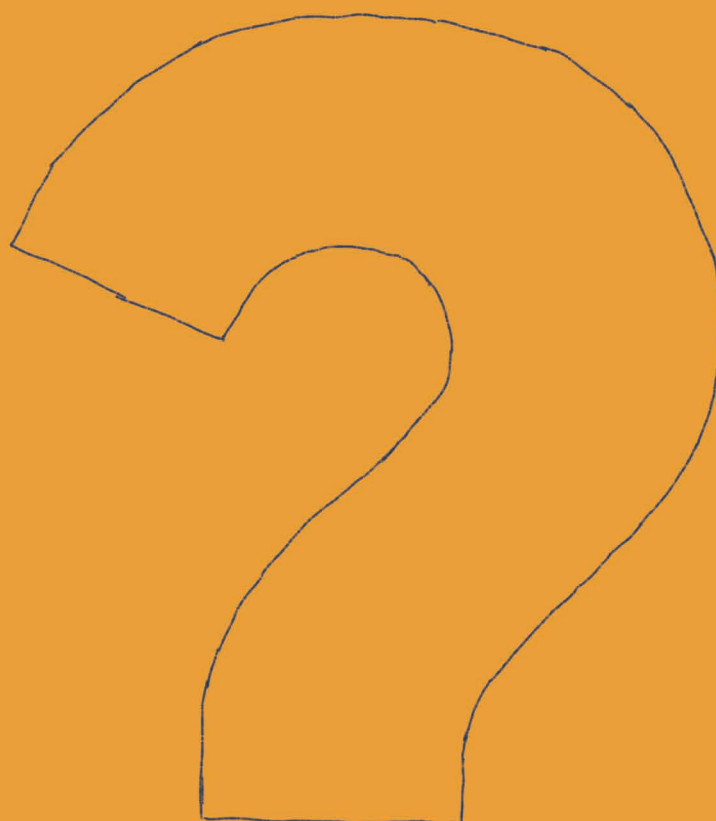


Michał Hetmański

OSTROŁĘKA C – Next steps for Europe's last coal power plant



Warsaw 2018

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TYPESETTING
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Warsaw, August 2018

INVESTMENT SUMMARY

1

Ostrołęka C is a joint venture of Energa (WSE:ENG) and Enea (WSE:ENE), both state-owned companies, created for the purpose of constructing a 1000 MW coal power plant. This investment project has been reactivated in 2016 and is meant to replace an older unit, Ostrołęka B - one of the many outdated plants in the Polish energy system.

This report is a follow-up to a previous publication of the InStrat Foundation, entitled “Ostrołęka C - the investment rationale, and why this project is not rational at all” (April 2018), authored by Michał Hetmański and Filip Piasecki of InStrat Foundation¹.

The previous coverage of Ostrołęka C was an investors’ digest for all the parties potentially involved in the investment - banks, insurers, brokerage houses, financial and legal advisors. It has been issued within the campaign “**STOP Ostrołęka C power plant**” and its purpose was to provide reasoning for rejecting the investment.

The history of this investment dates back to 2008, when Energa started to reach out for options of replacing Ostrołęka B (647 MW), a unit scheduled for decommissioning between 2025 and 2030. The company prepared feasibility studies (EY), environmental procedures (Energoprojekt Warszawa), acquired the integrated permit, signed an agreement with contract engineer and opened a tender. After first economic and financial analyses and negotiations with possible contractors, Energa’s management board decided to withdraw from the project in September 2012.

Although the Supreme Audit Office of Poland evaluated this decision as positive, Dariusz Kaśków, the CEO of Energa, together with the company’s management board reactivated the project in May 2016. Later, in September 2016, Enea stepped the investment and in December 2016, opened the tender under the competitive dialogue procedure to choose the EPC contractor. Three tenderers submitted their offers:

(1) China Power Engineering	PLN 4.85 bn gross
(2) GE Power & Alstom Power Systems	PLN 6.02 bn gross
(3) Polimex-Mostostal & Rafako	PLN 9.59 bn gross



¹ M. Hetmański, F. Piasecki, [Ostrołęka C - the investment rationale, and why this project is not rational at all](#), 04.2018.

The investor set the budget at PLN 4.8 bn gross; this amount has been exceeded. The selection criteria included rejecting the lowest possible price.

Figure 1. Resolution of public procurement award procedure of April 4, 2018.²

Tenderer	Criterion of geographic origin	Economic criterion	Total points scored
China Power Engineering	rejection		
Consortium Polimex-Mostostal & Rafako	20	0	20
Consortium GE Power & Alstom Power Systems	13.33	80	93.33

The winner of the tender - GE Power & Alstom Power Systems - has concluded a public contract agreement worth PLN 6.02 bn gross (PLN 5.05 bn net) with the SPV - Elektrownia Ostrołęka Sp. z o.o. (SPV or entity) in July 2018.

Since capacity market is being introduced in Poland in 2018, as a projected physical generation unit, Ostrołęka C has passed the general certification process. At the end of August 2018, the Minister of Energy issued a regulation on the parameters of capacity market auctions, which includes demanded power, net-CONE and maximum prices. Until the end of October 2018, the unit will be under certification process for main auctions and on December 21, 2018 it would then bid in the main auction for the delivery period starting from 2023.

The new publication aims to complement the major issues highlighted in the previous report from April 2018 and in the article published by WysokieNapiecie.pl called “Epopeja elektrowni Ostrołęka C zbliża się do nieuchronnego końca” (Ostrołęka C project is drawing to a close).³

Hence, we present:

1. detailed information on the integrated permit,
2. business valuation according to the DCF model.

The aim of this report is to provide the investors as well as the banks, insurers and underwriters with the most accurate information on the investment and highlight the serious legal and financial issues. This would enable them to make an informed decision to withdraw from participating in the construction of Ostrołęka C.

² Energa, [Current report No, 14/2018](#), 04.04.2018. [dd.mm.yyyy]

³ WysokieNapiecie.pl, [Epopeja elektrowni Ostrołęka C zbliża się do nieuchronnego końca](#), 24.04.2018..

a. Regulatory framework and investment status prior to 2016

In March 2011, the entity obtained the integrated permit valid for 10 years starting from June 1, 2016. The environmental report from 2009 indicated the maximum emission parameters to be reached by the power plant according to the Integrated Pollution and Prevention Control Directive (IPPC) (Figure 2 - columns 3 and 4). Later, in 2014, the IPPC was replaced by Industrial Emissions Directive (IED)⁴, which was followed by BAT Conclusions (Best Available Techniques) for Large Combustion Plants (LCP) in 2017.⁵

According to the BAT Conclusions, power plants which obtained an integrated permit prior to August 14, 2017 are classified as existing units and hence must follow less restrictive emission standards.

Table 2. Maximum emissions (mg/Nm³).

Emission type	IPPC (1996)			BAT Conclusions (2017)	
	since 2001	since 2016	according to the environmental report of Energoprojekt Warszawa	since 2021 – existing LCP	since 2021 – new LCP
SO ₂	400	200	200	130	75
NO _x	500	200	200	150	85
Dust	50	30	30	8	5

⁴ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).

⁵ Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants.

Since the Polish Environmental Protection Act⁶ (Prawo Ochrony Środowiska, POŚ) was amended in 2014, all integrated permits in Poland, including the one of Ostrołęka C, were granted indefinite periods. In October 2015 the Marshall of the Mazovian Voivodeship ex officio changed the validity period of the integrated permit, without changing its commencement date (June 1, 2016).

b. Reactivation in 2016

The management board of Energa decided in May 2016 to reactivate the investment. Shortly afterwards, the Rzekuń Municipality, where the Ostrołęka power plant is located, extended the validity of environmental permit granted before 2012. At the beginning of July 2016, the SPV applied to the Marshall of the Mazovian Voivodeship for the postponing of the commencement date of the integrated permit from June 1, 2016 to September 30, 2022 due to “longer investment process”. On September 16, 2016 the Marshall **rejected the request**, only because it was submitted after the commencement date.

This refusal contained a very clear statement on the validity of the permit – according to the Article 193(1b) of the POŚ Act, if the power plant operator [in this case] does not commence the operation within two years of the starting date [June 1, 2016], the permit expires despite being granted indefinite validity beforehand.⁷

These steps have been thoroughly described in the previous publication⁸ (April 2018) and were substantiated by the documents obtained from the Rzekuń Municipality, the ippc.gov.pl portal and (by requesting public information from the Ministry of Environment) the administrative decisions of the Marshall of the Mazovian Voivodeship. Despite the report authors’ utmost diligence, the critical assessment of the investor’s compliance with administrative procedures was deemed not precise enough and lending itself to interpretations that would misrepresent facts. We would like to apologise for that here.

Whilst requesting the public information from the Ministry of Environment in January 2018, we have not been given the full picture of the legal status of the integrated permit of the SPV, i.e. we did not receive the Minister’s decision dated November 9, 2016.⁹

After being denied the modification of their permit by the Marshall, the entity appealed to the Minister, who annulled the rejection, granted the investor postponing the commencement date and justified it with “the public interest and legitimate interest of the requestor.”

⁶ Ustawa z dnia 11 lipca 2014 r. o zmianie ustawy - Prawo ochrony środowiska oraz niektórych innych ustaw, Dz.U. 2014 poz. 1101.

⁷ See: WSA Gdańsk, II SA/Gd 38/14, of 12.03.2014.

⁸ M. Hetmański, F. Piasecki, op. cit.

⁹ Minister of Environment, [Decision No. DOŚ-III.285.17.2016.DS](#), 09.11.2016.

**Decision of the Minister of Environment No. DOŚ-III.285.17.2016.DS
of November 9, 2016.**

It is in the public interest, i.e. concern for the environment and its protection, realised through emission reduction that the power plant shall be operating under a valid permit and without any limitations concerning the emission values. Here, the general public interest is in line with the legitimate interest of the requestor.

Thanks to this favourable treatment, the investor did not have to start a new environmental procedure and apply for the integrated permit once again, this time under more restrictive emission standards (Figure 2, column 6). It has vastly shortened the investment process, although legal experts agree that the rejection annulment was a flagrant breach of law.¹⁰

Despite numerous requests from the shareholders and analysts, Energa (as the leading investor) refuses to provide full information on the legal status of the investment permit, thus silently acknowledging that Ostrołęka C falls under BAT Conclusions (2017) as an existing LCP and not a new one. In line with this reasoning, SPV is obliged to fulfil less restrictive emission limits (Figure 2, column 5).¹¹ The foundation for this reasoning is the above-mentioned favourable interpretation¹² that the integrated permit obtained in 2011 has never lost its validity and might still be used for the power plant scheduled for commissioning 12 years later.

**Transcript of an online chat with the Investor Jacek Kościelniak,
Energa's CFO – Association of Individual Investors (Stowarzyszenie
Inwestorów Indywidualnych), May 16, 2018¹³**

BIUROKRATA: Is it true that Ostrołęka C will soon lose its valid integrated permit? How does this affect the investment status?

JACEK KOŚCIELNIAK: The investment entity Elektrownia Ostrołęka Sp. z o.o. has a final decision of the Marshall of the Mazovian Voivodeship stating that the integrated permit is valid for an indefinite period.

ANALYST FROM FRANKFURT: Hello, I tried to understand the case of Ostrołęka C and the integrated permit. Could you please elaborate on it? Would Ostrołęka be considered as a new or existing LCP under IPPC regime? Thanks a lot for clarifying this.

JACEK KOŚCIELNIAK: The integrated permit is valid for an indefinite period. Ostrołęka C will be new LCP under IPPC regime.

**Answer to the shareholders' requests issued by the Energa's
management board after the 2018 AGM:**

AKCJONARIUSZ: What is the legal status of the integrated permit possessed by the Ostrołęka C power plant - is this the 2011 document renewed in 2016 by

¹⁰ Elektrowniaostroleka.com, [The application for annulment of the Ostrołęka C integrated permit - costly consequences of Jan Szyszko's decision](#), 13.07.2018.

¹¹ Energa, [Answer to the shareholder's requests issued after the 2018 AGM](#), 18.07.2018.

¹² Ustawa z dnia 14 czerwca 1960 r. Kodeks postępowania administracyjnego., Dz.U. 1960 nr 30 poz. 168.

¹³ Stowarzyszenie Inwestorów Indywidualnych, [Investor chat with Energa](#), 16.05.2018.

the Minister of Environment or did the SPV acquire a new one in 2018? What status does the unit have under the IED (2010/75/EU) - new/existing? Will the unit comply with standards set for the year 2016 or 2021 onwards?

JACEK KOŚCIELNIAK, CFO AND GRZEGORZ KSEPKO, VICE-PRESIDENT FOR CORPORATE MATTERS: The company has all the necessary and valid administrative decisions, including the integrated permit. The Ostrołęka C power plant will meet all required emission standards for large combustion plants [LCP] at the time of commissioning, according to the Directive 2010/75/EU of the European Parliament and of the Council, BAT Conclusions (Commission Implementing Decision EU/2017/1442) (...).

Nevertheless, the investor signalled in one of the tender documents that the emission limits for new LCPs might be met (Figure 2, column 6), indicating, however, that the previous classification (existing LCP) would be a primary scenario.¹⁴

¹⁴ Elektrownia Ostrołęka, [Terms of Reference - Answers to requests](#), (via web.archive.org).

BUSSINESSPLAN AND FINANCING – SENSITIVITY ANALYSIS

a. Model assumptions

In order to follow-up the concepts presented in the article “Epopeja elektrowni Ostrołęka C zbliża się do nieuchronnego końca”, we have decided to create a more extensive business valuation model of this investment and thus to confront both investors and their assumed viability measures with our results.

Prior to 2012, Energa intended to construct and commission Ostrołęka C in the Project Finance model and set the minimum NPV to PLN 800m and IRR to 10%¹⁵. As the company reactivated the project in 2016, it set the EBITDA/CAPEX ratio as a primary viability measure and defined a level of 5.5% for the first five years of exploitation.¹⁶

In our DCF model we differentiate base and worst-case scenario and assume as following:

Revenues:

- power prices:
 - base scenario - CAGR 4.7% (linear) over the 2017-2050 period, based on the PGE up-dated strategy (2014)¹⁷
 - worst-case scenario - growth path following fast EUA certificates price growth
- capacity market - capacity agreement for the delivery period 2023-2035, price amounting to 200 PLN/kW, derating at 91.54%¹⁸, introduction of winter package in its full form
- no ancillary revenues or free CO₂ emission allowances assumed

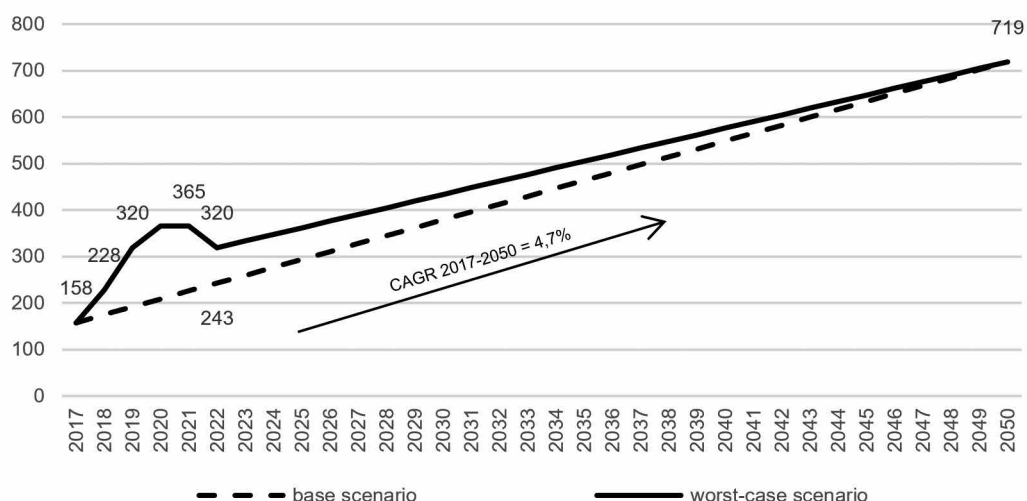
¹⁵ Supreme Audit Office, [Zapewnienie mocy wytwórczych w elektroenergetyce konwencjonalnej](#), Informacja o wynikach kontroli, 14.04.2015

¹⁶ Energa, [ENERGA Group's Strategy for 2016-2025](#), 16.11.2016.

¹⁷ Infostrefa, [Update: PGE power assumes...](#), 24.01.2014.

¹⁸ Government Legislation Centre, (Rządowe Centrum Legislacji, RCL), [Projekt rozporządzenia Ministra Energii w sprawie parametrów aukcji głównych dla okresów dostaw przypadających na lata 2021-2023](#).

Chart 1. Power price forecast [PLN/MWh]



Costs:

Variable costs:

- EUA certificate prices:
 - base scenario - linear growth from 17.3 to 35 EUR/t over the 2017-2035 period; after 2035 constant¹⁹ (Carbon Tracker - Carbon Clampdown²⁰)
 - worst-case scenario - fast growth up to 40 EUR/t until 2021; after 2022 constant value amounting to 35 EUR/t²¹ (Carbon Tracker - Carbon Countdown²²)
- coal prices²³ - 11 PLN/GJ in 2017 and inflation at 1.5% p.a.
- transportation costs - 3.5 PLN/GJ in 2017 and inflation at PPI level²⁴
- other variable costs²⁵ - 13.9 PLN/MWh in 2017 and inflation at PPI level

Fixed costs:

- O&M fixed costs²⁶ - 173,710 PLN/MW/a in 2017 (PPI)

¹⁹ Own projection.

²⁰ Carbon Tracker, [Carbon Clampdown](#), 25.04.2018.

²¹ Own projection.

²² Carbon Tracker, [Carbon Countdown](#), 21.08.2018.

In this report we make use of two different Carbon Tracker reports: Clampdown from April 2018 and a more recent *Countdown*. We take no responsibility or liability for the decisions, costs or losses incurred by referring to this source, in particular in terms of long-term EUA certificate price forecasts.

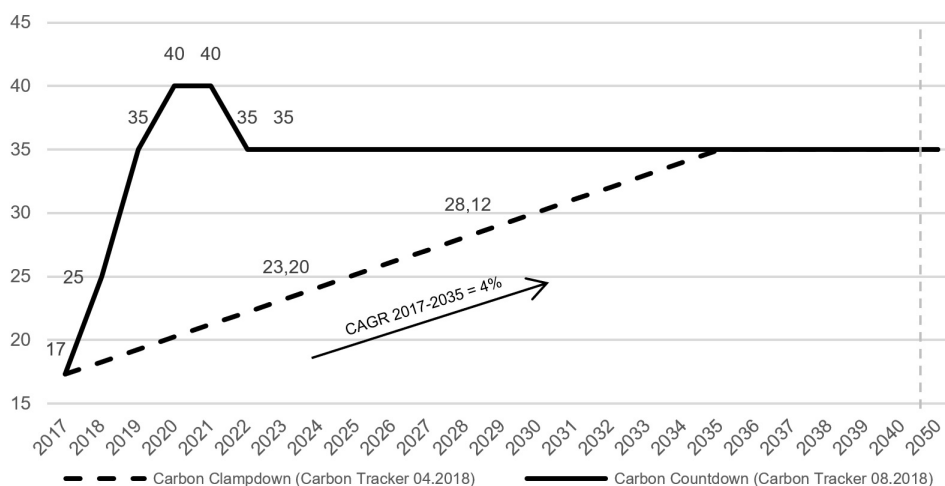
²³ Industrial Development Agency (Agencja Rozwoju Przemysłu), [PSCMI I](#) (Polish Index of Energy Coal 1).

²⁴ PPI - Producer Price Index - 3.5%.

²⁵ Energy Market Agency (Agencja Rynku Energii, ARE), [UPDATE: Benchmark analysis of energy generation costs in atom, coal, gas and RES power plants](#), 12.2016; Costs of: personnel for maintenance, raw materials, own consumption, supporting material and environmental costs.

²⁶ ARE, op. cit.; Personnel costs, outsourcing, general (taxes, insurance, SG&A), maintenance and renovations, provisions for liquidation costs.

Chart 2. EUA certificate price forecasts by Carbon Tracker [EUR/t] and own projection.



Technical parameters:

- gross power - 1000 MW
- own consumption²⁷ - 8.87%
- number of hours worked in a year - 5,000 h (80% in the first year)

Financing:

- CAPEX - PLN 5.05 m net
- debt:equity ratio - 50:50
- CAPEX schedule²⁸ - 20-30-30-20 [%] over the 2019-2022 period
- debt cost - 3.25% p.a.
- loan - paid out according to the CAPEX schedule; 10 equal instalments repaid over the 2023-2033 period; interest charged since 2019 and accrued by the end of the year
- last valuation year - 2050
- WACC - 8.5%²⁹
- EUR/PLN exchange rate - 4.26 constant over the valuation timeline

Given these assumptions, we have made a sensitivity analysis with respect to:

- yearly power generation,
- EUA certificates prices,
- power prices,
- coal prices,
- capacity auction prices.

²⁷ Eurostat, [Supply, transformation and consumption of electricity - annual data](#) [nrg_105a].

²⁸ ARE, op. cit.

²⁹ Based on the TAURON Polska Energia S.A. (WSE:TPE) value impairment test for FY2017 in the generation segment - [Extended consolidated interim report for H1 2018](#); rounded.

Figure 3. Financial results of the investment in the base scenario

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2040	2045	2050
Operating revenues [mPLN] (I+II)							1114.6	1429.0	1506.5	1575.6	1644.7	1713.9	1783.0	1852.2	1929.6	2007.1	2084.6	2162.1	2239.6	2501.8	2889.3	3276.7
I. from power generation [mPLN]							947.7	1262.1	1339.6	1417.1	1494.6	1572.1	1649.5	1727.0	1804.5	1882.0	1959.5	2037.0	2114.4	2501.8	2889.3	3276.7
Generated power [TWh]							3645	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557	4557
Power price [PLN/MWh]	158	175	192	209	226	243	260	277	294	311	328	345	362	379	396	413	430	447	464	549	634	719
II. from capacity agreement [mPLN]							166.8	166.8	166.8	158.5	150.2	141.8	133.5	125.1	125.1	125.1	125.1	125.1	125.1	—	—	—
Operating costs [mPLN] (I+II)							1072.7	1330.5	1369.5	1409.1	1449.4	1490.4	1532.2	1574.8	1618.1	1662.3	1707.3	1753.2	1800.1	1972.7	2172.9	2405.4
I. Variable O&M [mPLN] (1x2)							878.1	1129.1	1161.0	1193.3	1226.1	1259.3	1293.0	1327.2	1361.9	1397.1	1432.8	1469.1	1506.0	1623.5	1758.1	1912.7
1. Generated power (incl. own consumption) [TWh]							4000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
2. SRMC [PLN/MWh] (a+b+c)	183.4	189.3	195.2	201.2	207.2	213.3	219.5	225.8	232.2	238.7	245.2	251.9	258.6	265.4	272.4	279.4	286.6	293.8	301.2	324.7	351.6	382.5
a. Coal and transportation costs [PLN/MWh]	116.0	118.3	120.7	123.1	125.5	128.1	130.6	133.3	136.0	138.8	141.6	144.5	147.5	150.6	153.7	156.9	160.2	163.6	167.1	185.7	206.9	231.0
b. EUA certificates [PLN/MWh]	53.5	56.6	59.6	62.7	65.7	68.8	71.8	74.9	77.9	80.9	84.0	87.0	90.1	93.1	96.2	99.2	102.2	105.3	108.3	108.3	108.3	108.3
c. Other variable O&M [PLN/MWh]	13.9	14.4	14.9	15.4	15.9	16.5	17.1	17.7	18.3	18.9	19.6	20.3	21.0	21.7	22.5	23.3	24.1	24.9	25.8	30.7	36.4	43.2
II. Fixed O&M [mPLN]							194.6	201.4	208.5	215.8	223.3	231.1	239.2	247.6	256.2	265.2	274.5	284.1	294.1	349.2	414.8	492.6
EBITDA [mPLN]							41.8	98.4	137.0	166.5	195.4	223.5	250.8	277.4	311.5	344.8	377.3	408.8	439.5	529.1	716.3	871.3
EBIT [mPLN]							-138.5	-81.9	-43.3	-13.8	15.0	43.1	70.5	97.1	131.2	164.5	196.9	228.5	259.2	348.7	536.0	690.9
EBT [mPLN]																						
NOPAT [mPLN]																						
FCF [mPLN]							-32.0	32.8	79.6	117.3	154.3	188.7	217.5	245.7	280.0	313.6	339.9	365.4	390.3	462.8	614.5	740.0
WACC																						
IRR																						
Net Present Value (2018) [mPLN]																						

8.50%

3.82%

-2312.5

b. Financial results and viability criteria

In the base scenario of our model, Ostrołęka C generates positive cash flow already in the second year of exploitation; however, the net present value reaches a negative value of PLN 2.3bn.

For discounting CFs, we apply WACC amounting to 8.5%, which is over two times higher than the internal rate of return (IRR) - this indicates strong unviability of the project and suggests that Ostrołęka C would be in no position to either pay back the cost of capital or guarantee a market rate of return for its shareholders.

Sensitivity analysis

Figure 4. Number of hours worked in a year vs NPV [mPLN]

3000	-3569
3500	-3242
4000	-2928
4500	-2619
5000	-2313
5500	-2008
6000	-1706
6500	-1404
7000	-1104
7500	-804
8000	-505
8500	-207
8760 (= 24 x 365)	-52

In the base scenario, Ostrołęka C cannot reach any positive NPV even under an unrealistic assumption of working all day and all night without any breaks.

Figure 5. EUA certificate price growth path vs NPV [mPLN]

Power price growth scenario	EUA certificate price growth scenario	NPV
base	Clampdown	-2313
base	Countdown	-2871
worst-case	Clampdown	-868
worst-case	Countdown	-1347

From Figure 5, we conclude that our base scenario (PLN -2.3 bn) might be even less optimistic when power prices rise at 4.7%, but EUA certificate prices boost sharply (Countdown) - here, the NPV drops by more than PLN 0.5 bn compared to the main benchmark.³⁰

A more optimistic, yet a highly unrealistic simulation relies on a mild CO₂ price growth forecast (Clampdown) together with power price following this path and reaching CAGR of 4.7% in the long term. Given these assumptions, the investment still generates a negative NPV of PLN -868m.

³⁰ Base power price growth scenario + Carbon Clampdown.

Figure 6. Coal price in 2017 [PLN/GJ] vs power price growth over the 2017–2050 period [CAGR – %]

	3.0%	3.2%	3.4%	3.6%	3.8%	4.0%	4.2%	4.4%	4.6%	4.8%	5.0%	5.2%	5.4%	5.6%	5.8%	6.0%
6	-4792	-4370	-3920	-3447	-2983	-2522	-2043	-1541	-1011	-447	151	783	1456	2170	2929	3736
7	-5168	-4745	-4296	-3818	-3329	-2849	-2362	-1854	-1320	-756	-157	479	1152	1866	2625	3432
8	-5543	-5121	-4671	-4193	-3690	-3189	-2689	-2172	-1632	-1064	-465	172	848	1562	2321	3128
9	-5918	-5496	-5047	-4568	-4060	-3540	-3023	-2497	-1950	-1377	-773	-136	540	1258	2017	2824
10	-6294	-5871	-5422	-4944	-4435	-3903	-3366	-2829	-2274	-1694	-1086	-445	232	951	1713	2520
11	-6669	-6247	-5797	-5319	-4811	-4271	-3720	-3167	-2603	-2016	-1402	-757	-77	643	1407	2215
12	-7044	-6622	-6173	-5695	-5186	-4645	-4083	-3512	-2938	-2343	-1722	-1072	-387	334	1099	1910
13	-7420	-6997	-6548	-6070	-5561	-5020	-4450	-3866	-3277	-2675	-2047	-1390	-701	25	790	1602

Sensitivity analysis of NPV with respect to coal and power prices clearly indicates that it is only under unrealistic assumptions (coal cheaper by about ½ and power price rising at CAGR=5%) that the investment can generate any positive NPV.

Figure 7. Capacity agreement price [PLN/kW] vs WACC [%]

	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%	8.0%	8.5%
150	473	-10	-433	-804	-1128	-1412	-1660	-1877	-2067	-2232	-2376	-2501
200	782	284	-153	-536	-872	-1167	-1426	-1653	-1852	-2027	-2179	-2313
250	1085	573	123	-272	-621	-927	-1196	-1433	-1642	-1825	-1986	-2127
300	1382	857	394	-14	-374	-691	-971	-1218	-1436	-1628	-1797	-1946
350	1672	1133	657	237	-134	-462	-752	-1008	-1235	-1436	-1613	-1770
400	1956	1403	915	483	101	-237	-537	-803	-1039	-1248	-1433	-1598
450	2237	1671	1170	726	333	-16	-326	-601	-846	-1063	-1256	-1428
500	2511	1932	1419	963	559	200	-120	-404	-657	-883	-1084	-1263
550	2784	2192	1667	1200	785	415	86	-208	-470	-703	-912	-1099

Following our description of the UK capacity market auctions in the previous report³¹, we expect the Polish system (modelled on the UK legislation) to favour existing (amortised) generation units and not planned ones (like Ostrołęka C). Hence, we assume that the auction price for the delivery period of 2023 and onwards to score under the net-CONE price.

At the end of August 2018, the Minister of Energy published a regulation with capacity market 2021-2023 auction parameters³² - these indicate net-CONE price amounting to 313 PLN/kW and maximum price to 406.9 PLN/kW. Given these unrealistic values, Ostrołęka C is still unable to reach a positive NPV - even under a more liberal WACC of 6 percent. In our model, revenues from the capacity agreement constitute no more than 15% of all revenues. Since we assume the introduction of the winter package, capacity market revenues would be gradually dropping until 2035 - their contribution then would be around 5%.

³¹ M. Hetmański, F. Piasecki, op. cit.

³² RCL, op. cit.

Figure 8. Viability criterion – EBITDA/CAPEX ratio.

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
EBITDA/CAPEX	0.8%	1.9%	2.7%	3.3%	3.9%	4.4%	5.0%	5.5%	6.2%	6.8%	7.5%	8.1%	8.7%

By selecting the new viability criterion, the investor can avoid raising any doubts concerning the negative NPV or too low IRR values. Nevertheless, in our base scenario, Ostrołęka C does not reach the assumed EBITDA/CAPEX ratio within the first five years of exploitation, but only in 2030.

This “innovative” approach to viability indicators clearly shows that investors are well aware of the questionable economic sense and are forced to run the project under non-market conditions.

c. Levelized cost of Energy (LCOE)

Figure 9. Levelized cost of energy (LCOE) [PLN/MWh] dependent on EUA certificate prices and yearly power generation.

EUA certificates price forecast	3500h	5000h	6500h	8000h
Clampdown	570	488	444	417
Countdown	586	505	461	434

In our base scenario, Ostrołęka C might produce power at a price of 488 PLN/MWh (Clampdown) or 505 PLN/MWh (Countdown), assuming that it works 5000 hours in a year. LCOE of renewable energy sources, in theory one of the most expensive technologies and hence heavily dependent on subsidies, seems to be more competitive on the market than of a coal power plant - a dominant technology in the Polish power system. According to PWEA (Polish Wind Energy Association), LCOE of offshore, onshore and PV is estimated at 420, 300 and 440 PLN/MWh, respectively.³³

³³ Polish Wind Energy Association, [Ścieżki dekarbonizacji - Model miksu energetycznego do roku 2035 wraz z analizą potencjalnych problemów bilansowania KSE z generacją wiatrową](#), 01.2018.

SUMMARY AND RECOMMENDATIONS

Building a coal power plant in 2018 is not a considerable investment option but a cash burning project - here called Ostrołęka C. ETS reform, winter package and BAT Conclusions are a clear signal sent from the EU bodies to the domestic power generation companies NOT to build new units based on outdated fossil fuels. Instead, utility operators should concentrate their building capacities on low or emission free and more elastic energy sources.

Serious legal doubts concerning the integrated permit and Ostrołęka C's compliance with BAT Conclusions are a result of low corporate governance standards of Energa. So far, the company has not done its best to clear any ambiguities, hence shareholders and stakeholders shall be aware of the non-market conditions and risks arising from this.

Our valuation model clearly indicates that under base power price growth scenario and a more smooth CO₂ emission allowances price growth forecast, Ostrołęka C brings a negative NPV for its shareholders of PLN -2.3 bn and generates power at a cost of 488 PLN/MWh - a highly uncompetitive price compared to the most expensive renewable energy sources.

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