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Coal – Yesterday's Energy

Background briefing for the COP19. 9 Nov 2013. lauri.myllyvirta@greenpeace.org

There were times where coal stood for development, jobs and prosperity. Today coal stands for stagnation, cancer, water shortage and climate chaos. The good news is that global coal consumption could already be peaking, offering much-needed hope for the climate. The UN climate host Poland is facing a once-in-a-generation chance to decarbonize its energy system.

Coal is the climate killer number one

Coal-burning was responsible for 43% of global fossil CO2 emissions in 2012, and for a full two thirds of the CO2 emission growth over the past five years[1]. The role of cutting coal in combating climate change is even larger. For example, in the IEA World Energy Outlook 2012 scenario that stabilizes atmospheric CO2 to 450ppm, **70% of the emission reductions come from cutting emissions from coal-burning**. By far the most important way to reduce CO2 emissions from coal in the scenario is to **replace coal in power generation**. Increasing efficiency of coal-fired power generation does deliver a small share of the emission reductions. However, this is **not because of new coal investments**, but because total coal-fired generation capacity starts to decline before 2020, and the closure of the oldest power plants improves fleet efficiency.

In all serious energy scenarios that have looked into how to achieve this, **the most important climate solution are policies that shift investments rapidly away from (unabated) coal**, in favor of energy efficiency and renewable energy. According to the IEA, if this shift does not happen by 2017, emissions exceeding the 2oC emission budget will be locked in, and the only way to stay below two degrees is to start prematurely closing down fossil fuel infrastructure.

No further investments in coal plants needed

There is ample proof that further investments in coal-fired power generation are not needed. For example, The IPCC Special Report on Renewable Energy found that just 2.5% of the world's renewable energy potential can meet 80% of global energy demand by 2050. The report showed that renewable energy expansion is not limited by energy resources, technology or costs but by policy barriers.

Recent reports by various experts such as the Fraunhofer Institute for Solar Energy Systems and the Germany Space Agency (DLR), the International Renewable Energy Agency (IRENA) and HSBC all come to the same conclusion: **New build wind power plants produce cheaper electricity than new build coal power plants already, while solar photovoltaic electricity reached grid parity in almost all OECD countries during the past 2 years or will achieve it with the next 2-3 years.**[2] If the construction of new coal power plants has not started yet, it is within a very high certainty that at the time of completion, the power plant will produce electricity at higher cost than renewable energies. Therefore, **it is no longer necessary for countries or international financial institutions to rely on coal in their energy projects.**

Furthermore, the fact that renewable energy is rapidly achieving cost competitiveness with new

investments in unabated coal underscores how unrealistic it is that coal-fired power generation equipped with CCS could come within a light-year of competing economically with renewable energy.

There are other compelling reasons besides climate change to reduce coal-burning. Air pollution from coal-fired power generation causes **hundreds of thousands of premature deaths per year**, including 100,000 in India alone. Reducing the consumption of fossil fuels as a part of climate mitigation efforts is projected to prevent half a million preliminary deaths per year by 2030.[3]

Global coal consumption could already be peaking

Recent reports by top financial analysts such as Bernstein research, Deutsche Bank, Goldman Sachs and Bloomberg New Energy Finance indicate that the frantic coal consumption growth seems to be coming to a head much sooner than predicted just a year ago. China has recently set a target to achieve peak and decline in total coal consumption, and a ban on approving new coal-fired power plants in its key economic regions, with 30% of current coal-fired capacity. These policies are motivated by air pollution and health concerns, but will have major benefits for the climate as well. **Bernstein research believes that China's coal consumption will peak already in 2015** because of slowdown of power consumption; saturation of markets for heavy industry products; rapid renewable energy growth; and aggressive measures to tackle air pollution. Similar, more conservative projections have been presented by many others[4]. Coal consumption in China's power sector did not grow in 2012.

At the same time, new air pollution regulation in the EU and US is driving large amounts of coal-fired capacity to retire, and U.S. coal consumption dropped by almost a third in the past five years. The UK is months away from introducing a new emission performance standard, effectively banning unabated coal, and the US could follow suit.

These signs of global coal consumption growth slowing down or even stopping offer hope of putting the world on track towards the two degree target, and should be encouraged and accelerated by governments and investors.

Poland – the dirty energy capital of Europe

Poland's coal industry runs the dirtiest power plant fleet in the EU, causing an estimated 5,400 premature deaths from air pollution in 2010[5]. More than half of Poland's CO2 emissions come from coal-fired power plants. **The largest point source of CO2 in Europe, and the 5th largest in the world, is also found in Poland – the Bełchatów lignite power plant**[6], 150 kilometers from Warsaw. It is also one of the two worst sources of air pollution in all of Europe, causing an estimated 1,000 premature deaths in 2010[7].

Bełchatów lignite power plant. ©Greenpeace

The Polish government has traditionally chosen to do the bidding of the coal industry in the EU – opposing everything from CO2 and renewable energy targets to measures to shore up the CO2 price to a meaningful level. Now as the host of COP19, the Polish government has turned the

Warsaw climate conference into a platform for the global coal industry, the biggest culprit behind climate change.

Warsaw has teamed up with the World Coal Association (WCA), representing the most polluting corporations in the world, to organize an "International Coal & Climate Summit" as a part of the UN climate summit. The government and the WCA describe the event in vague but heartwarming terms as giving the coal industry "a rare chance" to "be a key part of the climate debate", and being "meant as a contribution" to the UN climate talks[8]. However, the actual agenda is much more straightforward: promoting public subsidies to coal and promoting new coal power plant projects, on the grounds that they are marginally more efficient than old ones[9]. This makes mockery of the UN climate treaty and of all those countries that actually take part in the negotiations with a view to combating climate change.

Continued rapid investment in coal producing and burning infrastructure is the largest threat to the global climate, causing two thirds of the record CO2 emission growth globally in the past five years. Yet the Polish government is teaming up with the most polluting corporations in the world to promote the notion that accelerated investment in new coal-fired power plants could be seen as a CO2 mitigation measure, for the reason that new coal plants are marginally more efficient than old ones. This is extremely dangerous and misleading, as in reality a new coal-fired power plant represents lock-in into the power generation option with the highest CO2 emissions for decades, and only makes the task of combating climate change harder.

Poland's energy system at turning point

Poland has a once-in-a-generation chance to decarbonize its energy system as power plant fleet is up for replacement, but is about to squander it by making massive investments in new coal. The country's plans for new, dirty coal-fired power stations far exceed those of any other EU member state. There are a dozen large coal and lignite fired power stations in the planning stage, with a total capacity of 19 gigawatts. If realized, the CO2 emissions from these power stations would be twice as large as those of Austria, or over a third of Poland's current CO2 emissions. The plans include two absolutely massive, over 4000MW lignite-fired power stations, Gubin and Legnica, near the German border, that would rank as Europe's 2nd and 3rd largest CO2 sources (after Bełchatów). **This government policy is not supported by the Polish population, who would overwhelmingly prefer an energy policy based on renewables over conventional fossil fuels, according to polls**[10].

Poland does have a choice. A new study by the Warsaw-based Institute for Renewable Energy, DLR (Germany's aeronautics and space research center), the European Renewable Energy Council, the Global Wind Energy Council and Greenpeace shows how Poland can do away with plans for polluting new coal plants and halve its coal consumption by 2030. The energy plan would involve large investments in renewable energy and energy efficiency instead, creating 100,000 jobs in renewable energy and keeping electricity prices at the same level as in the dirty energy alternative until 2030 and resulting in lower prices thereafter.[11] The country has a strong manufacturing base that could capitalize on domestic demand for renewable technologies.

At a 2011 launch of an IEA review of Poland's energy policy, the International Energy Agency said in a press release:

"The CO2 intensity of the Polish economy has declined dramatically over the last 20 years, but is still much higher than the average among European EIA member countries. According to government forecasts, emissions are expected to increase from 2020."

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*"Poland has a unique opportunity to decarbonize its power sector as its ageing generation infrastructure needs to be replaced in the coming years. This requires large investment, so the government should improve the policy and regulatory frameworks to attract this investment. Mr. Tanaka cautioned however against a technology lock-in. '**Investment decisions made over the coming decade will set Poland's long-term emissions trajectory**. That's why energy and climate strategies need to be integrated now to meet the dual goals of energy security and environmental sustainability.'"*

"The key CO2 abatement tool in Poland and globally is energy efficiency, especially in the short term. "

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1 Calculated from BP Statistical Review of World Energy 2013.
2 http://www.sciencedirect.com/science/article/pii/S1364032111003492;
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3http://www.nature.com/nclimate/journal/v3/n10/full/nclimate2009.html; http://www.scientificamerican.com/article.cfm?id=coal-fired-power-in-india-may-cause-more-than-100000-premature-deaths-annually
4 See e.g. See e.g. Citi Research: The Unimaginable: Peak Coal in China
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5 Greenpeace International 2013: Silent Killers. Why Europe must replace coal power with green energy.
http://www.greenpeace.org/international/Silent-Killers/
6 CARMA database (http://carma.org); latest data is for 2009.
7 Estimated health impacts from Bulgarian Maritsa Iztok 2 lignite power plant are at par with Bełchatów. Greenpeace International 2013: Silent Killers. Why Europe must replace coal power with green energy. http://www.greenpeace.org/international/Silent-Killers/
8 http://www.wral.com/poland-gives-coal-a-voice-during-un-climate-talks/13088345/
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