



BASIC INFORMATION ABOUT POLISH POWER PLANTS

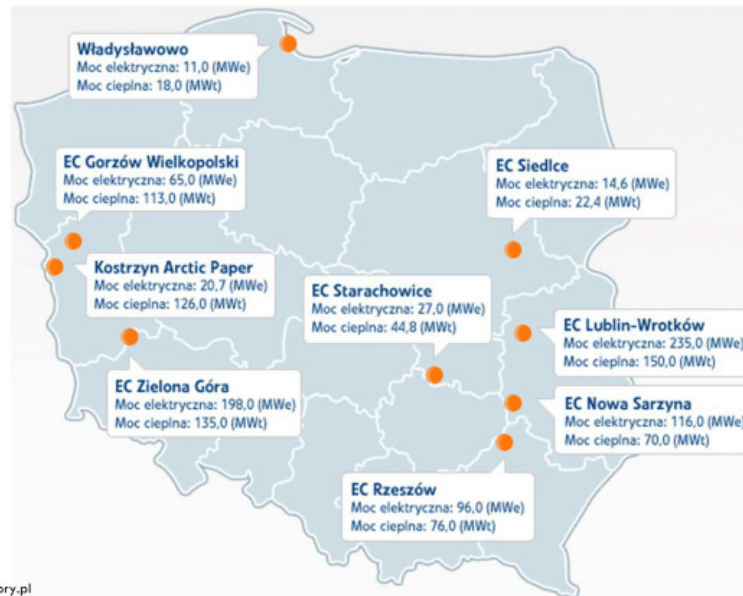
Andrzej Tatarek

Conventional (thermal) power plants



Source: energetyka.wnp.pl

Natural gas CHP



Source: weglowodory.pl

Hydroelectric power stations



Source: uwm.edu.pl

New Power Unit or Power Station

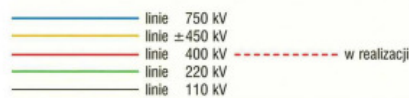


Source: cire.pl

PSE-Operator (Polish Power Grid - Operator)

- 245 lines with a total length of 13 445 km, including:
 - 1 line of 750 kV with a length of 114 km,
 - 77 lines of 400 kV with a total length of 5 383 km,
 - 167 lines with a voltage of 220 kV with a total length of 7 948 km,
- 101 station high voltage
- Offshore call 450 kV DC Poland - Sweden with a total length of 254 km.

Krajowy System Elektroenergetyczny (KSE)



Source: elk-lomza.eu

Installed capacity

Specification	Installed capacity [MW] (on 30.09.2013)
TOTAL	38490,1
Thermal power plants	30926,3
Fuels:	
- Lignite (brown coal)	9420,5
- Hard coal	20066,0
- Gas	873,6
Hydroelectricity	2198,5
- In it: pumped-storage	1330,0
CHP plants	1869,5
Renewable Sources of Energy	3495,8
- In it: wind energy	3241,4

Source: cire.pl

Electricity production

Specification	Electricity production [GWh]		
	2010	2011	2012
TOTAL:	157 658	163 548	162 139
by types of sources:			
- Thermal and CHP plants	144 541	149 242	146 480
- Industry CHP	7 549	7 861	7 842
- Conventional hydroelectricity	2 920	2 331	?
- Wind power	1 664	3 205	?
Renewable Sources of Energy	416	479	?
Import	6 310	6 780	9 803
Export	7 664	12 022	12 643

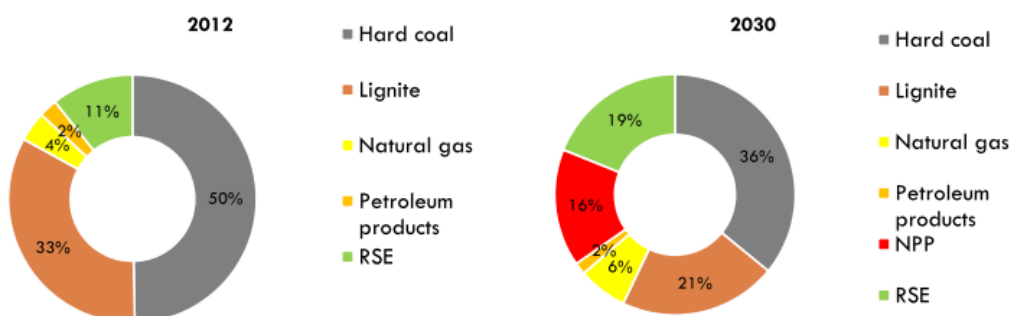
Source: cire.pl

Electricity production by sources

Specification	2010		2011		2012	
	GWh	%	GWh	%	GWh	%
Hard coal	87 941	55,8	87 326	53,4	80 596	49,7
Lignite	48 651	30,9	52 529	32,1	54 054	33,3
Natural gas	4 797	3,0	5 821	3,6	6259	3,9
Biomass and biogas	6 305	4,0	7601	4,6	10094	6,2
Other fuels	4 812	3,0	4305	2,6	3923	2,4
Hydro power	2 920	1,8	2331	1,4	2037	1,3
Wind power	1 664	1,1	3205	2,0	4747	2,9
TOTAL	157 658	100,0	163 548	100,0	162 139	100,0

Source: cire.pl

Electricity production by sources



The biggest power plants



The **Belchatów Power Station** is a large 5298 MW lignite-fired power station situated near Belchatów in Łódź Voivodeship. It is the largest thermal power station in Europe, and fourth largest fossil fuel power stations in the world.

Units:
12 x 370 MW
1 x 858 MW (supercritical)

Source: Internet

The biggest power plants



The **Kozienice Power Station** is a coal-fired thermal power station in Świerże Górne near Kozienice.

It is Poland's second largest power station with an installed capacity of 2820 MW.

Units:
8 x 215 MW
2 x 500 MW
1 x 1075 MW (supercritical) - under construction

Source: nettg.pl

The biggest power plants



The **Żarnowiec Pumped Storage Power Station** is located about 7 km south of Żarnowiec, northern Poland.

It is the largest hydroelectric power station in Poland with an installed capacity of 680 MW. The power station was intended to be a load-balancer for Żarnowiec NPP (4 x VVER-440) which was supposed to be constructed on the opposite side of Lake Żarnowiec.

Units:

4 x 170 MW

Source: pgeeo.pl

The biggest power plants



The **Margonin Wind Farm** is located in Chodzież County, Greater Poland Voivodeship. It is the largest wind farm (area ~50 sq km) in Poland with an installed capacity of 120 MW.

Units:

60 x 2 MW

Source: Internet

The biggest biomass unit



The **Połaniec Power Station** is a coal-fired power station near Połaniec in Świętokrzyskie Voivodeship. It consists of 7 units and 1 new „green unit”.

Units:

7 x 225 MW

1 x 205 MW „Green unit”:

- Boiler – CFB Foster Wheeler
- Fuel – 100% biomass (80% wood/20% agro)
- Fuel demand ~ 1 milion tons per year
- Electricity production ~ 1,2 TWh per year

Source: strefabiznesu.echodnia.eu

Thank you for your attention.

Andrzej Tatarek, PhD
Wrocław University of Technology
Faculty of Mechanical and Power Engineering
Andrzej.Tatarek@pwr.edu.pl