Under its New Policies Scenario, China's

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energy demand growth is projected to slow to an average of 1 percent per year to 2040.

Even if national energy policies do reduce future oil demand, that won't alter the industry's supply-demand dynamic, according to McNally.

"We could – and did – see boom and bust oil price cycles when demand was a

fraction of today's, such as the 1920s and early 1930s," he commented.

"But to the broader question of whether European policy measures will sharply reduce demand for oil, I think it is very unlikely. Despite enthusiasm for electric vehicles and falling battery costs, there is no commercially viable, large-scale competitor to internal combustion engines on the horizon," he said.

McNally sees little chance that policies in Europe or elsewhere will lead to a near-term shift away from hydrocarbons.

"Oil will remain the lifeblood of modern civilization for the coming decades," he said, "because it offers a vastly more affordable and energy-dense fuel for transportation, a vital sector for economic growth, living standards, and security."

Opinions
from page 11

research should dispel any doubts as to the group's motivations, and he does not believe the work is pitting scientists against politicians against environmentalists.

"On the whole, I don't think so – though there have been many different opinions on the Anthropocene from many communities (and indeed a number of different interpretations of the Anthropocene, which is why we on the AWG are cleaving closely to the 'stratigraphical Anthropocene'). The various proxy signals of the Anthropocene might be considered part of the evidence for global environmental change, though on the AWG we are considering them impartially, as geological signals to compare with those of the geological past," he explained.

He is careful about editorializing too much on the subject.

"There are wide ranges of opinion from proponents of the 'good Anthropocene' to those who consider that the changes associated with this putative epoch are largely deleterious (to the biosphere, and ultimately to humans). Again, our task is to examine the stratigraphic evidence as best we can," said Zalasiewicz.

The What Versus the When

These epochal moments are not like elections – they don't have specific start and end dates. In fact, some epochal moments have lasted thousands of years. The actual start date of the Anthropocene, Zalasiewicz said, is less important than the fact of it.

"If we are using chronostratigraphic criteria, then it is probably best to consider it as the start of a very long unit of time, in which Earth history might evolve in a number of ways. In the same way, the Eocene epoch did not terminate after the carbon release/global warming event that triggered it had died down, after 0.1-0.2 million years of perturbed climate – this was sufficient to set the Earth on a new trajectory, with the next epoch (the Oligocene) not defined until another major change, 20 million years later. This is an imperfect comparison, but perhaps demonstrates the kind of temporal measure that one might make," he said.

As for what happens now, in light of the new findings, Zalasiewicz said, "We hope to have a formal proposal based on a good deal of detailed and focused analytical work ready by 2020, but this may well be optimistic (it would be a good deal faster than most geological boundary work, and there is still a great deal of organizational work to do). We will do the best we can. As regards a decision, I have no reliable crystal ball here – we simply wish to do the science as well and honestly as we can."

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NOVEMBER 2018

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