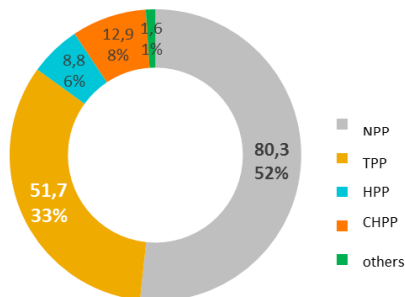


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Forecast deficit in Ukraine's energy system for July

According to the forecast balance prepared by the Ministry of Energy and Coal Industry of Ukraine, in 2016 Ukraine is to generate 155 billion kilowatt-hours, including:

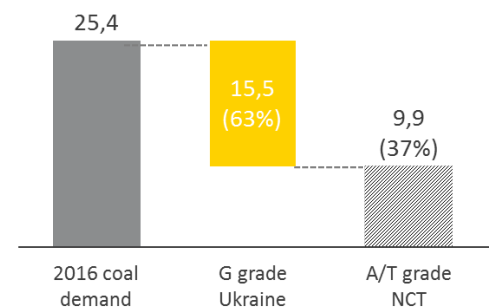


- 80.3 bln kWh to be produced by nuclear power plants;
- 51.7 bln kWh to be produced by thermal power plants;
- 12.9 bln kWh to be produced by combined heat and power plants.

So, more than one third of Ukrainian electricity has to be generated from coal (at TPPs and partially CHPPs).

According to the forecast balance of the Ministry of Energy and Coal Industry dd. 25 June 2016, the coal supplies to Ukrainian TPPs are broken down as follows:

- 15.5 mln tons: G-grade coal (originating from Dnipropetrovsk region, controlled territory of Donetsk region, Lviv region, Volyn region);
- 9.9 mln tons: A/T coal grades (originating from the NCT- non-controlled territories).



As of 23rd June 2016:

- DTEK TPPs of G-grade coal are loaded for maximum (22 out of 32 units), the rest are under repair.
- DTEK TPPs of A/T-grade coal work in a limited mode due to the lack of fuel (5 out of 20 units), 8 units have no fuel, 4 units are under repair.
- *Centrenergo TPPs* – Vuhlehirs'ka TPP (G-grade) is loaded for maximum (3 units), 4.5 units operate and 4 units have no fuel at Zmiyivs'ka TPP, Trypil's'ka TPP have 2 operating units.
- *Donbasenergo TPPs* – Slovyans'ka TPP works in 2 units' mode with maneuvering capacity of 1 unit at night.

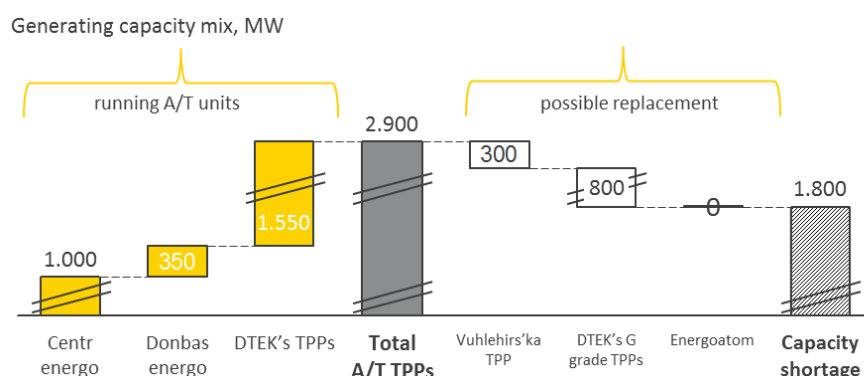
The capacity deficit in July 2016 can amount to 1.7 GW. In case if supplies of A/T grade coal supplies from the NCT are not resumed (blocked since end May), the deficit may be at the level of 2.5 GW. A/T grade stocks of DTEK TPPs since 1st January till 23rd June 2016 dropped by 75% – from 438 to 101 k/mts.

Now TPPs operating on anthracites from the NCT are producing 10-19% of the total electricity output. Coal supply to these TPPs is crucial and critical because:

- the nuclear power plants are unable to provide capacity reserve;
- the production of G-grade coal is limited and cannot provide full substitution for A/T grade;
- it is virtually impossible to get A/T coal from Russia;
- supply of A/T grade coal from the global markets takes time (the shortest possible supply time is 2 months);
- the volume of coal that the Ukrainian ports are able to receive is two times less than needed (400 k/mts a month can be received, whereas over 800 k/mts a month are needed).

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Consequently, unless the situation with coal supply from the NCT is resolved, Ukraine could face rolling blackouts already in July 2016.

Coal stocks at power plants

Due to suspension of coal supplies from the NCT since 31st May, 2016 the levels of A-grade stocks at Ukrainian TPPs continued to deplete, and as of 23rd June 2016 dropped to 56% of the required minimal essential level of stocks*.

k/mts	01.06.2015	23.06.2016	2016/2015, % increase	min. essential level of stocks*	2016/min stocks, %
DTEK TPPs	1 280	963	-25%	1 669	58%
G+DG grade including:	957	862	-10%	1 247	69%
<i>Zaporiz'ka</i>	112	157	39%	227	69%
<i>Ladyzhins'ka</i>	99	116	16%	184	63%
<i>Burshtyns'ka</i>	226	213	-6%	356	60%
<i>Dobrotvirs'ka</i>	82	88	7%	91	97%
<i>Zuyivs'ka</i>	156	97	-38%	120	81%
<i>Kurahivs'ka</i>	281	192	-32%	270	71%
A+T grade including:	322	101	-69%	422	24%
<i>Krivoriz'ka</i>	124	6	-95%	187	3%
<i>Prydniprov's'ka</i>	109	43	-61%	97	44%
<i>Luhans'ka</i>	90	52	-42%	138	38%
Other Ukrainian TPPs**	965	712	-26%	709	100%
G+DG grade	297	302	2%	217	139%
A+T grade	668	410	-39%	492	83%
All Ukrainian TPPs	2 245	1 675	-25%	2 378	70%
G+DG grade	1 254	1 163	-7%	1 464	79%
A+T grade	991	511	-48%	913	56%

* on the basis of coal reserves for 1 month of work in the mode of the ministerial forecast balance on June 2016

**including TPPs situated in the non-controlled areas

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Further complication on the NCT

Railway transportation from/to the NCT has been fully suspended on 31st May, 2016 by the local self-proclaimed authorities due to non-payment of “local duties” and following railroaders’ strikes and blockage by the “local authorities” of employees’ relocation from state enterprise Donetsk Railways to the regional branch of *Ukrzaliznytsia* PJSC.

Since the start of the Donetsk railway strike and suspension of railway movement, active combat operations began near the railway section Nikitovka-Mayorska. In September 2015 this section was restored and has been used for transportation of about half of cargo through the demarcation line. However, due to resumed military operations this railway infrastructure has been damaged again. There are non- detonated shells, bombs, tripwires on the roadbed, which makes coal/other cargo transportation impossible (when and if ban on transportation from/to the NCT is lifted by local self-proclaimed authorities).

Kiev faced a danger of 24 hours blackout due to power shortage in the United Energy System of Ukraine

This summer Kyiv faced electricity shortage. The Ministry of Energy and Coal Industry imposed natural gas consumption restrictions, resulting in *Kyivenergo* CHPPs being able to satisfy only about 4% of Kyiv's required consumption during summer. Currently, Kyiv receives electricity generated in the energy system of Ukraine and supplied to the city by two substations. There was a threat of a 24-hour black-out for the capital city that a failure of one of the main overhead lines, which currently supplies 60% of electricity, might have caused. Well-coordinated efforts of *Kyivenergo* and the Ministry helped promptly connect a *Kyivenergo's* gas/fuel oil unit to the grid, and the black-out was avoided.

Right now the energy system of Ukraine experiences power shortage caused by lack of coal at TPPs, aggravated by the energy consumption growth in summer time. It means that there is a pressing need to use gas/fuel oil units, whose operations were limited to reduce gas consumption. *Kyivenergo* has already addressed the Ministry of Energy requesting adjustments to the Energy Balance of Ukraine and permission for the Company to start up one gas/fuel oil unit at each of Kyiv CHPPs. The Ministry supported *Kyivenergo's* initiative.

Furthermore, to improve the reliability of the city's power supply it is necessary to accelerate construction of Zakhidna substation owned by the state (*Ukrenergo*), which is delayed due to the lack of financing, and to approve the installation of additional transformers at 330 kV substations of the Kyiv energy circle.

Naftogazvydobuvannya pioneers automatic control system of gas production in Ukraine

DTEK's *Naftogazvydobuvannya* (NGV) PJSC introduced automated dispatch control system (ADCS) which is unique for the Ukrainian gas production. The new system provides on-line control of the flow process at every stage - from gas production to its transmission to pipeline.

The dispatchers of *NGV* now monitor round-the-clock all the processes, which allows for quicker decision-making. Introduction of the ADCS has already resulted in reduction of gas process losses. Timings for well workovers were optimized. Failures of engineering equipment were significantly reduced and control over the industrial and environmental safety was increased. In the future introduction of drilling control systems is expected.

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April to December 2015 NGV experienced unprecedented pressure as its accounts, property and gas were under arrest by the order of the Kyiv Pecherskyi District Court. Nevertheless *NGV* managed to drill 10 new wells and became the largest private gas producer in Ukraine, contributing 1.3 bcm of gas to Ukraine's energy independence and security.