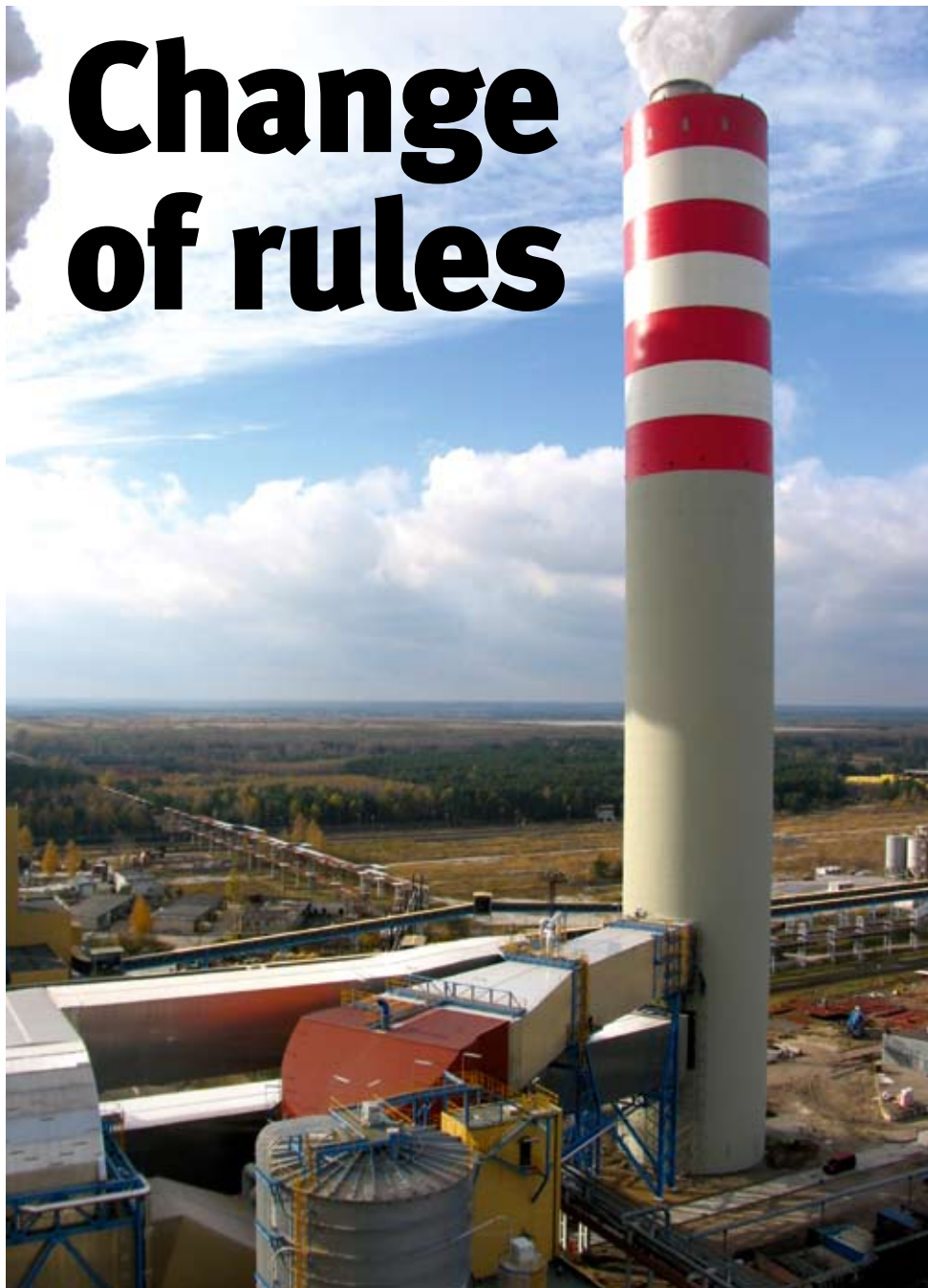


# Change of rules



Until now co-firing was a gold mine in Poland. In 2011, thanks to burning biomass instead of coal, the Kozenice Plant received an extra bonus of green certificates worth approximately US\$ 29.97 million. That could change under new legislation.

Photo: Enea SA

Poland wants to end biomass co-firing with coal, which provides almost half of its renewable electricity. Purely biomass power plants have a good chance to fill the gap, because in 2013 the market may experience a fall in material prices and there will be higher subsidies.

**B**iomass is a strategic material in Poland. Its price has increased dramatically over the last three years driven by demand from the power

sector, which receives huge subsidies for producing renewable electricity. It is no surprise that two months ago International Paper Kwidzyn, one of the biggest paper producers in Poland, announced that it would invest over US\$ 100 million in the biggest energy tree plantation in Europe. The area of the hybrid poplar plantation should reach 10,000 hectares within three years to eventually grow to 25,000 hectares in the following couple of years. "We just need stable fuel and raw material sources," explains International Paper's president Marek Krzykowski, as the company not only produces paper but also renewable electricity and heat. According to Polish Biomass Chamber (Polbiom), International Paper's two cogeneration power plants burn 800,000 tons of biomass annually.

International Paper's poplar plantation might be just the very first of many more. "We are seeing an increased interest in such investments," says Ryszard Gajewski, Polbiom's President, to S&WE. According to Polbiom the area that could be used in Poland for energy purposes to produce liquid fuels, gas and solid biomass equals 2 million hectares, which is about 15 % of the agricultural land in total.

## The biomass co-firing Eldorado...

Investments in energy tree plantations in Poland seem inevitable, because the wood wastes hay and straw have already become a high-demand material for the energy sector. According to the Polish Economic Chamber for Renewable Energy (PECRE), end-consumer energy consumption in Poland in 2010 (the most recent credible data) amounted to 756 TWh, of which electrical power equalled 20 %, heat and cooling 57 % and transport 23 %. Roughly 7 % of electricity originated from renewable sources and 50 % came from biomass co-firing with coal. Biomass has an even bigger share in the renewable heating and cooling sector. "Green" heating achieved a 12 % share and was sourced to 95 % by biomass burning.

While biomass burning in local heating and cogeneration power plants is approved by renewable energy organizations, co-firing of this material with coal attracts wide-spread criticism as half of US\$ 1.3 billion of public subsidies for renewable electricity went to this sector in 2011. Grzegorz Wisniewski, the President of the Renewable Energy Institute (Polish acronym: IEO), adds that biomass co-firing is simply a waste of material. Biomass burnt in old coal power plants produces electricity with 23 % efficiency, while it could be used in modern small

local heating plants where efficiency reaches 90 % or in small cogeneration plants where its chemical energy could be utilized to over 90 %.

According to a recent IEO report prepared for Greenpeace, co-firing sourced electricity production in Poland increased almost sixfold between 2005 and 2010. The share in total renewable electricity production was 23 % in 2005 and 48 % in 2010. According to Energy Regulatory Data, 51 out of 55 power plants in Poland received the concessions for biomass burning with coal. "Paradoxically, biomass, whose use should result in the decentralization of power generation, preserves the position of big power companies in Poland," criticizes Grzegorz Wisniewski.

Based on the announced investments, IEO experts assessed that if this trend continues the Polish energy sector will use between 7.4 and 17.6 million tons of biomass for co-firing in 2015 and 35 million tons in 2020. And the demand has not so far been satisfied by domestic supplies, as in 2011 the biomass imports amounted to 1.7 million tons. In 2020 the biomass deficit will reach 20 million tons, the IEO warns.

### ... coming to an end

The IEO report in the middle of June brought consequences that even its authors probably had not anticipated. The Ministry of Economics, so far strongly supporting this sector, made a U-turn in its policy and presented some provisions of the Draft Renewable Energy Act, which shocked power companies. The Ministry plans to cut the number of green certificates for biomass co-firing by 80 %. Currently power plants which burn biomass with coal receive green certificates (one per MWh) which can be sold on the Polish Commodity Energy Exchange (CPE). Currently they stand at US\$ 75.5, while electricity prices are at some US\$ 63 per MWh. So, as a result of adding biomass to coal, they more than double their sales income. Moreover, coal power plants burning biomass gain 0.91 EUA (European Unit Amounts) for each MWh produced from biomass, adding some US\$ 8.8 per MWh. For 1 EUA you are allowed to emit 1 ton of CO<sub>2</sub>. Demand for the certificates is driven by an obligation imposed on Polish electricity suppliers.

In the new law proposed by the Ministry of Economy (see S&WE 2/2012, page 30), however, revenues from biomass co-firing with coal are to be drastically cut. Those power plants which start co-firing in 2013 will receive only 0.3 certificates per MWh. This figure will decrease to just 0.15 certificates in 2017. Moreover, while other renewable electricity sources like wind, biogas or hydro will receive the certificates for 15 years, the plants co-firing biomass will have this right for only 5 years. And although biomass co-firing installations launched before the new law enters into force will retain the right to receive 1 certificate per MWh, it will only be for 5 years since they began operation, meaning most of them will receive no certificate already in 2013. According to Jacek Piekacz from EDF Polska, biomass co-firing will be stopped once the new law enters into

force. The company has this year already used 1.15 million tons of biomass in co-firing.

### Pure biomass plants at an advantage

Along with the cutting of subsidies for biomass co-firing the Ministry of Economy proposes higher subsidies for power plants using only biomass (see table). Any strictly biomass plants of capacities under 10 MW which start operation in 2013 will be entitled to receive 1.7 green certificates per MWh, i.e. 70 % more than under current law and six times more than biomass co-firing plants. Larger biomass power plants which start operation in 2013 will receive 1.15 certificates per MWh. These certificate allocations will, according to the Ministry's proposal, be diminished each year. As a result, small biomass power plants which start operation in 2017 will receive 1.6 certificates and large ones 1.075 certificates. The amount of certificates given in the year of installation will be valid for 15 years, however.

The new increased subsidies for biomass power plants seem to be very attractive and should encourage more investments in the below 10 MW sector. According to Energy Regulatory Office (ERO) data, in June 2012 there were 21 biomass power plants in Poland with a total capacity of 485.4 MW, burning some 3.4 million tons of biomass. But already by the beginning of 2013 this figure should increase by 315 MW and 2.2 million tons respectively. And many more biomass power plants will follow in the coming years, especially if the new law increases the subsidies for such sources.

What is still disturbing for some, however, is the fact that the new 315 MW of biomass capacity in 2012 comes from five installations. Among them is the 190 MW Polaniec power plant, implemented by GdF Suez, and two 50 MW plants by two Polish power groups. Grzegorz Wisniewski is afraid that this trend will continue. "The new subsidies for plants over 10 MW are too high; they will encourage the building of very large installations which will further drive up biomass prices. This material should be firmly used locally in small scale installations," he argues.

*Marcin Czekanski*

### Payment for biomass sourced electricity

	Pure biomass <10 MW [€/MWh]	Pure biomass >10 MW [€/MWh]	Co-firing [€/MWh]
2013	161.93	124.79	67.37
2014	161.93	124.79	67.37
2015	158.56	123.10	64.00
2016	156.87	121.41	60.62
2017	155.18	119.72	57.24

**The price includes green certificates and the expected prize for electricity. From 2013 the subsidies via green certificates for co-firing will be cut.**

Source: Polish Ministry of Economics