Integrated report 2018:
financial and non–financial results

www.dtek.com

Table of Contents

Introduction

Oleg Popov

Chairman of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V., CEO of SCM

Dear colleagues and partners,

I am pleased to present the DTEK Group's 2018 Annual Report.

2018 was an exciting year full of investment and other notable milestones, including reform of the electricity market and a renewed focus on the cities where we work and the people who live there. I'd like to recap the year's highlights in order.

It is extremely important that we do not let external challenges hinder the development of our industry by continuing to invest. Thus, in 2018 the DTEK Group invested UAH 20 bln into production, doubling the amount invested in 2017. Systematically, we have been implementing our strategy for the radical modernization of existing production facilities and the creation of new ones. We know Ukraine's energy sector is badly in need of a comprehensive transformation, so the DTEK Group is doing everything it can to help it become more technologically-advanced and environmentally-friendly.

Here are just some of the projects implemented by the DTEK Group in 2018 — projects that are important not only for our business, but also for the entire Ukrainian energy industry.

In 2018, the DTEK Group invested almost UAH 10 bln in green energy. We built Nikopol Solar Power Plant and completed construction on phase I of Prymors'k Wind Farm. But we are not stopping there: phase II of Prymors'k Wind Park and Pokrovs'k Solar Power Plant are both under construction. We plan to have 1 GW of installed capacity in green energy by 2020. That means we will produce 2,500 mln kWh of green electricity annually, which is the amount Ukraine consumes in seven days. In other words, we can provide Ukraine with a whole week of green electricity! This is just one of the ways we're helping the Ukrainian energy sector become environmentally-friendly.

And this is not the only thing we're proud of: in 2018, the DTEK Group allocated UAH 1.7 bln to developing gas production. We continued drilling ultra-deep wells and introduced production facilities that use a unique combination of equipment and technological solutions. When it comes to the distribution of energy, DTEK was one of the first companies in Ukraine to provide access to online maps of power grids. And I am particularly pleased with our line of projects relating to the "new energy industry", including the network of high-speed charging stations for electric vehicles, DTEK's innovation management function, and our Energy Accelerator, responsible for harnessing the value of new ideas and technology. These projects are changing the face of the Ukrainian energy industry, ensuring it becomes more customer-centric and develops in a sustainable way.

We all understand that continuous production from renewable energy sources cannot be guaranteed using current technologies, especially given the rapid rise in demand for electricity. In addition, in Ukraine, thermal generation remains a significant element of energy security. In the foreseeable future, we should replace imported coal with domestic coal. The DTEK Group has invested UAH 5.4 bln in increasing G-grade coal production and re-equipping power units to run on domestic coal rather than imported anthracite. In 2018, we carried out that work at the two power units of DTEK Prydniprovs'ka TPP. The share of electricity generation from anthracite decreased to 12% of the DTEK Group's total production.

Energy sector reform is aimed at accelerating the positive transformations enabled by liberalization. In the initial stage of the reform, companies have been required to separate distribution system operators from the production and supply of electricity. In 2018, DTEK Group was the first among the companies in the industry to complete this unbundling procedure, outlining the network and client businesses. This once again underlines our commitment to create an electricity market in line with the European model. Since its establishment, DTEK has been pushing for reform, because we think competition should rule the market. The transition to a liberalized model opens up opportunities for structural change, while making the industry more investable, more technologically-advanced, more environmentally-friendly, and able to support Ukraine's energy resilience. Consumers will become full-fledged market participants, ensuring that companies focus on improving existing services and introducing new ones.

There's one more thing I would like to say: in addition to developing our production and exploring new areas, DTEK has always been and remains focused on corporate social responsibility. The principles of sustainable development underlie our business — we understand that we can only be successful over a long period if the interests and needs of all stakeholders are met. That includes local communities, part of which are made up of DTEK Group enterprises, as well as our employees and partners, whose daily work contributes to the overall success.

In 2018, we allocated UAH 2.2 bln towards sustainable development projects. We purposefully invest in improving working conditions and employee training. And we have brought our social partnership projects to a new level. For example, our project "Your Hometown Begins with You" has led to some amazing ideas on the arrangement of city-wide space, and to explore these ideas, we have introduced a competition for large grants. Another project we are proud of is "Energy Efficient Schools: New Generation", which has grown from regional project to a national one, covering every region of Ukraine. I hope, the TREND and "Come on, Let's Play!" projects, which we started this year, will have the same promising future.

However, all of the above was only made possible thanks to the professionalism and support of each DTEK Group employee. I am confident that, together, we will build the most modern, technologically-advanced and people-oriented energy company in Ukraine. You, our employees, are the guarantee of DTEK's ongoing business success.

Maxim Timchenko

CEO of DTEK

Dear colleagues and partners!

I'd like to share some of DTEK Group's major achievements from last year. 2018 was a year of major transformation: we brought new resources online, made structural changes, and set new directions for the organization. I'd like to tell you about our achievements in the context of our Corporate Development Strategy to 2030.

The Energy Industry

In 2018, we hit a record high in the production of G-grade coal — 24.1 mln tonnes. For the second year in a row, we established the highest annual output in the company's history. These records primarily ensure the sustainable operations of United Energy System of Ukraine (UES): power plants experienced no fuel shortages, and electricity production remained stable, covering all of Ukraine's requirements. Ultimately, they help create energy independence of Ukraine. Thermal generation has been boosted by conversion projects, switching power units from anthracite to domestic coal. In 2018, we continued the implementation of these projects — four power units at DTEK Prydniprovs'ka TPP were converted from anthracite to G-grade coal and DTEK Myronivs'ka TPP was completely re-equipped. This allowed producing 28.3 bln kWh from G-grade coal — 88% of the total output of DTEK's thermal power plants. This share will only increase in future, with our strategy of reducing the volume of imported resources in the fuel balance of our power plants. We should be able to forego all import requirements in Ukraine's thermal generation in the foreseeable future — DTEK Group is ready to support the country's strategic objectives.

Renewable energy is another factor helping secure Ukraine's energy independence. According to the calculations of the Institute of Renewable Energy of the National Academy of Sciences of Ukraine, solar and wind energy has the potential to produce up to 100 bln kWh per year. An amount that would cover Ukraine's electricity demand for almost a year.

We implemented an ambitious project in solar power engineering by building the Nikopol SPP which has an inverter capacity of 200 MW, thus putting it in the top three largest solar power plants in Europe. Our next project will establish a new record: the inverter capacity of the Pokrovs'k SPP is 240 MW. Construction is underway on the territory of a derelict manganese mine, chosen as the location of the plant because the land is unsuitable for agriculture. In wind power engineering we built the Prymors'k and Orlivs'ka wind farms with a total capacity of 300 MW. The first seven turbines of the Prymors'k Wind Farm are already a source of green electricity for Ukrainians. Overall, we are set produce 2.5 bln green kilowatt-hours per year, roughly the consumption of 700,000 households.

It's equally important that we partnered with world leaders in equipment and financial markets: GE Renewable Energy and Vestas, CMEC and a consortium of German banks Bayerische Landesbank, and Bremer Kreditbank, KfW IPEX-Bank. This suggests the Ukrainian energy sector is regaining the trust of international partners and beginning to emerge from its investment isolation. The reform of the energy sector — undoubtedly the most important event in the industry — will accelerate this process and ensure changes are carried out at a faster pace. However, the gap in development levels between Ukrainian and European energy generation is still obvious. We need to mobilize resources to overcome this gap as fast as possible. Ukraine needs modern energy production which is competitive, environmentally-friendly, and self-sufficient. Only then will it help advance the Ukrainian population's quality of life.

We remain leaders in natural gas production, introducing innovative technologies and solutions that allow us to drill to great depths. A stable increase in production has been made possible thanks to intensive development at depths over 5-6 km. I'm sure our experience has showcased the sort of technological developments our industry needs. But we are already making plans to go deeper by considering a transition to drilling wells with a depth of more than 7 km. In addition, we are preparing to develop a new licensed site: Svitankovo-Logivs'ka. We won the right to develop this site in March 2019 at the first electronic auction for subsoil use, which was conducted by the State Service of Geology and Subsoil using the platform of the Unified Electronic Public Procurement System in Ukraine.

Customers

2018 has become a year of structural change for DTEK Group. We completed the unbundling procedure of separating the electricity distribution and supply functions. We've established operating companies in each sphere of business, thereby ensuring independence within the existing structure of DTEK Group.

This is the first stage of Ukraine's energy reforms, which will ultimately result in the transition to a European market model. From the consumer's point of view, the main advantage of these reforms is gaining freedom of choice of their electricity supplier, which creates the basis for more competitive rates. For companies, it involves a lot of work improving the quality and range of services, things which the energy sector has not previously focused on systematically. It creates conditions which need innovation and the integration of modern technologies.

In 2018, we posted the geoinformation systems of power grids on the Internet, an important step in creating simple conditions for connecting new facilities to power grids. Our next step in the development of electricity grid maps will be the introduction of an online service detailing available capacity. Our goal is to give customers a service that allows them to go through the whole procedure and connect their facility to the grid in just two clicks.

In the field of electricity supply, we are developing energy-saving and energy-efficient services for our customers. By the end of 2018, our project portfolio exceeded 0.7 bln UAH, and reached the 1 bln UAH mark at the beginning of 2019. Today this market segment is emerging, but I am sure that in a few years energy-efficient services will become a new fuel in Ukraine. Just as electricity will become the standard fuel source for cars. To that end, we started building a network of high-speed STRUM charging stations, which will help move away from vehicles with internal combustion engines.

Society

We are focused on improving people's quality of life in the cities where our manufacturing plants operate, something we've worked towards throughout our history. We have achieved a very important goal with the general population becoming our partners in our sustainable development projects. We have engaged in dialogue with local communities, in identifying five key areas for our social partnership: energy efficiency in the public sector; healthcare; development of socially significant infrastructure; increasing community activity; and development of the business environment. We are building a business strategy based on these priority areas.

In general, our social investments — which are part of our responsible financing practice — are focused on an integrated and balanced approach to sustainable development. We work on the principle that our efforts only make sense if they are of benefit to people.

Each of our production projects incorporates environmental considerations. Since 2012, for example, when modernizing and reconstructing power units, we have built electrostatic precipitators so that dust emission levels meet European requirements — no more than 50 mg per cubic meter. The Pavlohrads'ka and Dobropil's'ka plants — our largest concentrating plants — have switched to a closed-loop water-slurry scheme and use "green dump" technology. This involves abandoning the use of sludge ponds and preventing contact between coal concentration waste and the environment, thus significantly reducing our impact on the local environment. Our renewable energy projects will reduce greenhouse gas emissions by 2.6 mln tonnes per year, which is especially important for the industrial regions where they are located.

People

We need a network of astute professionals to achieve our ambitious task of creating a modern energy industry in Ukraine. The ongoing technological developments and rapidly changing business environment require those involved to constantly update their knowledge and acquire new skills.

DTEK Group continues to support employees in their efforts to develop their own potential, giving everyone the opportunity to undergo training as necessary. We continue to share our accumulated experience openly, holding specialized conferences for industry professionals and sharing corporate standards to help develop state standards for vocational education.

Our next major step towards creating a culture of open innovation was witnessed in the transformation of DTEK's corporate university, Academy DTEK, into an innovative educational business platform, open to representatives of business, the public sector and the wider community. Academy DTEK opened its doors in its new location in UNIT.City — a space that is equipped with the latest technical means, supporting the development and generation of new ideas. The campus also complies with the 'green building' standard of the American LEED system. This new stage in the development of Academy DTEK is aimed at one main goal: to promote innovation. Speaking of innovation, we have identified three main areas to focus on: innovations in technology; innovations in customer service; and innovations in education. People are the drivers of change, so we must create an environment that facilitates personal development.

Efficiency

Digital business transformation and the adoption of more innovative technologies will help us dramatically improve our efficiency. In 2018, we created our innovation management function. The function will focus on three areas. Firstly, creating a culture of open innovation by focusing on the interplay between the company's internal potential and external innovation ecosystems. Secondly, partnerships and the search for innovative solutions which create effective communities. This helps facilitate quick adoption of new solutions which suit the needs of enterprises. Thirdly, the cultivation of startups in the search for new technologies which we can integrate into our business operations and in search of new products.

In 2018, we implemented a pilot project, the Energy Accelerator, which was aimed at finding innovative solutions for our business needs. We selected three startups and we plan to develop them until they're ready for commercial implementation in 2019.

The Digital Transformation Center will focus on digital business transformation in all areas of DTEK activity, employing 70 IT and digital specialists. In the next three years, our digital transformation program will focus on nine key areas: Digital Mine; Digital TPP; Digital Grids; Digital Field; Digital Logistics; Digital Analytics, Digital Purchases; Digital HR and Digital Office. In 2019, we plan to launch 23 projects across these areas.

Ukraine "plus"

Alongside reforms, our key task in energy production is the synchronization of the United Energy System of Ukraine with the European energy system ENTSO-E. This project is important for Ukraine's energy sustainability, since the UES of Ukraine is currently connected and works in parallel with the energy systems of the Russian Federation and Belarus. Integration with the European energy system also entails opening the Ukrainian market to European energy companies, which will increase competition and improve the quality of services.

DTEK has implemented and continues to implement a series of ambitious projects. The true value of each one lies in the fact that we produce energy which brings people light and heat. That is the mission we defined when the company was established and we have followed it steadfastly. We have created a company in which people work for people — a company to be proud of.

DTEK Group at a glance

DTEK Group at a glance

DTEK Group develops business in the energy sector. Our enterprises mine coal and extract natural gas, generate electricity at thermal and RES power plants, distribute and supply electricity to end consumers, develop a network of fast-charging stations, and provide energy services. Production enterprises are integrated into operating holdings with separate companies managing day-to-day activities in each of DTEK Group's business streams.

DTEK Group is the largest domestic investor in Ukraine. DTEK's Eurobonds are listed on the Irish Stock Exchange.

DTEK Group employs 70,000 people. DTEK's enterprises are rated among the best employers in Ukraine by international audit firm EY and Ukrainian business publications.

DTEK adheres to principles of sustainable social development and is a part to the United Nations Global Compact. Building a relationship of trust with society lies at the foundation of all DTEK Group activities. This objective is achieved by forming sustainable social partnerships with local government bodies and communities. Our contribution to the development of corporate social responsibility in Ukraine has been assessed highly by experts: DTEK has held top positions in the Transparency and CSR Index since 2012.

DTEK is part of SCM, whose shareholder is Rinat Akhmetov.

70,000 employees

27.2 mln tonnes
of coal produced

1,648.5 mln cubic meters
of gas produced

Key Production and Financial Indicators of 2018

Revenue
UAH 157,619 mln

EBITDA
UAH 42,897 mln

Net Profit
UAH 12,373 mln

Assets
UAH 147,971 mln

Capital investments
UAH 19,878 mln

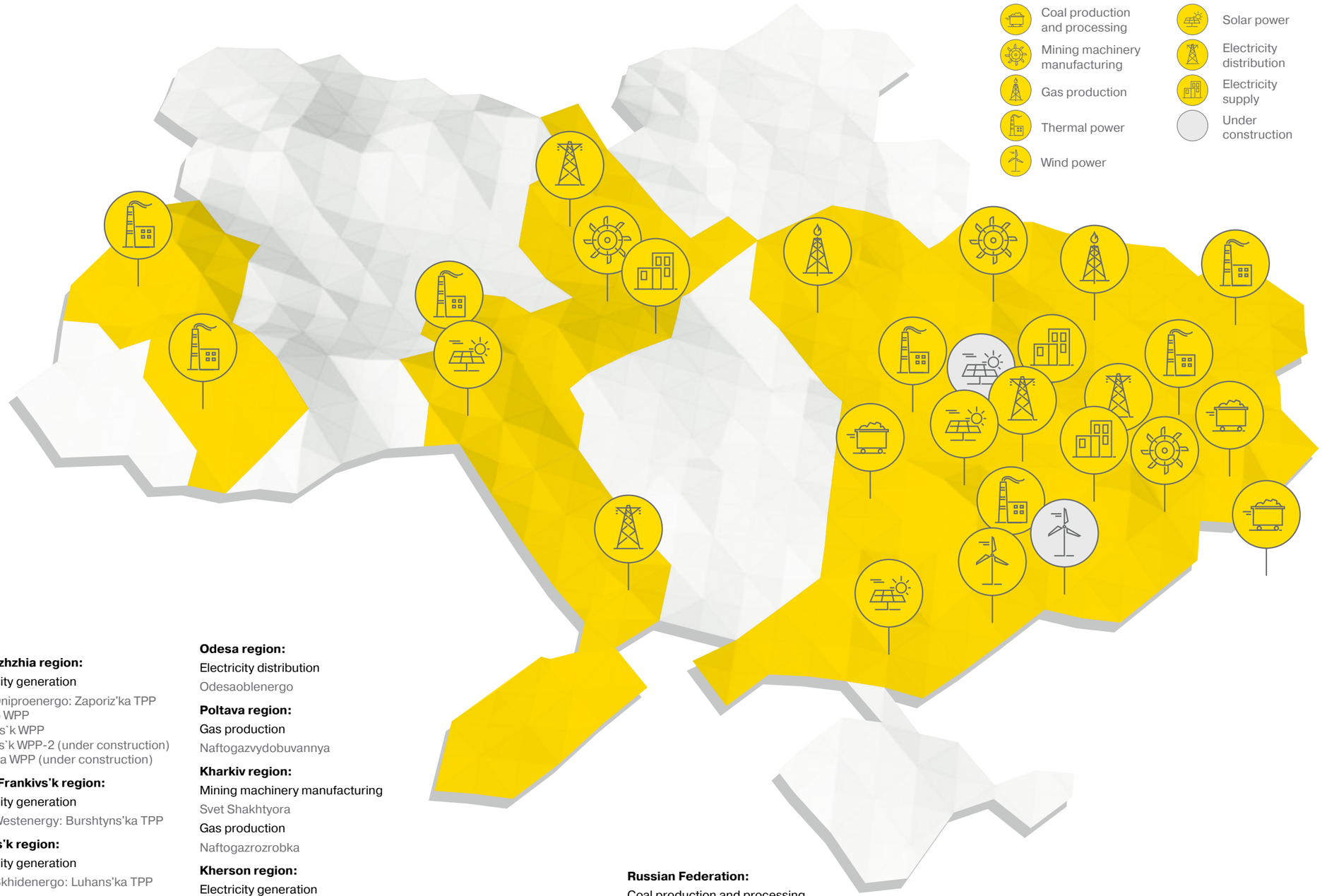
Taxes
UAH 26,724 mln

34.1 bln kWh
generated by TPPs and CHPPs

677.0 mln kWh
generated by WPP and SPP

43.7 bln kWh
of electricity distributed

Where DTEK Group enterprises operate



Kyiv and region:

Electricity distribution

DTEK Kyiv Grids
Kyivoblenergo

Electricity supply

Kyiv Energy Services

Mining machinery manufacturing

CORUM Group

Vinnytsia region:

Electricity generation

DTEK Westenergy: Ladyzhyns'ka TPP, Ladyzhyns'ka HPP, Ladyzhyns'ka SPP

Dnipropetrovs'k region:

Coal production and processing

DTEK Pavlohradcoal:
Pershotravens'ke Mine Office,
Pavlohrads'ke Mine Office,
Dniprovs'ke Mine Office,
Ternivs'ke Mine Office,
Geroiv Kosmosu Mine Office
CCM Pavlohrads'ka

Electricity generation

DTEK Dniproenergo:
Kryvoriz'ka TPP, Prydniprovs'ka TPP
Nikopol SPP
Pokrovs`k SPP (under construction)

Electricity distribution

DTEK Dnipro Grids

Electricity supply

Dnipro Energy Services

Donets'k region:

Coal production and processing

DTEK Dobropolyeugol: Bilozers'ke Mine Office, Dobropil's'ke Mine Office
DTEK Dobropil's'ka CEP
CCM Kurahivs'ka
DTEK Oktyabrs'ka CEP

Electricity generation

DTEK Skhidenergo: Kurakhovs'ka TPP
DTEK Myronivka CHPP

Electricity distribution

DTEK Donetsk Grids*
DTEK Energougol ENE*
DTEK Power Grid*

Electricity supply

Donetsk Energy Services

Mining machinery manufacturing

Corum Druzhkovka Machine Building Plant

Zaporizhzhia region:

Electricity generation

DTEK Dniproenergo: Zaporiz'ka TPP
Botievo WPP
Prymors`k WPP
Prymors`k WPP-2 (under construction)
Orlivs`ka WPP (under construction)

Ivano-Frankivs'k region:

Electricity generation

DTEK Westenergy: Burshtyns'ka TPP

Luhans'k region:

Electricity generation

DTEK Skhidenergo: Luhans'ka TPP

Lviv region:

Electricity generation

DTEK Westenergy: Dobrotvirs'ka TPP

Odesa region:

Electricity distribution

Odesaoblenergo

Poltava region:

Gas production

Naftogazvydobuvannya

Kharkiv region:

Mining machinery manufacturing

Svet Shakhtyora

Gas production

Naftogazrozrobka

Kherson region:

Electricity generation

Tryfonivs`ka SPP

* In the part of grids located in the controlled territory of the Donets'k region.

Russian Federation:

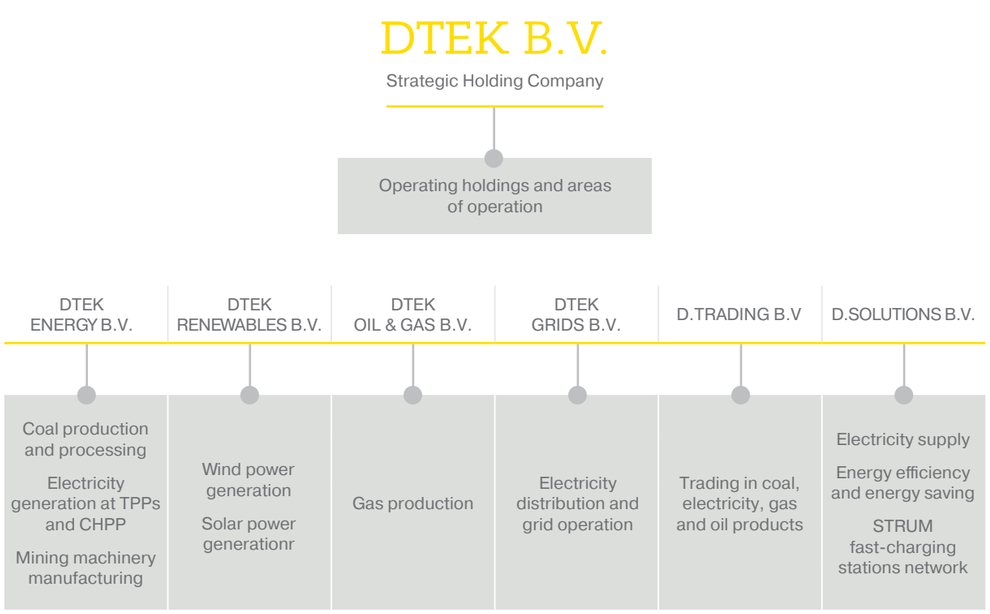
Coal production and processing

Mine Office Obukhovskaya;
Donskoy Anthracite;
Sulinanthracite

Enterprises out of DTEK's operational management are not shown on the map.

As of May 30, 2019.

DTEK Group Structure and Business Areas



Key tasks of the corporate centre:

- long-term planning
- development of new businesses
- investment portfolio management and long-term borrowing
- development of the managerial talent pool
- reputation management
- interaction with central government bodies.

Key tasks of the operating companies:

- management of current operations
- improvement of operating efficiency
- implementation of investment projects
- professional development of employees
- development of industry-related expertise.

DTEK Energy: coal production, electricity generation and mining machinery manufacturing

DTEK Energy has created a full cycle of electricity production from coal — it mines coal and generates electricity. The company has increased the share of domestic coal used in the fuel mix of its power plants by converting energy generating units to run on G-grade coal instead of anthracite. These efforts promote Ukraine's energy resilience and independence.

780,253.000 tonnes
of G-grade coal industrial reserves

13.5 GW
installed capacity of TPPs and CHPP

DTEK Energy operates mines that mainly produce G-grade coal. The company processes coal at its own and third-party CCMs. The production cycle includes close integration with manufacturers of mining machinery, which ensures efficient and immediate response to production demands ranging from the design of new machinery to the supply of spare parts.

The company generates electricity at its eight thermal power plants and one combined heat and power plant. TPPs and one CHPP supply heat to the cities in which they're located.

DTEK Renewables: renewable energy

DTEK Renewables is the largest investor in the Ukrainian renewable energy sector. The company invested 287.1 mln euros in the construction of wind farms and solar power plants in 2018, which accounted for a third of the total financial investment in the sector. The company will continue its development in the green energy sector, with expectations of commissioning new wind and photovoltaic capacities in 2019.

No.1 in investments in green energy

Installed capacity*:
510 MW — commissioned,
440 MW — under construction

* As of May 30, 2019.

DTEK Renewables develops two energy sources: wind and solar. According to the calculations made by the Institute of Renewable Energy of the NAS of Ukraine, these segments have the potential to generate up to 100 bln kWh of electricity every year, nearly the equivalent of Ukraine's annual electricity consumption.

The 200 MW Botievo Wind Farm is one of DTEK Renewables' projects in the wind energy sector, with another two wind facilities currently under construction: the 200 MW Prymors`k WPP and the 100 MW Orlivs`ka WPP are expected to be commissioned in 2019.

A pilot solar project was implemented back in 2017. The construction of 10 MW Tryfonivs`ka SPP demonstrated the considerable potential of the sector. In January 2019, Nikopol SPP was commissioned, and the Pokrovs`k SPP construction project was launched. Together, their aggregate inverter capacity will reach 440 MW.

The environmental impact will be significant when they're in operation, with the reduction of CO_2 emissions set to be 2.6 mln tonnes per year.

DTEK Oil & Gas: gas production

Significant gas production in Ukraine is only possible through intensive development at depths of 5-6 km. DTEK Oil & Gas drills very deep wells efficiently, thanks to investments made in the latest equipment and innovative technologies. Our expertise even gives the opportunity to consider drilling at the depth exceeding 7 km.

No.1 in natural gas production among private companies

39 bln cubic meters of gas reserves by category 2P (SPE-PRMS classification)

The main operating asset is Naftogazvydobuvannya. The company produces gas and gas condensate at the licensed sites of Semyrenkivs'ke and Machukhs'ke fields, both at a depth exceeding 5 km. The extracted gas is processed and brought in line with the standard requirements at the Olefirivka PGTU, the Semyrenky CGTU and the Machukhy GTU.

Naftogazrozrobka was established to explore and develop new sites. The company specialises in geological exploration and is developing the Khoroshivs'ka site in the Kharkiv region.

DTEK Oil & Gas also explores other opportunities for business expansion. Its development strategy envisages both increased participation in sub-soil use auctions and the acquisition of assets already in operation. DTEK Oil & Gas is also ready to extend its experience and expertise to manage projects undertaken by other companies.

Mine Office Obukhovskaya

Mine Office Obukhovskaya is engaged in high-quality anthracite production and processing. The products are supplied to Russian Federation, Ukraine, Europe, Asia, North America and Africa.

Corporate rights to the company belong to DTEK B.V. (the Netherlands).

Ukraine is reforming its energy sector to create an electricity market in line with the European model. Transition to new rules will give state, businesses, and consumers an incentive to implement structural changes. It's all about creating a new clean, efficient, and competitive industry which makes the consumer an equal market player.
During the first phase of the reform, companies were required to unbundle distribution system operators from electricity generation and supply. DTEK Group was among the first to implement the changes across its operations by unbundling electricity distribution and supply functions. New operating companies were established to manage each area of the business, thereby ensuring the independence of operations within DTEK Group.

DTEK Grids: electricity distribution and grid operation

In the new electricity market model, distribution system operators have been converted into independent companies. As a result, all electricity suppliers receive equal access to power grids, which ensures all clients can choose their own suppliers. Distribution system operators are also responsible for the operation of power grids, ensuring reliable electricity supply and infrastructure development.

DTEK Grids focuses on electricity distribution. Distribution system operators serve 5.6* mln clients: companies, steelworks and machine-building plants, mines and factories, as well as social facilities and households.

DTEK Grids provide service to 5.6 mln clients in the Kyiv, Dnipropetrovs`k, Donets'k, and Odesa regions and in the city of Kyiv

* As of May 30, 2019.
No operations are conducted in the temporarily occupied territories.

D.Trading: trading in coal, electricity, gas and oil products

The new market model includes segments of organized and non-organized electricity trade. A market of bilateral agreements made directly between market participants falls within the non-organized segment. On the other hand, the organized segment is comprised of day-ahead, intra-day, and balancing markets, all governed by rules established by the Regulator.

D.Trading will be responsible for wholesale trade in coal, electricity, gas and oil products on the domestic and foreign markets for energy resources

On the bilateral contracts market, D.Trading will specialize in the supply of electricity to big industrial consumers and universal service suppliers. The company will also be responsible for export operations. In addition, D.Trading will be an active player on the balancing and day-ahead markets.

D.Trading will be in charge of SCM's energy portfolio, within the markets of natural gas and coal, ensuring a balance between production and consumption.

Therefore, the main tasks assigned to D.Trading include the sale of electricity with a focus on boosting sales on the market of bilateral contracts, the sale of natural gas produced by the undertakings of DTEK Oil & Gas with a focus on increasing the amount supplied to industrial consumers.

D.Solutions: electricity supply and energy efficiency services

In the new market model, electricity suppliers carry out the function of universal service supplier for two years. A universal service includes guaranteed electricity supply to state-financed organizations, residential and small non-residential consumers with agreed capacity below 150 kW. These consumers are charged at a tariff established by the Regulator.

D.Solutions' main role is to provide all-embracing solutions for the electricity retail market

Consumers in Kyiv, Dnipropetrovs'k and Donets'k regions are supplied with electricity by Kyiv Energy Services, Dnipro Energy Services, and Donetsk Energy Services, respectively.

DTEK ESCO focuses on the provision of integrated energy efficiency and energy saving services. The company implements projects at industrial, residential, administrative, and social facilities. The company also offers a set of energy efficient products and services under the Smart WATT brand to residential consumers.

In 2018, the company extended its operations by establishing a STRUM fast-charging stations network for electric vehicles, and pilot stations were opened in Kyiv.

Key events of 2018

January

DTEK and GE made an agreement for the procurement, construction and maintenance of wind turbines within the framework of the Prymors`k WPP construction project. In 2018, two agreements were made, both covering 26 wind turbines. GE is supplying a model that is highly efficient, even at low wind speed.

The Prymors`k wind farm with an aggregate capacity of 200 MW is being constructed in the Zaporizhzhia region. It is expected that the project will generate 650–700 mln kWh of green energy every year, at full capacity. CO_2 emissions will be reduced by 700,000–750,000 tonnes per year, an extremely important factor for this industrial region.

We attracted debt financing for the first stage of the 100 MW project, with the first wind turbines commissioned at the beginning of 2019. A German banking consortium consisting of Bayerische Landesbank, Bremer Kreditbank, and KfW IPEX-Bank provided 10-year loans with ECA-coverage by Euler Hermes.

February

Reconstruction of Unit No.10 at Burshtyns'ka TPP was completed. The reconstruction included assembly replacement and upgrades to the energy unit systems, which considerably improve performance and environmental indicators. A new electrostatic precipitator decreased emissions of solid particles into an atmospheric air down to 50 mg/m^3, which is in line with European standards.The improved technical and economic indicators — including the energy unit capacity which increased to 210 MW, the fact the equipment service life was extended by 15 years, and the new ACS — will all serve as the foundation for operating within the parameters of ENTSO-E.

April

DTEK launched the Nikopol SPP construction project. An agreement for design and construction was made with China Machinery Engineering Corporation, which became an investor and general contractor for the project. At its commissioning, the solar power plant was set to become one of the largest solar facilities in Europe with an installed inverter capacity totalling 200 MW. The power plant is located in a depleted quarry that was not being used for any other commercial activity.

The power plant has been generating green electricity since March 1, 2019. The resulting reduction of CO_2 emissions is expected to reach 300,000 tonnes a year while electricity generation will reach 280 mln kWh.

June

The STRUM fast-charging stations network started operating in Kyiv. This innovation will promote the phase out of internal combustion-engine cars in favour of electric vehicles. We have plans to install fast-charging stations along the motorways connecting Kyiv with other major Ukrainian cities.

DTEK and Radar Tech technology cluster complete Energy Accelerator. This program is aimed at discovering, developing and supporting innovative projects. It will help the company build up its adaptability internal space and make the transition towards more thorough implementation of innovations which transform its technological processes.

The choice was made in 11 segments: coal, oil and gas, logistics, generation, renewable energy sources, distribution, clients, personnel, corporate responsibility, environmental protection, and occupational health and safety. The project finalists received an opportunity to launch their projects commercially in partnership with DTEK.

DTEK Kyiv Grids uploaded a geoinformation map of the power grids. The project was implemented in cooperation with the Ministry of Economic Development and Trade of Ukraine and the Better Regulation Delivery Office (BRDO). The disclosure of information about electricity grids makes the company more transparent and allows businesses to figure out the optimum investment project. Similar projects were implemented by DTEK Dnipro Grids, DTEK Donetsk Grids, and DTEK Power Grid in 2018.

DTEK Oil & Gas drilled a 5.6 km-deep well. The design and drilling of well No.25 of the Semyrenkivs'ke Field was made in compliance with the requirements and standards set by the International Association of Drilling Contractors. Drilling was performed by a sumpless drilling method using dewatering technology and sludge disposal that meets international environmental standards.

The same work was completed at well No.61 in December, one month ahead of schedule. Such success was made possible by the use of innovative technologies. A set of hi-technology surveys and efforts was completed at the well to ensure efficient reservoir management.

July

The World Bank and DTEK verified a greenhouse gas monitoring plan. DTEK Zaporiz'ka TPP competed a pilot project for the development of a greenhouse gas monitoring, reporting, and verification plan for thermal generation undertakings. This is a preparatory stage for the introduction of a national greenhouse gas emission trading scheme in Ukraine.

The project was implemented with support from the World Bank within the Partnership for Market Readiness program launched to counteract climate change and support states in the development and implementation of their policies.

Fitch Ratings assigns a long-term rating to DTEK Renewables B.V. The rating stands at B- level, which corresponds to Ukraine's sovereign credit rating, with a stable outlook. The agency noted the company's stable financial position as well the regulatory base for the development of renewable generation as positive factors.

August

DTEK set up an innovation management function as a stepping-stone to broader organizational changes and in preparation for DTEK Group operating on the new electricity market. The function will focus on the three areas. The first is a culture of open innovation, ensured by increased interaction between the company's internal potential and external innovative ecosystems. The second is about searching for innovative solutions through creating communities. This will help the company adapt new solutions as fast as possible. The third focus area covers startups — identifying and nurturing new technologies so they can be integrated into the business as fast as possible. DTEK appointed Emanuele Volpe as Chief Innovation Officer. Before joining DTEK, he was Head of Innovation at Enel.

September

A propane cooling facility was commissioned at the Semyrenkivs'ke Field. A completely automated infrastructure facility was constructed to maintain natural gas production volumes despite decreasing reservoir pressure and to ensure gas quality matches the requirements set out in the Gas Transportation System Code. An array of advanced solutions was implemented and equipment supplied by both Ukrainian and international manufacturers was installed on the main technological units of the cooling facility.

DTEK Grids became Ukraine's first representative in the E.DSO (European Distribution System Operators). The Association brings together more than 36 members from 20 states with a view to harnessing innovation and technology to transform European grids into Smart Grids. By participating in the Association, the company will get an opportunity to study and apply best European practices in Ukraine.

November

DTEK Energy switched energy unit No.9 of DTEK Prydniprovs'ka TPP from anthracite to G-grade coal, making it the third energy unit of the power plant that has been converted to use domestic fuel. A plan for the gradual conversion of anthracite-fired energy units operated by DTEK Energy's TPP has been in motion since 2017, and its objective is to minimize the share of anthracite in the fuel mix.

The same efforts were completed at energy unit No.10 in March 2019. Moreover, a new electric precipitator was built at the energy unit, which will reduce the emission of solid pollutants into the air so that they're in line with European standards.

December

DTEK and Vestas started construction of the Orlivs`ka WPP. A new wind farm which is situated on the shore of the Azov Sea in the Zaporizhzhia region, with a capacity set to reach 100 MW. The wind farm will comprise 26 Vestas wind turbines. The wind turbines will be installed on a platform that demonstrated excellent performance in Ukraine in terms of wind dynamics and electricity output to the power grid. It is expected that the project will generate 380 mln kWh of electricity a year and reduce greenhouse gas emissions by 400,000 tonnes.

DTEK has started the transformation of its corporate university into Academy DTEK, an innovative educational business platform. It will implement global HR practices in Ukraine together with its international partners, top business schools and organisations such as INSEAD, IE Business School, Thunderbird, HRCI, and Kyiv Mohyla Business School. The revitalised institution will be based at UNIT.City.

The Energy Efficient Schools project won in the Planet nomination category at the United Nations Global Compact competition in Ukraine. The nominees were assessed on the basis of innovation, contribution to social development, and number of people involved.

The Energy Efficient Schools education project has been running since 2012 and has engaged students from more than 2,000 schools. The project's objective is to instill environmental values in children, foster a responsible attitude towards the use of resources, and teach them skills of rational energy use. The education program includes "The basics of energy supply and energy saving", and "The ABC of Housing and Utility Management", and the Smart House online game.

The project is in line with the SDGs No.4 (Quality Education) and No.12 (Responsible Consumption) of the UN Global Compact.

Academy DTEK`s project won at the HR-Brand Ukraine Awards. The Awards were established back in 2011 by HeadHunter Ukraine, a recruiting company which popularizes modern personnel management methods. Projects were assessed in terms of their relevance, modern implementation methods, efficiency and effectiveness.

Academy DTEK's project "Calculations or guesses: which is impossible? How HR-analytics protects human life and health" won first place in the Region nomination category. HR-analytics is one on the instruments used by DTEK to attain its objective of zero workplace injuries.

Key events after the end of the reporting period

DTEK Oil & Gas won an auction for the Svitankovo-Logivs`ka oil-and-gas area. On 6 March 2019, the State Service of Geology and Subsoil of Ukraine held the first ever auction for subsoil use on the Prozorro.Sale platform, which is part of Ukraine's public e-procurement system. DTEK Oil & Gas' subsidiary won an auction for a special subsoil use permit for the Svitankovo-Logivs`ka area in Kharkiv region. Type of minerals: oil, natural gas, and condensate. Type of subsoil use: geological exploration followed by oil and gas extraction. The permit is valid for 20 years.

DTEK Group completed the acquisition of the majority shareholding in Odesaoblenergo and Kyivoblenergo. Odesaoblenergo and Kyivoblenergo are electricity distribution system operators in the Odesa and Kyiv regions and do not carry out any electricity supply activities. Currently, the company is developing a program for its assets with a focus on systematic digital transformation of infrastructure management, as well as improvement of electricity supply reliability and customer service.

Mission, vision and values

Mission

We are working in the name of progress and social prosperity. Our energy brings light and warmth to people.

Vision

We are a dynamically developing Ukrainian company that strives for leadership in the European energy markets. Our success is based on people, efficiency and advanced technologies.

Values

Professionalism

Our employees have extensive professional knowledge, carry out their duties responsibly and diligently, and accomplish their tasks in a timely and workmanlike manner.

We strive to achieve the best results while making the best possible use of human, natural and financial resources.

Responsibility

We are building our business on the understanding that all of our efforts should serve the interests of society. We bear responsibility for the quality of our work and the observance of corporate standards, for meeting our obligations, for using resources prudently, and for protecting the environment. We are responsible for the people who make the success of our company possible — our employees.

Pursuit of excellence

We create the right conditions for the development of talents and abilities of our employees, implement the latest technologies, and improve production and management processes. As we expand our business, we strive to instill confidence in our employees and contribute to the successful development of Ukraine.

Unity

We value team spirit, unity and solidarity. We can only achieve strong results as a team. We enjoy both working and leisure time together. Our common potential comes from the diverse experience and knowledge of each employee. Our unity comes from the common pursuit of the same ideas and goals while understanding and supporting each other.

Openness

We are open and keep our employees, partners, shareholders and other external stakeholders informed about important issues regarding our development, creating a foundation for working together in a spirit of trust. We conduct our business based on principles that are clear to our employees and partners.

DTEK Group's 2030 Development Strategy

Development Concept

DTEK will actively develop in Ukraine and enter the markets of neighbouring countries as a diversified energy company with secured fuel resources.

DTEK will focus on the sale of electricity to all categories of consumers while maintaining high standards of service and building a strong retail brand.

DTEK will support and develop key success factors: the talents and potential of its employees and the efficiency of production, investments and management.

DTEK will participate in the reform and modernization of Ukraine's economy, social development of regions where it operates, and the promotion of best standards in industrial and environmental safety.

Stages and priorities of DTEK Group's Development Strategy

> The long-term corporate strategy determines key areas of business development, management projects and technologies.

	Stage 1 2013—2015	Stage 2 2015—2020	Stage 3 2020—2030
	Integration, infrastructure, reform	**Efficiency**	**Innovations**
Traditional business	Management model	Scaling of LEAN projects	Minimizing human intervention in production
	Asset integration	Pilot projects for new construction of power units	Business process automation
	Reconstruction of facilities	Expansion of the list of products and services	Introduction of innovations
	Formation of trading, sales and marketing functions	Creation of sales infrastructure	Large-scale new construction
	Pilot LEAN projects	Pilot innovation projects	SMART technologies
	Formation	**Growth**	**Stabilization**
New business	Team building	Business self-sufficiency	Leadership in Ukraine
	Implementation of base projects	Progressive growth	Access to new markets
	Participation in strategic partnerships	Expansion of asset portfolio	Entering into adjacent businesses — horizontal integration
	Acquisition of assets		**Leadership on target markets**
M&A	Strategic partnership/acquisition of energy-generating assets operating on DTEK's coal base		Expansion of asset portfolio on target markets: taking leadership positions

Six strategic vectors of development

Energy sector

The basis of DTEK's energy business is coal mining and gas production, electricity production at thermal and renewable generation plants, and the distribution and supply of electricity.

The company intends to maintain at least a 25% share of the electricity market until 2020. The company plans to continue developing its renewable assets in wind energy initially by implementing the Priazovs`ky wind park construction project, and by creating new facilities for solar generation.

The main coal mining priorities are meeting the company's thermal power plants' fuel needs and creating safe working conditions.

RAB-regulation is expected to be introduced after 2019, which will increase the investment attractiveness of electricity distribution business and create favourable conditions for further development.

In gas production, the company will focus on drilling of wells at the Semyrenkivs`ke and Machukhs`ke fields under a long-term development program, and will carry out an exploration survey in the Khoroshivs'ka area. The company also will participate in auctions for licensed sites from the unallocated site list and tenders for production sharing agreements (PSA).

Society

DTEK has a zero-tolerance policy to industrial injuries, so creating a culture of self-preservation is a critical task. DTEK plans to reduce workplace injury rates by introducing safety control parameters and building modern production facilities with more automation.

DTEK promotes comprehensive development throughout Ukraine, with a particular focus on regions where the Group's companies operate. One of the company's primary goals is to establish long-standing partnerships with wider society, promoting joint initiatives with local residents for urban development and a better understanding among local communities of the challenges the business faces.

DTEK carries out a series of programs aiming to improve people's quality of life in the cities and towns in its operating footprint. The programs span five main areas: energy efficiency in the utilities sector; health care; development of socially important infrastructure; development of business environment; and increasing local communities' activity. There is a special focus on environmental protection. With this goal in mind, DTEK has designed its own environmental strategy.

Today, the Ukrainian energy sector is undergoing large scale reforms that will result in the liberalization of the market, and the establishment of coal market and electricity pricing mechanisms. DTEK is actively engaged in supporting the reforms by participating in working groups on the development of draft laws. The company promotes engaging best European practices in the reform process of the energy industry and creation of efficient competitive environment. It is ready to adapt all of its activities in support of these goals.

The company is putting particular focus on preserving and improving its reputation. DTEK has always demonstrated a high level of business transparency and social responsibility, and will continue to do so in the future.

Customers

Liberalization of the energy market ensures consumers can choose their suppliers. To operate effectively in a free market, DTEK is focused on transitioning from an electricity supply company to a customer-oriented business.

The company is developing uniform customer relations standards for all undertakings, replacing its obsolete system with European best practice service. The network of CSC has already expanded, and its operating principles have been standardized. Online services are replacing consumer billing books. There are plans to introduce a common centralized billing system in the next few years, thereby establishing the foundations for a large-scale deployment of Smart Grid and Smart Metering technologies.

The range of services offered by the company has been complemented by energy efficiency services — including the implementation of energy service projects for industrial and state-financed consumers, as well as the Smart WATT brand which is targeted at the retail sector. In 2018, the company created a network of STRUM fast-charging stations for electric vehicles.

Through further diversification of high-quality products and services, we hope to increase customer satisfaction to 90% by 2030. The company will continue to develop DTEK's retail brand to ensure reliable and innovative services are available to everyone.

People

People are the backbone of the company and the driving force behind its competitive advantage. DTEK will continue to invest in the development of its personnel and promote a culture of open innovation.

People are the company's intellectual capital, so a system supporting ongoing personal development for employees has been created — all managers are trained in personnel management processes. The focus is on creating a corporate culture which supports the timely achievement of business goals and employee engagement, while building loyalty to the company and spreading the company's values.

DTEK plans to use state-of-the-art IT technologies for its HR activities, focusing on benefits, incentives, and management to help organize personnel management processes efficiently while cultivating and attracting new talents to the company.

DTEK will continue to make large-scale investments in the development of its personnel and will promote an innovation culture in production and management. The company's goal is to use the Human Capital instead of Managing People philosophy, according to which employees act as business partners.

Efficiency

DTEK strives not only to reduce costs, but to explore new opportunities to obtain maximum return from existing resources. DTEK's competitive ability and industry leadership are based on the three pillars: efficiency of management, efficiency of production, and efficiency of investments.

Efficiency of production is impossible without timely modernizing DTEK's production companies which, in turn, requires investment efficiency. The company determines investment priorities and chooses the best engineering solutions to minimize human involvement in the coal production process, as well as upgrading and constructing power units and creating modern grids. DTEK's innovation management function was set up and its main task is to identify and implement innovative technologies and digital solutions.

For production efficiency, the company is implementing the "Novator" continuous improvement system and developing a culture of lean production. "Novator" has become the go-to model for employee behaviour: each employee has the right to make a suggestion on how things could be more efficient at his/her workplace. The best proposals are implemented and their authors awarded. This approach is conducive to business development and improved efficiency has advantages for consumers and the economy in general. From a consumer point of view, DTEK's efficiency means lower electricity consumption. For partners, it means a lower energy component in product cost. For Ukraine, it leads to greater energy security, a better use of innovation, a more favourable investment climate, and improvements to the entire economy.

Business efficiency is a prerequisite for sustainable long-term development.

Ukraine "plus"

Ukraine is the key priority for DTEK's development. The company's largest investments are channelled into the development of Ukraine's energy sector and economy. New capacities are built, new technologies are introduced and new businesses are set up. Efficient operation on external markets is impossible when there is no strong production base at home.

DTEK aims to develop commercial relations with external markets. One of our main tasks is to expand the number of technical and business opportunities to export electricity, implement modern and innovative commercial mechanisms, and reach end consumers in European markets. DTEK is ready to support synchronization with ENTSO-E, and will do everything necessary to get its power units and grids ready for integration into the European energy system.

DTEK has become the face of Ukrainian business for foreign partners. The company strives to showcase the appeal of the Ukrainian business sector to international partners, acting as a transparent, responsible and efficient company focused on long-term sustainable development.

DTEK Group's top management

Maxim Timchenko

DTEK CEO

He has been heading the company since 2005.
Under his leadership, DTEK has become the largest national investor. Since 2005, DTEK's portfolio has increased to 31 mines, 10 TPPs, and 6 distribution companies. In 2013, DTEK became a major shareholder of Naftogazvydobuvannya, the largest private gas producing company in Ukraine. In 2014, DTEK completed the construction of 200 MW Botievo Wind Farm, which is one of the five largest wind farms in Central and Eastern Europe. In 2015, DTEK successfully implemented a new corporate governance structure, which provides for effective unbundling of strategic planning and operational functions. In 2016, DTEK restructured the loan portfolio of its operating companies. This allowed the company to balance its financial capabilities with respect to loan servicing and future development. In 2017, a pilot solar project was implemented, which demonstrated the potential for further development in this segment. The construction of the 200 MW Nikopol Solar Farm started in 2018, the farm has been generating green electricity since 1 March 2019.

The construction of Prymors`k and Orlivs`ka Wind Farms with a total capacity of 300 MW, and Pokrovs`k SPP with a capacity of 240 MW is underway.

Along with 20 other leaders of the world's largest energy companies, Maxim Timchenko was a co-founder and signatory of Energy for Society, a global initiative of the World Economic Forum.

From 2002 to 2005, Mr. Timchenko worked as a senior manager at SCM, where he was responsible for SCM's energy business until it was separated into DTEK. Mr. Timchenko began his career as a consultant at PricewaterhouseCoopers (1998–2002), where he advanced to a senior auditor position.

He is a member of the Association of Certified Chartered Accountants (ACCA).

He received a degree in Production Management with honours from the Donets'k State Academy of Management (Ukraine) in 1997. He continued his education at Manchester University (UK) and received a BA degree in Economics and Social Sciences with honours.

Dmytro Sakharuk

CEO of DTEK Energy

He has been heading the company since 2017.
In 2000, he graduated with honours from the Kharkiv National University of Internal Affairs (Ukraine) majoring in Law. In 2001, he received a Master's degree in Law Enforcement with honours from the same university. He continued his education at the University of Chicago Law School (USA). In 2002, Mr. Sakharuk received a Master's degree in international and comparative law from this university. During his employment at DTEK, Dmytro successfully completed the Energy of Leader program, a joint program of the London Business School (UK) and DTEK Academy.

His professional career began in 2004 when he joined Philip Morris Ukraine. In 2008, he started working at Squire, Sanders & Dempsey LLP, a global law firm.

He joined DTEK in March 2010 as the Deputy Legal Director and was promoted to the Legal Director in 2011. Since August 2014, Mr. Sakharuk was holding a position of DTEK Energy's executive director, and in October 2016 he was appointed as acting CEO of DTEK Energy. Subsequently, in September 2017, he became CEO.

Philipp Leckebusch

CEO of DTEK Renewables

He has been heading the company since 2018.
He started his career in 1989 in the aerospace industry with MBB Deutsche Aerospace (Germany) and Mitsubishi Heavy Industries (Japan). During his time with ABB, ALSTOM Power and Ferrostaal, his responsibilities included supervising the project development and engineering of multiple-fossil-fuel and biomass power plants in all major regions of the world.

Even as he acquired his extensive conventional power plant know-how, he spent more than 10 years overseeing the development and operation of numerous geothermal, wind, solar and biogas projects, which qualified him for his most recent position as head of the MVV Energie Group's generation division. In that post, he successfully managed the transformation of the company's conventional power plant portfolio into a continuously growing renewable energy asset base.

Mr. Leckebusch holds a degree in aeronautical engineering from the Munich University of Applied Sciences (Germany).

Igor Shchurov

DTEK Oil&Gas General Director

He has been working for the company since 2011.
Between April 2013 and September 2016, Mr. Shchurov headed DTEK Oil & Gas' main asset — Naftogazvydobuvannya. He led the company to unprecedented operational levels: annual output of natural gas more than tripled.

Earlier Mr. Shchurov had run Novatek-Tarkosaleneftegaz, steering the company to extract over 14 bcm of natural gas. From 1998 to 2007, he worked at Samaraneftegaz (Yukos Oil Company, Russia), where he rose from an oil and gas production operator to deputy CEO.

He has two higher education degrees: in Oil and gas fields development and in Finance and credit. In 2002, he received a PhD in Engineering.

Ivan Gelyukh

CEO of DTEK Grids

He has been heading the company since 2018.
He joined the DTEK team in 2005 as the head of the investment department of Vostokenergo and held that position until 2008. Then he moved to Kyivenergo as head of the investment department, and headed the Regulatory Policy and Investments Directorate in 2011, and the Strategy Directorate in 2012. Ivan held the position of Deputy Commercial Director of DTEK Energy in September 2013, and has exercised the functions of Electricity Distribution and Sales Director of DTEK Energy since March 2017.

He began his career in 2001 as an economist at Intron company.

He received higher education at Donets'k National University (Ukraine), graduating with a Master's degree in Finance in 2003.

Vitaly Butenko

CEO of D.Trading

He has been heading the company since 2019.
He joined the DTEK team in 2007 as the Strategy and M&A Director. Mr. Butenko has been in charge of the company's commercial operations since 2014: first, he worked at DTEK, and then at DTEK Energy after the new corporate management structure was implemented.

Prior to that, he was the investment director at Inter RAO since 2005. Mr. Butenko launched his career at banking business: he worked for a number of London and Toronto banks, and then was appointed to the position of CSFB Vice-President (New York, USA). In 2003, he returned to Kyiv to head Trust IB.

In 2006, he received an MBA degree from the University of Manitoba (Canada). Mr. Butenko graduated from the School of Foreign Languages of the Chernivtsi National University (Ukraine).

Abdullah Köksal

CEO of D.Solutions

He has been working for the company since 2018.
In June 2018, he became the Head of the Sales and Marketing Division of DTEK Grids. Under his leadership, a strategy for the development of electricity sales and the energy efficiency services business was designed. In April 2019, he was appointed CEO of D.Solutions.

Mr. Köksal has several years' experience in consulting and banking services. Prior to joining DTEK, he worked for more than nine years at Enerjisa (Turkey, a venture asset of Sabancı Holding and E.ON), where he held various management positions in operations management and marketing. He was responsible for electricity procurement and pricing processes, a commercial cycle, built up a customer service system, and was also in charge of reorganization during unbundling.

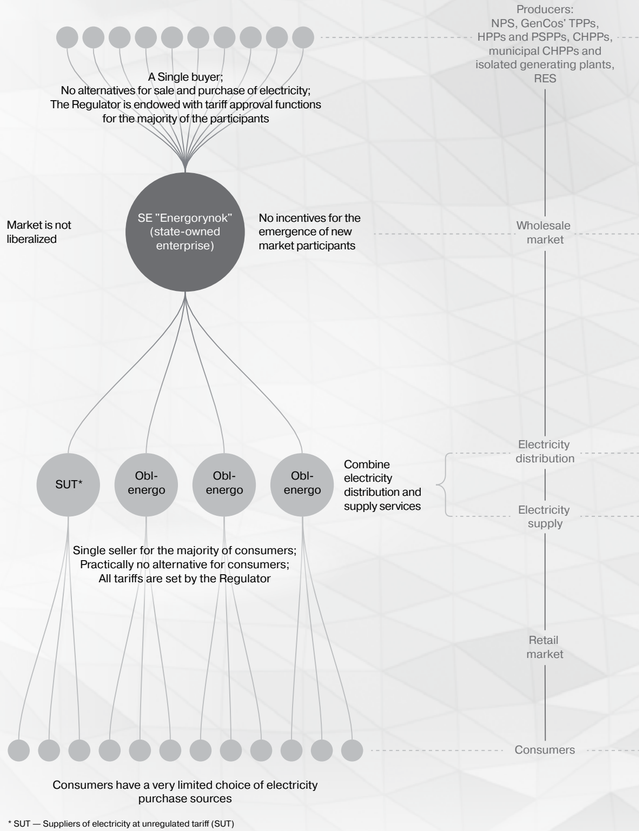
In 1999, he graduated from the Middle East Technical University (Turkey) with a degree in mechanical engineering. In 2003, he received an MBA degree from the City University of New York (USA).

Review of industries and Ukraine's macroeconomic indicators

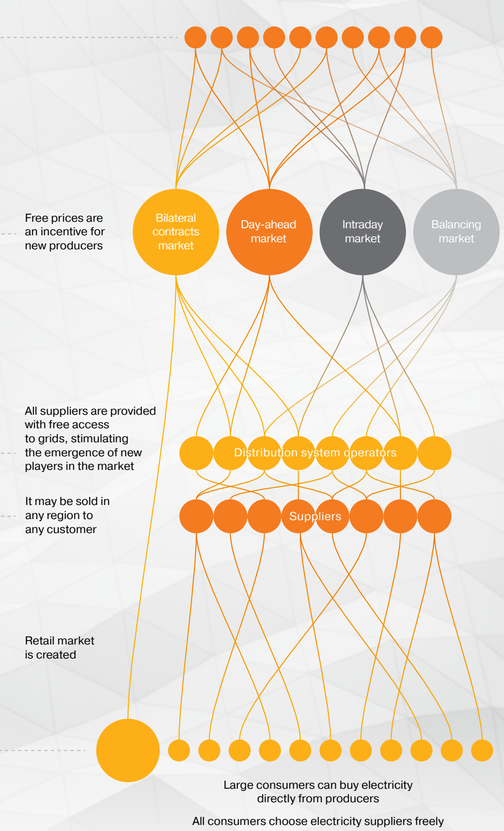
Ukraine is reforming the electricity market to switch to the European model

The most important development of the industry in 2018 is the energy reform.
The reform completely changes the model of interaction between the participants. Liberalization of the market opens up opportunities for the industry to move to qualitative transformations and disengage from investment isolation, and for the consumer it gives the right to choose a supplier which stimulates the quality improvement and the emergence of new services.

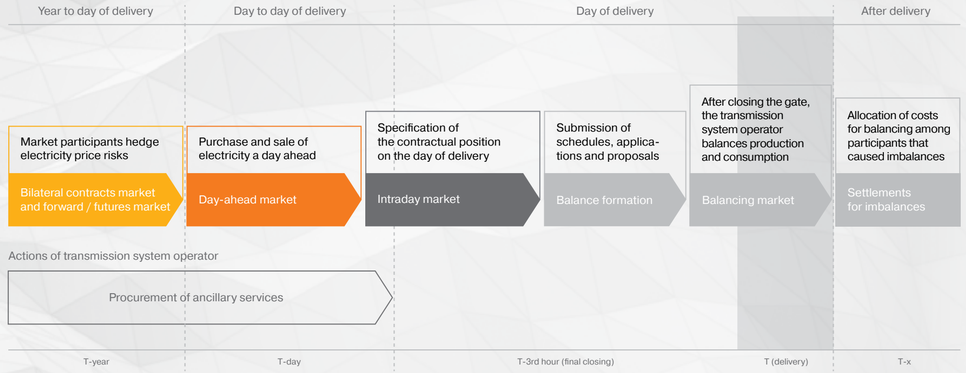
Participants, interaction model before the implementation of the reform



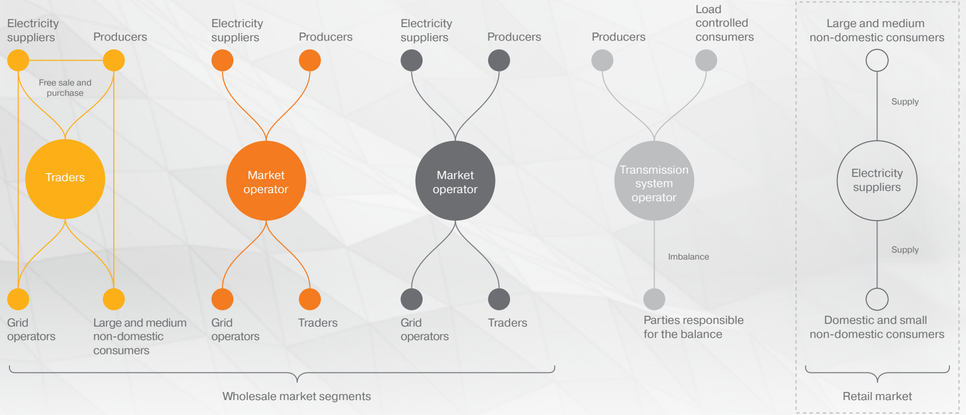
Electricity market as a result of the reform



Functioning of the wholesale electricity market



Electricity market participants



Electricity Market

Electricity balance

The United Energy System of Ukraine (UES) comprises power plants: nuclear, thermal, hydro, pumped-storage hydropower and renewable energy; combined heat and power plants, as well as the transmission and distribution of electricity grids. Centralized operational and process control the UES of Ukraine is carried out by National Power Company Ukrenergo. All business entities whose facilities are connected to the UES of Ukraine must adhere to the dispatcher's operational commands and instructions. Thus, electricity producers cannot deviate from the approved schedules by changing the load of the generating equipment at their own discretion.

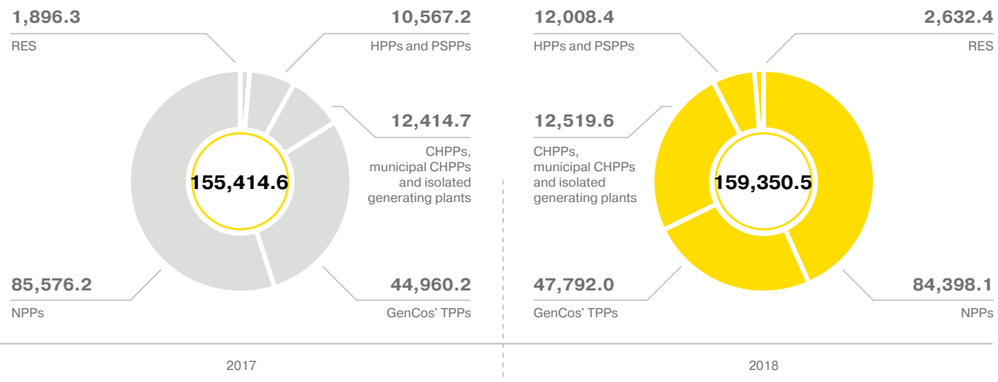
In the current "single buyer" model, all participants interact through the Wholesale Electricity Market, which is operated by SE Energorynok. Producers sell all electricity they generate to the Wholesale Market, and then suppliers buy electricity from the Wholesale Market to provide to their end consumers.

Ukraine is switching from this model to a competitive electricity market. The Law "On the Electricity Market" No. 2019-VIII dated April 13, 2017 incorporated requirements from the EU Third Energy Package and set a July 1, 2019 deadline for transition to the competitive market. Markets will be opened for bilateral contracts, day-ahead, intra-day, as well as balancing and ancillary services.

Liberalization of the market ensures all participants can buy and sell electricity freely, and consumers will be able to interact with producers directly and choose their supplier.

Electricity generation, mln kWh

Data: The Ministry of Energy and Coal Industry of Ukraine.



40.27% (+4.17% by 2017) — the total installed capacity utilization rate of NPP, HPP and PSPP, GenCos' TPPs operating on the Wholesale Electricity Market under price-based bids in 2018.

Ukraine has increased its electricity generation for the third year in a row, with demand growing from both domestic and foreign markets.

Thermal power generation restores production volumes thanks to implementing the strategy of substituting imported A-grade coal with domestic G-grade coal, whose reserves are significant in Ukraine. In 2017-2018, four power units of DTEK Prydniprovs'ka TPP, two of Zmiyivs'ka TPP and two more of Trypils'ka TPP (Centrenergo) with a total capacity of 1,565 MW were converted from anthracite to G-grade coal. This reduces the risk of suspension of production due to fuel shortages and thereby increases the resilience of the country's energy system operation. In general, thermal generation has 10.2 GW of G-grade-coal-fired and 7 GW of the A-grade-coal-fired installed capacities.

Generation, ICUR* and specific fuel consumption of the thermal generation companies

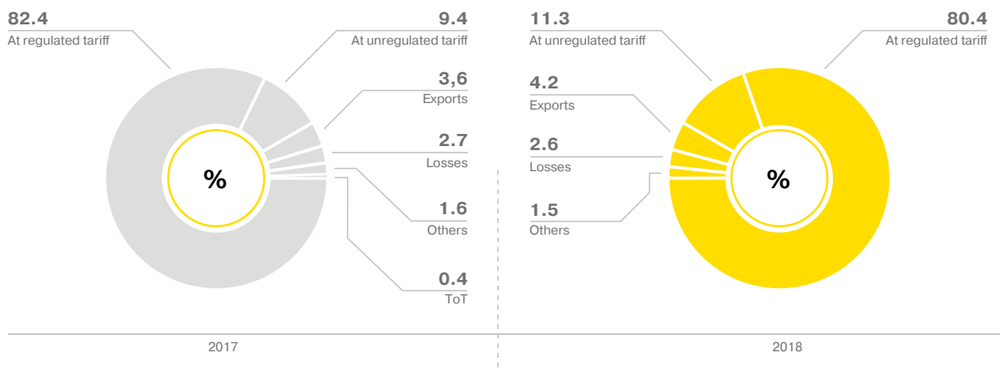
* Installed capacity utilization rate (ICUR)
ICUR for DTEK Energy is indicated excluding power units under mothballing and oil/gas units.

Companies	Electricity generation, bln kWh		ICUR, %		Specific fuel consumption, g/kWh	
	2017	2018	2017	2018	2017	2018
DTEK Energy TPPs and CHPPs	37.5	36.0	35.7	35.2	402.3	405.4
Centrenergo	6.3	8.7	9.3	12.9	404.7	405.2
Donbasenergo	5.3	3.5	50.6	44.8	402.8	407.4

According to the report of SE Energorynok, the average daily composition of the equipment of GenCos' TPPs adopted to the specified load profile increased by one power unit and made at the average 33 power units in 2018.

Electricity purchase on the Wholesale Electricity Market, %

Data: SE Energorynok.



At regulated tariff — suppliers operating at the regulated tariff, at unregulated tariff — suppliers operating at an unregulated tariff, ToT — temporarily occupied territories of Donets'k and Luhans'k regions.

142.4 bln kWh (+2.9% by 2017) of electricity was purchased on the Wholesale Electricity Market in 2018.
6.2 bln kWh was purchased for foreign consumers (+19.4%) and 134.0 bln kWh for Ukrainian consumers (+2.3%).
At the same time, electricity suppliers using unregulated tariffs increased purchases to 16.5 bln kWh (+24.3%).
In general, 125 suppliers operated at an unregulated tariff on the Wholesale electricity market, compared to 94 in 2017.

The suppliers operating at the regulated tariff were regional power distribution companies (oblenergo), which transmitted and supplied electricity according to license conditions exclusively within assigned territory. Only suppliers operating at an unregulated tariff could perform business activities to supply electricity all over Ukraine.

Prompted by the transfer of Ukraine's electricity market to the European model, regional power distribution companies have unbundled their activities to establish a distribution system operators and electricity suppliers. In turn, the Regulator revoked licenses for electricity transmission by local grids and licenses for electricity supply at a regulated tariff from January 1, 2019. The formed distribution system operators obtained licenses for their relevant business activity, which also became effective on January 1, 2019. Electricity suppliers separate from suppliers operating on a regulated tariff are universal services suppliers for a two-year period within their assigned territory.

Electricity consumption in Ukraine

Data: The Ministry of Energy and Coal Industry of Ukraine.

Consumer categories	Consumption, mln kWh				Share in total consumption, %	
	2017	2018	Change, +/–	Change, %	2017	2018
Consumption (gross)	149,725.9	153,214.5	3,488.6	2.3	–	–
Consumption (net)	118,927.1	122,143.6	3,216.6	2.7	100.0	100.0
Including						
1. Industry	50,952.0	52,023.1	2.1	1,071.1	42.6	42.8
2. Agricultural consumers	3,642.1	3,867.8	6.2	225.7	3.2	3.1
3. Transportation	7,044.0	6,955.0	–1.3	–89.0	5.7	5.9
4. Construction	891.8	964.4	8.1	72.6	0.8	0.7
5. Utilities	15,016.2	15,506.4	3.3	490.2	12.7	12.6
6. Other non-industrial consumers	6,361.1	6,880.1	8.2	518.9	5.6	5.3
7. Households	35,019.9	35,946.8	2.6	926.9	29.4	29.4

Since 2015, the industrial and domestic sectors (public utilities and household consumers), respectively — have consumed broadly the same amount of electricity. This reflects structural changes to the Ukrainian economy which have changed the pattern of electricity consumption and as a result increased the difference between the maximum and minimum daily consumption.

In 2018, the maximum level of daily electricity consumption in the UES of Ukraine increased by an average of 292 MW compared to 2017, and the minimum level by 331 MW. GenCos' TPPs are largely responsible for the flexibility required in the electricity generation in the UES of Ukraine.

According to the data from the State Fiscal Service of Ukraine, electricity exports amounted to USD 331.9 mln in 2018 (+40.9% from 2017).

The Ministry of Energy and Coal Industry of Ukraine, as specified in the forecast electricity balance in the UES of Ukraine, expects an increase in exports in 2019 to 6,420.0 mln kWh. Thereafter, the process of connecting the UES of Ukraine to the Continental Synchronous Area within the European energy system, ENTSO-E, will contribute to an increase in the amount of exports. The project is also designed to increase Ukraine's energy security, as it means the country is no longer partially-dependent on the energy systems of the Russian Federation and Belarus, as is the case now.

Electricity exports, mln kWh

Data: The Ministry of Energy and Coal Industry of Ukraine.

Countries	2017	2018
Hungary	2,851.6	3,594.4
Moldova	1,133.9	955.8
Poland	894.8	1,410.2
Slovakia	162.0	167.7
Romania	124.1	37.7
Total	**5,166.3**	**6,165.7**

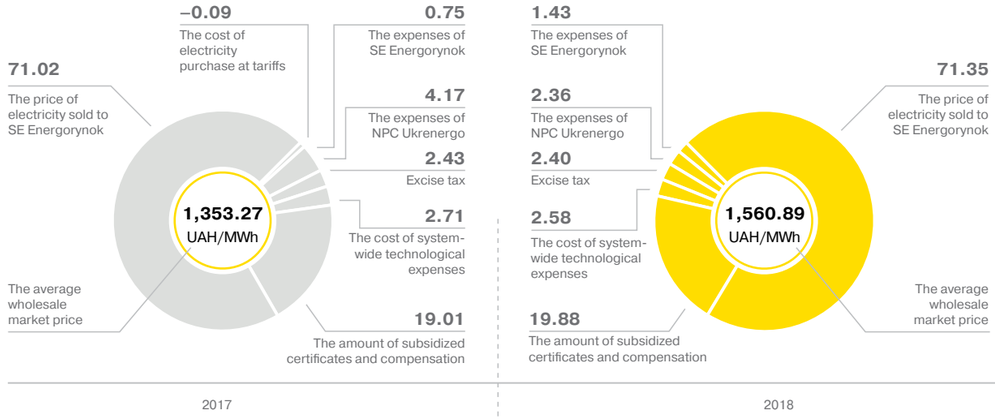
Sector regulation and tariffs

The National Energy and Utilities Regulatory Commission (NEURC) is a collective body acting independently from any governmental and local government bodies. Its objective is to carry out governmental regulation, monitoring and supervision of business entities in the energy and public utilities sector, which is exercised through the legislative and regulatory framework, licensing operations, and by setting price and tariff policies for producers and consumers.

According to the "single buyer" model, the commission approved the forecast wholesale market price for electricity, tariffs for the electricity supply for individual producers and tariffs for all categories of consumers based on the forecast balance of electricity in the UES of Ukraine. Bearing in mind the planned transition to a competitive electricity market, the commission approved the forecast wholesale market price for 2019, while the effect of this resolution is limited to July 1, 2019.

Wholesale market price structure, %

Data: SE Energorynok.



The average selling price of electricity on the Wholesale Electricity Market was 111.36 kopecks/kWh (+15.9% from 2017) and the average purchase price including exports was 124.24 kopecks/kWh (+13.9%). Suppliers operating at the regulated tariff averaged 119.58 kopecks/kWh (+13.02%), suppliers operating at an unregulated tariff averaged 152.66 kopecks/kWh (+15.43%), and those supplying the export market averaged 151.40 kopecks/kWh (+15.24%).

There is only one competitive segment in the electricity market in the existing model — thermal generation market. Each generating unit of TPP submits daily a price-based bid for each hour of the next day. At the same time, there is a mechanism limiting the system marginal price, differentiating between daytime hours and nighttime hours. The marginal price of the system is determined by SE Energorynok taking into account restrictions set by the Regulator.

Based on submitted bids and forecasts for the next day's electricity demand, SE Energorynok prepares an order of merit for the generating units for each hour in ascending order, from the least expensive to the most expensive. Generating units that offered to produce electricity at the lowest price are the first to be included in the merit order. The last accepted bid sets the price for electricity for all TPP units included in the merit order for this hour.

Average producers' price-based bids, UAH/MWh

Data: SE Energorynok

Companies	2017	2018
Centrenergo	1,504.9	1,876.9
DTEK Dniproenergo	1,414.2	1,647.6
DTEK Westenergy	1,233.6	1,482.8
Donbasenergo	1,284.0	1,429.8
DTEK Skhidenergo	965.4	1,357.7
The average selling price of electricity, GenCos' TPPs	**1,595.7**	**1,777.7**

The fuel component of producers operating under price-based bids in 2018 amounted to UAH 1,413.63 per MWh.

Regional power distribution companies performed the electricity transmission and supply to all categories of the consumers. There were also independent suppliers in the market that distributed electricity at an unregulated tariff, but did not own networks.

At the same time, the commission approved the tariffs at which the power supply companies sold electricity to the public at the same level all over Ukraine. Other electricity consumers are divided into two classes. The first class is represented by consumers connected to networks with a voltage of 27.5 kV or more, and the second class is made up of consumers connected to networks below 27.5 kV. Since April 2017, the commission has set tariffs for these consumers based on their region and consumption class in order to eliminate the region-based cross subsidies and move to market-based retail tariffs.

Subsidies to consumers, UAH bln

In 2018, preferential electricity tariffs were in effect for the following consumer categories:

- households;
- consumers paying for electricity at time-of-day based tariff rates;
- Moloda Hvardiia children's center.

As part of the transition to a competitive market, household consumers, small non-domestic customers, budget organizations, and other consumers have switched to being serviced by the universal services suppliers.

All large consumers connected to power grids with a contracted capacity of 150 kW had to choose an electricity supplier by January 1, 2019. If a large consumer did not choose a supplier and draw up a contract by January 1, they were assigned to the supplier of last resort. The supplier of last resort is a legal entity that does not have the right to refuse to supply electricity to the consumer. Supply is made within 90 days, and after expiration the electricity supply is terminated. The government assigned SE Ukrinterenergo as the supplier of last resort for the period from January 1, 2019 to January 1, 2021. NEURC set tariffs for the services of the supplier of last resort as well as for the electricity distribution services and universal service suppliers.

Incentive-based regulation in tariff setting (RAB regulation) was expected to be introduced as part of the ongoing energy reforms, but it never took place despite the regulatory document package adopted in 2013. RAB regulation provides that transmission and distribution system operators will impose tariffs and threshold value of returns for several years in advance, which will make it possible to raise investment for technical developments and the introduction of modern technologies.

Key legislative events of 2018

Energy reform is the number one priority for the Ukrainian energy industry. According to Law of Ukraine "On the Electricity Market of Ukraine" No. 2019-VIII dated April 13, 2017, the liberalized market will come into operation from July 1, 2019.

During the preparatory period of the reform:

- Unbundling of the regional power companies was completed, as a result of which the distribution system operators were separated from the electricity supply (pursuant to Directive 2009/72/EC concerning common rules for the internal electricity market).
- The formed distribution system operators and electricity suppliers obtained the appropriate licenses to conduct business activities (the licensing conditions for business activities on electricity supply to consumers, NEURC Decree No.1469 dated December 27, 2017, and the licensing conditions for business activities on electricity distribution, NEURC Decree No.1470 dated December 27, 2017 became effective).
- The universal service suppliers and the supplier of last resort were determined.

These preparations enabled the introduction of the retail electricity market from January 1, 2019, as required by the Law "On the Electricity Market of Ukraine".

Main tasks and challenges in 2019

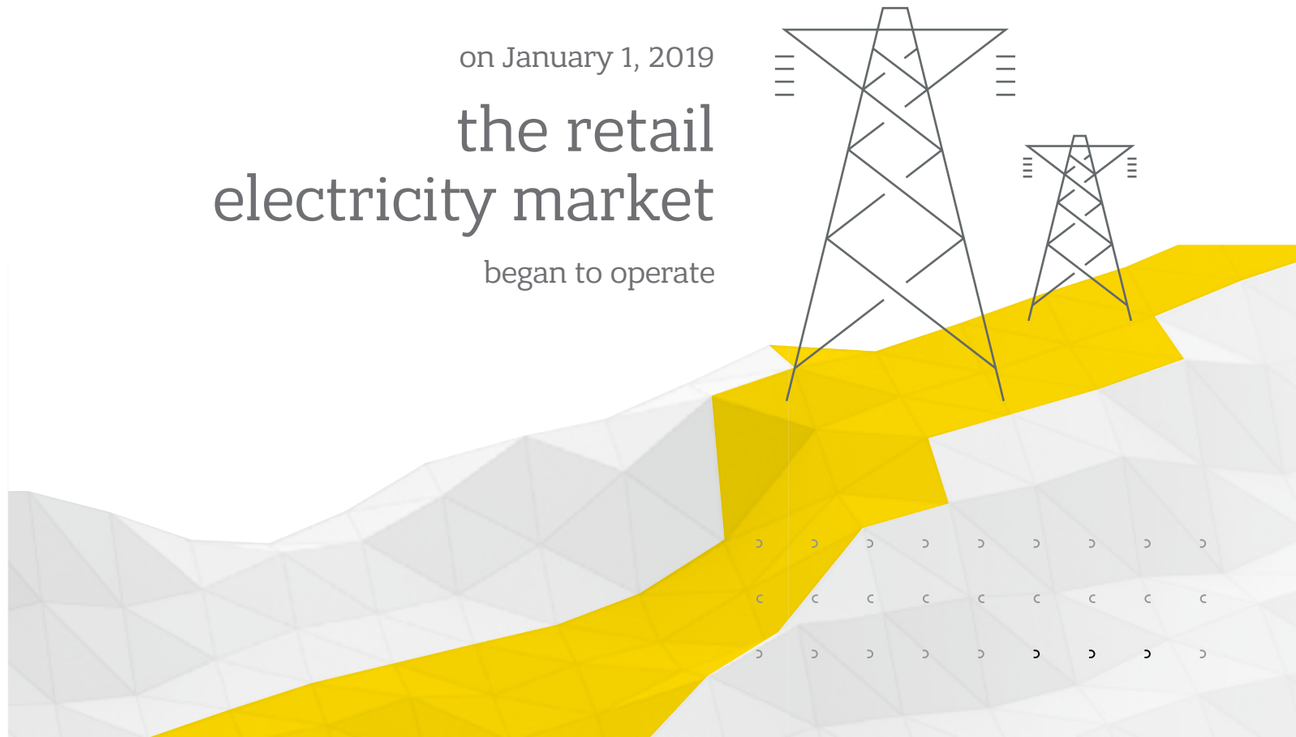
Continue reforms across the industry, the implementation of which requires the industry to:

- create a transmission system operator, conduct certification and obtain a license;
- create a market operator and a guaranteed buyer, obtain appropriate licenses;
- purchase and commission the software and technical support of the market operator, transmission system operator, guaranteed buyer, as well as train market participants to work with new software;
- prepare consumers and other market participants for work under new conditions;
- eliminate the mechanisms of cross-subsidization and bring prices (tariffs) for end consumers to an economically sound level;
- settle issues of arrears arising in the Wholesale Electricity Market; develop secondary legislation.

on January 1, 2019

the retail electricity market

began to operate



Renewable energy sector

Installed capacity of facilities operating with a feed-in tariff, MW

	2016	2017	2018	2019 (forecast)
SPPs	530.9	756.0	1,427.3	3,000.0
→ SPPs of households	16.7	51.0	157.0	250.0
WPPs	437.7	465.1	532.8	1,300.0
Others	149.5	167.7	202.1	220.0
Total	**1,134.8**	**1,439.8**	**2,319.2**	**4,770.0**

Data: The State Agency on Energy Efficiency and Energy Saving of Ukraine, Ukrainian Wind Energy Association (UWEA). Information provided about the facilities located on the onshore territory of Ukraine taking into account private households.

Solar energy remains the biggest growth sector by installed capacity thanks to the availability and ease of constructing facilities and high flexibility over the size of new plants. The majority of companies responsible for growing Ukraine's green energy sector operate with solar energy.

In 2018, the wind energy sector showed the most dynamic growth it's had in the past four years. The Ukrainian Wind Energy Association believes the active approach on project financing from Ukrainian state-owned banks and international financial institutions has significantly improved the investment climate. By the end of 2018, 893.3 MW of capacity were under construction, and further 3,330 MW were at the design stage.

More generally, the green energy sector set a record in 2018 in terms of capacity growth rates with almost 900 MW of capacities commissioned, almost three times higher than the 2017 indicators. This shows that the sector appeals to investors, helped by a favorable regulatory environment, an effective mechanism of state support, as well as further development of technologies with the increased productivity.

By the end of year, the total amount of installed green generation capacity reached 2,319.2 MW, with household SPPs accounting for 157 MW. In Ukraine, there are 7,450 households that have installed solar panels and about half of those were commissioned in 2018.

The commissioning of new capacity did not have a significant impact on the share of RES in the aggregate electricity generation in Ukraine since the majority of these facilities were commissioned in the second half of the year. By the end of the year, the RES share in the aggregate electricity generation was 1.8%.

According to the forecast electricity balance prepared by the UES of Ukraine, the sector is expected to generate 3,500 mln of green kWh in 2019, which will account for 2.2% of total energy generation. The Energy Strategy of Ukraine sets out a more ambitious long-term performance target — 25% of primary energy consumption should be generated by RES by 2035. To achieve this, the sector must create an environment which encourages greater investment in the sector, particularly from international investors.

Electricity generation by RES, mln kWh

Data: UWEA.
The data does not include private households.

	2016	2017	2018	2019 (forecast)
WPPs	924.5	970.5	1,181.1	1,700.0
SPPs	492.6	710.7	1,101.2	2,950.0
Others	357.9	405.1	509.7	550.0
Total	**1,775.0**	**2,086.3**	**2,792.0**	**5,200.0**

Data: UWEA.
The data does not include private households.

Solar generation accounts for 65.6% of installed capacities in the RES sector, while its share in electricity generation makes 39.4%. On the contrary, 18.6% share of installed wind capacities accounts for 42.3% of electricity generation by the RES sector.

Largest renewable energy players

Companies	MW	Companies	MW
Current		**Advanced project: development and under construction**	
WPPs		**WPPs**	
→ DTEK Renewables	300.0	→ NBT	1,000.0
→ Wind Parks of Ukraine	184.7	→ DTEK Renewables	765.0
→ Windkraft	74.6	→ Windkraft	600.0
SPPs		**SPPs**	
→ CNBM	267.1	→ DTEK Renewables	460.0
→ DTEK Renewables	210.0	→ UDP	300.0
→ Rengy Development	131.6	→ Scatec Solar	250.0

Data: DTEK Renewables, UWEA, open sources.
The data includes all RES capacities located on the onshore territory of Ukraine as of May 30, 2019.

The asset portfolio of DTEK Renewables includes the largest operating facilities: Botievo WPP and Nikopol SPP. DTEK is strengthening its position with the implementation of a number of large-scale projects, with the company's total capacity in the green energy sector set to reach 1 GW by 2020.

Regulatory environment

The development of the renewable energy sector is one of Ukraine's key priorities in the energy industry. In July 2018, the government adopted the Low Carbon Development Strategy, highlighting that growth in RES production is vital for the reduction of greenhouse gas emissions.

The following important regulatory changes were adopted in 2018 to promote the development of the sector:

- At the beginning of the year, the National Energy and Utilities Regulatory Commission adopted a resolution making changes to the PPA agreements (a template power purchase agreement). According to the resolution, a direct agreement with SE Energorynok for lenders financing the implementation of a RES project (international financial organizations, funds, export credit agencies, and multilateral development banks) was introduced to protect the rights of investors.
- Law of Ukraine "On changes and amendments in some laws of Ukraine on investment attractiveness of construction of renewable energy facilities" No.2517-VIII dated September 4, 2018 simplified the regulatory requirements for construction of renewable energy plants, particularly wind power plants. According to this Law, the facilities can be classified as class of consequences CC1 "insignificant consequences" that simplifies expert assessment and expedites construction.
- Law of Ukraine "On changes and amendments in the Tax Code of Ukraine and some other legislative acts of Ukraine on improvement of administration and revision of certain taxes and fees" No.2628-VIII dated November 23, 2018 simplified the regulatory requirements for plots on which renewable energy facilities can be built, while exempting certain equipment imported to Ukraine for construction of green power plants from VAT.

At the beginning of the year, a key discussion in the expert community was the significant change in the incentive scheme following the introduction of auctions instead of fixed tariffs.

Experts and specialized associations, investors and banks all favored the earliest possible introduction of the relevant changes in the legislation. The changes are designed to improve the investment climate by creating transparent conditions for development and growth of renewable energy capacity, while reducing the financial burden on consumers. Eight bills proposing the introduction of green auctions were prepared in the first half of the year. Following expert discussions and hearings held at the Fuel and Energy Committee of the Verkhovna Rada, it was decided that one of the bills, No.8449-d, reflecting the positions of all stakeholders, would be submitted to the parliament. This draft law was reviewed at the parliamentary hearings, and adopted with a series of amendments as a Law of Ukraine "On amendments to certain legislative acts of Ukraine on ensuring competitive conditions for electricity production from alternative energy sources" No.2712-VIII dated 25 April 2019.

The main provisions of the bill include:

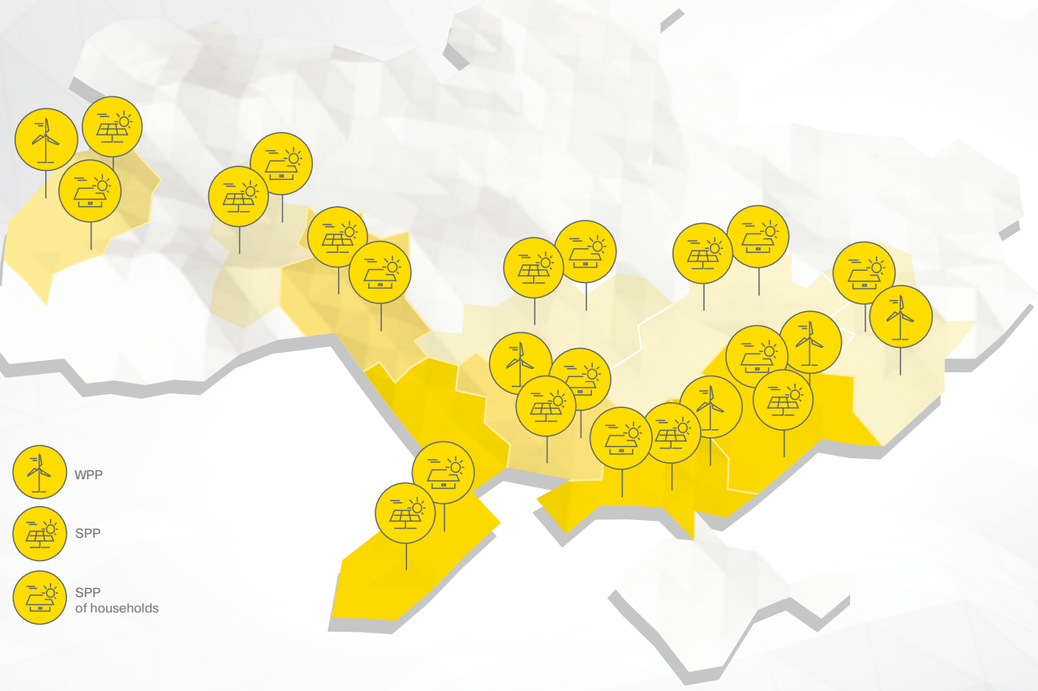
- introduction of auctions from January 1, 2020 for WPP projects with a capacity exceeding 5 MW and for SPP projects with a capacity exceeding 1 MW;
- conducting pilot auctions within six months of the law being adopted but no later than 31 December 2019;
- simplified procedure for feed-in tariff setting for households (up to 50 kW);
- green tariff reduction from 2020.

Tasks and challenges for the renewable energy sector in 2019

- The adoption of changes aimed at amending the incentive scheme to ensure dynamic development of the industry after 2020;
- Implementation of the energy reform and adoption of secondary legislation relating to RES;
- The development of projects for balancing the RES capacity to secure stability in the United Energy System of Ukraine.

Top 10 regions for placement of renewables by the end of 2018, MW

Data: NEURC, UWEA



Kherson, Lviv, Zaporizhzhia, Khmel'nyts'kyi and Dnipropetrovs`k regions were the standout areas in 2018 in relation to capacity growth rates of renewable energy sources. The growth was mainly ensured by the construction of solar power plants.

The security of balanced generation in the energy system, including by means of thermal generation and electricity storage systems is an important component in ensuring renewable energy sources are used most efficiently.

Regions	WPPs	SPPs	SPP of households	Others	Total
Kherson	77.5	256.6	8.6	3.3	**345.9**
Zaporizhzhia	199.9	94.4	1.2	0.5	**295.9**
Odesa	0.0	275.0	5.7	1.2	**281.9**
Mykolaiv	77.2	105.1	5.0	13.2	**200.4**
Lviv	33.9	150.7	5.9	3.0	**193.4**
Vinnytsia	0.0	143.5	4.4	24.1	**172.0**
Khmel'nyts'kyi	0.0	82.9	8.2	13.5	**104.5**
Dnipropetrovs`k	0.0	69.6	19.6	13.1	**102.3**
Kirovohrad	0.0	68.9	12.4	15.8	**97.1**
Donets`k	88.0	0.0	2.1	4.6	**94.8**

Coal Market

Thermal coal balance

There are 47 mines producing coal in Ukraine, of which 42 produce G-grade coal, and the rest produce coking coal (grade K) or greasy (grade Zh), according to the 2018 coal production report of the Ministry of Energy and Coal Industry of Ukraine.

Since March 2017, Ukraine has completely stopped mining coal in the temporarily occupied territories of the Donets'k and Luhans'k regions, where all the country's anthracite mines are located.

Overall, Ukraine has seventh largest volume of proven coal reserves in the world. Its estimated 34.4 bln tonnes of coal constitute 3% of the world's reserves. Most of the deposits are thermal coal, while coking coal accounts for about 30%. The main deposits are in the Donets'k, Dnipro and Lviv-Volyn coal basins, as well as in the Dnipro-Donets'k and Zakarpattya coal-bearing basins. Deposits are characterized by their great depth, (typically 500 to 1 000 meters) and thin reservoirs (typically 0.8–1.0 meters).

Coal mining in Ukraine, mln tonnes

Data: The Ministry of Energy and Coal Industry of Ukraine.

	2015	2016	2017	2018
Thermal coal				
State-owned enterprises	4.8	4.2	3.9	3.6
Private enterprises	26.6	28.3	24.2	23.9
Coking coal				
State-owned enterprises	2.0	1.6	0.9	0.6
Private enterprises	6.3	6.8	5.9	5.2
Total	**39.7**	**40.9**	**34.9**	**33.3**

Today, coal is used for a third of Ukraine's electricity production requirements. The energy strategy in the medium term retains coal as a significant contributor in the overall primary energy supply: 22% — by 2020, 16.1% — by 2025 and 14.3% — by 2030.

Thermal generation in 2018 reduced total coal consumption by 5.6% compared with 2017. The consumption of G-grade coal went up following re-engineering of power units from using anthracite to G-grade coal. By the end of the year, there was a reduction in anthracite generation of 11.5%, while G-grade coal increased by 11.2%.

As expected, this trend will continue in 2019 as Ukraine has plans to completely replace anthracite with domestically-produced G-grade coal. According to the data from the "Energy of Ukraine" directory, an increase in G-grade coal production by 5 mln tonnes would make it possible to completely exclude anthracite from the thermal generation matrix in 2018.

Coal consumption by TPPs and CHPPs, mln tonnes

Data: The Ministry of Energy and Coal Industry of Ukraine.

	2015	2016	2017	2018	2019 (forecast)
G-grade coal	19.2	18.5	18.7	20.8	20.1
Antracite coal	9.4	12.8	6.1	5.4	3.5
Total	**28.6**	**31.3**	**24.8**	**26.2**	**23.6**

Ukraine has been importing coal for electricity production since the beginning of the Donbas military conflict. In 2018, 5.2 mln tonnes were imported: 0.3 mln tonnes from South Africa, 0.8 mln tonnes from the United States and 4.1 mln tonnes from the Russian Federation. In 2019, there are plans to reduce imports by 35.2%. According to the forecast by the Ministry of Energy and Coal Industry of Ukraine, there are plans to import 1.5 mln tonnes.

Industry regulation and pricing

The Ministry of Energy and Coal Industry of Ukraine is the main government body that sets policies for the coal mining industry.

Coal is sold both under direct contracts between mining companies and consumers, and through the state-owned enterprise Derzhvuglepostach, which was created by order of the Ministry of Energy and Coal Industry of Ukraine and acts as a finished commodity trader for state mines. The bulk of marketable coal products from state-owned mines are distributed at fixed estimated prices, and thus there is cross-subsidization of loss-making mines at the expense of profitable ones. However, this cross-subsidization does not fully cover financial needs, since a small number of mines operate at a break-even level.

In 2018, the average cost of commercial coal products at state-owned mines was UAH 3,135 per ton. According to the Ministry, the cost of production for 4 mln tonnes of run-of-mine coal amounted to UAH 9.4 bln, while the output of commodity coal products was 3 mln tonnes amounting to UAH 6.0 bln.

The Ministry predicts that in 2019 the average cost of coal production will rise to UAH 4,258 per ton. The highest indicator is at SE "Myrnohradvuhillya" — UAH 9 730 per ton, the lowest — at SE "Pivdennodonbaska No. 1 Mine Office" — UAH 2 546 per ton. It is expected that the difference between the cost of coal production and revenues from its sale will reach UAH 6.7 bln.

State mines are annually allocated subventions from the budget, which are primarily directed to cover the difference between the cost of coal mining and the selling price, and then to reform the industry.

The 2019 budget includes UAH 1.6 bln for the restructuring of the coal industry, UAH 660 mln for the liquidation of unprofitable coal enterprises and UAH 25 mln to support the construction of Novovolyns'ka mine No. 10.

The methodology for calculating the indicative coal price is contained in the NEURC Resolution "On Approval of the Forecast wholesale electricity market price setting" No. 289 dated March 3, 2016. The indicative price is taken into account when establishing the thermal generation tariff for electricity generation. At the same time, the wholesale market price is approved for a year with a breakdown by each quarter and may be revised throughout the year.

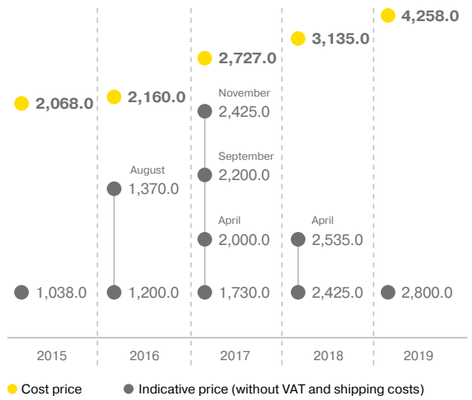
Private companies set price for free volume of their coal products based on the balance of supply and demand, taking into account general trends in the domestic and international market.

In 2018, world coal prices strengthened under the influence of stable demand from consumers in Asia and the Middle East, against the backdrop of a deficit in supply from South Africa and Australia. South Africa limited the amount of coal it exports due to a growth in demand from its domestic market, alongside difficulties with production. Disruptions of supplies from Australia were caused by logistics relating to repair work in ports and railway lines. The main suppliers of coal to the world market — Colombia, USA, South Africa, and Australia — focused their attention on Asian markets, which impacted opportunities in European markets.

World coal prices peaked in the third quarter of 2018, with Asian countries increasing their demand for electricity throughout the hot period. Prices sharply declined in November and December, as China restricted imports of coal through ports, leading to a surplus of supply in the global.

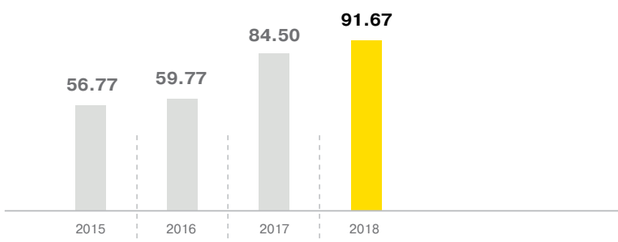
State mines, the cost of coal mining and indicative prices for commercial coal products for energy needs, UAH per ton

Data: The Antimonopoly Committee of Ukraine, The Ministry of Energy and Coal Industry of Ukraine.



Price of thermal coal with calorific value of 6000 kcal/kg according to API2 on the CIF terms of Amsterdam, Rotterdam, Antwerp ports, USD per ton

Data: IHS Markit (McCloskey).



Key legislative events of 2018

> The main document of the coal industry remains the government decree "On approval of the Concept for reform and development of the coal industry for the period by 2020" No.733-p of May 24, 2017.

The document sets out aims to create systematic measures which increase output volumes, increase efficiency, and make the coal industry self-sufficient. At the same time, it outlines measures addressing environmental and social problems in the mining regions and highlights how to create favorable investment conditions for the privatization of mines.

As indicated in the document, coal mining may be shut down at most state-owned mines within one or two years. Over the past 20 years, 96% of state mines have been operating without reconstruction. The wear and tear among active industrial production assets has reached a significant scale: of the 17 thousand units of main stationary equipment, two-thirds have fully reached the limit of their standard service life and need urgent replacement. A significant number of unprofitable or unpromising mines continue to operate due to the slow restructuring of the industry.

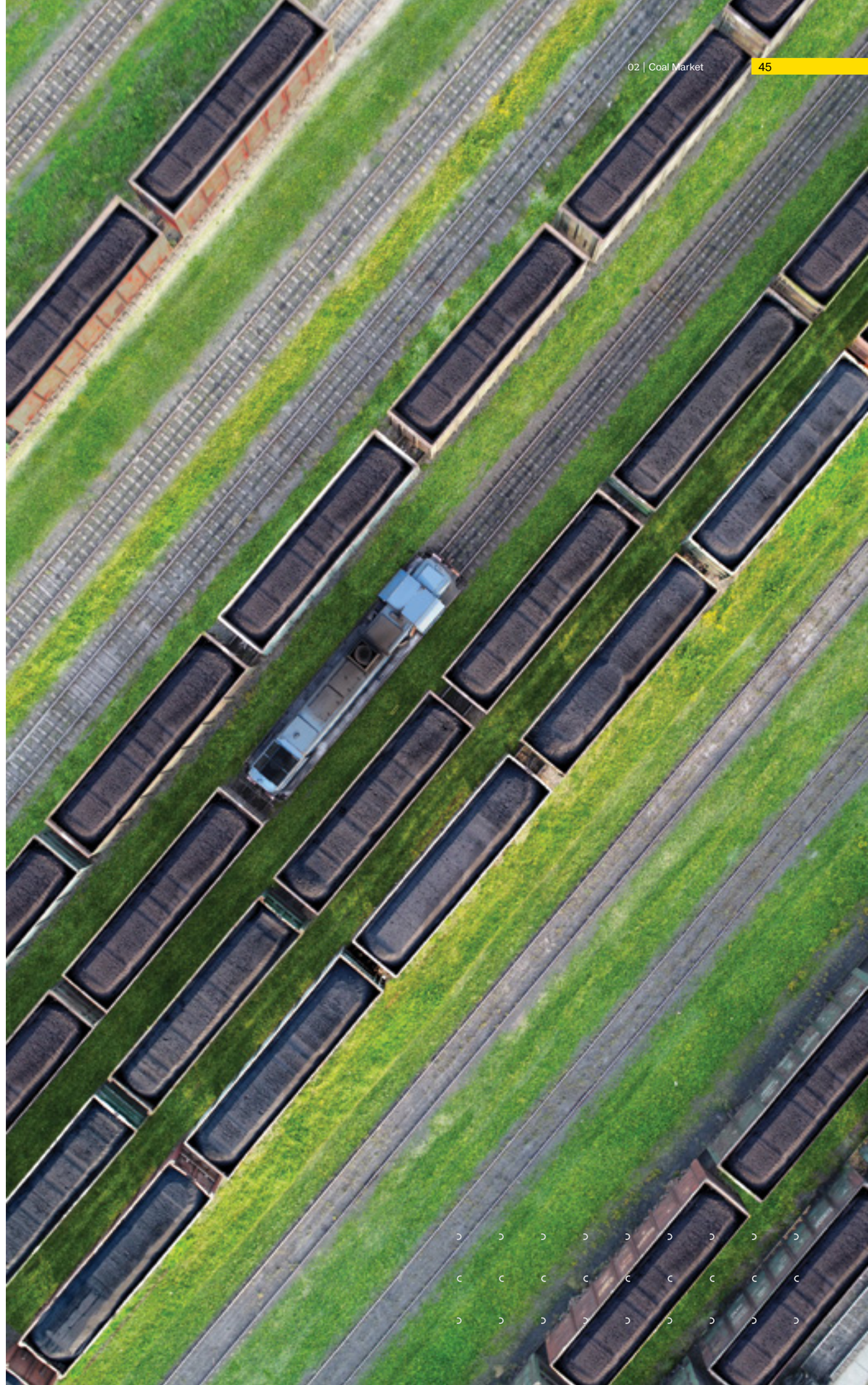
As part of the implementation of this document, the government adopted a decree on the creation of a state enterprise "The National Coal Company" No.1019-p of December 6, 2017. The National Coal Company will operate under the management of the Ministry of Energy and Coal Industry of Ukraine. The Ministry must take measures to reorganize state enterprises by joining the newly-established company, which is designed to optimize organizational structure and resource allocation.

The new company includes 19 enterprises: Pivdennodonbaska No.1 Mine Administration, M. S. Surhay Mine, Selydovvuhillya, Torets`kvuhillya, Myrnohradvuhillya, Pervomaiskvuhillya, Volynvuhillya, Lvivvuhillya, Pre-start Directorate of Mine No.10 Novovolyns`ka, United Company "Ukrvuhlerestructurizatsyia", Novovolyns'k repairmechanical plant, Dongiprouglemash, Pivdendiproshakht, Dniprodiproshakht, State Research and Design Institute of the Coal Industry "UkrNDIproekt", State Research Institute for the Organization and Mechanization of Mine Construction, Scientific and Technical Center "Vugleinnovatsiya", Directorate for the construction of facilities, Ukrshahtgidrozahyst.

In order to expedite reforms in the industry, the government adopted the Resolution "On Approving the Procedure for Using Funds Provided in the State Budget for the Liquidation of Coal and Peat Mining Enterprises" No.93 of February 21, 2018.

The budget funds will be allocated to:

- preparation for the close-down of state-owned coal mining and peat-mining enterprises (reduction in the number of employees; payment of outstanding wages to employees and settlement of wage arrears; social benefits; payment of electricity; ensuring environmental protection and prevention of dangerous circumstances; development of a project for close-down and conducting state expertise);
- preparation for the close-down of separate subdivisions of state coal-mining and peat-mining enterprises (reduction of the number of employees; payment of outstanding wages to employees and repayment of wage arrears, social payments; development of a project for close-down and state expertise);
- for the close-down of coal-mining and peat-mining enterprises (close-down of certain enterprises; environmental protection; ensuring hydro-ecological safety of existing enterprises and adjacent territories; overcoming the negative socio-economic consequences of the close-down);
- maintenance of drainage complexes.



Natural Gas Market

Natural gas consumption

Natural gas consumption in Ukraine, bcm

Data: NAK Naftogaz of Ukraine

Groups of consumers	2017	2018
Households (direct use and district heating companies)	15.8	15.4
Industry	9.1	9.3
Process losses, liquid gas production	4.4	4.7
Unauthorized gas withdrawal, non-documented volumes	1.1	1.3
District heating for state-funded organizations and industry	1.0	1.1
State-funded organizations	0.5	0.5
Total	**31.9**	**32.3**

Ukraine's natural gas consumption in 2018 amounted to 32.3 bcm. As compared to 2017 indicators, consumption grew by 1.3% or 0.4 bcm.

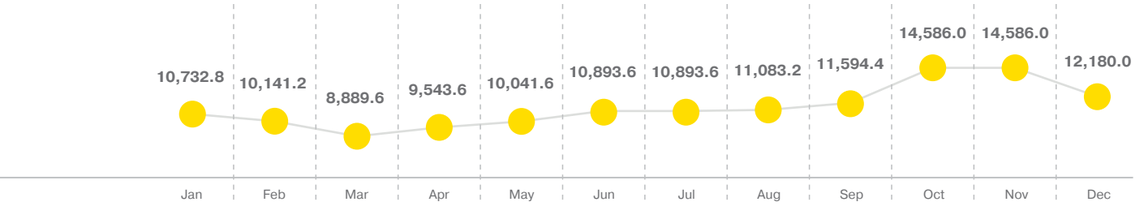
Households continue to rate first among all consumer groups in relation to gas consumption. That said, gas consumption by residential consumers dropped from 15.8 to 15.4 bcm in 2018. Direct household consumption amounted to 10.6 bcm (–5.4% compared to 2017), while utility companies consumed 4.8 bcm (+4.3%) for heating houses and supplying hot water.

Gas consumption by industrial consumers increased from 9.1 to 9.3 bcm (+2.2%). Process consumption during production, transportation and distribution of natural gas as well as production of liquefied gas increased from 4.4 to 4.7 bcm (+6.8%). This increase is attributed to the considerable scale of efforts aimed at the stimulation of gas production undertaken by Ukrgazvydobuvannya, a state-run company, in 2018.

Since 2016, a natural gas uniform tariff was set for all residential consumers and heating companies. During 2018, the tariff for these consumer groups was reviewed only once: a tariff of UAH 6,958/ths cubic meters was charged from 01.04.2017 to 31.10.2018, and a tariff of UAH 8,549/ths cubic meters applied from 01.11.2018 to 30.04.2019. The price is set for non-domestic consumers. NAK Natfogaz of Ukraine price lists serve as a reference for the market.

Natural gas price for non-domestic consumers in 2018, UAH/ths cubic meters

Data: NAK Naftogaz of Ukraine, all prices include VAT.



Natural gas production and import

Natural gas production in Ukraine, bcm

Data: Gas producers association of Ukraine.

Companies	2017	2018
Ukrgazvydobuvannya	15.3	15.5
Private companies	4.1	4.4
Ukrnafta	1.1	1.1
Total	**20.5**	**21.0**

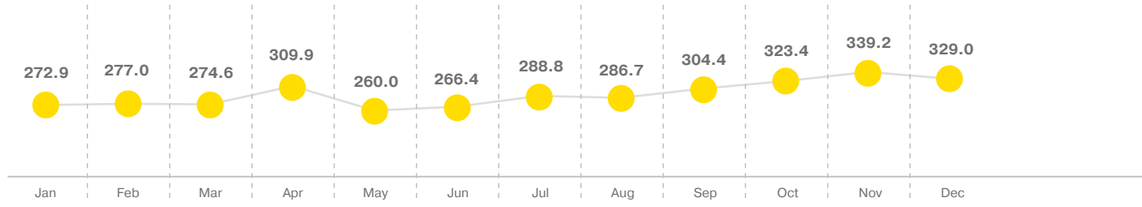
In 2018, Ukraine increased natural gas production by 2.5% as compared to the previous year. As a result, domestic production covered 65% of the aggregate natural gas consumption in the country.

Gas production has been growing in Ukraine for three years in a row. In 2018, private companies demonstrated higher growth rates of 7.3% as compared to state-run companies. State-run Ukrgazvydobuvannya's growth rate reached 1.6% while Ukrnafta demonstrated a negative trend and reduced its natural gas production by 2.3% as compared to 2017.

According to the BP Statistical Review of World Energy 2018, Ukraine has the second largest amount of proven natural gas reserves in Europe, after Norway. Reserves are estimated at 1.1 trillion cubic meters. The state's need for natural gas will be completely satisfied by domestic production if further liberalization of the sector continues, helping secure new investments.

Average price for imported natural gas in 2018, USD/ths cubic meters

Data: Ministry of Economic Development and Trade of Ukraine.



In 2018, Ukraine's natural gas imports came exclusively from Europe. Ukraine did not directly import natural gas from the Russian Federation both in 2016 and 2017.

In 2018, Ukraine reduced the amount of natural gas it imported from 14.1 to 10.6 bcm (–24.8%) with all imports coming from the European market. Naftogaz of Ukraine purchased 7.0 bcm, and the remaining quantities were imported by other companies. 65 companies supplied gas to Ukraine in 2018 (67 companies in 2017).

Regulatory environment

There were considerable improvements made to the regulatory environment in 2018, and the legal framework for the Ukrainian gas production industry has been upgraded.

The launch of oil and gas auctions: preparations to online oil and gas auctions based on the ProZorro platform and international tenders for production sharing agreements (PSA) launched in 2018.

Transfer to electronic auctions was launched by the government as an experimental project that would run from October 24, 2018 until December 01, 2019. There will be a subsequent decision on the further development of this project. It is expected that more than 40 fields, with a total area in excess of 20,000 square meters, will be put up for auction in 2019. According to the information collected by the State Service of Geology and Mineral Resources of Ukraine, the resource base of the sites submitted for the first auction was estimated at 90 bcm of gas and 16 mln tonnes of oil. The auction took place on 6 March 2019. DTEK Oil & Gas won the bid for the license to use subsoil of the Svitankovo-Logivs'ka field in Kharkiv region.

The opening of tenders for conclusion of PSA was announced in February 2019. 9 promising sites were offered for tender and DTEK Oil & Gas submitted its bids for two of them.

Industry deregulation: More than 15 permit procedures have been cancelled and access to land for hydrocarbon exploration and extraction has been simplified. As a result, the Ukrainian legal framework for the gas extraction industry was brought closer into line with the best international practices. Furthermore, EITI international reporting standards became mandatory for gas production companies, which increases the industry's transparency.

Introduction of incentive tax schemes for the drilling of new gas wells: conditions have been created for staking more than 160 new gas wells in 2018, which is 30% higher than in 2017.

Access to geological information: access to geological information was opened in 2018, and the circulation of such data was liberalized. These changes included the digitalization of state-run databases and creation of an electronic data room, which is common practice in leading oil and gas countries.

Decentralization of royalties: in 2018, gas production companies paid UAH 2 bln of taxex to local communities where gas is extracted. This change provided a strong incentive for a constructive dialogue and active cooperation between the industry and local communities.

GTS tariffs for production companies: the Regulator set a competitive charge for the entry into a gas transportation system in line with European practices.

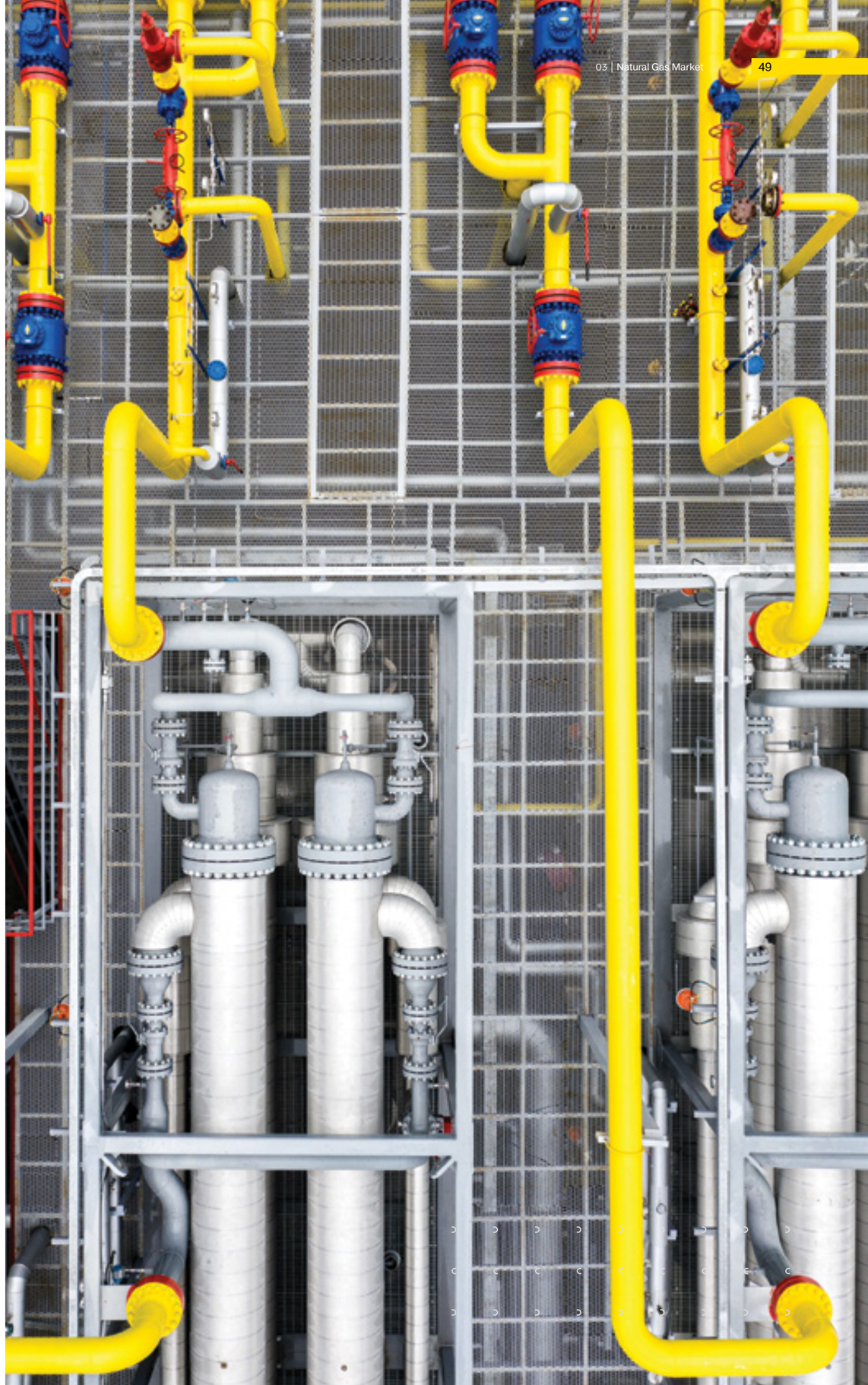
A single license fee: fees for the extension of a special permit to use mineral resources, and for reserve growth have been cancelled. The requirement for the reevaluation of reserves in the absence of valid grounds has also been annulled. This practice is in line with the European legislation.

Gas production intensity by countries, reserves-to-production ratios, %

Data: Energy Industry of Ukraine Reference Book 2018.

Countries	%
Romania	10.1
USA	8.4
Norway	7.2
Kazakhstan	2.4
Ukraine	1.9

The core problem faced by the gas production sector lies in the absence of an efficient market of geological information and special permits to use mineral resources. The ongoing upgrade of sector-specific legislation is aimed at dealing with these issues, which will promote the development of domestic gas production.

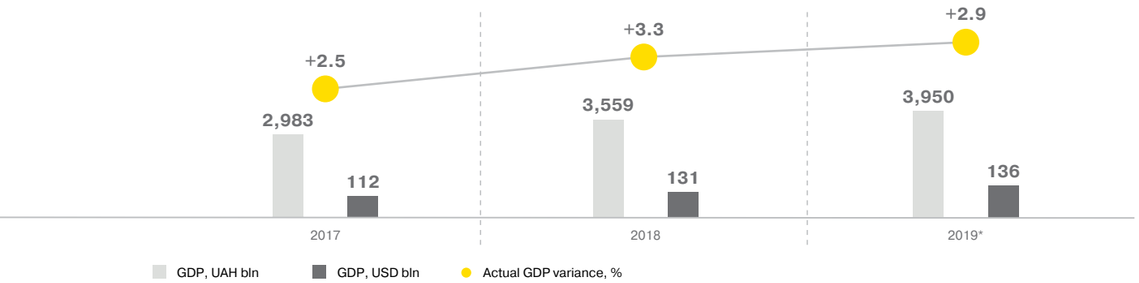


Ukraine's macroeconomic indicators in 2018

GDP trends

2018 values are based on USD/UAH exchange rate of 27.2, 2019 values are based on USD/UAH exchange rate of 28.2.

* Forecast of the Ministry of Economic Development and Trade of Ukraine.



The Ministry of Economic Development and Trade of Ukraine named three main factors of GDP growth in 2018: high level of investment demand, increase in household income and high grain yields.

According to the forecast of the Ministry of Economic Development and Trade, Ukraine's GDP is set to grow 2.9% in 2019 with increased spending in the domestic market acting as the main driver of economic growth. Meanwhile, the National Bank of Ukraine (NBU) predicts a slightly lower growth rate of 2.5% but it agrees that increased consumption will be the driving factor, thanks to an increase in real income across the country. The main factors affecting the domestic market will be: tight monetary policies aimed at keeping inflation in line with target rates and moderate fiscal policies prompted by the repayment of significant government debt. Important factors outside Ukraine include a slowdown in global economic growth and reduction in foreign trade volumes, driven in part by a smaller grain yield.

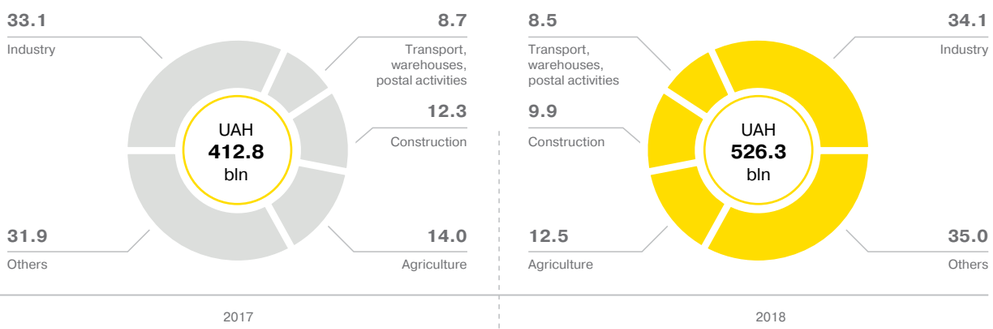
The companies and organizations allocated UAH 526.3 bln for capital investments in 2018, which is 16.4% more than in 2017. At the same time, the structure of sources of financing has not changed significantly: own funds han in 2017. However, the structure of financing sources did not change significantly: funds owned by enterprises and organizations remain the main financing source accounting for 71.3%, while budgets accounted for 12.7%, bank loans 6.7%, contributions from the population towards housing construction 6.4%, and foreign investments 0.3%. Thus, in 2018, the share of own funds of the enterprises and bank lending increased by a total of 2.8 pp, while reducing the share of the foreign investments and contributions of the population in housing construction by a total of 2.5 pp.

In the industrial sector, capital investments were allocated as follows: processing industries accounted for 49.4%, mining sector for 29.4%, and energy sector for 19.5%. Investments were allocated to the acquisition of tangible assets, mainly for the procurement of equipment.

The net inflow of foreign direct investments was USD 2.9 bln, compared to USD 2.2 bln last year. USD 1.1 bln was directed to the real sector: industry, trade, transport, and IT.

Structure of capital investments, %

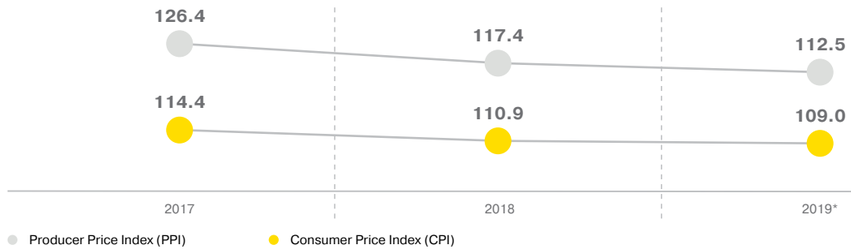
Data: State Statistics Service of Ukraine.



Producer price index and consumer price index, %

Data: State Statistics Service of Ukraine.

* Forecast of the Ministry of Economic Development and Trade of Ukraine.



Based on the results of 2018, headline inflation fell to 10.9% due to the tight monetary policy of the National Bank of Ukraine, improving household expectations against a stable foreign exchange market.

The National Bank set the target inflation rate for 2019 at 7.3–7.8%. Further increases in wages and regulated tariffs may promote higher rates of headline inflation.

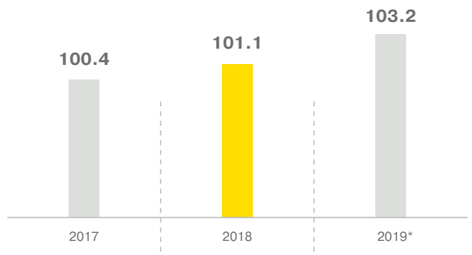
The average nominal wage of full-time employees in December 2018 was UAH 10,573, which is 20.5% higher compared to the same period in 2017. According to the State Statistics Service of Ukraine, total household income reached UAH 3,219.5 bln in 2018. Growth in average household income — largely due to wage revision and changes in public utilities rates — reduced the number of households who applied for reimbursements for utilities and housing maintenance services. According to the State Statistics Service of Ukraine, 3.9 mln households received subsidies in December 2018. Also in 2018, there was a decrease in the average amount of subsidies per household — UAH 713 per month.

Output from industrial products grew by 1.1% in 2018. Slow growth rates were down to unfavorable economic situations in foreign markets, the continuation of repair work at metallurgical enterprises and transport and logistics problems, including a tense situation relating to transportation on the Sea of Azov. A decrease in production volumes by the processing industry was compensated by growth in output from the mining industry and an increase in the volumes supplied by the electricity and gas sectors.

Industrial production index, %

Data: State Statistics Service of Ukraine.

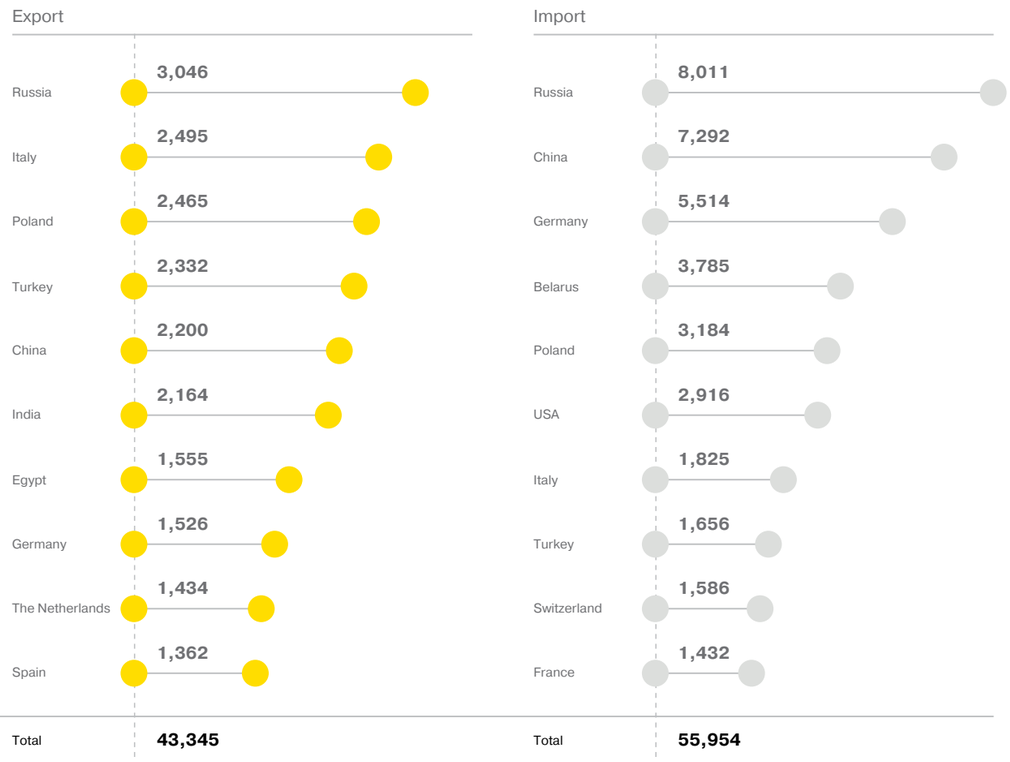
* Forecast of the Ministry of Economic Development and Trade of Ukraine.



Industry, construction, retail trade and agriculture are the core sectors driving national GDP. Based on the 2018 results, the scope of completed construction work grew by 8.5% and retail sales increased by 3.3%, agriculture product index increased by 5.7%.

Cross-border trade in commodities in 2018, USD mln

Data: National Bank of Ukraine.



Exports of goods and services in 2018 amounted to USD 43,345 mln, and imports to USD 55,954 mln. Exports increased by 9.2% compared to 2017, while imports increased by 13.4%. The negative balance in foreign trade was USD 12,609 mln.

The geographical make up of imported goods did not change significantly in 2018. The greatest growth was seen in imports from Asian countries which reached USD 12,636 mln, an increase of 27.6% compared to 2017. Imports from EU countries amounted to USD 20,569 mln, 12.1% higher than in 2017. Imports of goods from the Russian Federation increased by 11.1% to USD 8,011 mln.

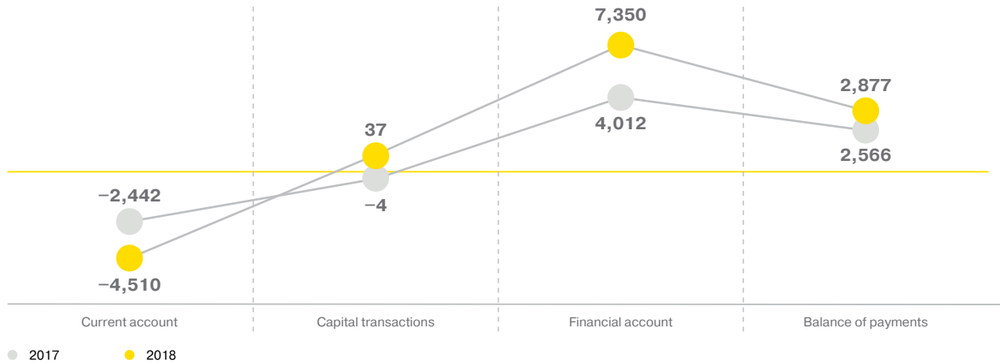
The most prominent imports were products for the engineering industry (28.6%), mineral products (24.2%), and products for chemical and related industries (18.6%). Driven by stable domestic demand, imports of engineering products, food and industrial goods increased significantly by 17.8%, 17.6% and 21.0%, respectively.

In 2018, the main Ukrainian exporting segments were food products with 42.9%, the iron and steel industry with 26.3%, mineral products with 9.0%, and engineering products with 6.9%. Sales of grains had a significant impact on the growth of Ukrainian exports thanks to a high yield of 2018, while exports in ferrous and non-ferrous metals were boosted by favorable market conditions.

According to the NBU forecast, in 2019, growth in exports of goods will slow to 2% because of lower prices in the commodity markets and the imposition of additional restrictions on imports of engineering products to the Russian Federation. Imported goods are expected to be around 3–4% higher, due to lowering of the global prices for energy resources.

Balance of payments, USD mln

Data: National Bank of Ukraine.



In 2018, the current account deficit in the balance of payments increased to USD 4.5 bln (USD 2.4 bln in 2017). Imported goods and services outweighed exports by 3 pp. According to the NBU forecast, in 2019, the current account deficit will decrease to 3.1% of GDP (versus 3.6% of GDP in 2018).

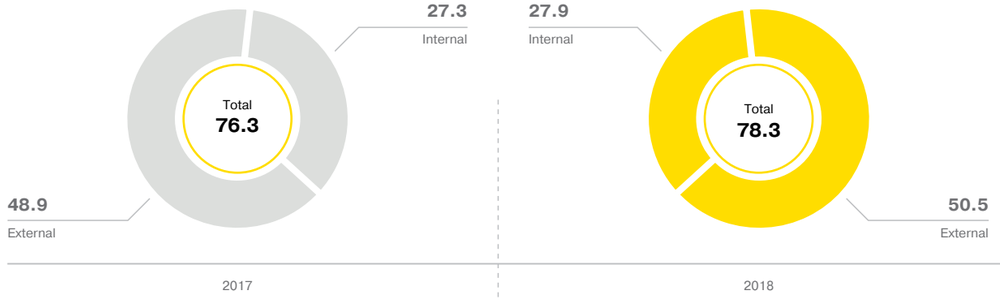
The financial account surplus in 2018 was observed both in the private sector and in the public sector. Role of external financing in the public sector increased by the end of the year due to the placement of Eurobonds in the amount of USD 2 bln and obtaining financin from IMF and EU against guarantees of World Bank by a total of USD 2.4 bln. As a result of these loans, the international reserves of the National Bank of Ukraine increased by 10.7% and as of January 1, 2019 amounted to USD 20.8 bln. This volume covers 3.4 months of the future imports and is enough to fulfil the Ukraine's obligations and current transactions.

The NBU forecasts that at the end of 2019 the volume of the gold and foreign currency reserves will remain at current levels. It is expected that the deficit in the net liquidity balance will be financed by the receipt of funds from IMF.

The NBU discount rate in 2018 was revised from 16.0% in January to 18.0% in September and remains at this level. Due to a decline in inflation in 2018, the effective rate increased to 9–10% by the fourth quarter of 2018. A more hardline monetary policy is aimed at preventing further deterioration of household and business inflation expectations. This is a response to uncertainty about the resumption of cooperation with IMF and high external risks.

Government and government-guaranteed debt, USD bln

Data: Ministry of Finance of Ukraine.



The government and government-guaranteed debt of Ukraine in 2018 increased in dollar terms by 2.6%, or USD 2.0 bln. The joint debt/GDP ratio in 2018 decreased to 60.9%, which is close to the optimum value of 60%.

Operating Performance

01 Production activity

02 Investment projects

03 Analysis of Financial Performance

Production activity

In 2018, DTEK Group produced 27.2 mln tonnes of coal (–1.9% YoY, compared to 2017) and 1,648.5 mln cubic meters of natural gas (–0.4% YoY), generated 34.8 bln kWh of electricity (–6.3% YoY) and distributed 43.7 bln kWh of electricity by grids (+1.2% YoY).

Key Performance Indicators of the DTEK Group

Indicators	unit	2017	2018	Change, (+/–)	Change, (%)
Coal production	ths tonnes	27,706.0	**27,185.9**	–520.1	–1.9
including:					
→ G, DG-grade (Ukraine)	ths tonnes	22,914.8	24,131.6	+1,216.8	+5.3
→ A, T-grade (Ukraine)*	ths tonnes	1,879.2	0.0	–1,879.2	–100
→ A-grade (Obukhovskaya Mine Office)**	ths tonnes	2,912.0	3,054.3	+142.3	+4.9
Concentrate release	ths tonnes	13,609.3	**12,355.5**	–1,253.8	–9.2
including:					
→ independent CCMs (Ukraine)	ths tonnes	1,424.9	1,361.8	–63.1	–4.4
→ Obukhovskaya Mine Office **	ths tonnes	1,774.9	1,936.8	+161.9	+9.1
Electricity generation (output)*	mln kWh	37,103.7	**34,753.6**	–2,350.1	–6.3
including:					
→ renewables	mln kWh	637.8	677.0	+39.2	+6.1
Electricity distribution*	mln kWh	43,155.1	**43,684.8**	+529.7	+1.2
Electricity exports	mln kWh	4,999.5	**5,825.6**	+826.1	+16.5
Coal exports***	ths tonnes	748.2	**486.3**	–261.9	–35.0
Coal imports	ths tonnes	2,571.7	**2,662.6**	+90.9	+3.5
Natural gas trading	mcm	1,952.0	**1,931.5**	–20.5	–1.1
Natural gas production	mcm	1,655.3	**1,648.5**	–6.8	–0.4
Gas condensate production	ths tonnes	54.8	**51.5**	–3.3	–6.0

* Since March 2017, indicators for assets located in the temporarily occupied territories of Donets`k and Luhans`k regions have not been consolidated into the reporting of DTEK Energy and DTEK Group due to loss of control.

** Since September 1, 2016, the operating performance of Obukhovskaya Mine Office has not been consolidated into the reporting of DTEK Energy due to the transfer of the company to the direct management of DTEK B.V. Strategic Holding. The transaction was carried out within the framework of the restructuring of the credit portfolio of DTEK Energy and is aimed at balancing the options for developing enterprises and servicing the loans.

*** Including trading operations outside of Ukraine.

DTEK Energy

Coal mining and processing

Total coal production by the company's mines in Ukraine amounted to 24.1 mln tonnes, which is 2.7%, or 662.4 ths tonnes, lower than in 2017.

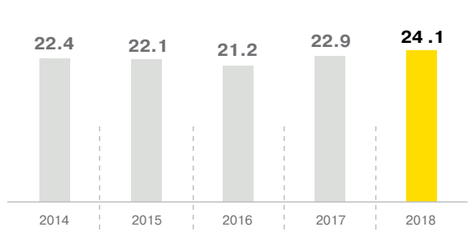
The main factors affecting the performance indicators:

- cessation of anthracite production. Since March 2017, Ukraine has completely stopped coal mining and electricity generation in the temporarily occupied territories;
- the company's enterprises are increasing G-grade coal production to minimize the use of anthracite for thermal generation. The performance of DTEK Pavlohradcoal has increased to 114.9 tonnes per person per month. This has ensured production of G-grade coal at a level of 24,131.5 ths tonnes, which is 5.3%, or 1,216.8 ths tonnes, higher than in 2017 and is the highest annual figure in the company's history. At the same time, the mining and geological conditions are becoming more complex, the accident rate of tunneling equipment and mining transport is growing due to the increased load.

Throughput performance of run-of-mine coal processing reached 17,201.5 ths tonnes (–9.7%, or 1 853.5 ths tonnes YoY), of which independent CCMs provided 2,423.9 ths tonnes (–5.8%, or 149.6 ths tonnes YoY). Concentrate output by DTEK Energy concentration plants amounted to 9,056.8 ths tonnes, on independent CCMs — 1,361.8 ths tonnes.

DTEK Energy is increasing production of G-grade coal to ensure thermal generation conversion to domestic coal

Mining of G, DG-grade coal, mln tonnes



Electricity generation

34.1 bln kWh — annual output provided to the United Energy System of Ukraine in 2018 — which is 6.6%, or 2,389.3 bln kWh, lower than in 2017.

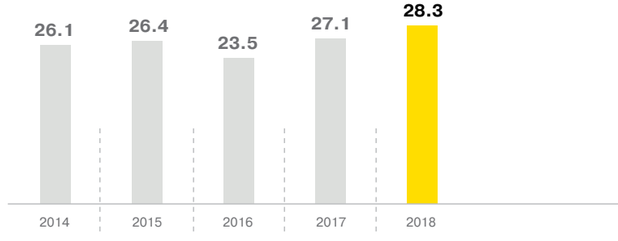
The main factors affecting the performance indicators:

- decrease in electricity generation by DTEK Skhidenergo and Kyivenergo by 20.5%, or 2,422.1 mln kWh, due to the termination of control over Zuyivs`ka TPP in March 2017 and the expiration of the management contract of Kyiv's CHPP-5 and CHPP-6 from July 31, 2018;
- decrease in electricity generation by DTEK Westenergy by 2.3%, or 339.5 mln kWh. DTEK Westenergy plants are designed to burn G-grade coal. In 2017, they carried increased load in order to compensate for decline in production by anthracite-powered units, production of which was discontinued in Ukraine. In 2018, the load was normalized due to re-engineering of power units from using anthracite to run on G-grade coal;
- increase in electricity generation by DTEK Dniproenergo and DTEK Myronivs'ka CHPP by 3.8%, or 373.4 mln kWh. Three power units of DTEK Prydniprovs'ka TPP and one boiler of DTEK Myronivs'ka CHPP were converted from anthracite to G-grade coal, which enabled load increase.

DTEK Energy is implementing a program to increase the use of G-grade coal in the energy sector to minimize the consumption of imported anthracite. In 2018, production of electricity on G-grade coal increased to 28.3 bln kWh, which is 4.4%, or 1,185 mln kWh, higher than last year's result. This allowed reducing the share of electricity generation of anthracite to 12% in the total production volume of the company.

Switching of power units from A-grade coal to G-grade coal contributes to an increase in electricity production

Electricity output to the UES from G-grade coal, bln kWh



Manufacturing statement of DTEK Energy for 2018

The company's priority is to increase production of G-grade coal in order to ensure the increase in electricity production at power units operating on this type of fuel. In 2018, 24.1 mln tonnes of G-grade coal were mined, which is the highest annual output in the company's history.

Run-of-mine coal production by enterprises, ths tonnes

DTEK Pavlohradcoal
(G, DG)
20,011.8

DTEK Dobropolyeugol including mine Bilozers'ka
(G, DG)
4,119.8

(G) — G-grade coal
(DG) — long-flame G-grade coal

Run-of-mine coal shipment to end users, ths tonnes

5,233.3	**DTEK Energy TPPs and CHPP**	**5,893.9**
660.6		
180.6	SCM enterprises	180.6
205.2	Other industrial consumers	702.7
497.5		

Run-of-mine coal shipment to concentration plants, ths tonnes

12,212.5	**DTEK Energy**	17,201.5
2,565.0		
2,106.8	Independent CCMs	
330.3		

Run-of-mine coal processing, ths tonnes

17,201.5

Coal concentrate production, ths tonnes

10,418.6

Shipment of concentrate, ths tonnes

DTEK Energy TPPs and CHPP	**9,691.3**
SCM enterprises	55.5
Other industrial consumers	702.7

Ukrainian coal was not exported

In 2018, 18.1 mln tonnes of coal (–0.8 mln tonnes YoY) and 162.5 mcm of natural gas were supplied to TPPs and CHPP of the company.

Use of coal products from DTEK Energy's TPPs and CHPP, ths tonnes

	DTEK Energy	Other producers (Ukraine)	Imports
DTEK Myronivs'ka CHPP (G, DG)	263.9		
DTEK Kurakhovs'ka TPP (G, DG)	3,695.7		16.0
DTEK Luhans'ka TPP (A, T)			1,036.5
DTEK Prydniprovs'ka TPP (G, DG, A, T)	896.0	4.7	24.2
DTEK Zaporiz'ka TPP (G, DG)	2,834.7		11.6
DTEK Kryvoriz'ka TPP (T)	152.1	31.0	805.4
DTEK Dobrotvirs'ka TPP (G, DG)	966.6	252.8	18.9
DTEK Ladyzhyns'ka TPP (G, DG)	1,818.9		107.6
DTEK Burshtyns'ka TPP (G, DG)	4,951.5	9.2	217.2

(Coal grades used)

DTEK Energy
Other producers (Ukraine)
Imports

ICUR*, %

DTEK Myronivs'ka CHPP (G, DG)	37.1 %
DTEK Kurakhovs'ka TPP (G, DG)	48.4%
DTEK Luhans'ka TPP (A, T)	21.6%
DTEK Prydniprovs'ka TPP (G, DG, A, T)	17.7%
DTEK Zaporiz'ka TPP (G, DG)	58.2%
DTEK Kryvoriz'ka TPP (T)	13.7%
DTEK Dobrotvirs'ka TPP (G, DG)	56.1%
DTEK Ladyzhyns'ka TPP (G, DG)	30.0%
DTEK Burshtyns'ka TPP (G, DG)	47.3 %

The average ICUR in 2018 was 35.16%.

* The ICUR is specified without taking into account oil/gas units and those are in conservation.

Electricity generation and supply by DTEK Energy TPPs and CHPP, mln kWh

	Electricity generation	Electricity output
DTEK Myronivs'ka CHPP (G, DG)	374.0	312.8
DTEK Kurakhovs'ka TPP (G, DG)	6,496.2	5,798.6
DTEK Luhans'ka TPP (A, T)	2,303.2	2,002.1
DTEK Prydniprovs'ka TPP (G, DG, A, T)	1,771.7	1,521.8
DTEK Zaporiz'ka TPP (G, DG)	6,373.2	5,913.6
DTEK Kryvoriz'ka TPP (T)	2,482.5	2,244.1
DTEK Dobrotvirs'ka TPP (G, DG)	2,507.9	2,270.0
DTEK Ladyzhyns'ka TPP (G, DG)	3,947.7	3,613.8
DTEK Burshtyns'ka TPP (G, DG)	9,768.4	8,771.7

Electrical generation from G-grade coal increased by 4.4% YoY to 28.3 bln kWh. This made it possible to reduce the share of anthracite-based electricity generation to 12% of DTEk Energy's total production.

Electricity output by enterprises, mln kWh

312.8	**DTEK Myronivs'ka CHPP** (G, DG)
1,615.0	**Kyivenergo** (gas)
7,800.7	**DTEK Skhidenergo** (G, DG, A, T)
9,679.4	**DTEK Dniproenergo** (G, DG, A, T)
14,655.5	**DTEK Westenergy** (G, DG)

(G) — G-grade coal
(DG) — long-flame G-grade coal
(T) — lean coal
(A) — anthracite
— gas

Production capacity of DTEK Energy TPPs and CHPP as of January 1, 2019

Power unit No.	Installed capacity, MW	Date of in-service/ last overhaul repair or reconstruction	Running time, hours	Overhaul repair/reconstruction
DTEK Kurakhovs'ka TPP				
3	200	1972/2018	299,259	plans are in consideration
4	210	1973/2018	272,538	plans are in consideration
5	222	1973/2015	252,951	reconstruction was completed in 2009; increase in installed capacity by 12 MW major repair is planned for 2020
6	225	1973/2013	253,007	reconstruction was completed in 2013; increase in installed capacity by 15 MW major repair is planned for 2019
7	225	1974/2016	263,830	reconstruction was completed in 2010; increase in installed capacity by 15 MW
8	225	1974/2017	262,128	reconstruction was completed in 2012; increase in installed capacity by 15 MW
9	225	1975/2015	258,997	reconstruction was completed in 2015; increase in installed capacity by 15 MW major repair is planned for 2021
Total	**1,532**			
DTEK Luhans'ka TPP				
9	200	1962/2017	332,977	plans are in consideration
10	210	1962/2018	323,536	reconstruction was completed in 2012; increase in installed capacity by 35 MW
11	200	1963/2004	318,289	plans are in consideration
13	210	1967/2014	305,065	reconstruction was completed in 2014; increase in installed capacity by 35 MW major repair is planned for 2020
14	200	1968/2018	291,814	plans are in consideration
15	200	1969/2018	305,313	plans are in consideration
Total	**1,220**			
DTEK Zaporiz'ka TPP				
1	325	1972/2012	295,788	reconstruction was completed in 2012; increase in installed capacity by 25 MW major repair is planned for 2019
2	300	1972/2018	286,676	reconstruction is planned for 2024—2025;
3	325	1972/2014	291,489	reconstruction was completed in 2014; increase in installed capacity by 25 MW major repair is planned for 2021
4	300	1973/2016	271,541	major repair is planned for 2019; reconstruction is planned for 2022—2023;
5	800	1975/1995	148,998	unit fired by fuel oil and gas. Plans are in consideration
7	800	1977/1992	133,190	unit fired by fuel oil and gas. Plans are in consideration
Total	**2,850**			

Power unit No.	Installed capacity, MW	Date of in-service/ last overhaul repair or reconstruction	Running time, hours	Overhaul repair/reconstruction
DTEK Kryvoriz'ka TPP				
1	315	1963/2017	300,839	reconstruction was completed in 2017; increase in installed capacity by 33 MW. In 2019, it is planned to change the specified fuel — to switch from anthracite to combustion of G-grade coal
2	300	1964/1998	313,593	plans are in consideration
3	300	1965/2013	275,160	reconstruction was completed in 2013; increase in installed capacity by 18 MW In 2020, it is planned to change the specified fuel — to switch from anthracite to combustion of G-grade coal
4	300	1966/2005	253,224	In 2021, it is planned to change the specified fuel — to switch from anthracite to combustion of G-grade coal
5	282	1967/1994	303,698	plans are in consideration
8	282	1969/1996	266,333	plans are in consideration
10	300	1972/2017	209,304	plans are in consideration
Total	**2,079**			
DTEK Prydniprovs'ka TPP				
7	150	1958/2013	343,098	In 2017, the specified fuel was changed — switched from anthracite to combustion of G-grade coal
8	150	1958/2014	368,189	In 2017, the specified fuel was changed — switched from anthracite to combustion of G-grade coal
9	150	1959/2012	333,930	reconstruction was completed in 2012 without increasing installed capacity. In 2018, the specified fuel was changed — switched from anthracite to combustion of G-grade coal
10	150	1960/2006	331,458	In 2019, the specified fuel will be changed — switched from anthracite to combustion of G-grade coal
11	310	1962/2016	266,443	In 2020, it is planned to change the specified fuel — to switch from anthracite to combustion of G-grade coal
Total	**910**			
DTEK Dobrotvirs'ka TPP				
5	100	1960/2018	351,299	plans are in consideration
6	100	1961/2015	346,143	plans are in consideration
7	150	1963/2011	359,998	major repair is planned for 2019
8	160	1964/2014	333,235	reconstruction was completed in 2014; increase in installed capacity by 10 MW major repair is planned for 2020
Total	**510**			

Production capacity of DTEK Energy TPPs and CHPP as of January 1, 2019

Power unit No.	Installed capacity, MW	Date of in-service/ last overhaul repair or reconstruction	Running time, hours	Overhaul repair/reconstruction
DTEK Burshtyns'ka TPP				
1	195	1968/2017	307,061	plans are in consideration
2	185	1965/2014	293,698	plans are in consideration
3	185	1966/2013	306,203	major repair is planned for 2019
4	195	1966/2018	327,996	plans are in consideration
5	215	1967/2013	318,732	reconstruction of I stage was completed in 2013, II stage — in 2016; increase in installed capacity by 20 MW
6	195	1967/2015	322,125	major repair was completed in 2015; increase in installed power by 10 MW
7	206	1968/2012	304,557	reconstruction was completed in 2012; increase in installed capacity by 21 MW major repair is planned for 2021
8	195	1968/2009	317,354	plans are in consideration
9	195	1968/2016	300,751	plans are in consideration
10	210	1969/2018	311,064	reconstruction was completed in 2018; increase in installed capacity by 15 MW
11	195	1969/2011	283,009	plans are in consideration
12	195	1969/2018	272,465	plans are in consideration
Total	**2,366**			
DTEK Ladyzhyns'ka TPP				
1	300	1970/2018	259,957	plans are in consideration
2	300	1971/2009	258,425	major repair is planned for 2020
3	300	1971/2011	248,183	major repair is planned for 2021
4	300	1971/2001	245,332	plans are in consideration
5	300	1971/2003	223,785	mothballed
6	300	1971/2004	230,276	plans are in consideration
Total	**1,800**			
DTEK Myronivs'ka CHPP				
TG No.2	100	1953/2004	285,814	under repair
TG No.3	60	1954/1998	335,195	mothballed
TG No.5	115	2004/2013	80,574	in 2017, the specified fuel of boiler No.10 was changed — switched from anthracite to combustion of G-grade coal; in 2018, the specified fuel of boiler No.9 was changed — switched from anthracite to combustion of G-grade coal major repair is planned for 2019
Total	**275**			

Commercial activities

Coal shipments in foreign and domestic markets

The company exports coal only from the Obukhovskaya Mine Office. In 2018, 486.3 ths tonnes of coal products made shipments to foreign markets — by 35.0%, or 261.9 ths tonnes, which is lower than the previous year. According to the contracts, the products were supplied to markets in Europe, South Africa, Canada and India. The decrease is due to a significant increase in send to the Ukrainian market due to the cessation of anthracite mining. In general, shipments reached 1,514.7 ths tonnes, which is 26.2%, or 314.0 ths tonnes, more than in 2017.

In addition, the company imported coal products from the United States and South Africa — total imports amounted to 2,662.6 ths tonnes. At the same time, the volume of purchases for the needs of DTEK Energy TPPs decreased by 2.7% compared to the previous year, to 2,221.4 ths tonnes of coal.

With regard to trading operations, 2,085.0 ths tonnes of coal was supplied to industrial consumers in Ukraine, which is practically equal to the level of 2017.

Imports and supplies of natural gas to the domestic market

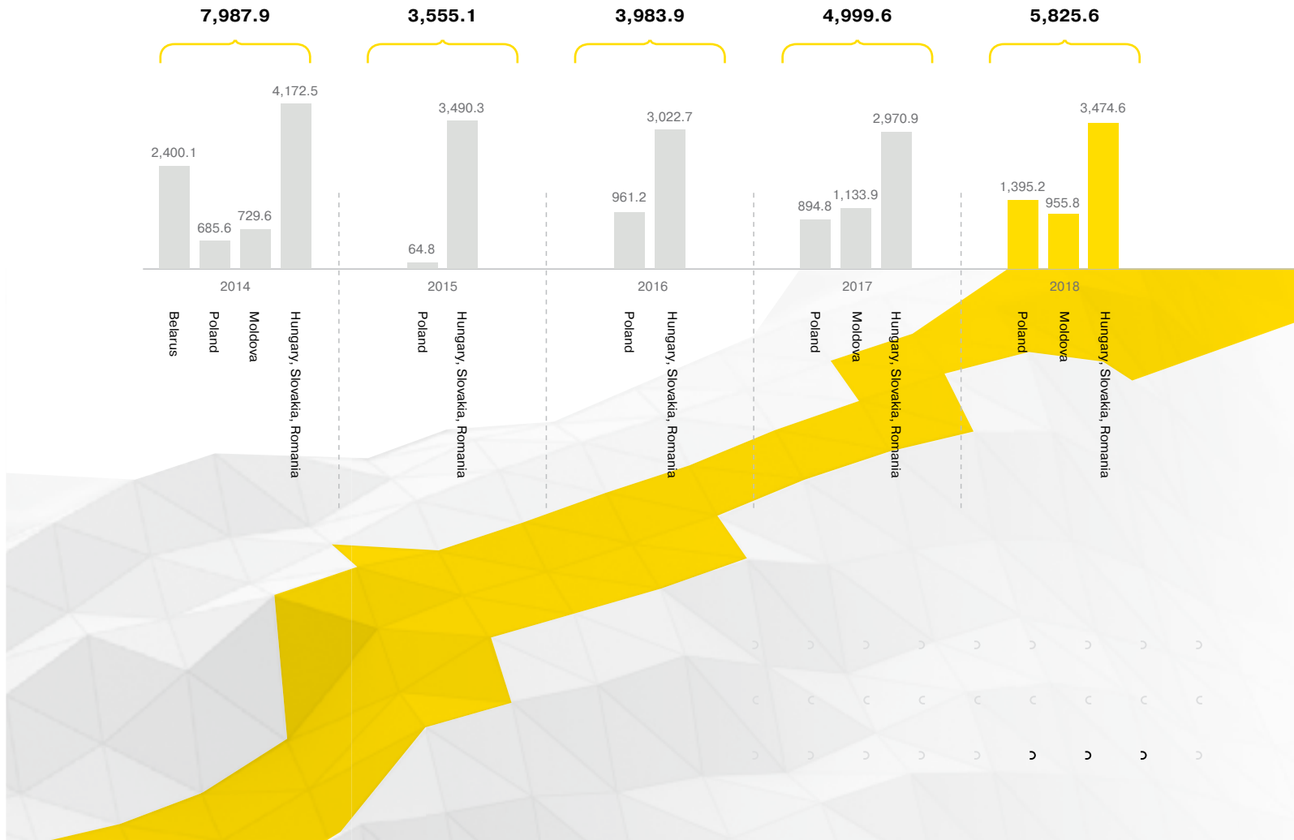
The volume of sales of natural gas in the domestic market of Ukraine amounted to 1 931.5 mln cubic meters. Preservation of the volume of trading operations at the level of the previous year was due to the increase in sales of natural gas to enterprises in the metallurgical sector, which offset the decline in demand from enterprises in the energy sector.

Electricity supply to foreign markets

The company supplied 5,825.6 bln kWh under the foreign economic contracts, which is 16.5% more than in 2017. Electricity was exported to Hungary, Poland and Moldova.

DTEK Energy is focused on European electricity markets

Electricity supplies for exports, mln kWh



DTEK Grids

Electricity distribution and grid operation

43.7 bln kWh — the volume of electricity distribution in 2018, which is 1.2%, or 529.7 mln kWh, higher than the previous year.

The main factors affecting the performance indicators:

- increase in the volume of electricity distribution by DTEK Kyiv Grids and DTEK Dnipro Grids by 3.4%, or 1,081.1 mln kWh, due to greater demand from the population and small businesses;
- decrease in distribution of electricity by DTEK Donetsk Grids, DTEK Power Grid and DTEK Energougol ENE by 4.7%, or 551.4 mln kWh, due to lower demand from industrial enterprises and suppliers under non-regulated tariff. Since March 2017, the networks located in the non-controlled territories of the Donets`k region have not been managed.

In 2018, the company's enterprises reduced the amount of actual electricity losses to 5.46% (the figure for 2017 is 5.44%). The breakdown looks as follows: DTEK Energougol ENE was 0.61% (in 2017 — 0.58%), DTEK Power Grid was 0.84% (in 2017 — 0.74%), DTEK Dnipro Grids was 4.67% (in 2017 — 4.63%), DTEK Kyiv Grids was 6.75% (in 2017 — 7.01%), DTEK Donetsk Grids was 17.23% (in 2017 — 16.49%). The average for Ukraine was 11.82%.

Electricity distribution in 2018, mln kWh

Enterprise	industry	households	utilities	other non-industrial consumers	transport and construction	agriculture	Total
DTEK Dnipro Grids	16,774.7	3,377.5	1,425.1	1,101.0	184.8	245.7	23,108.7
DTEK Kyiv Grids	1,272.8	3,491.9	2,364.6	1,608.5	677.5	9.2	9,424.6
DTEK Donetsk Grids	544.6	1,471.6	255.8	681.1	—	114.5	3,067.5
DTEK Energougol ENE	136.2	14.4	427.9	6.1	—	—	584.6
DTEK Power Grid	7,477.0	1.5	—	8.9	11.2	0.8	7,499.4

According to the Electricity Market Law, companies must conduct unbundling — separation of a distribution system operator from production and supply of electricity. These changes occur within the framework of the first stage of the energy market reform and are the basis for the liberalization of the retail electricity market.

The DTEK Group carried out systemic changes in its activities. DTEK Power Grid and DTEK Energougol ENE will focus solely on electricity distribution and network operation. Kyivenergo, DTEK Dniprooblenergo and DTEK Donetskoblenergo, according to the requirements of the Law, unbundled their activities. From January 1, 2019, electricity is distributed by DTEK Kyiv Grids, DTEK Dnipro Grids and DTEK Donetsk Grids. Electricity supply services to consumers are provided by Kyiv Energy Services, Dnipro Energy Services and Donetsk Energy Services.

Unbundling of activities ensures equal access to the networks of distribution system operators for all electricity suppliers. In the new market model, distribution system operators are also responsible for provision of reliable power supply, development of infrastructure and operation of electricity networks.

DTEK Renewables

Renewable power generation

677.0 mln kWh of green electricity was produced by the company in 2018. This is 6.1%, or 39.2 mln kWh, higher than in 2017.

The main factors affecting the performance indicators:

- Botievo Wind Farm increased electricity supply by 4.8%, or 30.2 mln kWh. This was facilitated by favorable weather conditions and properly organized operation of the equipment. In 2018, the availability factors of wind power plants and infrastructure of the plant increased to 98.64% and 99.34% (in 2017 — 98.33% and 99.23%, respectively). This is in line with the best world performance of wind farms;
- 12.7 mln kWh were produced by Tryfonivs'ka SPP. The equipment availability factor of the solar plant was 99.89%.

DTEK Oil&Gas

Gas production

In 2018, natural gas production amounted to 1,648.5 mln cubic meters, which exceeded targets by 50 mln cubic meters. Gas condensate production amounted to 51.5 ths tonnes. Compared to last year, gas production decreased by 0.4%, condensate — by 6%.

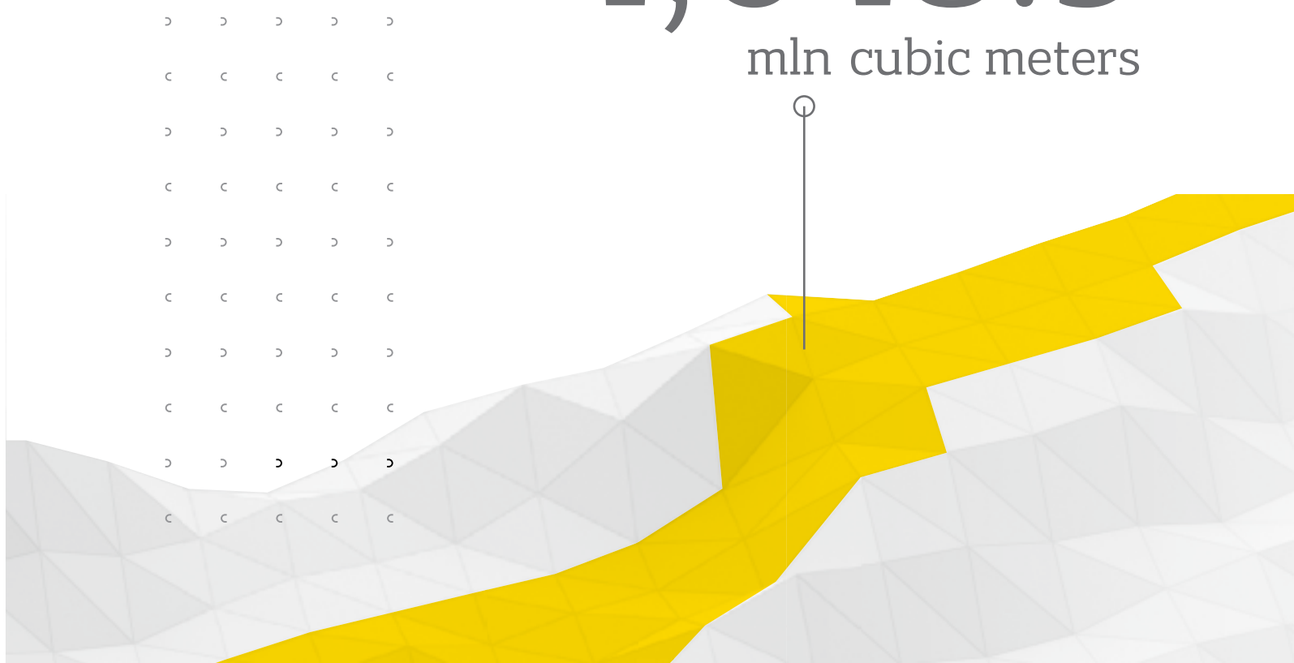
The main factors affecting the performance indicators:

- completion of drilling at well No.25 at the Semyrenkivs'ke field, with a depth of 5,652 meters, with a distance of 700 meters from the vertical, and well No.61, with a depth of 5,605 meters, and 380 meters from the vertical;
- overhaul of high condensate wells No.8, No.23, No.68 and No.70 at the Semyrenkivs'ke field;
- carrying out of measures to intensify flow rates at the existing well stock.

In 2018
natural gas production amounted to

1,648.5

mln cubic meters



Investment projects

UAH 19.9 bln was invested in production development across DTEK Group. The amount of capital investment almost doubled year-on-year, laying the foundations for improved performance statistics across all activity areas in the future. This will contribute to achieving Ukraine's strategic goal of energy independence.

Investments volume, UAH mln (IFRS, ex VAT)*

Business segment	2017	2018	Change, (+/–)	Change, (%)
DTEK Energy	8,416	7,587	–829	–10
Coal production and processing	4,552	4,061	–491	–11
Electricity generation	1,526	1,408	–118	–8
Kyivenergo	1,199	103	–1,096	–91
Others	147	465	+318	+216
DTEK Grids	992	1,932**	+940	+95
DTEK Renewables	370	9,556	+9,186	+2,483
DTEK Oil&Gas	1,143	1,685	+542	+47
DTEK Group	10,388	19,878	+9,490	+91

* Excluding the cost of intangible assets.

** The total amount of investments includes UAH 1,550 mln until the moment when DTEK Grids was separated from DTEK Energy

UAH 19.9 bln

was invested in production development of DTEK Group

DTEK Energy

Coal mining and processing

Ukraine has sufficient reserves of G-grade coal to become energy independent. The company invests in the industrial development of enterprises and the new-generation of equipment for the maximum conversion of thermal generation to domestic coal.

Key projects in 2018

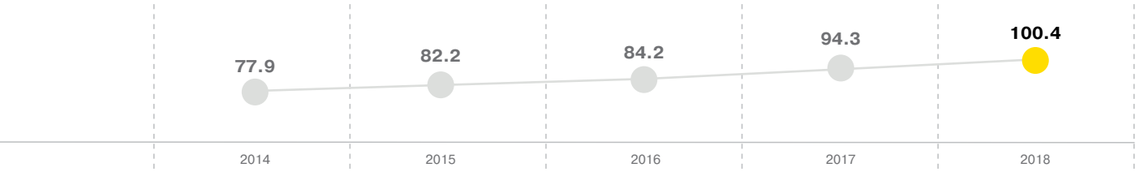
Ensuring stable ventilation of mines

- The Yuvileina mine is building a ventilation well. This long-term project provides for ventilation of the mine workings and transport connections to the work site to ensure access to new reserves and extraction of 19 mln tonnes of coal. In 2018, preparation for the well operation in the "load" mode was in progress — construction, installation work on the garage-charging facility was completed, and the side-tilting facility was constructed. The lift system for staff transportation has been working since 2016, the airing mode since 2013.
- The Dniprovs'ka mine is carrying out replacement of its main ventilation fan to provide enhanced airflow, which is important for maintaining coal production volumes. The project is to be carried out in three stages. During the first stage, the mechanical part of the main fan installation was commissioned, a vestibule-gateway was erected, and the channel door was replaced. In the second and third stages, which are scheduled to begin in 2020, the electrical part of the fan and charge feeders will be replaced.

Modernization of processing facilities

- The first supplies of equipment were made to the DTEK Oktyabrs'ka CEP as part of a project to modernize outdated facilities, which envisages enrichment of 1–13 mm run-of-mine coal in heavy-medium hydrocyclones.
- Two new centrifuges have been installed at the DTEK CCM Pavlohrads'ka CEP, one of the company's most powerful processing plants. This project will have a positive impact on the region's ecology, because the installation of centrifuges will reduce the consumption of chemicals during the enrichment of coal, while reducing the load on the water-slurry system of the enterprise. According to the results of 2018, the use of reagents was reduced from 11.4% to 10.4%, and the throughput load of the plant was increased from 925 to 1,013 tonnes per hour. It is planned to continue the implementation of the project and install two more centrifuges.
- The DTEK Dobropil's'ka CEP and DTEK Oktyabrs'ka CEP are building waste dumps using innovative "green dump" technology. A clay bank-up is carried out for each tier of the dump by building an internal drainage system and a fire-prevention protective layer. These projects reduce the environmental impact by eliminating the formation of combustion sources and the contact of waste coal with the environment, while water will be discharged into the pond and reused in production. In 2018, construction and installation work at DTEK Oktyabrs'ka CEP was completed, which ensures the disposal of waste coal for 10 years. The completion of the DTEK Dobropil's'ka CEP project is expected in 2019.

DTEK Energy's performance in coal production increased by one-third due to the development of production facilities, tonnes/person per month*



*The data are given for mining of D, DG-grade coal.

Upgrading and developing new equipment

- On the request of the company, engineering plants are developing new-generation equipment aimed at increasing production levels of G-grade coal over a shorter time to minimize the use of anthracite by thermal generation. At the same time, coal deposits in Ukraine are characterized by location at great depths — from 500 to 1,000 meters, and thin productive reservoirs of 0.8–1 meters.

2013—2016
Development of fundamentally new equipment for carrying out rectangular airways in thin coal seams, in which equipment for coal extraction is then installed. Several of the company's mines carried out testing for a cutting frontal complex (CFC), in order to adapt it to work in various mining and geological conditions. Performance of the CFC allows an increase in the pace of mining, including through hard rock. The first samples were delivered to the Stashkov mine.

2017—2018
A CLS 450 cleaning combine has been developed and has passed industrial tests. It is intended for mining thin and medium coal seams in difficult mining and geological conditions. The CLS 450 will increase the output at the workface to over 2 ths tonnes of coal per day. The combine's completely conforms to the international standard of labor protection OHSAS 18001: 2007.

The first samples were delivered to Dobropil's'ka and Bilozers`ka mines.

2018—2019
Development of a new type of heavy-medium tunnel boring machine with installation for anchorage. The project aims to increase the rate of development of extraction from 5 to 10 meters per day. Testing of the new equipment, RH-160, is scheduled in 2019 at the Stepna mine.

- To improve safety and efficiency of operations, the company is upgrading its mining equipment. In addition, new equipment has improved performance, which reduces operating costs. In 2018, DTEK's Pavlohradcoal mines were supplied with 12 tunneling and 8 cleaning combines, as well as 35 electric locomotives were modernized. DTEK Dobropolyeugol was supplied with 3 tunneling and 2 clearing combines.

Cooperation with research institutions

Development of coal deposits is a knowledge-intensive process, since in Ukraine the mining and geological conditions are among the most complex in the world. The company, together with research institutions, is developing solutions for the efficient development of deposits. Cooperation is in the following directions:

Polyakov Institute of Geotechnical Mechanics under the National Academy of Sciences of Ukraine
- developing recommendations for the ventilation and the degassing of the mine network
- examining aerogas control projects and fire protection projects at the mines
- developing measures for the opening and degassing of reservoirs
- studying the ability of coal seams to oxidation and spontaneous combustion
- determining the physico-mechanical indicators of rocks and coals

NTU "Dnipro Polytechnic"
- developing recommendations for rock-pressure control
- fixing a working face with a difficult-to-control roof
- rational parameters of mining operations

Pisarenko Institute for Problems of Strength under the National Academy of Sciences of Ukraine
- research and modeling of the condition of surface objects

Ukrainian State Geological Research Institute
- geological examination and estimation of the initial value of coal reserves

SE "UkrNDIvuhlezbahachennya"
- certification of coal for branding
- coal quality analysis

SE "Shulgin State Road Research Institute"
- studying the composition and properties of the rock
- developing recommendations for design and construction of highway embankments using byproduct rock of enterprises

Electricity generation

Reduction of the share of imported energy resources in the country's fuel balance and integration with the European energy system ENTSO-E remain the key tasks of the energy sector. The company actively supports these processes to strengthen the energy security of Ukraine. In 2018, DTEK Energy continued converting its TPPs to run on domestic coal and preparing for work according to ENTSO-E standards.

Key projects in 2018

- DTEK Prydniprovs'ka TPP: power unit No.9 was switched from anthracite to G-grade coal. To re-equip the power unit, more than 200 tonnes of heat and mechanical equipment was installed (gas, air, dust pipelines); three new fans were installed in the gas-air-drying scheme, 16 old burners were replaced with new ones, with low nitrogen oxide emissions.

  Similar work on re-equipment of the power unit No.10 has been completed in 2019. A new electrical filter was built as part of the project. Starting in 2012, when upgrading and reconstructing power units, the company has been reconstructing electrical filters to achieve dust emissions in accordance with Directive 2001/80/EC.

- DTEK Myronivs'ka CHPP has completely transferred from anthracite to using G-grade coal. In the reporting period, the re-equipment of boiler No.9 was completed, similar work on boiler No.10 was completed in 2017.

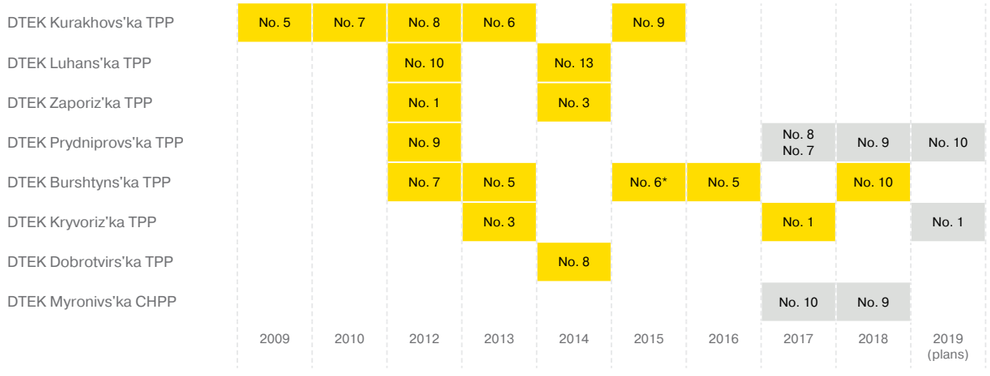
- DTEK Burshtyns'ka TPP has reconstructed power unit No.10. As part of the project, a new boiler was built and the boiler drum, turbine, auxiliary transformer, turbine generator excitation system, dust preparation system and other equipment were replaced. Also, a new automatic control system was installed, which has advanced functions for predicting the operating modes of equipment. The project has significantly improved production capabilities — the installed capacity of the power unit has been increased by 15 MW to 210 MW and the service life of the equipment has been extended by 15 years.

- DTEK Ladyzhyns'ka TPP built a solar power plant at a dam with installed capacity of 0.5 MW. Ladyzhyns'ka SPP has supplied electricity to the United Energy Systems of Ukraine since July 1, and produced 265.5 ths kWh during the past year.

- DTEK Zaporiz'ka TPP completed a pilot project to develop a standard plan for monitoring, reporting and verifying greenhouse gas emissions by thermal generation enterprises. This is a preparatory stage for the implementation of a national scheme for trading emissions of greenhouse gases. The project was implemented jointly with the World Bank under the Partnership For Market Readiness program, which was initiated to combat climate change.

- 11 power units of DTEK Energy TPPs completed the reconstruction of automatic frequency and power control systems, which will ensure the maintenance of the current frequency in accordance with ENTSO-E standards.

4 GW of installed capacities were restored by DTEK Energy, due to the modernization of its TPPs and CHPP



* Overhaul with an increase in installed capacity.

DTEK Renewables

Renewable power generation

According to the Energy Strategy of Ukraine, annual generation by wind and solar power plants should reach 25 bln kWh by 2035. To help achieve this goal, the company plans to increase its portfolio of completed projects to 1,000 MW by 2020.

Key projects in 2018

- Prymors`k wind park (installed capacity of 200 MW): a contract was signed with GE Renewable Energy on acquisition, installation and further maintenance of 52 wind turbines. As at other plants of the company, new-generation wind turbines will be installed, which adapt to the direction and strength of the wind, with a capacity of 3.8 MW each. In addition, GE will supply high-voltage equipment for a central distribution point of 150 kV, two 150/35/10 kV substations and one 150/35/10 kV distribution substation. This will be the first case in Ukraine when digital technologies for controlling high-voltage equipment and substations will be introduced.

  Construction of the wind farm consists of two stages. In 2018, during the first stage, the infrastructure construction and installation work was completed, all sets of towers and blades were delivered, commissioning works were carried out at the central distribution and transformer substations. The first seven turbines have been commissioned in March 2019.

  Driveways and pile fields were prepared for the construction of foundations for wind turbines planned for the second stage of the project. The completion of the project is expected in 2019.

- Orlivs`ka wind park (installed capacity of 100 MW): a contract for the construction of a wind park was concluded with the Danish company Vestas, which will supply 26 wind turbines with a capacity of 3.8 MW each. Vestas equipment has proved effective in Ukraine both in terms of wind-dynamic characteristics and electrical power output to the grid. In 2018, preparatory work was carried out at the construction site, and in second quarter 2019 will start delivery of the main equipment.

- Nikopol solar plant (installed inverter capacity of 200 MW): the project partner is China Machinery Engineering Corporation (CMEC), with whom a contract for design and construction of the plant has been concluded. Lands unsuitable for agriculture in the territory of an abandoned quarry are reserved for construction. Seraphim Solar and Trina Solar were selected as suppliers of solar panels, KSTAR will supply inverter substations, Xian Electric Engineering will supply transformers (all of them are Chinese companies). In 2018, solar panels and inverters were installed as part of the project, and infrastructure construction was completed.

  The plant generates green electricity as of 1 March 2019. Nikopol SPP is among the top 3 largest solar power plants in Europe (at the time of construction).

- Development of new projects: 1,000 MW of installed capacity in renewable energy should be achieved by 2020 in accordance with the development strategy of the company. A new project will be the construction of Pokrovs`k solar plant, the start of green power generation are planned in 2019 (installed inverter capacity of 240 MW).

- In addition, the company is developing projects which implementation is planned for 2020. Tylihul's'ka WPP and Tylihul's'ka WPP-2 with total installed capacity of 565 MW are projects in the wind energy sector. The new plants will produce around 2 bln kWh annually. This will allow CO_2 emissions to be cut by almost 3 mln tonnes annually. Among the solar projects, Vasyl'kivs'ka and Pavlohrads'ka SPPs (installed inverter capacity of 115 MW and 105 MW respectively) are under design.

1 GW of installed capacity of DTEK Renewables will reduce 2,600 ths tonnes of CO_2 emissions' equivalent per year

Data as of May 30, 2019

Constructed	Under construction	In the design phase
Botievo WPP 200 MW	Prymors'k WPP-2 100 MW	Tylihul's'ka WPP 565 MW
Tryfonivs'ka SPP 10 MW	Orlivs'ka WPP 100 MW	Vasyl'kivs'ka SPP 115 MW
Nikopol SPP 200 MW	Pokrovs'k SPP 240 MW	Pavlohrads'ka SPP 105 MW
Prymors'k WPP 100 MW		

Production of electricity from fossil fuels involves the downside of atmospheric emissions of greenhouse gases. To estimate these emissions, the CO_2 equivalent is used, which allows all greenhouse emissions to be brought to a common denominator. To calculate the contribution of renewable energy to the reduction of emissions, we use conversion factors for specific CO_2 emissions per 1 kWh from the average calculation for thermal power plants. In 2010, the National Environmental Investment Agency of Ukraine approved the value of this indicator in the amount of 1,063 kg of CO_2 per 1 kWh.

DTEK Oil&Gas

Gas production

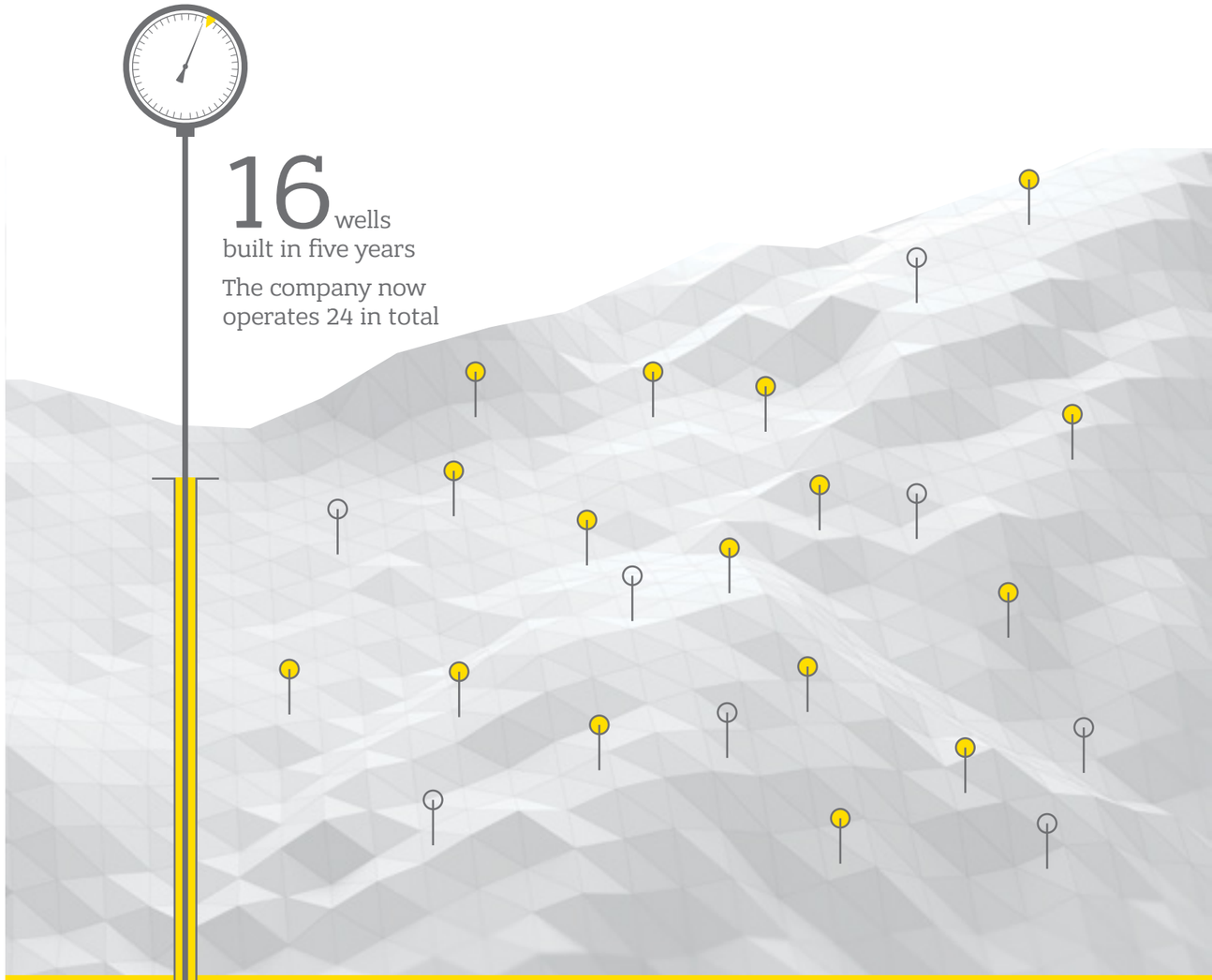
The company is the largest private gas producer in Ukraine. As a leader we feel responsibility to introduce new solutions and technologies, and share the accumulated experience in order to contribute to the development of the industry. Technological progress expedites achieving the goals of the Energy Strategy of Ukraine — to fully meet the country's need for natural gas from its own production.

Key projects in 2018

- Wells No.25 and 61 were drilled at the Semyrenkivs'ke field. Production well No.25 was designed and drilled in compliance with the requirements and standards of the American Petroleum Institute (API) and the International Association of Drilling Contractors (IADC). Exploration well No.61 was drilled to study the marginal part of the field.

  Since 2017, the company has been using a pit-free drilling method using the technology of sludge decantation and recycling, which meets international environmental standards.
- Overhauls of wells No.8, 23, 68 and 70 — with a high content of gas condensate — at the Semyrenkivs'ke field were completed. When repairing some wells, the company used the technology of snubbing, which allows to carry out work without killing of well, continuing mining operations.
- Drilling of production well No.43 was started at the Semyrenkivs'ke field.
- A fully automated propane-refrigeration unit at the Semyrenkivs'ke field was commissioned to stabilize natural gas production. The project has become unique for the industry in terms of the equipment and technological solutions used.
- Compressors have been put into operation at gas utilization plants, which will improve the environmental friendliness of the enterprise by returning to the condensate stabilization gas treatment system.
- An automated dispatch control system (ADCS), developed by the company, was patented. The ADCS collects data from wells, from hydrocarbon metering stations, gas treatment installations, gas pollution systems, early detection and warning of emergencies. The system automatically analyzes technological parameters and sends information to users' computers and/or mobile devices.

DTEK Oil&Gas
is among the best expertise in the industry



DTEK Grids

Electricity distribution and grid operation

> The company intends to develop the concept of a Smart Grid, which will require a system upgrade of the electricity networks for the integration of modern technologies. This will allow cities to meet demand for automated management of their power grids to increase the comfort level for residents.

DTEK Grids began the implementation of automated power management system ADMS (SCADA), which accumulates and processes data from all parts of the networks. Implementation of this level of software is an important step in building a Smart Grid. For example, as soon as the system receives a signal of power outage somewhere, the ADMS identifies the incident site, analyzes what caused the failure, calculates options for optimal line switching and minimizes inconvenience for customers. Thus, the company's specialists will receive a tool for swift resolution of abnormal situations, and call-center employees will immediately inform customers of the cause of the failure, as well as the timescale for fixing the problem. Such a system is expected to be fully operational in Kyiv in three years, and in the Dnipropetrovs'k region in five years.

One more criteria by which evaluation of the company's effectiveness can be measured is connection to the electric grid. Simple and understandable conditions of this process are an important indicator in assessing the country's investment attractiveness in the Doing Business rating. The rules on data disclosure contained in the Law "On the Electricity Market" and their implementation by The Distribution System Code provide the basis for building such conditions. According to the requirements, as of 1 January 2019, distribution system operators have been obliged to make their geo-information data publicly available.

DTEK Grids is one of the first in Ukraine to fulfill this requirement. In 2018, DTEK Kyiv Grids, DTEK Dnipro Grids, DTEK Donetsk Grids and DTEK Power Grid opened their maps of electricity networks online. Using the geographic information system, each user can obtain information about the location, voltage level; find the addresses and name of transformer substations, and distribution points. Development of the maps will be continued — the next steps will be an introduction of data, indicated available capacity, as well as creation of an online resource for customers to connect to networks.

In addition, departments for technological connections created in 2018 at DTEK Dnipro Grids and DTEK Donetsk Grids (the same department has been operating in Kyiv since 2017) will contribute to the increase in access availability to electricity grids. The task of the department's specialist staff is to prepare technical documentation, conduct all contractual and accompanying work with the client, as well as monitor the progress of work at each stage. Thus, customers should just submit an application through the Customer Service Centres or the company's website, which is immediately sent to this department's specialist representative. This approach helps to minimize the time for connecting and increase the number of completed applications. In 2018, DTEK Dnipro Grids almost doubled the number of established connections to more than 6,000. Perhaps, this is the secret of leadership of Dnipropetrovs'k region in the number of home solar power plants. Practically 6 mln kWh were sold in May-September 2018 by the regional prosumers — households that independently generate electricity for their own needs and sell the surplus to the network.

DTEK Grids made more than 11 ths connections in 2018

Enterprise	Standard connection						Non-standard connection
	I degree (up to 16 kW inclusive), pcs.		II degree (from 16 to 50 kW inclusive), pcs.		III degree (from 50 to 160 kW inclusive), pcs.		
	city	village	city	village	city	village	
DTEK Donetsk Grids	830	563	355	120	23	2	26
DTEK Kyiv Grids	166	—	555	—	32	—	312
DTEK Dnipro Grids	3,540	1,314	2,201	955	52	8	76
DTEK Power Grid	—	—	—	—	—	—	1
Total	**4,536**	**1,877**	**3,111**	**1,075**	**107**	**10**	**415**

DTEK Grids provided a wide range of communication channels to household consumers

Enterprise	Customer reach	Number of customer service centers	Number of contact centers	User account	PayHub	Facebook
DTEK Dnipro Grids	1,469 999	57	1	✓	✓	✓
DTEK Donetsk Grids	873 711	22	1	✓	✓	✓
DTEK Kyiv Grids	1,155 000	7	1	✓	✓	✓

Contact centers

- 24/7 support
- Free call
- Basic issues of power supply (transfer of meter readings, consultation on the account and current tariffs)
- Consultation on individual issues both by phone and on Facebook
- Contact in event of an accident
- Schedule of planned works

Customer service centers

- Principle of "one-stop shop"
- All electricity services, including connection to grids

Personal account and PayHub

- International security standards of payment systems
- No fee
- Online services for personal and mobile devices, based on Android and iOS
- All information and transactions on personal accounts (reception of meter readings, calculation of the cost of consumed electricity, payment, receipt of email)

Websites for customers

- Information about the company's work
- Online services for signing a contract with the company and joining the power grids
- Detailed information on current tariffs for households and legal entities
- Informing about the schedule of planned works

Key projects in 2018

Within the reporting period, DTEK Grids' enterprises built 147.1 km of high-voltage lines, reconstructed 38.1 km of power lines, and repaired 2,985.4 km of lines, of which 821.4 km were replacement cables. In addition, 10 points were built, 27 substations and distribution points were modernized, 4,932 facilities were repaired. All these projects are designed to improve the quality of life for end-users through uninterrupted power supply to consumers. Also, modernization of power grids provides for the elimination of power shortages, which arise during the development of cities, and to reduce the frequency of outages in electricity transmission.

DTEK Dnipro Grids:

- construction of the 150/10/6 kV Naddnipryans'ka substation, an important infrastructure facility, was completed in Dnipro. From 2019, this substation will provide electricity to new metro stations and reliable power supply to two districts of the city;
- for the first time in Dnipropetrovs'k region, aerial facilities (helicopters and drones) were used to survey power lines. Due to the data obtained, specialists will be able to carry out preventative repairs to suspect areas;
- in Dnipro and Pavlohrad, two updated customer service centers have been opened, which provide the entire package of basic services.

DTEK Kyiv Grids:

- technical update of the 35/10 kV Garnizonna substation has been completed, which supplies Kyiv airport. A modern automated control system has been installed at the substation. This allows for the online collection, storage and transmission of information on both the state of the equipment and the parameters of electrical connections. In addition, the substation's relay protection, electric and control systems were converted to modern microprocessor devices which allow for free programming;
- reconstruction of the 110/10 kV Center substation, which is responsible for the quality and stability of the power supply of the central districts of the capital, has been completed. The project has created a reserve capacity of 40 MVA;
- for the first time in Kyiv, unmanned aerial vehicles (drones) equipped with scanners, video cameras and thermal imagers were used to check the condition of power lines;
- reconstruction of the Poznyaky substation, aimed at improving the reliability of the power supply along the left-bank part of the city, continues. An 110 kV integrated distribution gas-insulated installation has already been commissioned; two cable lines have been built and are power-connected;
- construction of a 110 kV high-voltage cable transmission line was started as part of a long-term program for the modernization of the capital's power grids.

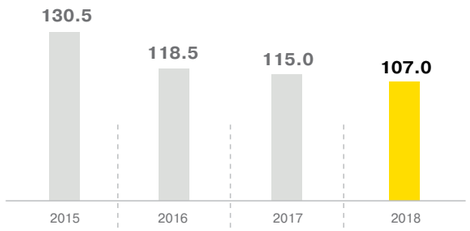
DTEK Donetsk Grids:

- the energy sector provides reliable power supply to settlements in the front-line zone. Since the outbreak of hostilities, energy supply has been restored in 1,037 settlements;
- the first stage of reconstruction of the 35 kV Selydove substation was completed, which will significantly increase the reliability of the power supply to the city of Selydove and the surrounding settlements;
- in Pokrovs`k, an updated one-stop shop customer service center was opened. For the residents of Pokrovs`k, Myrnohrad and Rodyns`ke, the center provides all services: from verification of meter readings to carrying out contracts;
- the project on the organization of a new Central Dispatch Center is on-going; it will improve the management of the region's energy infrastructure.

DTEK Power Grid:

- a comprehensive reconstruction of the 110 kV Vuhledar substation has begun to ensure a stable and reliable power supply to the city of Vuhledar.

CAIDI, average power cut index of DTEK Grids' consumers, min.



CAIDI is the ratio of the sum of all customer power cuts durations to the total number of customer power cuts. The index is measured in minutes. The index does not include force majeure situations and outages in line with emergency shutdown schedules. This data is given for all operators of the distribution system of DTEK Grids.

Characteristics of distribution system operators of DTEK Grids as of January 1, 2019

Enterprise	Total length of power lines, km	Total number of substations, pcs.	Total power of substations, MVA	Number of clients
DTEK Dnipro Grids	50,258.6	12,663	11,521.2	1,534,388
DTEK Donetsk Grids	32,691.8	6,921	5,105.9	886,808
DTEK Kyiv Grids	11,772.0	3,832	7,278.3	1,194,400
DTEK Power Grid	1,888.2	38	887.8	552
DTEK Energougol ENE	105.1	24	47.2	7,069
Total	**96,715.7**	**23,478**	**24,840.4**	**3,623,217**

New areas

Innovation and efficient use of resources

Further development of the Ukrainian energy sector is impossible without the integrated introduction of innovation. This is the only way to become part of the modern economy and global trends. DTEK Group integrates new approaches into the business ecosystem in order to find solutions and technologies for the transformation of industrial enterprises and the development of customer service.

Innovation DTEK: integration of innovative solutions

To select and implement advanced technologies and solutions, DTEK has created the Innovation management function, in 2018. The function is designed to focus on global trends and accelerate business transformation in order for DTEK Group enterprises to become part of modern energy and successfully work in the new electricity market.

Three key objectives of Innovation DTEK

1 Creation of an open innovation culture through cooperation with both external and internal environment. Building a unified center for managing ideas of the DTEK Group.

2 Creation of efficient technological communities to attract external expertise in advanced areas, as well as ensuring rapid progression of solutions from concept to end product, adapted to the needs of enterprises.

3 Scouting of start-up teams on local and international sites according to the business needs for innovation and creating a base of priority ideas for testing.

In 2018, the Energy Accelerator project was launched with the support of the Radar Tech technology cluster, which is aimed at finding innovative solutions for business needs. 182 start-ups applied for participation in the project, of which nine reached the final round and went through an accelerator program with DTEK mentors.

Three projects were selected for commercial implementation:

- **eVRscan.** 3D laser scanning systems, which, using a scanning lidar and drone, allow for determining the amount of coal reserves currently in warehouses and obtaining digitized data. The technology makes it possible to repeatedly increase measurement accuracy compared to traditional methods, which will improve the quality of fuel supply planning. The startup was the first of the accelerator winners to go through to commercial launch — DTEK Energy's electricity generation directorate took measurements at six stations and plans to use eVRscan in the future.
- **QRSmarty.** The startup's solution enables increased control over accounting and movement of inventory items. Laser markings are applied to consumables, goods, and materials, and software that allows you to see data on storage and movement can be integrated into the general enterprise accounting system. A commercial launch of the solution is expected in enterprises in the first quarter of 2019.
- **Railtex.** A platform that helps to find the most advantageous offer for both car owners and shippers. The platform developers, the Railtex team, plan to create a Ukrainian wagon exchange. Thus, the product will facilitate liberalization of this market, which can change the working conditions of the whole sector of the economy — industrial freights. The Directorate of Logistics of DTEK Energy assists in finalizing the product and bringing it to the market, attracting major industrial carriers and transport fleet holders.

STRUM: a network of fast-charging stations

Ukraine has been in the top 10 countries in the Global EV Revolution for two years in a row, according to InsideEV's. The high increase in the number of electric vehicles — 200% in 2017 and 93% in 2018 — is maintained at the state level by abolishing excise and VAT on the importation of electric vehicles. At the same time, the charging infrastructure for electric vehicles is still in its infancy: of 1,500 charging stations, only about 30 are fast chargers that can provide high-speed charging with power supply up to 50 kW.

In many countries, the driving forces behind charging infrastructure development are energy companies, for example, ENGIE, Enel, E.ON, EDF, Fortum, Vattenfall and others. Following this global trend and the demand in the Ukrainian market, the company launched the STRUM network of high-speed chargers in June. At the first stage, a convenient high-speed charging network was created in Kyiv. 10 pilot stations are located at a distance of 6–7 km from each other, which provides convenient logistics for drivers of electric cars. At the second stage of STRUM development, it is planned to cover the main long-distance routes of Ukraine: Kyiv — Odesa, Kyiv — Lviv and Kyiv — Dnipro. This will make travel by electric cars in terms of speed and comfort comparable to a trip by conventional cars.

STRUM provided charge for customer vehicles at 211 MWh in 2018. This is equivalent to using 94 ths liters of petroleum products, which could lead to 217 tonnes of CO_2 equivalent emissions. In future, the environmental impact will be enhanced by the organic growth of using electricity as fuel and the development of the network.

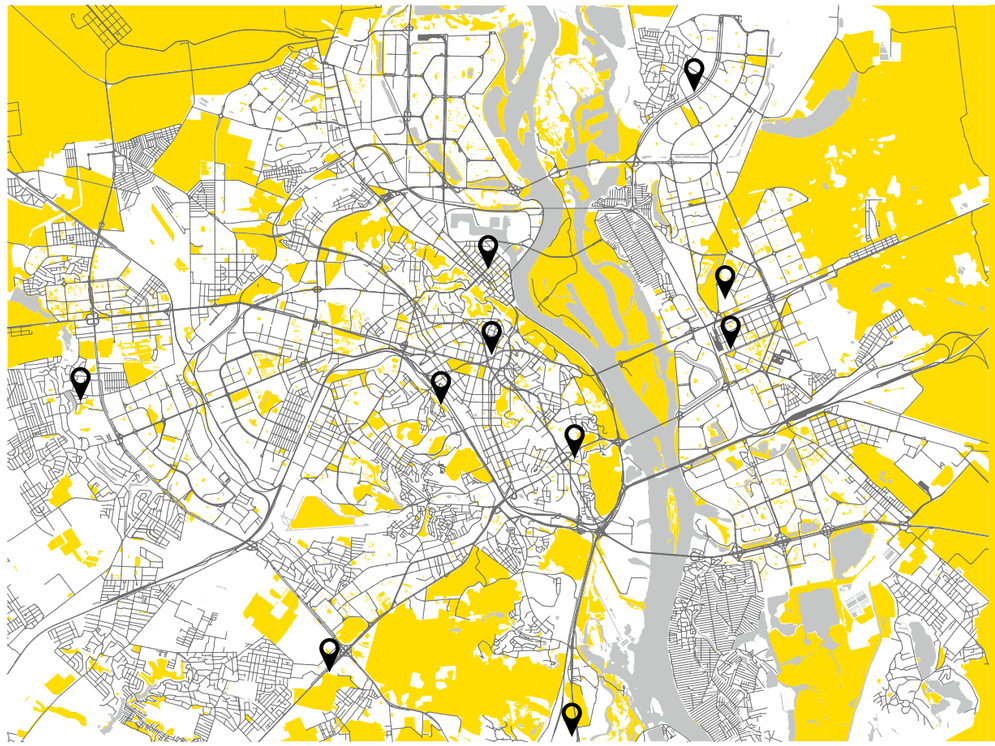


ABB equipment is installed in the STRUM fast charging network. Depending on the technical characteristics of the battery electric vehicle charging takes 15-50 minutes. The STRUM Charging mobile application is available for users, who can download it on PlayMarket and App Store.

Through the application, you can find a station and build a route, start and stop the process of charging an electric vehicle, and replenish the account. A similar application is used in 15 European countries for 10,000 electrical charges.

DTEK ESCO: energy eaving and energy efficiency

DTEK ESCO specializes in comprehensive energy efficiency and energy saving services. It is important to tell consumers what effect can be achieved, and teach them to select tools. This will help create a culture of energy consumption Ukraine.

At the end of 2018, the total amount of energy service contracts of DTEK ESCO exceeded UAH 712 mln. The company's portfolio includes 37 completed projects, for which annual savings are estimated at 40.2 mln kWh and 1.6 mln cubic meters of natural gas. This is equivalent to reducing CO_2 emissions by 38.4 ths tonnes.

DTEK ESCO specialists have implemented 14 projects for industrial enterprises, another five are in the final stage. The completed projects allow for increasing the reliability of the equipment and the level of industrial safety, as well as improving the working conditions of employees.

For example, at the Central Mining and Processing Plant, due to the installation and re-equipment of pumping units, pump energy savings of up to 50% were achieved, which will amount to about 1.8 mln kWh per year — while increasing the reliability of the ore enrichment process. Ilyich Iron and Steel Works installed three sets of automatics and modernized 24 gas burners in the sintering plant's firing machines, which reduced natural gas consumption by 35%. And the metal sheet-rolling workshop of the Ilyich Iron and Steel Works the modernized lighting system — 2,200 LED luminaires — will reduce electricity consumption for lighting by 60%, an estimated 7 mln kWh per year, and increase industrial safety.

DTEK Energy continues to implement projects to reduce energy consumption by thermal power plants. In 2018, lighting systems were upgraded in the turbine department of DTEK Ladyzhyns'ka TPP and DTEK Zaporiz'ka TPP, in the machine room of DTEK Prydniprovs'ka TPP, open switchgear of DTEK Kryvoriz'ka TPP (the expected total savings is 2.7 mln kWh per year). Switching to LED lamps ensures an optimally comfortable level of illumination of 200 lux for power engineers, which corresponds to recommended requirements for an industrial facility. In coal preparation, lighting systems at conveyor galleries of DTEK Dobropil's'ka CEP and the main building of DTEK Pavlohrads'ka CEP have been modernized.

The projects, in addition to saving energy, are aimed at improving working conditions and industrial safety.

In the public sector, the company completed nine energy-efficient projects for kindergartens and schools in Kyiv, Skvyra (Kyiv region), Pokrovs`k and Bakhmut (Donets`k region) in 2018. DTEK ESCO was selected on the results of tenders at the ProZorro platform, which is part of the Unified e-public procurement system in Ukraine.

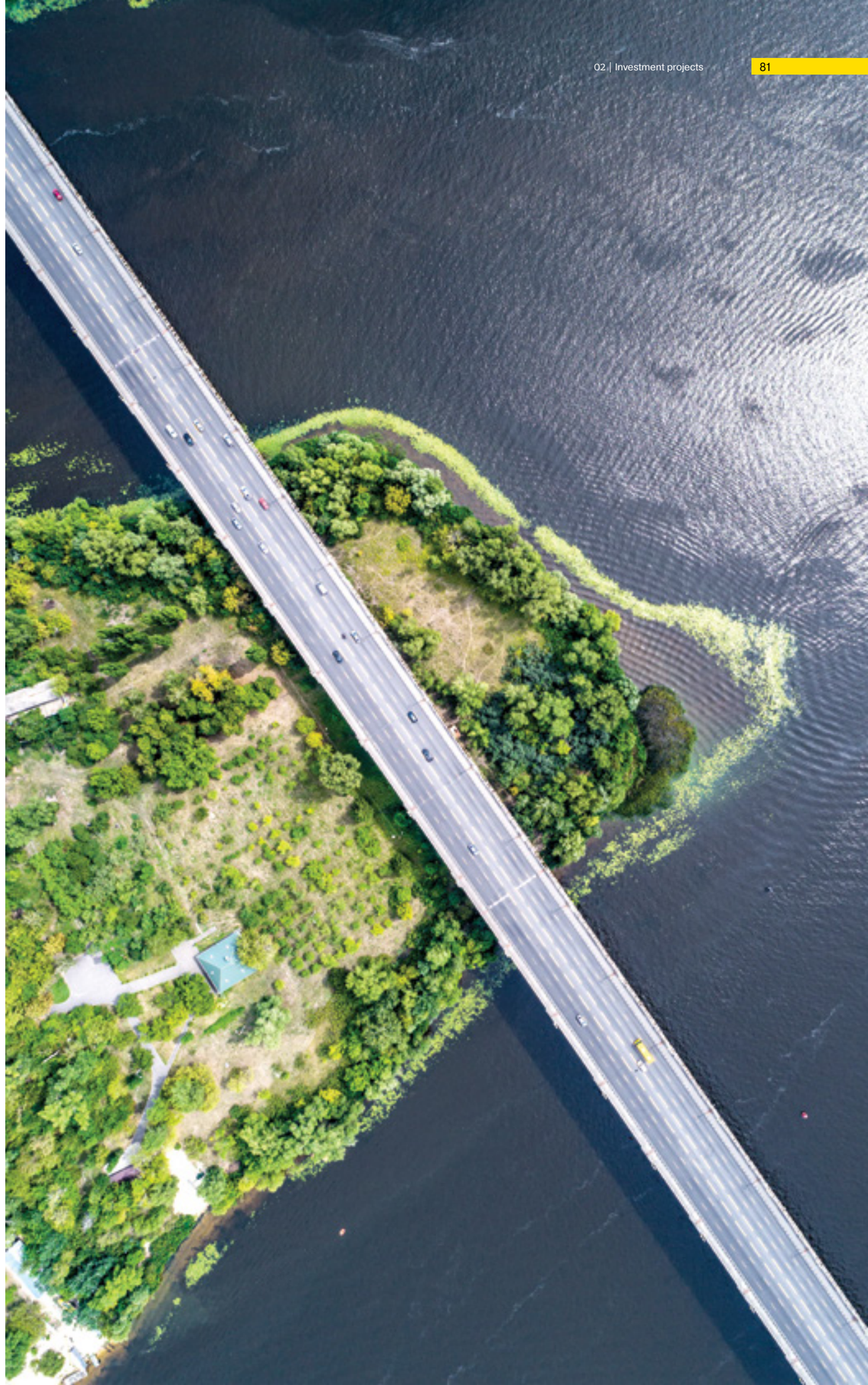
As part of projects for the modernization of heating systems, the engineering utilities were insulated, the heating system was balanced, automatic weather control systems for coolant supply, and temperature sensors were installed. Energy saving windows were also installed at some sites. A comfortable temperature in the premises was achieved in all projects for children, and a reduction in the consumption of thermal energy from 20 to 45% was ensured for institutions.

> Since 2016, Ukraine has introduced an energy service mechanism in the public sector. The customer makes payment solely by saving energy, guaranteed and achieved as a result of the introduction of energy-efficient measures. The ESCO investor, upon completion of the contract, transfers to the customer all the equipment and all further savings.

DTEK was the first among Ukrainian companies to develop a set of energy-efficient products under the brand Rozumniy WATT (Smart WATT) for retail consumers. The sets include dual-zone electricity metering devices, LED-lamps, sockets with timers, instructions with tips on saving electricity and heat.

In 2018, the company opened up new opportunities for customers by offering to make a set independently, and expanded the choice of products for each position. In addition, an energy efficiency calculator is available at https://dtek-esco.com/calc, which is designed to help customers calculate current power consumption and show opportunities for rational consumption. This calculation makes it possible to determine the economic feasibility of acquiring a set, since it calculates how much the power consumption will change in a month, one year, five years, and 10 years.

At the end of the year, 18 ths sets of Rozumniy WATT energy-efficient household goods were sold (2,379 sold in 2017).



Analysis of Financial Performance

For 2018, the consolidated revenue of DTEK Group was UAH 157,619 mln. Product sale costs increased to UAH 121,273 mln. As of the end of the year, the net profit amounted to UAH 12,373 mln.
The net operating cash flow for 2018 was UAH 29,326 mln (in 2017 it was UAH 23,754 mln). Capital expenditure increased by 91.4% and amounted to UAH 19,878 mln.

Consolidated Financial Performance of DTEK Group, UAH mln*

Indicators	2017	2018	Change, (+/–)	Change, (%)
Revenue	134,637	157,619	+22,982	+17.1
Cost of sales	(100,783)	(121,273)	+(20,490)	+20.3
Operating income	1,225	571	–654	–53.4
Operating expenses	(14,329)	(13,211)	+1,118	–8
EBITDA	37,195	42,897	+5,702	+15.3
EBITDA margin	28%	27%	–1 pp	–1.5
EBIT	26,484	28,303	+1,819	+6.9
EBIT margin	20%	18%	–2 pp	–8.7
Net profit	4,628	12,373	+7,745	+167.4
Assets	152,492	147,971	–4,521	–3.0
Capital investments	10,388	19,878	+9,490	+91.4
Taxes paid in Ukraine	22,517	26,724	+4,207	+18.7

* All data in the Financial Results Analysis section is sourced from the audited consolidated statements of DTEK B.V.

Income

The income of DTEK Group is derived from electricity wholesale to SE Energorynok, from the sale of coal, gas and gas condensate, as well as from the distribution of electricity and heat to end consumers.

In 2018, income from the sale of electricity to end-users in Ukraine and exports accounted for 46% of the consolidated revenue; the income from electricity wholesale to SE Energorynok — 38%; gas and gas condensate sale — 10%; sale of coal — 4%.

The DTEK Group generated the major part of the income in the Ukrainian domestic market — 92% of the consolidated revenue (including the compensation for the difference in heat tariffs). The share of export income in the consolidated revenue was 7%: as of the end of 2018, the income from export sales increased by UAH 3,175 mln year-over-year up to UAH 11,610 mln.

The following income changes took place in the key business segments:

- income from electricity distribution and supply in the domestic market increased by 16.6% and amounted to UAH 63,310 mln compared to UAH 54,303 mln in 2017;
- income from electricity generation increased by 14.6% and amounted to UAH 59,389 mln compared to UAH 51,801 mln in 2017;
- income from coal sales increased by 2.9%, to UAH 6,901 mln, compared to UAH 6,704 mln a year earlier. Income from coal exports amounted to UAH 1,641 mln compared to UAH 1,832 mln in 2017;
- income from natural gas and gas condensate sale increased by 24.5% and amounted to UAH 15,971 mln compared to UAH 12,826 mln in 2017.

Cost of sales

In 2018, the cost of sales increased by UAH 20,490 mln and amounted to UAH 121,273 mln. The increase in the cost of sales is linked to a rise in the expenses for the supply of electricity, as well as expenditures on salaries, the purchase of energy resources in foreign markets, logistics and transportation.

As of 2018, the gross profit was UAH 36,346 mln, which exceeds the respective 2017 indicator by UAH 2,492 mln. The gross margin decreased from 25.1% in 2017 to 23.1% in 2018.

Operating expenses and income

As of 2018, the general administrative costs grew by 23.8% and amounted to UAH 3,630 mln. The main general and administrative expense item is staff costs, including payroll taxes, which accounted for 64.4% of all general and administrative costs in 2018.

Sales expenses increased by 22.8% and amounted to UAH 1,934 mln, which was caused by an increase in transportation costs.

Other operating expenses increased by 34.2% and amounted to UAH 6,811 mln. The increase in other operating expenses is mainly due to the accrual of impairment reserve for fixed assets, intangible assets and goodwill.

Other operating incomes dropped by 53.4% and amounted to UAH 571 mln.

Liabilities and equity

Since the end of 2017, the volume of credits and loans had decreased from UAH 81,213 mln to UAH 77,983 mln by the end of 2018. In 2018, DTEK Group restructured a significant portion of its bank borrowings amounting to UAH 7,725 mln by signing supplementary contracts to reschedule the principal debt repayment.

In addition, in 2018, DTEK Group attracted a number of loans to finance renewable energy projects. From a consortium of German banks headed by Bayerische Landesbank, UAH 2,221 mln were attracted for the construction of the Prymors'k WPP with maturity in 2028 at EURIBOR interest rate of +2.5% until April 2019, after that an interest rate decreases to +1.9%. Moreover, financing for the construction of the Nikopol SPP was attracted from CMEC (China) in the amount of UAH 4,306 mln at an interest rate of 2.9% with maturity in 2029.

Long-term financial liabilities in 2018 decreased by 28.3%, or by UAH 2,074 mln, and amounted to UAH 5,266 mln.

As of the end of 2018, DTEK Group's accounts payable dropped by 5.0%, from UAH 17,015 mln to UAH 16,168 mln. Advances received as of 31 December 2018 decreased by 8.1% and amounted to UAH 7,649 mln.

Assets

In 2018, the assets of DTEK Group dropped by 3% compared to 2017 and amounted to UAH 147,971 mln. The book value of non-current assets decreased by 3.4%, to UAH 105,194 mln. Current assets decreased by UAH 838 mln, from UAH 43,615 mln in 2017 to UAH 42,777 mln in 2018.

Cash flow

In 2018, the net cash flow from operating activities increased by UAH 5,572 mln and amounted to UAH 29,326 mln.
At the same time, the investment activity payments in 2018 increased by UAH 127 mln compared to 2017 and amounted to UAH 16,019 mln.

Expenditure on financial activities in 2018 amounted to UAH 9,924 mln.

DTEK Group's share in enterprises and companies as of 31 December 2018, %

Company	%
Holding companies	
DTEK B.V.	
DTEK ENERGY B.V.	100
DTEK RENEWABLES B.V.	100
DTEK OIL & GAS B.V.	100
DTEK GRIDS B.V.	100
D.TRADING B.V.	100
D.SOLUTIONS B.V.	100
Corporate centre	
DTEK LLC	100
Servicing of DTEK Group offices	
DTEK Service LLC	99.9
DTEK ENERGY LLC	100
Coal production and processing	
DTEK DOBROPOLYEUGOL LLC	100
DTEK PAVLOHRADCOAL PrJSC	100
MINE BILOZERS'KA ALC	95.4
KURAHIVS'KA CCM LLC	99.9
PAVLOGRADS'KA CCM LLC	99.9
DTEK OKTYABRS'KA CEP PJSC	60.9
DTEK Dobropil's'ka CEP PJSC	60.1
DTEK Scientific and Project Centre LLC	100
Electricity generation	
DTEK SKHIDENERGO LLC	100
TEHREMPOSTAVKA LLC	100
DTEK DNIPROENERGO JSC	99.9
DTEK WESTENERGY JSC	99.9
DTEK MYRONIVKA CHPP LLC	100
INTERENERGOSERVICE LLC	99.9
ELEKTRONALADKA LLC	99.9

Company	%
Mining machinery manufacturing	
CORUM GROUP LLC	100
CORUM DRUZHKOVKA MACHINE-BUILDING PLANT LLC	100
CORUM TRADING LLC	99
PERSHOTRAVENSKYI REPAIR AND ENGINEERING PLANT LLC	99
SVET SHAKHTYORA PJSC	61.2
Others	
KYIVENERGY JSC	72.9
Coal production and processing	
DONSKOY ANTHRACITE JSC	100
SULINANTHRACITE LLC	100
MINE OFFICE OBUKHOVSKAYA JSC	100
DTEK RENEWABLES LLC	100
Wind power	
WIND POWER LLC	100
WIND TECH LLC	100
ORLOVKA WEP LLC	100
PRIMORSKAYA WEP LLC	100
PRIMORSKAYA WEP-2 LLC	100
Solar power	
TRYFANOVKA Energy LLC	100
SOLAR FARM-1 LLC	100
SOLAR FARM-2 LLC	100
SOLAR FARM-3 LLC	100
SOLAR FARM-4 LLC	100
SOLAR FARM-5 LLC	100
SOLAR FARM-6 LLC	100
SOLAR FARM-7 LLC	100
SOLAR FARM-8 LLC	100

Company	%
SOLAR FARM-9 LLC	100
SOLAR FARM-10* LLC	100
SOLAR FARM-11 LLC	100
SOLAR FARM-12 LLC	100
SOLAR FARM-13 LLC	100
SOLAR FARM-14 LLC	100
SOLAR FARM-15 LLC	100

* After the end of the reporting period, SOLAR FARM-10 LLC was renamed DTEK TILIGULSKA WEP LLC.

DTEK OIL&GAS LLC	100
Gas production	
INVESTECOGAZ LLC	100
NEFTEGAZRAZRABOTKA LLC	100
NAFTOGAZVYDOBUVANNYA PJSC	73.0
OIL&GAS SYSTEMS LLC*	100

* Established after the end of the reporting period.

DTEK GRIDS LLC	100
Electricity distribution and grid operation	
DTEK POWER GRID LLC	100
DTEK ENERGOUGOL ENE PrJSC	95.7
DTEK KYIV GRIDS PrJSC	72.9
DTEK DONETSK GRIDS JSC	71.5
DTEK DNIPRO GRIDS JSC	51.7

After the end of the reporting period, DTEK Group completed acquisition 93.9978% of the PrJSC Kyivoblenergo and 68.2949% of the JSC Odesaoblenergo.

Company	%
D.TRADING LLC*	100
Trading in coal, electricity, gas and oil products	
DTEK TRADING SA	100
DTEK TRADING LIMITED	100
DTEK TRADING LLC	100
DTEK Hungary LLC	100
DTEK POWER TRADE LLC	100

* Established after the end of the reporting period.

D.SOLUTIONS LLC*	100
Electricity supply and energy efficiency services	
DNIPRO ENERGY SERVICES LLC	100
DONETSK ENERGY SERVICES LLC	100
KYIV ENERGY SERVICES LLC	100
DTEK ESCO LLC	100

* Established after the end of the reporting period.

Non-controlled companies	
DTEK ROVENKYANTHRACITE LLC	100
DTEK SVERDLOVANTHRACITE LLC	100
DTEK MINE KOMSOMOLETS DONBASSA PrJSC	95.3
MOSPINO CPE LLC	99.0
DTEK KRYMENERGO JSC	57.7

On January 21, 2015, the Crimean self-proclaimed government started to consider the movable and immovable property of DTEK KRYMENERGO as the property of the Republic of Crimea.

On March 15, 2017, the company declared that it had lost control over the enterprises and assets located in the areas of Donets'k and Luhans'k regions temporarily not controlled by the Ukrainian government.

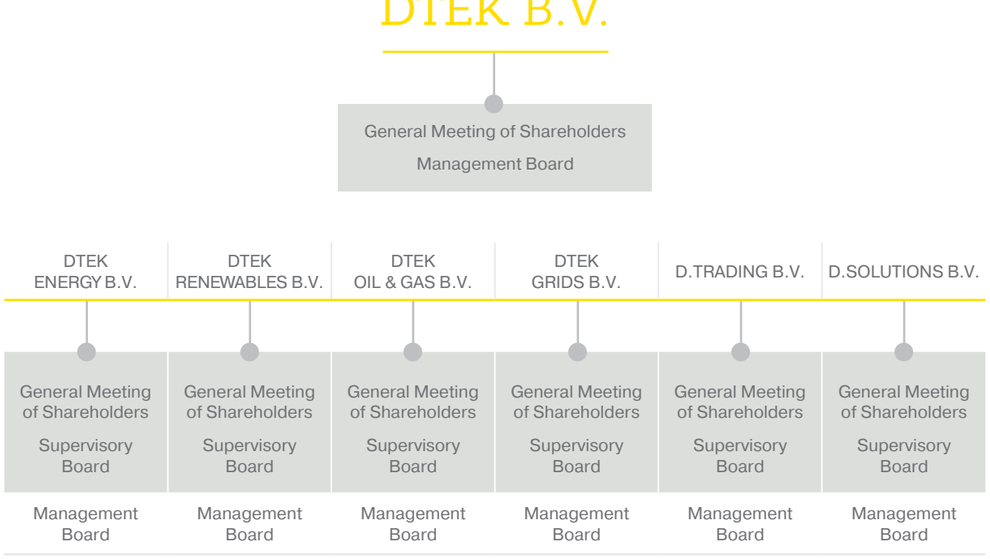
Corporate governance

Corporate governance structure

The corporate governance system of the DTEK Group is built taking into account the best international standards of public international corporations, based on the principles of transparency. The DTEK Group is continuously developing corporate governance, taking into account changes in business and society. This approach ensures efficiency at all levels of management, a transparent decision-making environment and a competitive advantage in capital markets.

This allows the company to maintain constructive interaction with its investors, partners and employees, thus contributing to the implementation of a long-term corporate development strategy and improved investment attractiveness for the DTEK Group.

DTEK Group has divided its strategic planning and operational management functions. The Corporate Center determines the strategic directions of growth, carries out general business management and provides methodological support to operating holdings. All operating holdings are independent in production management and operating activities. This approach allows for equal development of new and existing areas of activities in accordance with the long-term development strategy of DTEK Group.



The General Meeting of Shareholders is the highest governing body. The Supervisory Board, elected by the General Meeting of Shareholders, provides strategic management and control over actions of the management. Since 2008, DTEK Group has implemented the practice of attracting independent directors to its Supervisory Boards.

The Corporate Center's Management Board is a collective advisory body, which task is to ensure a unified approach to strategic priorities and issues taking into account interests of all businesses of the DTEK Group's. The Management Board of operating holdings is a collective executive body responsible for the implementation of the strategy and management of current operations.

Corporate governance bodies

Supervisory Boards of operating holdings companies

The Supervisory Boards are designed to provide strategic management in each of the areas of business, and to monitor management activities. Face-to-face meetings with management are held on a regular basis, during which reports on the implementation of previous decisions are presented. There are advisory bodies — Committees – reporting to the Supervisory Boards. The task of the Committees is to review core issues and recommend solutions that also take into account DTEK Group's policy regarding risk management, compliance and corporate ethics.

The personnel composition of the Supervisory Boards

DTEK ENERGY B.V.
Oleg Popov
Damir Akhmetov
Sergey Korovin
Iryna Mykh
Johan Bastin
Robert Sheppard
Catherine Stalker

DTEK RENEWABLES B.V.
Oleg Popov
Damir Akhmetov
Sergey Korovin
Iryna Mykh
Johan Bastin

DTEK OIL & GAS B.V.
Oleg Popov
Damir Akhmetov
Sergey Korovin
Iryna Mykh
Robert Sheppard

DTEK GRIDS B.V.
Sergey Korovin
Iryna Mykh
Johan Bastin
Catherine Stalker
Frank Matthias Siebert

D.TRADING B.V.
Sergey Korovin
Iryna Mykh
Johan Bastin
Frank Matthias Siebert

D.SOLUTIONS B.V.
Sergey Korovin
Iryna Mykh
Johan Bastin
Frank Matthias Siebert

Corporate Secretary of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V. (non-voting) — Oleksiy Povolotskyi.

Oleg Popov

Chairman of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V. and CEO of SCM JSC

Graduated from Donets'k Polytechnic Institute in 1991 and from Donets'k State University in 1996.

From 1991 to 2000 he worked in various state institutions.

He was invited to join SCM JSC as deputy general director in 2000. He held the office of executive director from 2001 to 2006. Oleg Popov has been CEO of SCM since January 2006. He is also the chairman of the supervisory boards of FC Shakhtar and FUIB PJSC, and is on the supervisory board of Metinvest B.V.

He approves key financial, investment and personnel decisions related to both the management company and SCM Group's assets and assesses the performance of their directors.

Damir Akhmetov

Member of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V.; Chairman of SCM Advisors (UK) Limited

In 2010, he graduated from Sir John Cass Business School (City, University of London) with a MSc in Finance.

Since February 1, 2013 he has been working at SCM Advisors (UK) Limited, and currently holds the office of Chairman.

Damir Akhmetov is also member of the Supervisory Board of Metinvest B.V.

Sergey Korovin

Chairman of the Supervisory Boards of DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V., member of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V.

In 1993, Sergey Korovin graduated with honors from the Department of Applied Mathematics and Cybernetics of the Lomonosov Moscow State University.

From 2002 to 2008, he worked at the Danish and Russian offices of McKinsey & Company international consultancy. From 2008, Sergey Korovin was responsible for working with telecommunication companies and served as member of the Board of the Microsoft office in Russia.

In 2010—2017, he was Director of Energy Business Development at SCM JSC.

Iryna Mykh

Member of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V., Senior lawyer of SCM JSC

Iryna Mykh graduated from the law school of Ivan Franko State University in Lviv, Ukraine, in 1994. Later she studied at the Osgoode Hall Law School, York University, Toronto, Canada.

From 1996 to 2006, she was a senior lawyer at Silets'kyi and Partners law firm, an affiliate of Squire, Sanders & Dempsey LLP, where she became a partner in 2006. From June to October 2008, she was a legal adviser to Ukrainian Agrarian Investments Group owned by Renaissance Capital. She then worked as Head of the Legal Department of Klub Syra Ltd. until June 2009. She held the office of Senior Attorney at the Voropaev and Partners law firm until 2017.

Currently, she holds the office of Senior Attorney at SCM JSC.

Frank Matthias Siebert

Member of the Supervisory Boards of DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V., Director of Strategy and Finance of DTEK LLC

He earned a Master's Degree in Economics at the University of Göttingen, Germany. During his studies, he took part in the Fulbright scholar program and studied at Stony Brook University, New York, USA.

He started his career in 1992 at Ruhrgas AG, and then worked in Latvijas Gaze and E.ON (E.ON Ruhrgas UK North Sea, OGK-4). In 2012, he joined Nabucco Gas Pipeline International, where he worked as CFO and Managing Director, and then a shareholder representative in the liquidation of the project company and suspension of the construction project of the Nabucco international gas pipeline. From 2017 to 2018 he was a member on the Supervisory Board of Conexus Baltic Grid, a unified natural gas transmission and storage operator in Latvia, which was established after unbundling Latvijas Gaze.

In early 2018, he joined DTEK's team as Director of Strategy and Finance.

Robert Sheppard

Member of the Supervisory Boards of DTEK ENERGY B.V., DTEK OIL & GAS B.V., Independent Director and Chairman of IPM Advisors

Robert Sheppard graduated from the University of Wyoming in 1972 and has a Bachelor's Degree in Physics and Mathematics. He graduated from the Columbia Business School in 1991 with an Executive MBA degree.

He began his career in the oil industry at Amoco in 1972. In the mid-1980s, Robert Sheppard worked at Amoco Exploration as a Vice President. He was an Executive Director at GUPCO (Gulf of Suez Petroleum Company) from 1992 to 1995. He was President and General Director of Amoco representative offices in Argentina and Egypt from 1995 to 1998. He worked as Chief Operating Officer, and then as President of Sidanco from 1998 until it merged with BP. From 2002 to 2004, Robert Sheppard was Senior Vice President at BP responsible for overseeing assets in Russia. Later on he was appointed as General Director and then Non-Executive Director of Soma Oil and Gas.

Currently, he is Chairman of IPM Advisors consulting company.

Johan Bastin

Member of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V., Director of DTEK FINANCE PLC, DTEK INVESTMENTS Limited, Managing Partner of Iveaghouse Capital Investment Advisors

Dr. Bastin holds a MSc in Urban Planning from the Eindhoven University of Technology in the Netherlands and Ph.D. in Regional Planning with a specialty in public administration and finance from the University de Montreal in Canada. He also attended the MBA programme at McGill University in Montreal.

From 1985 to 1992, he served as Resident Team Director at Harvard University's Institute for International Development in Indonesia, providing advice to Indonesia's Minister of Finance on infrastructure investment, fiscal decentralization and privatization of state-owned companies. From 1993 to 2002, he held several senior management positions with the European Bank for Reconstruction and Development in London, UK, latterly as Business Group Director responsible for loans and equity investments in infrastructure, transport and energy utilities, municipal and environmental services and energy efficiency across the entire EBRD's geography. From 2002 until 2009, Dr. Bastin was Managing Director at Darby Private Equity, a major private equity fund manager and subsidiary of Franklin Templeton Investments, providing finance to companies in Central and Southeast Europe. From 2009 until 2015, he was CEO of CapAsia, an international fund and asset management company headquartered in Singapore and focusing on private equity investment in the infrastructure and energy sectors in Southeast and Central Asia.

Since mid-2015, Dr. Bastin is a managing partner of Iveaghouse Capital Investment Advisors, a Netherlands-based investment boutique, advising on corporate strategy, investment finance, renewable energy and M&A.

Catherine Stalker

Member of the Supervisory Boards of DTEK ENERGY B.V., DTEK GRIDS B.V., Independent Director

Catherine Stalker graduated from Heriot Watt University in Edinburgh, UK, with a Bachelor's degree and obtained her Master's degree from the London School of Economics.

She began her career in 1991 with the Bank of England as a research analyst and banking supervisor. From 1995 to 2007, she worked at PricewaterhouseCoopers in Moscow and Berlin, where she was the Partner in charge of the client practice for HR management in the CEE-CIS region. She led client projects on executive compensation, organizational restructuring and human resource management.

Catherine is now based in the UK where she advises a range of companies on corporate governance, with particular focus on the efficiency of their boards.

Oleksiy Povolotskyi

Corporate Secretary of the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V., Director of Corporate Governance, Risk Management and Compliance at DTEK LLC; lawyer

Oleksiy Povolotskyi graduated from the law school of the Kharkiv University of Internal Affairs, Ukraine. Later on, he obtained a Master's Degree in the Scarman Centre at the University of Leicester, UK.

Before becoming a lawyer at Squire, Sanders & Dempsey LLP, an international law firm, he taught law and held the position of the director of international relations department at the Kharkiv University of Internal Affairs.

He has been working in DTEK since 2010. Currently, he is responsible for the development and maintenance of the corporate governance system throughout the DTEK Group, the development of a centralized risk management system, as well as the implementation of compliance functions and anti-corruption policies.

Member of the Board of the Professional Association of Corporate Governance and a member of the Ukrainian Bar Association.

Committees under Supervisory Boards

Audit committees under the Supervisory Boards of DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V.

Chairman: S. Korovin (for all the Supervisory Boards)

Committee Member: I. Mykh (DTEK ENERGY B.V., DTEK RENEWABLES B.V., DTEK OIL & GAS B.V.), F. Siebert (DTEK GRIDS B.V., D.TRADING B.V., D.SOLUTIONS B.V.)

Main tasks:

- supervision of the internal control and risk management system, internal and external audit;
- analysis and consideration of the validity and reliability of financial and other reports;
- consideration of issues related to risk management systems, internal control and compliance with applicable laws;
- recommendations to the Supervisory Boards on auditor candidates to approve financial statements;
- assessment of the scope and quality of audit procedures, as well as the degree of independence and objectivity of the auditor.

Labor safety and environmental protection committees under the Supervisory Boards of DTEK ENERGY B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V.

Chairman: R. Sheppard (DTEK ENERGY B.V., DTEK OIL & GAS B.V.), J. Bastin (DTEK GRIDS B.V.)

Committee Member: I. Mykh (DTEK ENERGY B.V., DTEK OIL & GAS B.V., DTEK GRIDS B.V.)

Main tasks:

- identification of occupational safety and environmental protection risks, development of measures to minimize them;
- development of a staff motivation system to comply with occupational safety rules;
- conducting emergency response exercises at the enterprises of DTEK Group.

Committee on appointments, remunerations and corporate governance under the Supervisory Boards of DTEK ENERGY B.V., DTEK GRIDS B.V.

Chairman: C. Stalker (DTEK ENERGY B.V., DTEK GRIDS B.V.)

Committee Member: O. Popov (DTEK ENERGY B.V.), S. Korovin (DTEK GRIDS B.V.)

Main tasks:

- assistance to managers in increasing the efficiency of personnel management and corporate governance systems;
- monitoring and preparation of recommendations on non-market strategy (social initiatives and partnerships, reputation management, GR) for managers;
- monitoring and preparation of recommendations on implementing the best global practices in corporate governance for managers, as well as motivation, assessment, remuneration and development of top managers;
- preparation of recommendations on appointing top managers for the supervisory board;
- preparation of recommendations on the structure of the supervisory board and its committees;
- monitoring compliance with the basic principles and legislative requirements of corporate governance in the company's jurisdictions, as well as with corporate governance standards of DTEK Group.

The Management Board of DTEK LLC

The task of the Management Board is to provide a unified approach to the corporate governance system for strategic business decisions by strengthening dialogue between the Corporate Center and operating holdings companies. To this end, the Management Board act as a single center that regulates a wide range of issues so that DTEK Group works as a team. Under the Management Board, the committees work as a permanent collective advisory body, working out issues in detail before being submitted to the Management Board for consideration and promptly react to emerging requests.

The personnel composition of the Management Board of DTEK LLC

M. Timchenko, CEO of DTEK LLC (Chairman of the Management Board)
O. Povolotskyi, Director of Corporate Governance, Risk Management and Compliance of DTEK LLC (Secretary of the Management Board)
F. Siebert, Director of Strategy and Finance of DTEK LLC
A. Selischev, Director of Business Development of DTEK LLC
A. Kucherenko, Director of Sustainable Development of DTEK LLC
Y. Shylina, Director of Corporate Communications of DTEK LLC
O. Zakharchuk, Director of Legal and Regulatory Affairs of DTEK LLC
D. Sakharuk, CEO of DTEK Energy LLC
P. Leckebusch, CEO of DTEK Renewables LLC
I. Shchurov, CEO of DTEK Oil&Gas LLC
I. Gelyukh, CEO of DTEK Grids LLC
V. Butenko, CEO of D.Trading LLC
A. Koksal, CEO of D.Solutions LLC

The Management Board's committees

Finance and Risks Committee

Chairman: F. Siebert

Main tasks:

- approval and monitoring of the implementation of annual budgets, managing the loans portfolio, taking measures on the results of internal and external financial audits;
- approval and monitoring of investment projects;
- approval of compliance management and risk management strategies, including a target risk management model and internal control system;
- standardization of business processes.

Committee on Sustainability

Chairman: A. Kucherenko

Main tasks:

- approval and updating of the strategy, as well as personnel management policies, including the concept of corporate culture, consideration of internal candidates for participation in training programs for successors to key positions: Top 50, Energy of the Leader, Energy of Knowledge, Talent Pool;
- assessment of the labor occupational health and safety system;
- approval of environmental strategy, monitoring of the implementation of significant environmental projects;
- management of DTEK's brand and reputation.

Strategy and Development Committee

Chairman: A. Selischev

Main tasks:

- approval and monitoring of the implementation of the long-term development strategy of existing businesses;
- identification of priority areas for investment;
- approval of the development strategy of new businesses, including promising projects and M&A transactions, as well as monitoring of the implementation of decisions;
- approval and monitoring of the implementation of innovative projects.

Risk management system

DTEK Group conducts continuous development and improvement of the risk management system, which allows timely identification and response to changes, while maintaining efficiency and effectiveness of operations.

Since 2007, DTEK Group has been operating a risk management system using a three lines of defense model, which is integrated into the business processes of the Corporate Center and operating holdings companies. In 2018, a decision was made to switch to a centralized risk management system and consolidate the coordination of risk management processes, internal controls and insurance in the Directorate of Corporate Governance, Risk Management and Compliance. The main goal was to create a single center that will help integrate the risk management system into the corporate culture, enhancing efficiency in all key processes.

Basic principles of risk management:

- timely detection;
- prevention of risks and mitigation of consequences at an acceptable level;
- key risk management based on regular analysis and impact assessment;
- monitoring of the efficiency of risk management measures;
- continuous improvement of the internal control and risk management system in accordance with the business environment.

In order to switch to a centralized risk management system, a new model of functional interaction for all participants of this system was approved, a program of key initiatives and projects was developed and successfully implemented, and the implementation of regulatory and procedural documents on the analysis of certain significant risks continues. In addition, business planning processes and approaches to managing business process models, financial controlling and reporting are being updated, new tools for risk analysis and management are being introduced. The methodological basis of integrated risk management is also expanding, including recommendations on business planning and business process risks, on assessing financial risks, as well as methodologies for monitoring and testing internal controls.

The Directorate of Corporate Internal Audit regularly assesses the efficiency of the risk management and internal control system, and also monitors the implementation of decisions to ensure and improve its efficiency. This kind of multi-level management system enhances operational security, contributing to transparency and improving communications.

Centralized risk management model of the DTEK Group

A unified classification and a unified register of risks are used to analyze and flexibly manage the identified or implemented changes. An owner is appointed for each category of risk, and the terms and tasks of risk analysis are determined taking into account the characteristics and requirements of each business process. This approach allows for the development of areas of responsibility and monitoring risks at all levels of management, as well as to develop targeted response plans.

1st line of defense (business function)

Operational management, which is responsible for assessing, regulating and minimizing risks, as well as ensuring an effective internal control system.

2nd line of defense (monitoring functions)

Departments that provide and monitor the implementation of effective risk management practices, internal controls, compliance with laws and administrative rules/internal regulations, and the investigation of fraud.

3rd line of defense (independent function)

Internal audit based on a risk-based approach provides top management with a conclusion on the accuracy of risk assessment, risk management effectiveness, including an assessment of the effectiveness of the first and second lines of defense.

Risk Management System Processes

- Management and culture
- Strategy and goal setting
- Performance efficiency
- Monitoring and implementing changes
- Information, communication and reporting

Compliance and corporate ethics

DTEK Group conducts its business in full compliance with the regulatory requirements of the jurisdictions where its enterprises and companies operate. DTEK Group takes a zero-tolerance approach to corruption in all its forms and manifestations. Each employee must adhere to the Group's ethical business practices.

Since 2010, a special unit called the Compliance Service has been operating across DTEK Group under the supervision of the Compliance Officer. Its activities are constantly updated to reflect changes in the external operating environment. Today, its main responsibility is implementing a system of internal controls to minimize corruption risk, as well as the risk of economic sanctions and dissemination of insider information. Decisions and recommendations made by the Compliance Service are mandatory for all employees of DTEK Group.

The Service is overseen by the Director of Corporate Governance, Risk Management and Compliance, which is directly subordinate to the CEO of DTEK. The Director is a member of the Management Board at DTEK and reports to the Supervisory Boards of operating holdings companies.

Key mechanisms of DTEK Group's compliance system include active support from the Supervisory Boards and leadership from the holding companies. In addition, the Compliance Service has proposed initiatives to strengthen DTEK Group's compliance culture.

- Approval of policies and procedures. The level of rules and procedures provides for the participation of the Compliance Officer in the processes of coordination of regulatory documents of companies: regulations, policies and procedures.
- Assessment and management of compliance risks. The methodology for identifying and evaluating compliance risks is in place, for the management of which standard activities are identified and the risk appetite is regularly reviewed.
- Monitoring and testing of compliance controls. To assess the efficiency and adequacy of compliance controls, audits of corporate internal audit and of compliance services are carried out on the regular basis. Audit results are used to review compliance programs, as well as update regulations, policies and procedures.
- Relationships with contractors and intermediaries. Identification and risk assessment is carried out on the basis of risk appetite and assessment matrices of business partners for reliability, exposure to sanctions and corruption risks. All contracts with contractors include anti-corruption and anti-sanction provisions, which is common practice in international companies, but so far is not popular among domestic businesses. The provision reflects changes in risk assessment and is designed taking into account the recommendations of national legislation, international principles and legislation, best foreign practices and experience in the enforcement of sanctions.
- Negotiating contracts that could potentially carry an increased corruption risk. There is a mandatory approval by the Compliance Officer of gratuitous transactions in the field of sustainability, charity, donation, representation of the interests of DTEK Group to third parties, mergers and acquisitions.
- Risk assessment of employees' conflicts of interest. Conflicts of interest are identified when employees are hired and promoted to another position or enterprise of DTEK Group. In addition, since 2011 at the disposal of employees there is an automated system to self-declare situations of potential conflict of interest. A annual declaration of conflict of interest is held, aimed at minimizing the risks of such situations.
- Reconciliation of business gifts and business hospitality. There is a system of accounting and coordination of business gifts and business hospitality, which has been automated since 2016. The Code of Ethics and Business Conduct, the Anti-Corruption Program, and internal rules set limits on the delivery and acceptance of business gifts and hospitality.
- Abuse reports and corporate investigations. DTEK Group employees and any third parties have the opportunity, including doing so anonymously, to report violations of the Code of Ethics and Business Conduct to the SCM trust line, which includes DTEK Group. The Compliance Service participates in corporate investigations for various categories of applications (as part of an investigation team or as an expert).
- Training of employees in ethical and anti-corruption standards, the basics of sanctions compliance. Since 2017, these areas are included in the training program for all employees. An appropriate e-course has been developed for distance learning. In addition, trainings are conducted monthly for managers and employees exposed to high compliance risk.

Business ethics

DTEK openly declares its anti-corruption standards and pays special attention to building a compliance culture. In the Transparency in Corporate Reporting study conducted by experts of the Transparency International Ukraine*, an independent international organization, DTEK's anti-corruption program received the highest rating.

At the same time, DTEK Group continues to improve and enhance the effectiveness of the system of internal controls and mechanisms aimed at countering corruption. In order to develop the provisions of the Code of Ethics and Business Conduct, a new Anti-Corruption Program was approved in 2018.

The program is developed in accordance with the best international practices and standards of corruption risk management, taking into account the provisions of ISO 37001:2016 Anti-bribery management systems, anti-corruption legislation and international acts on combating corruption of extraterritorial action (including the FCPA and the UKBA). In addition, the section on checking business partners for the corruption risk has been finalized and takes into account the recommendations of the Transparency International and the World Economic Forum.

Compliance with the Anti-Corruption Program is mandatory for all employees and representatives of DTEK Group. The Program directly prohibits any manifestations of corruption, including commercial bribery or remuneration for the simplification of formalities. In establishing business relations, preference is given to partners who share the principles of DTEK's Anti-Corruption Program and those who have an effective internal system of anti-corruption measures. All contractors that have the right to act on DTEK Group's behalf or represent its interests before any third parties, are subject to mandatory verification for corruption risks. At the same time, it is prohibited to cooperate with contractors or public organizations which were determined by the Compliance officer as having high corruption risk. Transactions with contractors that have a moderate corruption risk can only be carried out, if recommendations from the Compliance Service to help minimize the risk have been implemented.

Special attention is paid to compliance with sanctions regimes in the jurisdictions where the enterprises and companies of DTEK Group operate. According to the approved risk appetite, all business partners are considered to be subject to sanction risk, regardless of the amount and nature of the transaction. The sanction risk of business partners is identified on a daily basis through automated screening, which compares the contractor database of DTEK Group with a database of an external specialized provider that aggregates the sanction lists of all countries and organizations. In addition, the identification of sanction risk is carried out by checking the contractor, its ultimate beneficiary, direct and indirect shareholders, and the executive body for any indication of sanction risk.

DTEK Group does not operate in jurisdictions that have been subject to extensive US and EU sanction-based restrictions. In DTEK Group, it is impossible to conclude transactions with contractors that have a medium sanction risk without complying with the recommendations of the Compliance Service for risk minimization. At the same time, transactions with an increased sanction risk are subject to agreement with CEO of DTEK, if the recommendations of the Compliance Service cannot be fully implemented.

* Transparency International Ukraine is a representative office of the international anti-corruption non-governmental organization Transparency International. The study was conducted to assess the implementation of compliance policy standards in the largest companies in the country and was published in 2017. During the study, websites and legal documents of 50 private companies and holding companies, as well as 50 state-owned companies were analyzed. **https://ti-ukraine.org/en/news/62-of-top-companies-of-ukraine-do-not-meet-transparency-standards-ti-ukraine/**

Insider information management

DTEK's Eurobonds are listed on the Irish Stock Exchange, which imposes obligations regarding compliance with listing and disclosure rules. In this regard, DTEK Group has adopted a regulation and introduced rules for handling insider information and insider operations. In particular, the criteria for attributing information to insider were defined, the procedure for forming and updating insider lists was adopted, and rules for notifying possession of DTEK securities and obtaining permission to conduct a securities transaction apply for insiders.

The register of insiders, in which persons who have access to insider information by virtue of their position or professional activity, is regularly updated. Maintaining this register allows the Compliance Officer to inform insiders promptly about obligations, responsibilities and prohibited practices, which simplifies the process of monitoring and supervising compliance with information disclosure rules and transparency rules established by foreign regulators.

Dividend policy

The dividend policy of DTEK Group is based on maintaining a balance between the need to invest in the development of production facilities and respect for the right of shareholders to participate in the distribution of profits. Such approach is a determining factor contributing to the long-term growth of the shareholder value of the operating holdings of DTEK Group.

DTEK's anti-corruption program received the highest rating in the Transparency in Corporate Reporting study

ESG: Environmental, Social and Governance

Sustainability

Sustainability

DTEK Group is focused on long-term sustainable development and considers ESG criteria (Environmental, Social, and Corporate Governance) for all its activities. The UN Sustainable Development Goals have been integrated into DTEK Group's business strategy. All actions and decisions correlate with interests of the society, this responsible financing practice is aimed at an integrated and balanced approach to sustainable development.

As a member of the United Nations Global Compact, DTEK Group contributes to the achievement of the UN Sustainable Development Goals. 17 goals were set by world leaders at the UN General Assembly and officially took legal effect on January 1, 2016. These goals set out a timeframe of 15 years, in which countries and organizations would focus on overcoming poverty, tackling inequality and eliminating the negative effects of climate change.

DTEK Group's sustainable development policy focuses on reducing the organization's environmental impact, sustainable use of resources, improving industrial safety and health of personnel, ethical business practices and compliance with anti-corruption standards, open dialog with employees and wider society. This approach applies to activities throughout the value chain and at all levels of business management: companies and enterprises of DTEK Group are guided in their activities by the DTEK Corporate Social Responsibility Policy and the Sustainable Development Policy of SCM.

17 goals of the UN Global Compact

Sustainability management

The Sustainability Committee under the Management Board of DTEK and Regional Policy Directorate of DTEK Energy, the executive office of DTEK Renewables, DTEK Oil & Gas, DTEK Grids plan and implement all sustainable development projects.

Cooperation and engagement with stakeholders are important components of sustainable development. DTEK Group believes in transparency, providing stakeholders with full information about its activities. We conduct partnerships and constructive dialog with stakeholders on a systematic basis, which ensures we can share timely information which matches their interests and expectations.

Stakeholders include:

- employees and their families,
- citizens in areas where the company operates,
- non-governmental organizations,
- local authorities, regional and central authorities,
- international organizations and investment communities,
- experts and analytical centers,
- academia and the scientific community,
- media,
- general population of Ukraine.

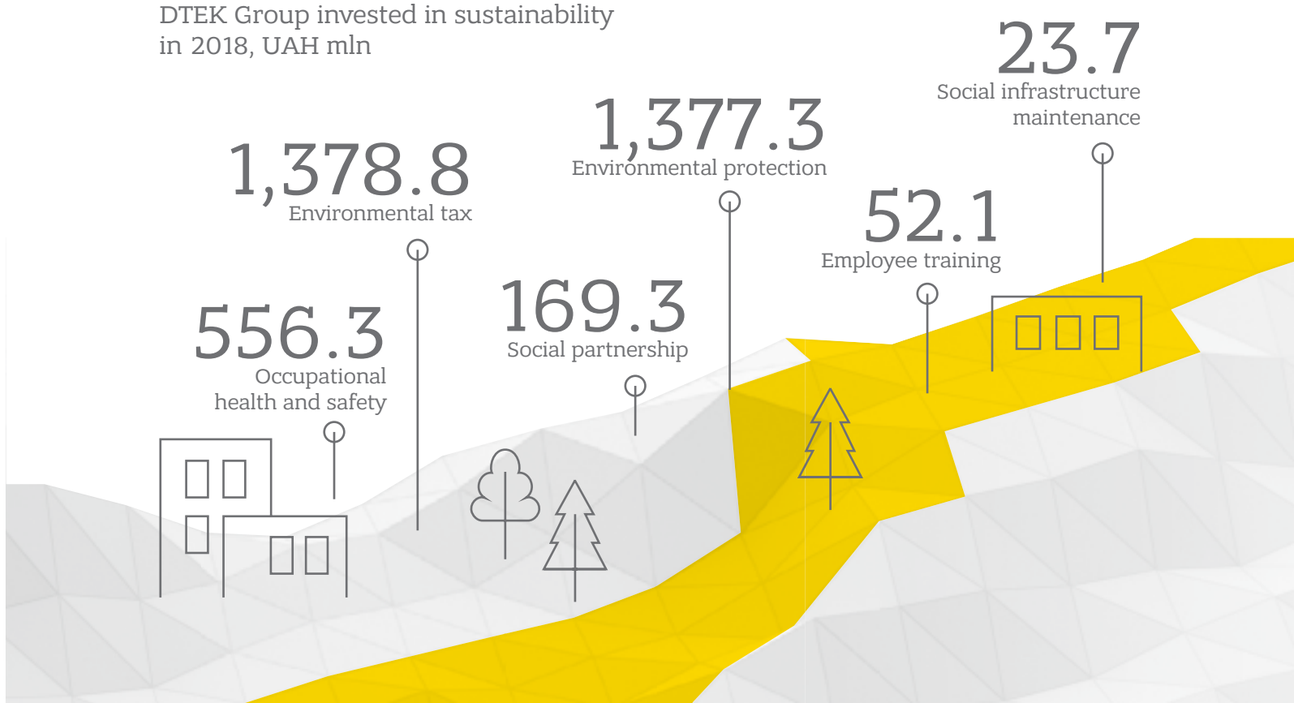
The Sustainability Committees' key tasks are:

- approval and updates to the strategy, as well as personnel management policies, including the corporate culture concept, recommendations for considering internal candidates for participation in training programs for successors to key positions — Top 50, Energy of Leader, Energy of Knowledge, Talent Pool;
- assessment of the occupational safety management system;
- identification of challenges and approval of social development strategies for the regions of operations;
- coordination of the environmental strategy;
- consideration of non-production issues that can significantly affect the company's ability to reach business targets.

The directorates' key tasks are:

- planning, implementation, monitoring of social projects and assessment of their efficiency;
- cooperation with stakeholders;
- development of corporate social responsibility in Ukraine;
- participation in Ukrainian and international sustainable development initiatives.

DTEK Group invested in sustainability in 2018, UAH mln



Top 5 Awards by ESG criteria for 2018

- DTEK Burshtyns'ka TPP received the "ECO Transformation-2018" award for implementing a project to increase the extraction of dry ash.

  Awards for achievements in the field of environmental safety were given during the business forum "ECOtransformation of Ukraine". The forum brought together more than 50 companies, public environmental organizations and government institutions responsible for the implementation of environmental policies.

- In the contest of the UN Global Compact in Ukraine, the Energy Efficient Schools project won the Planet nomination. Projects were evaluated according to the following criteria: innovation, contribution to social development, number of people involved.

  The Energy Efficient Schools project has been going since 2012 and is aimed at educating students on environmental values, responsible attitudes towards the consumption of resources and practical tips on conserving energy.

- DTEK Dnipro Grids' work was recognized in the Green Technologies and Innovations contest held by the Federation of Employers' Organizations of Dnipropetrovs'k region within the framework of the Ukrainian-German project Green Business Solutions — Unity for Sustainable Development.

  The company received an award for organizing an effective system of separate collection and disposal of waste.

- Naftogazvydobuvannya was recognized as the best company in the sector in the All-Ukrainian contest "The best enterprise in occupational health and safety". The competition is held annually by the State Labor Service of Ukraine. A prerequisite for participation in the competition is the absence of accidents or occupational diseases in the preceding year.

- A project managed by Academy DTEK was recognized in the "HR-Brand Award Ukraine" competition. Held since 2011 by the recruiting company Head Hunter Ukraine, the competition promotes the latest methods of personnel management.

  The Academy DTEK project "To calculate is impossible to guess. Where to draw the line? How HR-analytics saves people's lives and health" won the lead in the Region nomination.

  HR analytics is one of the tools helping DTEK achieve its global goal of zero injuries in the workplace. Academy DTEK's research team has developed a model that uses data analytics to forecast risks of safety violations associated with human factors. Measures are already being developed to minimize and eliminate those risks, based on the results obtained.

Membership in associations and international and national organizations

DTEK is a participant of the UN Global Compact network and a member of the Global Compact Alliance in Ukraine.

DTEK is one of the founders of the World Economic Fourum's Energy for Society Initiative.

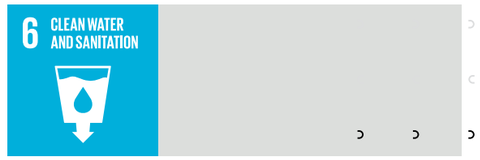
DTEK is a member of CSR Centre, an expert organization that promotes corporate social responsibility to achieve comprehensive and profound changes in Ukraine.

DTEK is a member of the European Business Association and the American Chamber of Commerce, the European-Ukrainian Energy Agency, and the U.S.–Ukraine Business Council.

DTEK is a member of professional associations: the European Association for Coal and Lignite (EURACOAL), the Union of the Electricity Industry (Eurelectric), the European Energy Forum (EEF), the European Federation of Energy Traders (EFET), the European Distribution System Operators (E.DSO).

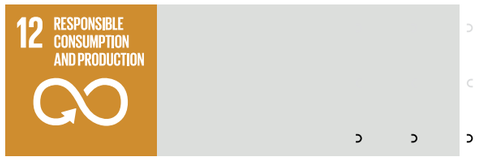
DTEK Group follows the principles of social responsibility and sustainable development, implementing projects to achieve the goals of the UN Global Compact

Criteria ESG: Environmental

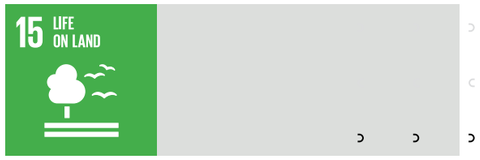


DTEK Group focuses its water resource management efforts around economic and efficient use at all its production facilities. To ensure optimum water consumption, the enterprises use both circulating water supply systems and reuse of water (for more detail, see Environmental Protection).

In order to keep the environmental balance, DTEK Group systematically upgrades its facilities, ensuring production reliability and compliance with the European environmental standards, as well as developing new business lines to decrease environmental impact and combat climate change (for more detail, see Investment Projects, Environmental Protection).

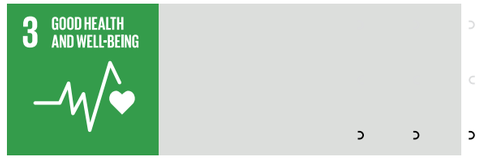


The DTEK Group strategy is aimed not only at reducing costs but also focuses on maximizing output from existing resources. The enterprises use innovative technologies to reduce fixed unit costs and increase product competitiveness. The second line of operation focuses on energy awareness and fostering responsible consumption by organizations and citizens (for more detail, see Investment Projects, Environmental Protection, Society).

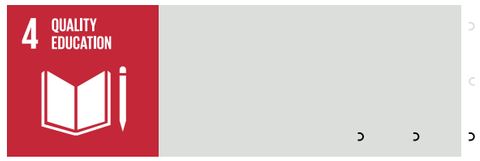


DTEK Group's environmental efforts all revolve around prevention and minimizing the organization's negative impact on biodiversity and the wider environment (for more detail, see Investment Projects, Environmental Protection).

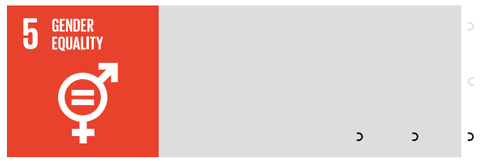
Criteria ESG: Social



DTEK Group pays great attention to the issue of health care, ensuring employees of its enterprises and local residents can all receive quality medical care on time (for more detail, see the Society).



DTEK Group supports various projects aimed at improving access to education and leisure. Educational programs have been implemented for external and internal stakeholders. The programs for external stakeholders have been created on an open platform to provide wider access. Employees, under the development of professional competencies, are given free education opportunities in the corporate university — Academy DTEK (for more detail, see the Society, Employees).



DTEK Group provides equal conditions for all employees to unlock their full potential and promotes career development regardless of gender.

DTEK Group's human resources work — including headhunting and personnel recruitment, and staff administration — is in line with the relevant Ukrainian laws and internal regulatory documents, with zero restrictions relating to gender.

DTEK Group's enterprises primarily work in single-industry towns. To foster the development of more economically self-sufficient communities, DTEK Group supports small and medium businesses which can stimulate job creation and attract investors to the regions. This also contributes to the growth of tax revenues for local budgets (for more detail, see the Society).

DTEK Group works hard to ensure it has stable social partnerships with the communities and local governing bodies of the regions in which it operates, to make those towns more comfortable to live in. To this end, the enterprises implement social partnership programs every year aimed at ensuring sustainable development.

The programs cover five key areas: energy efficiency in the utilities sector, health care, developing socially-important infrastructure, supporting business environment and increasing local communities' activity (for more detail, see the Society).

DTEK Group develops partnership relations with international donor organizations, state funds for the implementation of joint sustainable development projects in the areas where the company operates (for more detail, see the Society).

Environmental protection

The strategic objectives of DTEK Group include the introduction of modern technologies and best practices which minimize the impact of its production on the environment and optimize the use of hazardous substances and materials. The principles of the UN Global Compact, which DTEK Group follows in the field of environmental protection, reflect the "E", Environmental, in the ESG criteria.

Ensure availability and sustainable management of water and sanitation for all

Ensure access to affordable, reliable, sustainable and modern energy for all

Ensure sustainable consumption and production patterns

Take urgent action to combat climate change and its impacts

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

All enterprises and their employees are required to adhere to DTEK Group's Environmental Policy.

The document defines the following long-term goals in relation to environmental protection:

- protecting the environment, including pollution prevention, responsible use of resources, reducing the impact of climate change, protecting biological diversity and ecosystems;
- developing renewable energy and modernization of thermal generation;
- ensuring the environmental safety of enterprises;
- continuous improvement of environmental management system to improve environmental performance.

To achieve these goals:

- ensures the environmental management system's operation, analysis and continuous improvement;
- compulsory legislative and other requirements adopted by DTEK Group are complied with;
- implementation of preventive measures are being incorporated as part of the modernization of technological processes at all stages of the production chain;
- annual and strategic environmental programs are implemented to sufficient level to achieve efficient and effective management of significant environmental aspects and risks;
- monitoring, measurement, analysis and assessment of environmental indicators are carried out;
- environmental safety is ensured by improving production and management processes;
- interaction with the public and stakeholders in relation to environmental activities;
- participation in external initiatives on environmental protection, including development and improvement of the environmental legislation of Ukraine;
- employees are trained in environmental protection;
- programs are initiated to motivate employees to improve environmental performance.

Environmentally-related expenditure of the DTEK Group, UAH mln

	Capital investments			Operating expenses			Additional expenses			Total business segment		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
DTEK Energy: coal production and processing	38.8	26.3	30.9	127.9	97.1	150.2	63.8	34.4	47.6	230.6	157.8	228.7
DTEK Energy: electricity generation	72.9	292.7	213.6	542.3	633.8	859.5	8.1	10.4	12.6	623.3	936.9	1,085.7
DTEK Renewables	—	—	—	0.1	0.2	0.7	—	—	—	0.1	0.2	0.7
DTEK Oil & Gas	—	29.3	55.2	1.3	0.8	2.2	—	0.5	0.03	1.3	30.6	57.4
DTEK Grids	0.2	0.05	0.3	1.0	0.5	2.1	1.9	0.8	2.4	3.1	1.3	4.8

Implementation of environmental protection standards

Environmental protection legislation

Within the framework of the Association Agreement between Ukraine and the EU, regulatory legislation of the European Union was implemented, and these essential documents adopted:

- Energy Strategy of Ukraine for the period until 2035. A high level of environmental responsibility, compliance with high environmental standards of production, transportation, transformation and energy consumption is required from the state and energy companies.
- The National Emission Reduction Plan for Large Combustion Plants. The document provides that emissions of dust and sulfur oxides to the atmosphere should be reduced by 40 and 20 times respectively by 2028, while emissions of nitrogen oxides should drop four-fold by 2033 in accordance with the requirements of Directive 2010/75/EC.
- The National Waste Management Strategy for the period to 2030. As a part of implementation of the strategy, national and regional waste management plans will be developed.
- Law of Ukraine "On Environmental Impact Assessment". A new mechanism for assessing the impact of activities which pose a heightened environmental risk, has been established. Responsibility has also been established for non-compliance with the provisions with the possibility of suspending the activities of the enterprise.
- Law of Ukraine "On Amendments to the Budget Code of Ukraine". Changes have been made to the allocation of eco-tax funds between the central and regional budgets. The state budget revenues will include 45% of the eco-tax. The exception is the eco-tax levied on stationary sources of pollution for carbon dioxide emissions into the atmosphere, which, from 2019, will be included in the general fund of the state budget.
- The Law of Ukraine "On Amendments to the Tax Code of Ukraine and Certain Legislative Acts of Ukraine on Improving Administration and Revising the Rates of Certain Taxes and Fees". Changes have been made for determining who pay environmental tax for CO_2 emissions, and the environmental tax rate for such emissions has been increased from 0.41 to 10 UAH per tonnes.
- Order of the State Statistics Service of Ukraine "On Approval of the State Statistical Observation Form No. 2 (air)". The improved form of the "Report on Emissions of Pollutants and Greenhouse Gases into the Air from Stationary Emission Sources" has been approved.
- Order of the Ministry of Ecology and Natural Resources of Ukraine "Technological standards for permissible emissions of pollutants from thermal power plants, the nominal thermal capacity of which exceeds 50 MW" (updated). For existing plants that are included in the National Emission Reduction Plan for large combustion plants, the deadlines for achieving the indicators for permissible pollutant emissions have been amended.

DTEK Group's approach to Environmental Impact Assessment

Preventing and minimizing the negative environmental impacts of DTEK Group operations is one of the main priorities of the organization's environmental activities. The structure of responsibility for the environmental management system is defined, the main elements of which are as follows:

- implementation, operation and improvement of the environmental management system in accordance with ISO 14001;
- auditing the environmental management system;
- identification and assessment of environmental risks and opportunities, development of measures to manage them;
- development and implementation of environmental programs (annual and prospective) in the field of atmospheric air protection, rational use of water resources, regulation of waste quality and groundwater in the areas hosting production facilities, waste management and land reclamation;
- conducting annual environmental trainings for all employees of enterprises;
- work with contractors and suppliers.

In response to updates in the requirements of standard ISO 14001:2015, DTEK Group's industrial enterprises have developed internal regulatory documents for introducing changes, and started compliance audits. To date, auditing companies have confirmed the compliance of the environmental management systems at DTEK Skhidenergo, DTEK Dniproenergo, DTEK Westenergy, Wind Power, Naftogazvydobuvannya, DTEK Dnipro Grids, DTEK Donetsk Grids, DTEK Power Grid. The scope of certification included 100% of employees working at these enterprises. In 2019, there are plans to conduct a certification audit for compliance with ISO 14001:2015 by DTEK Kyiv Grids.

In addition, DTEK Group supports adherence to the international environmental standard among its counterparties. For example, according to the Technical Policy of Enterprises for Electricity Generation, equipment suppliers must comply with the requirements of ISO 14001, while technical specifications for the purchase of materials are formed in line with environmental protection requirements.

> DTEK Group enterprises monitor their environmental impact in accordance with the requirements of current legislation. For this, a control system has been built that covers the entire production cycle: emissions and discharges pass laboratory tests, waste accumulation sites are assessed for their impact on soil and air, atmospheric air and groundwater at the border of enterprises' environmental protection zones are taken for quality control, and environmental facilities and cleaning equipment are checked for compliance with technical conditions. Environmental monitoring data demonstrates the impact production has on environment and ensures enterprises can identify actions which improve the situation and prevent adverse developments, in a timely manner.

For example, electricity generation enterprises of DTEK Energy have implemented the "Automated System of Environmental Indicators" project. There are five automated functional units in this project: control over the state of flue gas monitoring systems, control over the state of ash and slag pipelines and ash dumps, informing about environmental emergencies, managing inspections of compliance with environmental legislation requirements, calculation of the eco-tax.

The locally monitored observation network at Naftogazvydobuvannya became a basis for a similar style of monitoring the quality of soils and groundwater at the Semyrenkivs'ke and Machukhs'ke fields. A constant collection of relevant data ensures can identify and prevent negative environmental impacts. The company takes water and soil samples at the local operational sites of, carries out measurements on static water, pumps observation wells and takes gas from near-surface sediment on a quarterly basis.

In addition, DTEK works with the village of Kovalivka, where the main production activities of the enterprise are concentrated, to carry out tests of water and soil at sites identified by the residents. To date, the research results demonstrate the absence of a detrimental impact environmental impact from Naftogazvydobuvannya.

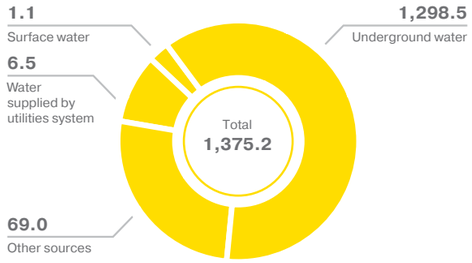
6 CLEAN WATER AND SANITATION

Water resource

Water consumption

DTEK Group focuses its water resource management efforts around economic and efficient use at all its production facilities. To ensure optimum water consumption, DTEK enterprises use both circulating water supply systems and reuse of water.

Water withdrawal by DTEK Group's enterprises in 2018, mln cubic meters



The largest volumes of water are used by the electricity generation enterprises of DTEK Energy. Most of the company's power plants reuse industrial water in the production cycle, working with a circulating cooling system in their main and auxiliary equipment. The exceptions are DTEK Zaporiz'ka TPP and DTEK Prydniprovs'ka TPP, which operate on a once-through water supply system.

A circulating water supply system is used if, for technical or economic reasons, it is not possible to use a once-through water supply system. Such a system includes cooling reservoirs, which are created on the basis of a small river. A once-through water supply system is designed when the needs of thermal power plants do not exceed the minimum flow of water in the river. Water passes through the station's equipment once turbines are cooled and then returns to the river. Thus, almost the entire volume of industrial wastewater is heat-exchanging water and is classified as clean.

In 2018, the company's power plants implemented the following activities aimed at more rational use of water resources and water treatment:

- DTEK Prydniprovs'ka TPP retro-fitted an automated system for monitoring and recording water supply and sanitation, by installing 32 instrument sets for measuring water flow at supply, distribution and drain nodes;
- DTEK Burshtyns'ka TPP reconstructed a drinking water pipeline, which ensured drinking water savings of 10 ths cubic meters per month;
- DTEK Dobrotvirs'ka TPP completed the first start-up complex of its project to reconstruct the water deferrification station. Now, treated wastewater is subject to iron removal of drinking water from wells, and then is reused to clean the filters. The project makes it possible to reduce discharges to local bodies of water by 95%.

Rational use of water by mining and concentrating enterprises of DTEK Energy is ensured by the reuse of mine water for production needs and circulating water supply systems. For example, CCM Pavlohrads'ka and DTEK Dobropil's'ka CEP installed filter presses, which create two products: clean water and small fractional waste with humidity of 40%. This eliminates the need for an external slurry pond. Water is returned to the enrichment process, the plants have created a complete closed cycle of the water-slurry scheme, and waste is taken to a waste dump or used for land reclamation works.

For drinking and other needs, Naftogazvydobuvannya uses water contained in four wells. All wells are subject to permits which limit the daily and annual water consumption. Wells are equipped with verified meters, and water consumption logs are kept. Limits have not been exceeded, to date.

Wastewater discharges

DTEK Energy's enterprises continuously monitor the quality of wastewater, implement projects to modernize treatment facilities and reuse wastewater in technological cycles.

Mass of pollutants in wastewater of DTEK Group's enterprises in 2018, tonnes

Pollutants	Mass, tonnes
Iron mass (total)	3.4
Mass of petroleum products	6.1
Mass pf ammonium nitrogen	8.8
Mass of nitrates	64.9
Mass of BOD (full)	202.3
Mass of suspended substances	762.0
Mass of sulphates	22,990.0
Mass of chlorides	38,262.0
Mass of dry residue	109,976.0

In order to reduce the negative impact of wastewater on surface and groundwater, DTEK Energy TPPs monitor the quality of discharged wastewater and the status of groundwater. Furthermore, all stations monitor the quality of wastewater and groundwater in areas where dumps are located in accordance with the approved schedules and carry out measures to clean up the reservoir-coolers from bottom sediments.

The main activities aimed at prevention and minimization of wastewater discharges implemented by DTEK Energy TPPs in 2018:

- DTEK Prydniprovs'ka TPP implemented the "Technical re-equipment by installing an automated system for monitoring and metering water consumption at discharge channels No.1 and 2 of DTEK Prydniprovs'ka TPP" project, during which measuring instruments were installed to assess heat exchange water indicators (volume and flow rate, water temperature), as well as the reconstruction of the industrial drainage system;
- DTEK Luhans'ka TPP is implementing a project for the construction of industrial drainage systems;
- DTEK Burshtyns'ka TPP developed designs for the construction of wastewater treatment plants for domestic wastewater.

To maintain the water reservoir levels required to ensure the reliability and safety of their operations, DTEK Dobrotvirs'ka TPP and DTEK Burshtyns'ka TPP installed new segmented gates on spillway dams in 2017–2018; DTEK Kurakhovs'ka TPP organized the construction of an additional gateway regulator for its open discharge channel; DTEK Luhans'ka TPP developed a project and started the reconstruction of shandors on discharges of heat exchange waters.

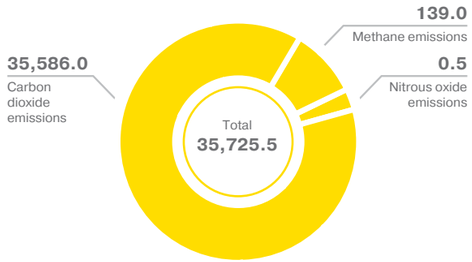
Facilities of water intake for production and drinking water supply and discharge of industrial wastewater

Enterprises	Facilities for water intake for industrial and drinking water supply	Facilities for industrial wastewater discharge
DTEK Energy: TPPs and CHPP		
DTEK Kurakhovs'ka TPP	Siverskyi Donets — Donbas Channel and Kurakhove reservoir on Vovcha River	Cooling reservoir on Vovcha River
DTEK Luhans'ka TPP	Siverskyi Donets River	Siverskyi Donets River
DTEK Prydniprovs'ka TPP	Dnipro River	Dnipro River
DTEK Kryvoriz'ka TPP	Dnipro — Kryvyi Rih Channel and cooling reservoir	Inhulets River
DTEK Zaporiz'ka TPP	Kakhovka reservoir on Dnipro River	Kakhovka reservoir on Dnipro River
DTEK Burshtyns'ka TPP	Cooling reservoir on Hnyla Lypa River	Cooling reservoir on Hnyla Lypa River
DTEK Dobrotvirs'ka TPP	Cooling reservoir on Zakhidnyi Buh River	Cooling reservoir on Zakhidnyi Buh River
DTEK Ladyzhyns'ka TPP	Cooling reservoir on Pivdennyi Buh River	Cooling reservoir on Pivdennyi Buh River
DTEK Myronivka CHPP	Cooling reservoir on Luhan River	Cooling reservoir on Luhan River
DTEK Energy: mines (including dust suppression) and processing plants		
DTEK Pavlohradcoal	Underground water PROWSST, Dnipro — Western Donbas SE, mine waters	Samara River
DTEK Dobropolyeugol	Underground water and mine waters, surface waters of the Pokrovskyi and the Dobropilskyi Production Department of Water and Sewer Utilities of Public Utility Company "Voda Donbasu", artesian wells of the Pioner mine	Byk River, Gnylusha River, Vodyana River
DTEK Dobropil's'ka CEP	Surface waters of Dobropillia Production Department of Water and Sewer Utilities	None, a recirculation system is used
CCM Kurahivs'ka	Surface waters of Selydove Production Department of Water and Sewer Utilities	None, a recirculation system is used
CCM Pavlohrads'ka	Surface waters of Pavlohrad Production Department of Water and Sewer Utilities	None, a recirculation system is used
DTEK Oil & Gas		
Naftogazvydobuvannya	Underground water	Special tanks and cesspools with further disposal

Air emissions, climate change and greenhouse gases

To minimize its negative impacts on the environment, DTEK Group makes considerable efforts across all stages of the production process. Systematic capacity modernization is carried out to preserve the ecological balance, ensure reliability of production and guarantee compliance with European environmental standards.

Greenhouse gas emissions by DTEK Group enterprises in 2018, ths tonnes



Since 2012, DTEK Energy has been reconstructing electrical filters when upgrading and reconstructing power units to achieve dust emission levels in line with Directive 2001/80/EC — the residual dust content of exhaust gases is not more than 50 mg/Nm^3. Gas cleaning plants at modernized power units are equipped with flue gas monitoring systems for the continuous monitoring of atmospheric emissions. Additionally, all power plants have video surveillance systems installed, which allows operators of boiler units to obtain additional operational information about the combustion modes in those boilers.

Permits for emissions were received at all power plants of the company in accordance with accepted changes to environmental legislation.

In 2018, DTEK Prydniprovs'ka TPP started using an automatic monitoring station for atmospheric air at the border of its sanitary protection zone. Digital sensors monitor the concentration of dust, carbon monoxide, sulfur dioxide and nitrogen in the atmospheric air. The installation of the station allows residents to have greater control of the quality of atmospheric air — all data is transmitted to the site https://ecoinfo.pro, which aggregates indicators from other monitoring posts installed in the Dnipropetrovs'k region.

Reducing the concentration of dust emissions to European standards due to the construction and modernization of electrical filters

Power units of TPPs (equipment)	Decreased dust concentration, number of times
No.6 DTEK Kurakhovs'ka TPP (electrical filters)	50.6
No.8 DTEK Kurakhovs'ka TPP (electrical filters)	48.9
No.9 DTEK Kurakhovs'ka TPP (electrical filters)	40.0
No.10 DTEK Luhans'ka TPP (wet dust collectors)	3.3
No.13 DTEK Luhans'ka TPP (electrical filters)	46.2
No.1 DTEK Zaporiz'ka TPP (electrical filters)	6.4
No.3 DTEK Zaporiz'ka TPP (electrical filters)	6.8
No.9 DTEK Prydniprovs'ka TPP (electrical filters)	17.0
No.10 DTEK Prydniprovs'ka TPP (electrical filters)	18.8*
No.11 DTEK Prydniprovs'ka TPP (electrical filters)	24.6
No.1 DTEK Kryvoriz'ka TPP (electrical filters)	26.0
No.5 DTEK Burshtyns'ka TPP (electrical filters)	24.3
No.7 DTEK Burshtyns'ka TPP (electrical filters)	21.7
No.10 DTEK Burshtyns'ka TPP (electrical filters)	8.0
No.12 DTEK Burshtyns'ka TPP (electrical filters)	2.7
No.8 DTEK Dobrotvirs'ka TPP (wet dust collectors)	5.8
No.12 DTEK Dobrotvirs'ka TPP (wet dust collectors)	22.0
No.1 DTEK Ladyzhyns'ka TPP (electrical filters)**	3.0

* Works completed in the first quarter of 2019. The power unit is in commissioning mode until August 31, 2019, in connection with which design indicators are specified.

** In 2018, the first stage of the project for the technical re-equipment of dust-cleaning equipment was implemented. In 2019, it is planned to implement the second stage of the project.

In 2009-2011 was reconstructed electrical filters and significantly reduced dust emissions at power unit No.3, No.5, No.7 DTEK Kurakhovs'ka TPP.

A significant project in 2018 was a collaboration with the World Bank that formed part of the Partnership for Market Readiness project. This project was implemented in compliance with the requirements of Directive 2003/87/EC on the establishment of a greenhouse gas emission trading scheme in order to prepare for DTEK Energy TPPs' participation in the national greenhouse gas emission trading system. With technical support from the bank, DTEK Zaporiz'ka TPP successfully implemented a pilot project on monitoring, reporting and verification of greenhouse gas emissions. Representatives of the World Bank trained employees from the environmental departments at all power plants of the company to develop plans for monitoring greenhouse gas emissions.

> The development of the renewable energy sector, which is led by DTEK Renewables, will help reduce greenhouse gas emissions. The company is actively building green power plants, and the portfolio of implemented projects should reach 1,000 MW in 2020. This means that the annual production will amount to 2,500 mln kWh of green electricity — the equivalent of Ukraine's total consumption for seven days. This also means that CO_2 emissions will decrease by 2,650 ths tonnes per year.

In addition, since 2016, DTEK Renewables has been promoting an Industrial Tourism program to build greater awareness of green energy. Every Friday for anyone who would like to join, Botievo Wind Power Station conducts free tours, which include an inspection of the station's control center, visits to the wind installations and the site near the wind tower. Every year such tours are becoming more and more popular — in 2018, Ukraine's largest wind power plant received 1,500 visitors, and almost a third of them were schoolchildren.

Twice a year, in the sphere of natural gas production, compliance with the standards for maximum permissible emissions at the border of the sanitary protection zone is monitored, and once a year — the monitoring of pollutant emissions broken down into sources and substances is carried out according to the permissions set out in "Measures to monitor compliance with the approved standards for allowable emissions". Naftogazvydobuvannya received permits for emissions of pollutants into atmospheric air from stationary sources that cover all gas treatment facilities and wells in operation. Emissions do not exceed the permissible limits and are in the limit of requirements.

15 LIFE ON LAND

Conservation and restoration of biodiversity

Considering the ornithological safety of electrical equipment remains a new issue for the Ukrainian energy sector. Previously, power engineers were only concerned about protecting power lines from potential damage and emergencies, but now special attention is paid to cooperation with ecologists and ornithologists.

According to research, birds are making increasing use of power line pylons, used by them instead of trees in the open areas. White storks, stock doves, and saker falcons all have been nesting on these structures. Ornithologists estimate that more than 50% of the population of white storks nest on power lines, because they make a convenient place for the birds to rest and look for prey.

DTEK Group's enterprises responsible for distribution of electricity were among the first to introduce programs for ornithological safety on power lines back in 2013 when bird-protecting devices were installed. The benefits of the program are twofold: birds receive greater protection and consumer receive more reliable power supply.

In addition, in the protected areas, distribution system operators are implementing special projects for the conservation of rare bird species. For example, since 2015, together with the Dnipro-Orel Nature Reserve, together with the Dnipro-Orel Nature Reserve, DTEK has monitored the impact of power lines on the aerial wildlife in the Dnipropetrovs'k region. This monitoring is primarily aimed at protecting the white stork. Monitoring allows to select areas for the installation of bird protection devices. 179.8 km of power lines have been already surveyed. In the territory of the ornithological reserve "Bulakhivs'ky Lyman", 2 km of power lines are equipped with special markers. Markers with light-reflecting elements that are visible at a distance of up to 15 meters, thanks to which birds can safely fly over wires at dusk or in bad weather. Also, in the Orels`ky national natural park, covers have been installed (a cap of insulating material that covers the insulator and wire sections on the sides).

> Each year, experts at DTEK Grids monitor the appearance of new stork nests on power lines during inspections in order to equip them appropriately future. In 2018, DTEK Dnipro Grids and DTEK Donetsk Grids transferred 16 nests of white stork to special artificial platforms, and 111 nests were transferred over the last five years. In addition, two artificial nests and three protective visors for the stock dove (Columba oenas), a species listed in the Red Book of Ukraine, are installed on the power transmission towers.

DTEK Dnipro Grids attract children and young people to the protection of white stork, conducting an annual regional competition "Leleka" since 2015. In 2018, 11 winners of the competition were awarded with valuable gifts. The company focuses on motivating employees to engage with environmental activities. Employees across three structural divisions of the company were awarded with the "The Best in Taking Care of Nature" Cup alongside monetary prizes.

DTEK Renewables also continuously monitors bird and bat populations, conducting annual research on the environmental impact of wind turbines. The monitoring covers the sites of all wind farms of the company: Botievo, Orlivs'ka, Prymors'k and Prymors'k-2. Since 2018, ornithological monitoring has been carried out in accordance with the recommendations of the Scottish Natural Heritage, the Equator Principles and the standards of international financial companies.

DTEK Energy's electricity generation enterprises, which use significant volumes of water in their production cycles, carried out an assessment of bio-reclamation works and the possibility of fish farming, as well as expert analysis of the state of cooling reservoirs. Pilot projects on bio-reclamation and fish farming are being implemented at DTEK Ladyzhyns'ka TPP and DTEK Kryvoriz'ka TPP, and a fish protection device has been installed at DTEK Kurakhovs'ka TPP to protect fish, particularly juvenile fish from entering the intake facilities of the TPP.

15 LIFE ON LAND

Waste management and land reclamation of lands

99.9% of the waste generated during the production activities of DTEK Energy's enterprises is non-hazardous, but it still needs to be distributed across available land. In this regard, one of the key tasks in the field of environmental protection is increasing the use of ash and slag materials (ASM), which are formed during the combustion of coal for electricity generation.

ASM can be used in the construction industry in the production of cement and concrete, which will also help reduce the use of natural raw materials and greenhouse gas emissions. In Ukraine, an average 5-10% of ash and slag materials are transferred to construction organizations, while in European countries that figure is 95%.

Programs for increasing the use of fly ash, slag and ASM have been developed and are being implemented at all TPPs of DTEK Energy. In 2018, the first stage of the project "Technical re-equipment of the electrical filter of the power unit No.1 DTEK Ladyzhyns'ka TPP" was implemented, aimed at increasing the collection of dry ash to 50 ths tonnes per year. Also, power units No.7 and No.12 of DTEK Burshtyns'ka TPP re-equipped systems for pneumatic ash removal, which will increase the amount of ash utilization up to 70 ths tonnes per year. In addition, DTEK Zaporiz'ka TPP developed technical documentation for the construction of a pneumatic ash removal system on the electrical filters of power units No.2 and No.3.

To halt the allocation of new lands for the disposal of ash and slag waste, thermal generation enterprises are increasing dams of ash dumps using this material. In particular, DTEK Kurakhovs'ka TPP, DTEK Dobrotvirs'ka TPP, DTEK Ladyzhyns'ka TPP, DTEK Zaporiz'ka TPP and DTEK Prydniprovs'ka TPP performed such works in 2018. At the same time, stations are being replaced at ash and slag lines to stop ash and slag waste mixing into the environment. In 2018, 5.7 km were replaced.

In 2018, the amount of ash and slag used was 949.5 ths tonnes. In total, DTEK Energy TPPs used 516.3 ths tonnes for their own needs and 433.2 ths tonnes were sent to external customers. This is 21.8% of the total ash and slag formation.

Road construction is another promising area for the re-use of ash and slag. An expert opinion was developed concerning the use of ash and slag by DTEK Ladyzhyns'ka TPP, DTEK Burshtyns'ka TPP, DTEK Dobrotvirs'ka TPP, DTEK Kryvoriz'ka TPP, DTEK Kurakhovs'ka TPP and DTEK Prydniprovs'ka TPP, which in 2017 was approved by Shulgin State Road Research Institute. This made it possible to introduce the use of ash and slag materials in the design and estimate documentation for construction, reconstruction, overhaul of state and local roads.

In 2018, cooperation with the research institute continued — rock studies were carried out for DTEK Pavlohradcoal mines, and recommendations were given on the design and construction of road embankments using rocks. This will allow the company to conduct further work to better utilize waste.

DTEK Pavlohradcoal annually reclaims land disturbed by mining operations. Reclamation is carried out by dumping rock sections with a sunken surface. Then, a fertile layer is applied to the plot of land and biological reclamation is carried out: organic and mineral fertilizers are applied, land reclamation and sowing of various agricultural crops are carried out in order to restore fertility of the soil. In 2018, the technical stage of reclamation was completed on an area of 10.9 hectares with a conditionally fertile layer.

In addition, the company takes part in forest planting initiatives every year, replacing forests damaged during mining operations. In 2018, the Pavlohrads'ka, Ternivs'ka, Blahodatna and Samars'ka mines carried out forest planting across an area of 13 hectares.

Coal processing enterprises have switched to using an innovative "green dump" technology in the construction of waste dumps. Clay banking is built for each tier of the dump as well as an internal drainage system and a fire-prevention protective layer. This approach reduces the environmental impact by eliminating the formation of combustible sources and stopping waste coal leaking into the wider environment, while waste water can be discharged into the pond and reused in production. In 2018, DTEK Oktyabrs'ka CEP completed construction and installation work on the third phase of construction of a "green dump", ensuring the authorized and environmentally-friendly disposal of coal waste.

In the field of natural gas production, DTEK is applying modern technologies for utilization of waste products arising from the drilling of wells, which minimize the environmental impact. Previously, drilling waste — primarily cuttings and waste water — was collected in special waterproofing slurry barns, and after the work was completed, they were neutralized, cleaned and buried in places determined by environmental impact assessment projects.

Since 2017, when developing the Semyrenkivs'ke field, Naftogazvydobuvannya has been using heightened environmental standards and pit-free drilling for wells, which eliminates the detrimental environmental impact. Pit-free drilling makes it possible to clean up sludge using special equipment. DTEK Oil & Gas cleans up all of its sludge, with solid elements transported to specially equipped landfills and fluid elements reused in drilling. The land is then reclaimed and returned to its original state, suitable for biological reclamation. In 2018, the company reclaimed 4.5 hectares of land.

Handling and optimizing the use of hazardous substances and materials

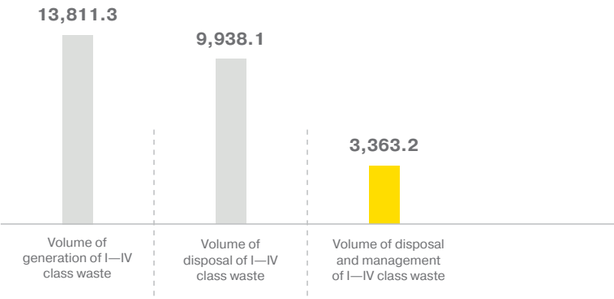
Optimizing the use of hazardous substances and materials is one of the key initiatives of DTEK Group's industrial enterprises. In 2018, work to reduce the use of materials containing asbestos continued. Enterprises responsible for electricity generation made a partial replacement of materials containing asbestos for alternative substances and materials during repairs, brick setting and insulation of equipment. In addition, distribution system operators are replacing oil-filled equipment with hermetic oil transformers that do not require maintenance, or with vacuum, gas-insulated, or dry dielectric. This makes it possible to improve the environmental safety of equipment and eliminates the risk of oil spills.

Also, enterprises are replacing lamps which contain mercury with LED lightbulbs, which are more economical and significantly less harmful to the environment. For example, in 2018, thermal generation enterprises replaced 15,711 lamps with LEDs, while distribution system operators replaced 2,775 lamps.

DTEK Dnipro Grids was recognized in the Green Technologies and Innovations Competition for its efficient system for separate collection and recycling of waste. The enterprise collects up to 40 types of waste generated during production activity: mercury lamps, tires, batteries, petroleum products, waste paper, electrical insulation, polymer waste, etc. The company separately collects waste and transfers it to a five-year disposal process, preventing the release of hazardous waste to landfills.

The competition was held by the Federation of Employers' Organizations of the Dnipropetrovs'k region within the framework of the Ukrainian-German "Green Business Solutions — Unity for Sustainable Development" project.

Waste management in 2018, ths tonnes

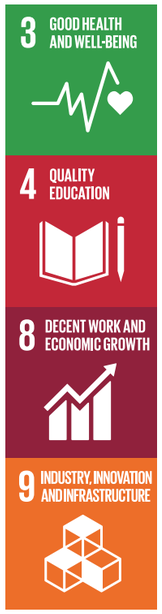


In 2018, the Pavlohrads'ka, Ternivs'ka, Blagodatna and Samarska mines on the area of

13 hectares planted trees

Society

All of DTEK Group's companies have a social partnership with the communities where they operate, with the aim of building trust-based relationships.
Our goal is to improve the quality of life within those communities through the sustainable social, economic and cultural development.
The principles of the UN Global Compact, which DTEK Group adheres to in relation to social partnerships, reflect the "S", Social, in the ESG criteria.



Ensure healthy lives and promote well-being for all at all ages

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Make cities and human settlements inclusive, safe, resilient and sustainable

Ensure sustainable consumption and production patterns

Strengthen the means of implementation and revitalize the global partnership for sustainable development

Social Partnership Programs

Strategies for the social and economic development of the territories are instruments for achieving sustainable development goals. Strategic road maps are developed jointly between local authorities, experts, and the general public, whose representatives form committees for managing and implementing strategies. Then the strategies are approved by local authorities, and the committees monitor their implementation. This allows involvement from the whole community and unites people in tackling the most urgent sustainability issues.
Also, this approach allows the community to raise funds for the implementation of the projects — both from business and government funds, and from international donor organizations.

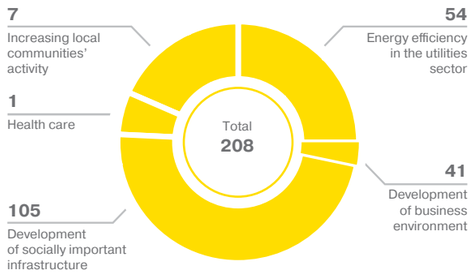
As part of the strategies, Social Partnership Programs are implemented, which consist of interregional and local projects. Interregional projects are large investment projects that are implemented at a territorial level, uniting several cities where the DTEK Group companies operate. Such projects solve problems common to all the territories involved. Local projects are designed to correlate to activities and take into account the needs of the local community. This approach ensures the peculiarities of each community can be taken into account, thereby reducing social risks.

Investments in the directions of the Social Partnership Programs, UAH mln

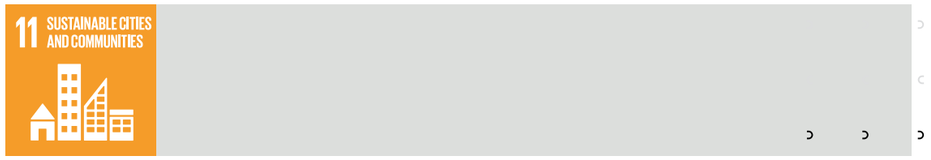
Directions	2013	2014	2015	2016	2017	2018
Development of socially important infrastructure	34.2	34.4	13.9	10.9	40.9	63.6
Increasing local communities' activity	5.5	3.8	3.3	9.2	39.8	58.8
Energy efficiency in the utilities sector	45.9	25.7	12.7	23.1	86.6	38.5
Health care	32.2	11.1	10.1	1.5	3.3	6.4
Development of business environment	12.8	2.6	0.9	0.8	2.0	2.1
Total	**130.8**	**77.6**	**40.9**	**45.5**	**172.6**	**169.3**

Since 2013, DTEK Group has switched from "selective" projects to the social partnership strategies in order to increase the efficiency of social investments.

Number of projects implemented under the Social Partnership Programs in 2018



From 2007 to 2018, within the framework of the Social Partnership Programs, 2,208 projects were implemented, in which DTEK Group invested UAH 1,208.3 mln.



“Your Hometown Begins with You” interregional project

The main goal of this project is to develop of public participation among the residents, involving them in solving the problems relevant to their area. As part of the project, each resident can contribute to improving the quality of life among residents in their districts, cities and villages. By supporting the initiatives, DTEK Group helps everyone understand the importance of their individual contributions towards sustainable development.

“Your Hometown Begins with You” is a mini-grants competition, for which residents can submit their project for the improvement of local facilities. The selection of the best projects involves local communities through the social partnership program website http://spp dtek.com.ua/, where online voting determines the fate of each project. In 2018, 61,000 residents took part in the voting. Moreover, the best projects are evaluated by the competition commission. In 2018, the commission included the Chairman of the Board of the UN Global Compact in Ukraine, representatives of DTEK Energy, sports figures and the media. The commission identified the five best projects, which received additional grants ranging from UAH 20,000 to 60,000.

This competition has achieved important changes: participants have formed true partnerships and a systematic approach to teamwork is being used for the implementation of projects. At first, residents submitted projects for improving their buildings and surrounding grounds, but more recently projects have been submitted on developing wider urban space. In this regard, a large grants competition is also held separately within a similar scope to these projects. In 2018, the competition covered 15 territories and communities submitted 45 ideas on changing public urban space. Based on the results of online voting, the 15 best projects were selected, one for each corresponding territory.

DTEK Group has been implementing the project “Your Hometown Begins with You” for seven years

Indicators	2013	2014	2015	2016	2017	2018
Number of settlements that took part in the project	18	19	15	38	42	55
Number of residents who took part in the project	5,600	6,535	5,918	7,222	16,000	16,400
Number of applications for mini-grants submitted for the consideration by the commissions	262	401	396	500	539	647
Number of winning projects for mini-grants	105	167	140	210	268	305
The maximum size of the mini-grant from the company, UAH	20,000	20,000	30,000	30,000	50,000	55,000
Number of applications for maxi-grants submitted for the consideration by the commissions					154	45
Number of winning projects for maxi-grants					15	15
Maximum amount of the maxi-grant from the company, UAH					200,000 – 500,000	200,000 – 700,000
Fund raising by the communities, UAH mln	1.4	1.2	2.0	2.3	6.0	7.3

Project TREND: “Technologies of Reasonable Energy Saving in Our Houses”

The housing and utilities sector of the country must meet energy demand needs while creating a culture of responsible energy consumption. DTEK Group started a new project in 2018 to create tools designed to help residents save energy in the territories where the company operates. The main task of the TREND project is to encourage the residents of apartment buildings to implement energy saving measures.

Project “Technologies of Reasonable Energy Saving in Our Houses” is designed to:

- Raise awareness of the energy saving and energy efficiency among apartment building co-owners (ABCO)
- Taking training and carrying out activities including information technology
- Attracting investment in improving the energy efficiency of residential buildings
- Improving the management efficiency of apartment buildings.

The project uses a common algorithm across all cities on the online platform TREND 1.0, http://energytrend.org.ua/, which is a development from the Municipal Development Institute. The platform collected services for ABCO for monitoring and managing energy consumption, feasibility and financial modelling of the apartment building management, introduction of energy-efficient measures and management accounting, and distance training program.

Dobropillia, Bilyts’ke, Bilozers’ke, Novodonets’ke, Pavlohrad became pilot cities participating in the project. In these cities, 149 ABCO took part in the project, for which trainings and workshops were held throughout the year. As a result, 50 ABCO conducted energy audits, which made it possible to develop and implement 20 energy efficiency projects.

TREND is a new project to improve the quality of life in the apartment buildings

	1st and 2nd waves	
Project participants	149 ABCO	37,500 residents
Coverage of implemented events	20 projects	3,500 residents
Savings on implemented projects	655.5 Gcal	UAH 734,200

4 QUALITY EDUCATION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

“Energy-Efficient Schools: New Generation” interregional project

“Energy-efficient schools: new generation” is an educational program for schoolchildren in grades 6–11, aimed at fostering environmental values and developing a responsible attitude to energy consumption and a skills in rational use. The program is hosted on an open online platform — energyschool.org.ua — which ensures all schools can access the modern teaching methods, whether they’re in city or village. Only 6 rural schools took part in the project in 2015, but that number increased to 327 in 2018.

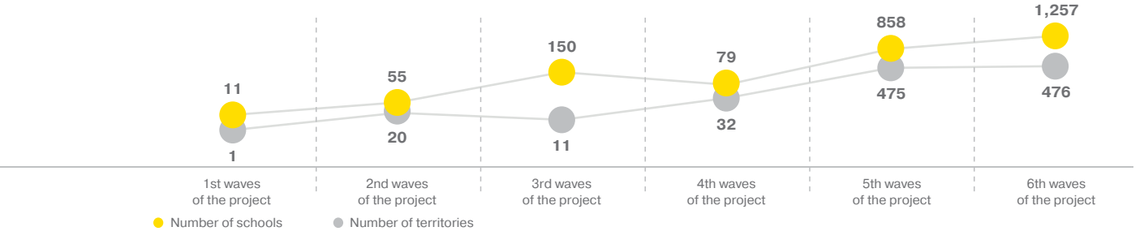
Two training courses have been developed by the company under the project — “Fundamentals of Energy Saving and Energy Consumption”, and “The ABC of Housing and Utilities Management” — were ratified by the Ministry of Education and Science of Ukraine. Students can also play the online game “Smart House”.

Implementation of the project on the open online platform enables to create virtual classes where students from different cities and regions study. In the 2018/2019 school year, students from 43 schools across 26 different cities in Ukraine studied the “ABC of Housing and Utilities Management”, took part in the online game “Smart House”, made exchange visits to their partner cities and competed in game Brain-ring on energy efficiency.

In 2018, the education programs for students of 4th and 9th–11th grades became the project’s innovations. The idea of teaching the youngest students the basic principles of energy efficiency belongs to the school teachers in Burshtyn. DTEK supported this initiative and six months later presented the education program “Secrets of an apartment building”, which was developed jointly with experts and representatives from the education sector. The innovation was accepted by teachers in other regions too — 20 schools included it in their education programs and successfully completed the training course. The program “Career 4.0” was offered to students of the 9th–11th grades, aimed at developing professional competencies needed in the contemporary labour market by providing basic knowledge of technology, engineering, IT and energy. The project is implemented in partnership with the leading universities in Ukraine.

Demand for innovative educational project is increasing every year. DTEK Energy, in partnership with the Ministry of Education and Science of Ukraine, held round tables in Lviv and Dnipro, which brought together representatives from the department of education and school principals. The purpose of the events was to select schools for participation in an experiment on the introduction of energy efficiency courses a compulsory part of the national curriculum.

Every year the number of participants of project “Energy Efficient Schools: New Generation” increases



The project’s methodological and organizational support is provided by the Municipal Development Institute All-Ukrainian Charitable Organization. According to the Institute’s calculations, every thousand schools participating in the project can save up to 5,200 MWh, which reduces CO_2 emissions by 4,742 tonnes.

4 QUALITY EDUCATION

International project “Come on, Let’s Play!”

“Come on, Let’s Play!” is a joint project with FC Shakhtar, which aims to increase participation in youth football in Ukraine and promote a healthy lifestyle. This is a project that involves boys, girls, children with special needs.

This sort of unique initiative is only possible with the support of large business, given it requires major development to existing sports infrastructure. Projects like these allow businesses to become active contributors to society and local communities, creating new opportunities for children regardless of where they’re from.

DTEK Group supports this project in the belief that mass participation football is useful not only for sports but also for social development. From an early age, children learn how to be part of a team and lead a healthy lifestyle, inspiring them to further become self-starters.

"Come on, Let’s Play!" is open to all children aged 7–12. The children receive free training and all the necessary equipment. They are taught by qualified volunteer coaches three times a week. DTEK and FC Shakhtar jointly organise regular competitions for the players, and alongside professional training, workshops and master classes from European specialists for the trainers.

In 2018, the project involved more than 3,000 children playing on 43 football fields, seven of which were opened in cities where DTEK Group operates.

5 key areas of Social Partnership Programs

DTEK Group has implemented Social Partnership Programs in 55 areas where its companies operate. Social investments are allocated to five key areas: energy efficiency in the utilities sector, health care, development of socially-important infrastructure, development of business environment and increasing local communities' activity.

1. Energy efficiency in the utilities sector

Energy efficiency is the driver of sustainable economic development in Ukraine. DTEK Group invests in projects that increase utility-sector energy efficiency and social infrastructure, and upgrades to street lighting in cities and towns.

Upgrading heat supply systems and implementing energy-efficient measures at socially important facilities like kindergartens, schools, hospitals, public places are important aspects of improving quality of life across communities.

In 2018, DTEK Group's efforts to improve heat supply revolved around purchasing equipment and materials for repair work. **In Shchastia**, 500 metres of pipes were purchased and repair work was carried out to replace problem sections of the mains heating. This provided proper heat for 12 multi-storey buildings which house pumping stations were installed at the "Pivdenna" boiler house, which heats 70% of the town's residential properties and social facilities.

Street lighting remains an acute problem for many areas: it is either absent or in need of significant modernization. To solve this problem, DTEK Group financed projects on street lighting modernization in areas where the company operates. **In Burshtyn**, lighting was replaced on Enerhetykiv, Budivel`nykiv, Sichovykh Striltsiv streets. Six pedestrian crossings were improved, while 160 new energy-efficient lamps and 14 new transmission towers were installed.

2. Health care

DTEK Group understands the importance of health care and ensures employees of its enterprises and local residents all receive high quality, on time medical care.

The most significant projects of 2018 are:

- **Vinnytsia:** a mobile ultrasound system was purchased for the regional clinical oncology dispensary, allowing non-transportable patients to be diagnosed. The hospital treats more than 16,000 children and 120,000 adult patients every year and carries out more than 5,000 operations.
- **Shishats'ky district** (Poltava region): modernization of the Shishats'ka district hospital is ongoing. In 2018, the subsequent step of this project was repairing the first floor of the pediatric department and purchasing specialist equipment for patients requiring isolation.

3. Development of socially-important infrastructure

DTEK Group supports projects aimed at improving the quality and accessibility of social services, addressing major problems in vital infrastructure, and improving access to education and leisure.

The most significant projects of 2018 are:

- **Dobropillia** (Donets'k region): works on covering the football field have been completed
- **Novodonets'ke settlement** (Donets'k region): completed a major overhaul of the pool at the Palace of Sports
- **Tryfonivka village** (Kherson region): reconstruction of the water supply system was completed for 700 residents of the village
- **Starozavods'ke village** (Dnipropetrovs'k region): the old water conduit was reconstructed with laying of 1.3 km of pipes of larger diameter, which enables to supply more water. Hydraulic pump station is being constructed with modern variable-speed pumps.

4. Increasing local communities' activity

Promoting development of public, cultural and sport initiatives is important for DTEK Group, for changes in the quality of life depend on activity and initiatives of each particular resident.

A key part of our work in this area in 2018, was the city-wide "CITYFest: open space" project which promoted social and cultural events.

- **Burshtyn** (Ivano-Frankivs'k region): the "Shining. Circle of the Heart" festival was dedicated to celebrating Mother's Day. A team of local volunteers was created to help organize the festival for the first time, and a city-wide photo competition — "The greatest right of a woman to be a mother" — was held. During the festival there were seven interactive locations focused on creative and social activities of women.
- **Zelenodols'k** (Dnipropetrovs'k region): the "EnergyFEST: new generation" festival attracts 10,000–12,000 residents every year. The main objective of the festival in 2018 was to integrate new interactive components of social activity. Children aged 9 to 13 took part in the Crazy Show, a visual showcase of various interesting substances from the areas of physics and chemistry, as well as alternative energy sources. A delegation from Burshtyn presented a set of activities aimed at intercultural dialog with Zelenodols'k. In addition, there were hip-hop and drumming workshops.
- **Ternivka** (Dnipropetrovs'k region): the "Ternotsvit" festival focused on dance and art. Social dance workshops (salsa and bachata), drumming, Emotional Restart Playback Theatre, and acroyoga all featured in the festival.
- **Pershotravens'k settlement** (Dnipropetrovs'k region): the "Energy of the City" festival aimed at promoting a healthy lifestyle. During the festival, there were five sports and five cultural and creative locations. A sports flash mob and game quest "Energy of the City" was special features of the event, involving 50 students from grades 10–11.
- **Pavlohrad** (Dnipropetrovs'k region): the "Pavlohrad Talisman" festival was integrated into the citywide program of celebrating City Day. The event focuseds on family traditions and values. A city-wide competition was held for the best answer to: "Family is …", there were thematic street exhibitions, as well as family workshops. A musical jam including classical and non-traditional ethnic instruments was new this year.

5. Development of business environment

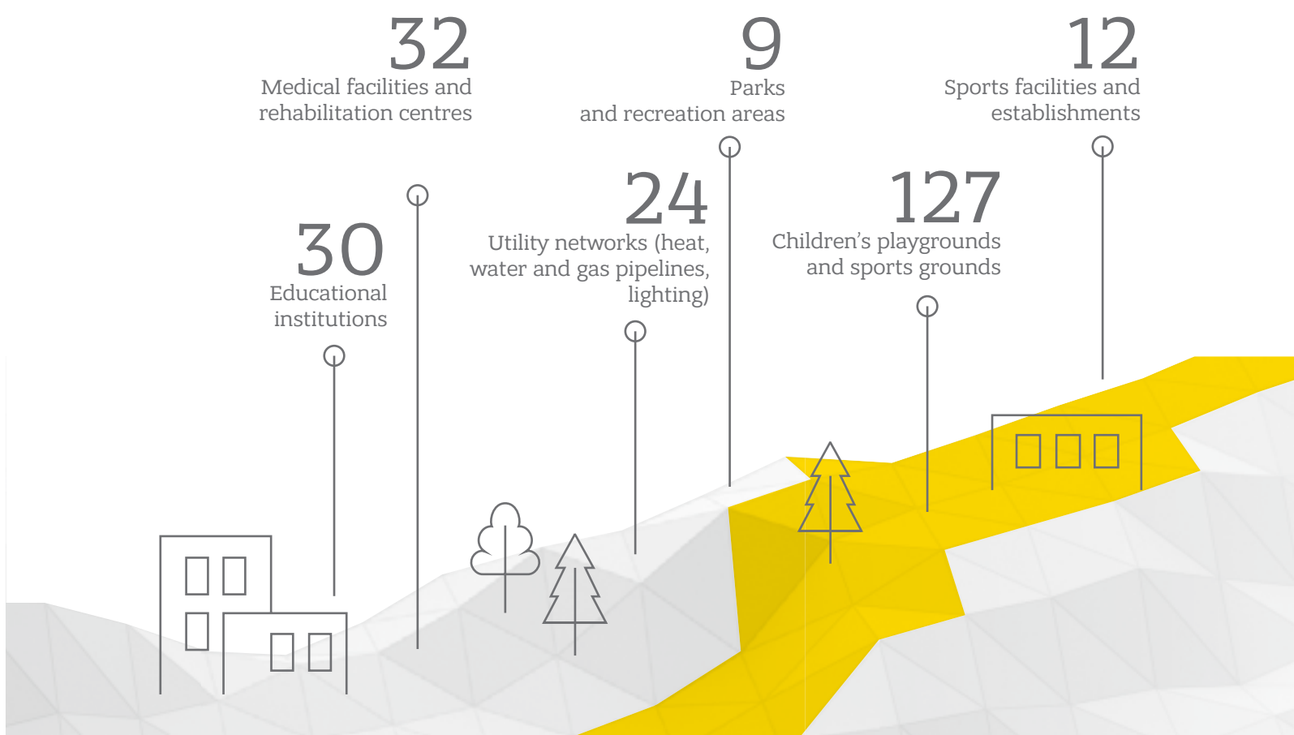
The DTEK Group enterprises primarily work in single-industry towns. To help develop more economically self-sufficient communities, DTEK Group supports small and medium businesses which stimulate job creation and attract investors to the regions. This growth also contributes more tax revenues to local budgets.

To encourage economic development in the communities where enterprises operate, DTEK Group approved a preferential list of local contractors for the purchase of products and services. This approach is aimed at creating competitive opportunities for small and medium businesses, as the companies purchase centrally through tender procedures, in which large companies from all over the country participate. In 2018, preferential lists were introduced in ten pilot areas of Donets'k, Ivano-Frankivs'k and Lviv regions.

When evaluating suppliers' proposals, local contractors are awarded five additional points out of 100. They are also given the opportunity to review prices after bidding (individual re-bidding), to sign a three-year contract with the possibility of reviewing the price, and to receive an advance payment for the procurement of materials required for the execution of the order. Preferential treatment is granted if the local contractor provides jobs to local residents and pays taxes to the local budget.

As part of business development projects, nine local economic development agencies worked with the representatives of small and medium businesses, organizing meetings with donor organizations, advising in the preparation of business plans and providing technical support to business start-ups for the first-time entrepreneurs. In 2018, 25 new jobs were created.

The following was created, repaired, landscaped and equipped in 2018



Employees

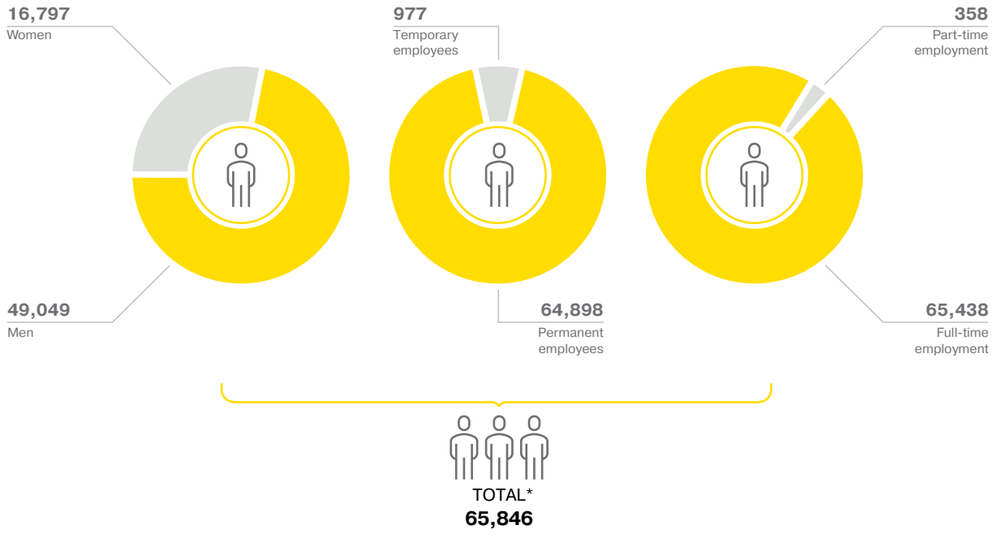
People are main source of value and competitive advantage. Only a solid team of professionals can solve ambitious tasks, therefore, DTEK Group has created a system of continuous personal development for every employee, while managers of all levels are trained in personnel management processes.
This is all in aid of creating a constructive working environment, which lets people work effectively and progress.
The principles of the UN Global Compact observed by DTEK Group in human resources management, reflect the "S", Social, in the ESG criteria.

4 QUALITY EDUCATION — Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

5 GENDER EQUALITY — Achieve gender equality and empower all women and girls

8 DECENT WORK AND ECONOMIC GROWTH — Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

The total number of DTEK Group personnel in 2018, persons



* Not including staff of DTEK Service LLC.

Gender aspect: organizational position in DTEK Group, % relative to the gender

More than a third of DTEK Group employees obtained higher professional education. Among DTEK employees 45% of women and 28% of men have higher education.

8 DECENT WORK AND ECONOMIC GROWTH

HR management approaches

The HR management system at DTEK Group is in line with the relevant laws of Ukraine, industry regulations and internal rules.

DTEK Group's HR management strategy is focused around:

- providing equal opportunities for all employees;
- involving the best professionals in the labor market;
- ensuring a decent level of remuneration and reward for employees;
- talent management;
- forming a unified corporate culture.

The system is built in this way so it can be an effective tool which provides opportunities for employee initiatives.

DTEK Group respects the right of employees to create trade unions and other associations which represent their interests. DTEK Group's companies cooperate with these organizations and conduct an open dialogue with them, guaranteeing identification and timely resolution of potential disputes. Collective agreements are another guarantee which protect employees' interests and rights. The agreements contain provisions on remuneration, social benefits, payments to retirees and obligations in the field of occupational safety and personnel training. Senior management reports on the fulfillment of collective agreement terms annually.

To maintain an ongoing bilateral dialogue, a number of mechanisms are used to convey the views of employees to top management:

- interaction with trade unions and regular meetings with trade union leaders;
- meetings between company leaders and specialized directorates and labor collective;
- meetings between company leaders and opinion leaders;
- individual reception of employees by company director and HR manager;
- HR days on which HR managers meet with employees directly at workplaces and answer questions, inform them about projects, initiatives, and events in the field of HR, as well as providing feedback on the status of issues addressed at previous meetings;
- employee surveys;
- collection of complaints, comments and suggestions from employees.

Payment, remuneration and incentive

In the first quarter, employees undergo an Annual Performance Appraisal (APA), with career prospects and remuneration determined by the results in the reporting period, and a task, training and development program is formed for the next year.

Since 2017, APAs have been applied to employees in traditionally blue-collar roles. In 2018, it also covered those in DTEK Energy in mining machinery manufacturing. A work contribution coefficient (WCC) is applied for a more objective appraisal of employees in production companies. WCC is the personal contribution of each worker to the overall result of the division, which considers the individual appraisal. The criteria for calculating WCC include the performance of work duties, compliance with the requirements of occupational safety and health, and competence.

The regulation for employee remuneration management sets out the basic benefits and social package available to staff. In 2018, all employees received salary increases and the social package was retained in full.

Staff recruitment

Employee planning, personnel recruitment, and personnel administration are carried out in accordance with the laws of Ukraine, the collective agreement, recruitment regulations, internal work regulations, the Code of Corporate Ethics and Business Conduct, instructions “On the procedure for work incapacity certificate” and “On the procedure of scheduling vacations and providing vacations to employees”.

When recruiting and selecting individuals for a vacant position, internal recruitment is the main route used: employees are informed about open vacancies, those who wish can send a resumé and be interviewed to see if they have the right qualifications and personal qualities required for the vacant position. External recruitment is carried out through employment centers, online recruitment on specialized job search resources and other external sites.

Social payments and benefits provided to DTEK Group's employees in 2018, UAH ths

Support for retirees and veterans	1,641.2
Improvement of living conditions	153,284.3
Financial aid	114,859.8
Corporate events	41,823.5
Voluntary health insurance	43,198.4
Health care service	18,353.9
One-time employee bonuses	49,114.6
Others	24,353.0

Approach to responsible restructuring and retirement of employees

In 2018, DTEK Group companies did not dismiss any personnel due to production and labor changes in their organizations.

Companies use the following personnel restructuring mechanisms:

- insourcing and outsourcing of non-core functions;
- transfer of social facilities into communal ownership;
- natural staff reduction (retirement of employees, voluntary resignation, etc.);
- negotiated resignation.

Collective agreements set a minimum period within which employees must be notified of upcoming changes. This period corresponds to the statutory two months, and in the case of coal companies, three months.

Forecast for retirement of employees, %

Percentage of employees who will retire after 5 years		Percentage of employees who will retire after 10 years	
Men	Women	Men	Women
6.2	5.6	8.9	7.4

4 QUALITY EDUCATION

Personnel training and development

DTEK Group is focused on its growth and innovation strategy. This requires enterprising employees who are willing to learn and grow throughout the course of their daily activities. DTEK’s approach to training and development covers all personnel — from workers to the general director — and provides opportunities for career and personal growth.

The following activities are carried out in the framework of training and development:

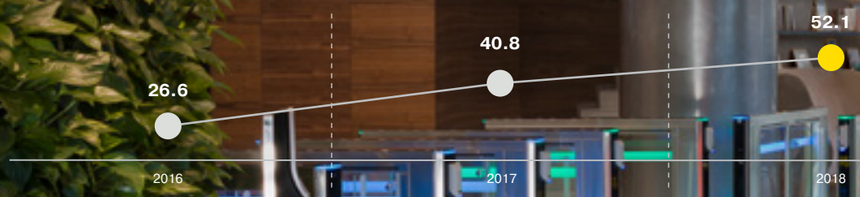
- compulsory vocational training for staff, including simulator training in individual specialties;
- development of professional corporate standards for key industrial occupations;
- competitions aimed at promoting a culture of professional competence among employees throughout the organization;
- annual performance appraisals that cover all personnel which form the basis of personal development programs;
- the Talent Pool program, which let to plan and develop career cards.

DTEK Group’s corporate university, Academy DTEK, plays the leading role in educating and developing personnel. Academy has become a tool for managing talents, knowledge and changes. All employees have the opportunity to develop their potential at the corporate university.

DTEK Group transformed its corporate university, helping it become an innovative educational business platform open to business, government, public, and international partners. In its new form, Academy DTEK is partnering leading business schools and organizations including INSEAD, IE Business School, Thunderbird, HRCI, and Kyiv Mohyla Business School to introduce international HR practices to Ukraine.

Academy DTEK has opened its doors at UNIT.City, a space that is equipped with the latest technology and creates an atmosphere for the generation of great new ideas. The campus where the office is located conforms to the “green building” standard of the American LEED (Leadership in Energy and Environmental Design) system.

DTEK Group's investment in employee training and development, UAH mln



Professional standards. DTEK Group creates corporate professional standards for its production companies what's codify to actualization requirements to regard develop production. In 2018, the following corporate standards were developed: in the coal industry — "master blaster", "miner on auxiliary works", "machinist of enrichment and briquetting installations"; in the energy industry — "chemical water cleaning operator", "ultrasonic inspection tester", "chemical analysis technician", "electric gas welder", "automotive crane driver"; in the field of electricity distribution — "electrician for repair of dispatching equipment and teleautomatics" and "driver of aerial work platform and truck-mounted hydraulic lift".

Most corporate standards form the basis of state standards in vocational education. This reduces the gap between theoretical knowledge and the practical requirements of employers — students gain knowledge that will be needed for the profession, which speeds up their ability to adapt to the conditions of production. In 2018, the following corporate professional standards were adopted at a national level: "chemistry lab technician" and "operator of enrichment and briquetting equipment"

In addition, at a national level, work was initiated to create a new profession — "miner on auxiliary work in mines". The new profession combines four functions: underground miner, underground engineer, underground bottom man and roadway repair miner. In early 2019, this profession was listed in the national occupational classifier.

Profession-oriented schools. There are nine specialized schools operating at DTEK Group companies which aim to give each employee the opportunity to realize their potential in their profession.

The second area of work revolved around highly qualified specialists transferring their experience to the younger generation. For example, there is a tool called "Vacant Full-Time Equivalent" at DTEK Energy's organizations, which assigns an external expert to each appointed employee to shorten the adaptation period and help new employees master the subtleties of the position. In 2018, about 40 experts shared their unique experience.

In addition, the "Work Mentorship in the Workplace" program involves current and retired specialists teaching young employees practical skills. 6 928 mentors have passed on their experience. In the reporting year, DTEK Energy developed an Experience program aimed at disseminating and preserving the professional experience and technical expertise of sector-specific specialists. As part of the program, the Experience YouTube channel was created, where educational videos are freely available.

The introduction of a dual training system was an innovation in the field of personnel training and development in 2018. The theoretical part of the training takes place at an educational organization, and the practical part in the workplace. Pershotravens'ky mountain lyceum and Higher vocational school No. 20 (Lviv) both provide employees knowledge of these future professions: "electric locomotive engineer", "underground installation engineer", "electric gas welder", "gas cutter", "electric welder of manual welding". While the experts of the companies help to realize them in the conditions of real production.

Professional contests and competitions are aimed at promoting high standards of excellence among employees of production companies. 39 contests were held in 2018.

The creation of the Youth Movement of DTEK Energy was a significant event in 2018. The Movement works across the following areas:

- social sector — participation of young employees in social programs;
- production sector — development of projects aimed at improving production, occupational safety systems, etc.;
- sports sector — development of programs to encourage young people to live a healthy lifestyle;
- cultural sector — organization of cultural events.

Employees of 26 companies — over 400 activists — actively participate in the Youth Movement.

Cooperation with Universities. Since 2009, DTEK Group has cooperated with higher education institutions. The companies' personnel requirements are considered in the program and necessary specialists are subsequently trained. In higher education institutions, DTEK Group identifies promising fourth-year students who are then trained using additional programs that take the specifics of their future profession into account.

Today, partner universities include: NTU "Dnipro University of Technology", NTU "Kharkiv Polytechnic Institute", Donets'k National Technical University and Industrial Institute of Donets'k National Technical University, Dnipro National University of Railway Transport, Ukrainian State University of Chemical Technology, Donbas State Machine-Building Academy, Kharkiv National Automobile and Highway University, Ukrainian Engineering Pedagogical Academy, NTU "Igor Sikorsky Kyiv Polytechnic Institute, Pryazovskyi State Technical University, and Poltava National Technical Yuri Kondratyuk University.

2018: Staff training and development in figures

31
competitions of professional skills were held among the employees of the company

11
leading technical universities of Ukraine are partners of DTEK

11,554
facts of trainings for engineering employees by internal trainers

55,635
learning facts

4,985
facts of trainings for engineering employees by external trainers

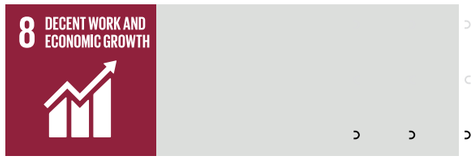
9
profession-oriented schools:

- School of Chief Engineers
- School of Site Supervisors
- School of Masters and Foremen
- School of Mining Masters
- School of Concentrators
- School of Teachers
- School of Finance for Non-Financiers
- Institute of Project Managers
- HR Tools for Managers

35,471
facts of trainiangs for workers by internal trainers

27.3
man-hours — the average number of training hours per employee per year

3,625
facts of trainings for workers by external trainers



Occupational Health and Industrial Safety, Health Care of Employees

The main objective of DTEK Group's system of occupational and industrial safety is the preservation of employees' lives, health and working ability in the course of their work activities. To achieve this goal, DTEK Group has adopted a zero tolerance for industrial accidents and built a culture where employees respect their own and others' welfare.

DTEK Group has built an organizational structure that covers occupational health and safety for all levels of management. Committees on labor safety and environmental protection under supervisory boards are the main method of analyzing the current management system. The Committee on Sustainable Development under the Board regularly evaluates the management system and makes recommendations for improvement. In each area of business, occupational safety functions have been created that are responsible for implementing systematic approaches based on previous decisions. Thus, the Health, Safety and Environment system (HSE) is integrated into the daily activities of all production companies and is a prerequisite for setting and achieving strategic goals.

Priority areas for investment in HSE:

- regular certification audits of the occupational safety management system to ensure compliance with national regulatory requirements and the international standard OHSAS 18001;
- implementation of comprehensive measures to improve working conditions;
- continuous improvements to workplaces to enhance occupational safety and improve the working environment;
- compliance with regulatory requirements for sanitary conditions;
- purchase of protective clothing, protective shoes, personal and collective protection equipment, fire protection equipment;
- conducting primary, periodic and extraordinary medical examinations of personnel;
- training and improving staff knowledge;
- carrying out measures to prevent injuries among the general population.

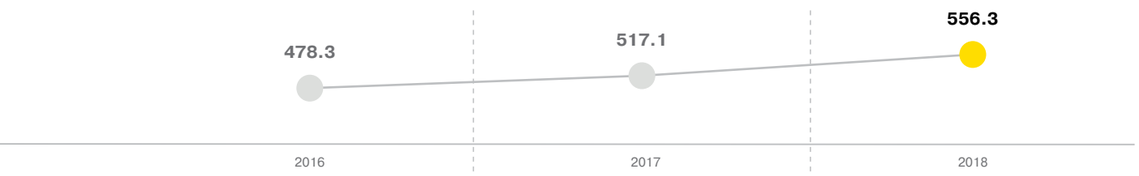
HSE approaches and certification

The "Occupational Health and Safety" section is a mandatory clause in collective agreements at all of DTEK Group's production companies. This clause includes obligations of the administration and trade unions to fully implement the legislation in this area.

In accordance with the collective agreement, DTEK Group companies undertake to:

- conduct certification of workplaces;
- provide workers with the necessary tools, protective clothing, protective footwear, personal and collective protection equipment, detergents;
- ensure the stable operation of surface and underground health centers with constant acquisition of medicines and equipment;
- conduct periodic medical examinations, provide emergency medical care;
- compensate for the damage caused to the employee because of an industrial injury or occupational disease;
- carry out vocational and occupational health and safety training;
- inform workers about occupational health risks and take measures to minimize and eliminate such risks;
- encourage employees who are actively involved in the implementation of measures to improve occupational and industrial safety.

DTEK Group's investment in occupational and industrial safety, UAH mln



In 2018, DTEK Dnipro Grids, DTEK Kyiv Grids and DTEK Donetsk Grids adopted a new wording of collective agreements, which takes into account the urgent needs of employees, the capabilities of companies and the requirements of the NEURC Decree No.1406 dated December 27, 2017.

> Fostering a culture which promotes a careful and attentive attitude towards one's own life and the safety of others requires corrective thinking, which can be achieved by introducing knowledge and principles that underlie any industrial action. To this end, the companies of DTEK Group develop internal regulatory documents to improve their occupational safety management systems, which in coordination with trade unions are then introduced into practice. This comprehensive approach has allowed us to accumulate considerable experience, which has been recognized at a state level. For example, employees of DTEK Energy's coal-mining companies are now part of a working group which is revising government regulations: Safety rules in coal mines and fire safety regulations for coal industry companies. The working group included representatives of the Ministry of Social Policy of Ukraine, the Ministry of Energy and Coal Industry of Ukraine, specialized institutes and other participants.

An occupational health and safety management system operates or has been implemented at DTEK Group's production companies in accordance with the requirements of the international standard OHSAS 18001. In 2018, DTEK Dniproenergo and DTEK Skhidenergo underwent a certification audit, Naftogazvydobuvannya — a recertification audit, DTEK Westenergy, Interenergo-service, DTEK Dnipro Grids, DTEK Donetsk Grids — a supervisory audit for compliance with OHSAS 18001:2007. In Wind Power, the occupational health and safety management system is certified for compliance with OHSAS 18001:2010. According to the auditors' report, management systems in all companies are fully effective. 100% of employees are certified.

In 2018, DTEK Group adopted the program of Occupational Safety and Health Initiatives at coal production and processing enterprises and companies responsible for electricity generation. The priority areas are as follows:

- Implementation and operation of a hazard management algorithm using the Novator continuous improvement system, aimed at creating conditions for improving the OSH management system. The project encourages staff to submit ideas on how to improve safety at work.
- Implementation of the Cardinal Rules. The main purpose of introducing the rules is to increase employees' personal responsibility for the observance of safe working conditions. Failure to comply with the rules entails the mandatory formulation of dismissal.
- Leadership and personal involvement in ensuring occupational safety. An enterprise ranking system was developed to promote participation. In addition, managers on occupational safety issues are assessed on an ongoing basis. This is an effective tool for the quantitative and qualitative assessment of the effectiveness of safety work.
- Conducting internships for employees who are scheduled to be appointed or appointed to senior positions in occupational safety systems.

> All organizations contracted to carry out work at DTEK Group's production companies should also follow the accepted approaches to occupational health and safety issues. A provision has been developed on the "Security of Contracting Companies' Services", which clearly sets out the requirements in relation to occupational, industrial, fire and general safety. The provision includes a contractor's compliance assessment sheet with safety requirements, requirements for actions to ensure the safety of the contractor's work, and a scheme of actions and allocation of responsibilities for ensuring the safety of work by the contracting organization. If a contractor does not adhere to the requirements, appropriate action will be taken including the cessation of all work and termination of the contract. Every time a DTEK Group employee is injured at work, an investigation is carried out by a commission that includes representatives of the controlling authorities, as well as an internal investigation. DTEK Group carries out any corrective measures to prevent similar incidents in the future, according to the results and recommendations from the investigations.

Training in the field of HSE

DTEK Group has developed a training system to ensure all workers are adequately and ready to perform their duties as set out in the safety requirements of their roles. All production companies of DTEK Group conduct Training and knowledge testing on an ongoing basis.

In 2018, 41 ths employees passed training in the field of occupational safety and health.

The main approaches to training in health and safety issues include:

- visual aids during training sessions (educational films and slides);
- video tutorials;
- differentiation of workers by skill level and specialization;
- involvement of all staff in the training process;
- multi-level knowledge control.

In order to increase efficiency, DTEK Group developed procedures for testing knowledge and conducting briefings which set out the types, frequency and order of organizing these activities. In addition, DTEK Group's companies carry out technical, organizational and training measures to protect against the threat of natural disasters, including flood preparation, monitoring the state of lightning protection and fire proofing, and maintaining personal protective equipment and protective equipment in readiness.

DTEK Group also carries out skill contests and specialized conferences to motivate staff to pay special attention to safety at work. For example, in 2018, DTEK Energy held an All-Ukrainian competition of voluntary fire brigades, in which employees of all thermal power plants across the country took part. The industrial fire-fighters faced challenges including military deployment, a relay race, accuracy challenge for water from the fire engine at the target, and theoretical questions. The commission gave the third place to the team of Slovians'ka TPP, the representatives of DTEK Dobrotvirs'ka TPP took silver, and the firefighters of DTEK Burshtyns'ka TPP won the overall competition.

Every year, DTEK Oil & Gas organizes the International Scientific and Technical Conference on occupational, industrial and environmental safety. In 2018, over 100 participants attended the Conference. They discussed how innovative solutions contribute to improving the level of occupational, industrial and environmental safety, the potential for improving fire and technological safety of oil and gas facilities, the procedure for certifying workplaces for working conditions and other important issues.

Basic tools of occupational health and industrial safety

Coal production and processing	• Monitoring the psycho-physiological state of staff • Video instruction before shifts • Training and knowledge testing on the basis of the PROTEK program • Registration and monitoring of critical risks • Algorithm for managing hazardous activities using the Novator continuous improvement system • Cardinal Rules • Evaluation of senior managers on occupational health and industrial safety • "Line of trust" on occupational health and industrial safety • Incentives for the performance of occupational health and safety indicators: tangible and intangible rewards • Professional skills contests
Electricity generation of TPPs and CHPP	• Training and knowledge testing on the basis of the PROTEK program • Own training and production centers with the right to issue a state diploma • Training ground for the preparation of certified electric welders, certified in Paton Electric Welding Institute

Electricity generation of TPPs and CHPP	• "Training ground of the power unit of 200, 300 MW" for testing operations which eliminate abnormal and emergency modes • Virtual reality training module "Taking 6 kV switchgear cells out of service for repair", the operation of which is associated with an increased risk or with high costs • Incentives for the performance of occupational health and safety indicators: tangible and intangible rewards • Emergency and fire training • Professional skills contests • All-Ukrainian volunteer fire brigade competitions • Conferences on occupational safety issues including representatives from trade unions of production companies • Annual occupational safety days including employees' family members
Renewable energy	• Monitoring compliance with the requirements of occupational and industrial safety at wind and solar power plants • Bringing fixed assets into compliance with the requirements of regulatory legal acts in the field of occupational and industrial safety • Workshops and trainings on the provision of domestic medical care and readiness to respond and manage emergencies
Natural gas production	• Twenty-four-hour monitoring of compliance with industrial safety requirements • Automated emergency response and fire safety systems • Control of production culture, technological discipline • Emergency and fire prevention trainings • First aid training • Professional skills contests • Annual conference on occupational safety, industrial safety and environmental protection
Electricity distribution	• Providing crews with video recorders for recording workflows to monitor the quality of targeted briefings • Remote access to video cameras control points • Stimulation for the performance of occupational health and safety indicators: tangible and intangible rewards. A system of ratings based on occupational safety indicators has been introduced, which is used to rank structural units at companies. All employees of the structural units included in the top 3 are rewarded quarterly • The ECM program to account for workplace audits • Fire and object training • Annual occupational safety days which include employees of medical institutions, traffic police, the MES

Health care of employees, and Occupational Medicine

DTEK Group implements comprehensive programs around occupational medicine, monitoring the dynamics of two medical and social indicators: the incidence rate and the health index. This makes it possible to increase productivity and reduce financial DTEK Group's losses.

The production companies of DTEK Energy and DTEK Grids look to improve the health of their personnel by incorporating a health resort. The companies allocate financial resources towards organizing recreation and rehabilitation for both employees and their family members. The organization of these activities is conducted in conjunction with trade union committees.

Key facts about health care of employees, and Occupational Medicine

health improvement of employees and their families at recreation centers of companies and health centers of DTEK Service

8,601
people improved health in sanatoriums

33
health centers, of which 32 are round-the-clock and 18 are underground

546
medical professionals, of which 77 are doctors

16
psychologists

more than
2.0 mln
employee inspections before the shift

405,900
employee receptions were held

1,400
workers received emergency medical care

24,800
psychology consultations

ZVUT —
a unified base for monitoring the health indicators of employees of companies and the activities of medical facilities of companies

- centralized administration
- uniform standards of care
- health insurance for all employees
- occupational disease prevention
- assessment of workplaces

10.16 —
incidence rate with temporary disability in 2018 (10.93 — per 1 employee of production companies in 2017)

53.0 —
health index in 2018 (in 2017, the health index (the percentage of employees who did not get sick during the year) was 56.0)

Annex 1

On the report and the process of non-financial reporting

This report, including the "Sustainable Development" section (hereinafter referred to as the “Report”), reflects material facts about the sustainable development activities of the DTEK Group in the 2018 calendar year (from January 1 to December 31), as well as some facts of 2019 which have a direct relationship with the activities conducted in 2018 by the DTEK Group or which are important from the point of view of understanding the sustainable development objectives.

The report is the sixth integrated report and the ninth report disclosing information about the DTEK Group's activities in the field of sustainable development. The previous report was published in 2018 and contained information on activities in the 2017 calendar year.

The report was prepared using:

- indicators of the Global Reporting Initiative (GRI) in the field of sustainable development;
- content of the 17 UN Sustainable Development Goals.

GRI Compliance Level

	C	C+	B	B+	A	A+
Self-declaration			✓			
Third party verification						
GRI verification						

Boundaries and Scope of Reporting

The report reflects the scale of DTEK Group's activities, approaches in the field of management and stakeholder engagement, performance indicators in the economic and environmental spheres, personnel management, interaction with society, customer-oriented activities.

The structure is presented in the “About the DTEK Group” section on page 14. Non-financial reporting includes quantitative and qualitative (descriptive) elements by the DTEK Group activities that have the most significant impact on the economy, ecology, and social aspects.

Organizational boundaries of non-financial reporting

Company
1. Electricity generation: TPPs and CHPP
DTEK Skhidenergo LLC, including:
→ DTEK Kurakhovs'ka TPP
→ DTEK Luhans'ka TPP
DTEK Dniproenergo JSC, including:
→ DTEK Kryvoriz'ka TPP
→ DTEK Zaporiz'ka TPP
→ DTEK Prydniprovs'ka TPP
DTEK Westenergy JSC, including:
→ DTEK Burshtyns'ka TPP
→ DTEK Dobrotvirs'ka TPP
→ DTEK Ladyzhyns'ka TPP
DTEK Myronivka CHPP LLC
2. Coal mining and processing
DTEK Pavlohradcoal PrJSC, including:
→ Ternivs'ke Mine Office SIU
→ Pavlograds'ke Mine Office SIU
→ Geroiv Kosmosu Mine Office SIU
→ Dniprovs'ke Mine Office SIU
→ Pershotravneve Mine Office SIU
DTEK Dobropolyeugol LLC, including:
→ Dobropil's'ke Mine Office SIU
→ Bilozers'ke Mine Office SIU
DTEK Dobropil's'ka CEP PJSC
CCM Pavlograds'ka LLC
CCM Kurahivs'ka LLC
DTEK Oktyabrs'ka CEP PJSC

Company
3. Electricity distribution
DTEK Power Grid LLC
DTEK Energougol ENE PrJSC
DTEK Kyiv Grids PrJSC
DTEK Donetsk Grids JSC
DTEK Dnipro Grids JSC
4. Renewable energy: WPP and SPP
Wind Power LLC
Primorskaya WEP LLC
Primorskaya WEP-2 LLC
Orlovka WEP LLC
Wind Tech LLC
Tryfanovka Energy LLC
Solar Farm LLC
5. Gas production
Naftogazvydobuvannya PJSC

Grounds for excluding organizations from reporting scope

The reporting scope does not include companies whose impact is insignificant in terms of GRI indicators, companies and enterprises operating outside Ukraine, enterprises and assets of enterprises over which no operational management is carried out.

Essential topics

In assessing how essential the topics for non-financial reporting objectives are, the DTEK Group relies on the principles of expediency and relevance in the Ukrainian context. Following an audit of informational materials in the media, social climate research at DTEK Group enterprises, analysis of the content of non-financial reports of leading energy companies, content of dialogues with stakeholders, the following substantive topics were determined for the Report (based on the expert evaluation of DTEK management):

Context	Marginally essential	Moderately essential	Highly essential
International	Benefits of various tariffs for consumers Safety of network infrastructure for the population Scientific R&D Interaction with contractors	New philosophy: social and customer-oriented power industry Promoting responsible energy consumption Investment in new technologies Interaction with customers	Modernization of power systems and restoration of fixed assets (Eastern Europe) Combined use of fuels, renewable energy development Energy efficiency and reduction of greenhouse gas emissions Management of environmental impacts
Ukraine	Conservation of biodiversity Labor remuneration system at DTEK Group enterprises Quality of education and health services Development of social entrepreneurship	Risk of monopolization of the Ukrainian market Improving the environmental monitoring system The need for a national strategy for sustainable development Waste management until full disposal	DTEK Group strategy and investment directions Improving the standard of living of the population of the territories of enterprises Miners work safety Restructuring of the coal industry and the energy sector as a whole

Calculation of indicators

Data was taken from official reporting forms, which are submitted annually to the state statistical bodies. A number of indicators are collected and calculated in accordance with the forms of internal reporting, which are verified by the responsible representatives of companies as part of internal audit procedures.

Data on greenhouse gas emissions include only direct greenhouse gas emissions. At present, there is no calculation of the amount of indirect greenhouse gas emissions due to their extreme insignificance compared to the volumes of direct emissions.

To calculate the turnover rate, the average number of full-time employees is used.

A detailed description of the methodology for calculating indicators was presented in the "Report on the sustainable development activities of the DTEK Group for 2008-2009."

Annex 2

DTEK Group Quantitative Performance Indicators

Economic

The DTEK Group economic performance indicators are given in the sections “Review of industries and macroeconomic indicators of Ukraine”, as well as in the section “Operating results” hereof.

Ecological

Gross greenhouse gas emissions, ths tonnes

Year	Methane	Carbon dioxide (CO_2)	Nitrous oxide (N_2O)	Total	CO_2 equivalent, tonnes
2015	215.6	42,824.3	0.728	43,040.7	47,606,643.9
2016	234.5	45,108.6	0.632	45,343.8	50,265,704.9
2017	158.3	40,080.9	0.553	40,239.8	43,598,174.9
2018	139.0	35,586.0	0.544	35,725.6	38,763,963.4

Emissions of ozone-depleting substances: N_2O, hexofluoride, tonnes

Year	Hydrochlorofluorocarbons (HCC)	Chlorofluorocarbons (CFC)	Trichloroethane ($C_2Cl_3H_3$)	Halons	Carbon tetrachloride (tetrachloromethane)
2017	10.5	0.0	0.0	0.0	0.018
2018	0.088	0.0	0.0	0.0	0.018

The content of pollutants in wastewater, tonnes

Year	BOD*	Oil products	Suspended substances	Solid residue	Chlorides	Sulfates	Ammoniacal nitrogen	Iron total	Nitrates
2015	544.3	14.7	2,579.9	237,370.4	55,285.5	62,082.1	30.0	17.3	323.32
2016	389.3	10.1	2,352.4	183,803.7	35,169.3	52,673.5	27.7	15.7	282.30
2017	183.8	5.3	705.2	89,200.1	27,567.8	21,467.6	8.5	3.0	47.9
2018	202.3	6.1	762.0	109,976.0	38,262.0	22,990.0	8.8	3.4	64.9

* Biochemical oxygen demand

The total volume of water recycled and reused, ths of cubic meters

Year	Indicator
2015	4,883,221.1
2016	6,495,344.4
2017	6,050,243.6
2018	5,209,024.5

Total water consumption for own needs by source, ths of cubic meters

Year	Surface water	Groundwater	Water supplied to utilities and other enterprises	Other sources	Total
2015	1,620,121.9	1,718.2	67,043.0	11,218.4	1,700,101.5
2016	1,743,516.6	1,597.7	58,265.7	13,137.5	1,816,517.6
2017	1,578,146.5	951.2	50,117.8	13,386.2	1,635,908.7
2018	1,298,518.0	1,069.2	6,501.9	69,032.8	1,375,194.4

Waste treatment methods, tonnes

Year	Storage volume	Submitted by third parties	Volume of utilized, recycled waste	Total
2015	12,552,654.6	2,225,661.2	1,656,912.1	16,435,228.0
2016	13,238,278.7	853,070.6	3,906,109.0	17,997,458.4
2017	13,831,285.3	709,980.7	3,107,214.1	17,648,480.2
2018	9,938,133.1	509,963.6	3,363,227.5	13,811,324.2

Land reclamation, ha

Year	Area of land to be reclaimed at the beginning of the year	Area of land to be reclaimed at the end of the year	Area of land reclaimed in the reporting year
2015	453.3	423.7	26.6
2016	389.3	496.9	30.1
2017	295.2	198.7	39.3
2018	480.5	480.5	10.9*

* Completion of the technical stage of reclamation

Occupational Safety and Health

Injury rates

Indicator	2015	2016	2017	2018
Lost Time Accident Frequency Rate (LTAFR)	0.500	0.530	0.570	0.580
Fatal Accident Frequency Rate (FAFR)	0.014	0.010	0.010	0.021
Suffered non-lethal injuries, persons	322	399	285	246
Suffered lethal injuries, persons	9	9	5	9

Personnel

The total number of personnel as of December 31, 2018, persons

Total	Permanent personnel	Temporary personnel	Full-time	Part-time	Women	Men	Percentage of employees who retire within 5 years		Percentage of employees who retire within 10 years	
							women	men	women	men
65,846	64,898	977	65,438	358	16,797	49,049	5.6	6.2	7.4	8.9

DTEK Group employees by gender, 2018*

Women, persons

Age

under 30	30 — 50	over 50
1,380	10,265	5,066

Educational background

higher education	scientific degree
7,579	6

Years spent in the company

under 3	3—5	over 5
2,631	1,955	12,125

Position within organization

Head	including from internally appointed candidates	Manager	Specialist	Worker
728	315	233	6,039	9,441

Men, persons

Age

under 30	30 — 50	over 50
8,770	30,786	9,270

Educational background

higher education	scientific degree
14,258	22

Years spent in the company

under 3	3—5	over 5
9,571	5,881	33,445

Position within organization

Head	including from internally appointed candidates	Manager	Specialist	Worker
4,219	1,965	468	5,798	38,373

* The indicator reporting limits do not include Naftogazvydobuvannya PJSC

Annex 3

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-1	Name of the organization	10
GRI 102-2	Activities, brands, products, and services	10—11; 14—16
GRI 102-3	Location of headquarters	12—13
GRI 102-4	Number of countries where the organization operates, and the names of countries where it has significant operations and/or that are relevant to the sustainable development topics covered in the report	12—14
GRI 102-5	Nature of ownership and legal form	10, 14; Annex 1, https://energo.dtek.com/about/dtek_energo/
GRI 102-6	Markets served (including a geographic locations where products and services are offered; sectors served; and types of customers and beneficiaries)	15—16
GRI 102-7	The scale of the organization, including: • total number of employees; • total number of operations; • net sales (for private sector organizations) or net revenues (for public sector organizations); • total capitalization (for private sector organizations) broken down in terms of debt and equity; • quantity of products and services provided.	10—11
GRI 102-8	The reporting organization shall report the following information: • total number of employees by employment contract (permanent and temporary), by gender; • total number of employees by employment contract (permanent and temporary), by region; • total number of employees by employment type (full—time and part—time), by gender; • whether a significant portion of the organization's activities are performed by workers who have legal status of self—employed persons or private entrepreneurs, or persons who are not members of the company's permanent or temporary personnel, including permanent and temporary personnel of the company's subcontractors; • an explain any significant variations in the numbers of personnel reported (such as seasonal variations in the tourism or agricultural industries); • an explanation of how the data have been compiled, including any assumptions made.	124—125, Annex 2

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-9	A description of the organization's supply chain, including its main elements as they relate to the organization's activities, primary brands, products, and services	14—16, 58—59
GRI 102-10	Significant changes to the organization's size, structure, ownership, or supply chain, including: • changes in the location of, or changes in, operations, including facility openings, closings, and expansions; • changes in the share capital structure and other actions formation, maintenance and alteration operations (for private sector organizations); • changes in the location of suppliers, the structure of the supply chain, or relationships with suppliers, including selection and termination.	16, 18—19, 82—85, Annex 1
GRI 102-11	Whether and how the organization applies the Precautionary Principle or approach (an organization's approach to risk management in operational planning, or when developing and introducing new products)	94
GRI 102-12	Externally—developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes, or which it endorses	19, 102, 107, 128
GRI 102-13	A list of the main memberships of industry or other associations, and national or international advocacy organizations	102
GRI 102-14	A statement from the CEO about the relevance of sustainability to the organization and its strategy for addressing sustainability	4—7
GRI 102-15	A description of key impacts, risks, and opportunities	16, 22—23
GRI 102-16	A description of the organization's values, principles, standards, and norms of behavior, such as codes of conduct and ethics	20, 95—96
GRI 102-17	Mechanisms for advice and concerns about ethics: • the internal and external mechanisms for seeking advice about ethical and lawful behavior, and organizational integrity; • the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and organizational integrity	95—96
GRI 102-18	Governance structure of the organization, including committees of the highest governance body	88—89
GRI 102-19	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	89—93
GRI 102-20	Executive/executives, responsible for economic, environmental, and social topics	24—27, 89—91, 93

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-21	Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics	101, 117, 125
GRI 102-22	Composition of the highest governance body and its committees, including: ● executive and non—executive; ● independence; ● tenure on the governance body; ● number of each individual's other significant positions and commitments, and the nature of the commitments; ● gender; ● membership of under—represented social groups; ● competencies relating to economic, environmental, and social topics; ● stakeholder representation.	89—93
GRI 102-23	Whether the chair of the highest governance body is also an executive officer in the organization (and, if the chair is also an executive officer, describe his or her function within the organization's management and the reasons for this arrangement)	none
GRI 102-24	Nomination and selection processes for the highest governance body, including: ● whether and how stakeholders are involved; ● independence; ● gender; ● expertise and experience relating to economic, environmental, and social topics	89—93, Annex 2. Guidelines for top management recruitment are in place in the DTEK Group (from Human Resources Policy)
GRI 102-25	Conflicts of interest: ● processes for the highest governance body to ensure conflicts of interest are avoided and managed; ● were conflicts of interest disclosed to stakeholders or not?	95
GRI 102-26	Highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental, and social topics	92—95 The development, approval, and updating of DTEK's purpose, value or mission statements of the company, strategies, policies, and goals related to economic, environmental and social impacts are made with the involvement of the Supervisory and Management boards

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-27	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics	101
GRI 102-28	Processes for evaluating the highest governance body's performance with respect to governance of economic, environmental, and social topics, including independence of evaluation and its frequency; actions taken in response to evaluation of the highest governance body's performance	CEO, Director of sustainable development and Regional Development Director have performance indexes established in respect of economical, environmental and social aspects. The performance is controlled by the Supervisory Board
GRI 102-29	Highest governance body's role in identifying and managing economic, environmental, and social topics and their impacts, risks, and opportunities; the use of stakeholder consultation	92—95, 101
GRI 102-30	Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	94
GRI 102-31	Frequency of the highest governance body's review of economic, environmental, and social topics and their impacts, risks, and opportunities	Within the scope of activities of committees under Supervisory Boards
GRI 102-32	The highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material topics are covered	CEO
GRI 102-33	Process for communicating critical concerns to the highest governance body	88—94
GRI 102-34	Nature and total number of critical concerns: ● a. total number and nature of critical concerns that were communicated to the highest governance body; ● b. mechanism(s) used to address and resolve critical concerns	22—23, 56—80, 82—83
GRI 102-35	Remuneration policies: ● remuneration policies for the highest governance body and senior executives ● how performance criteria in the remuneration policies relate to the highest governance body's and senior executives' objectives for economic, environmental, and social topics	Process for determining remuneration is based on the evaluation of the approved strategic objectives and KPI
GRI 102-36	Process for determining remuneration, and whether remuneration consultants are involved in determining remuneration	126—127 Process for determining remuneration is based on the evaluation of the approved strategic objectives and KPI

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-37	Stakeholders' involvement in the remuneration process: how stakeholders' views are sought and taken into account regarding remuneration; if applicable, the results of votes on remuneration policies and proposals	126—127 Process for determining remuneration is based on the evaluation of the approved strategic objectives and KPI
GRI 102-38	Ratio of the annual total compensation for the organization's highest—paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest—paid individual) in the same country	No evaluation was performed during the reporting period
GRI 102-39	Ratio of the percentage increase in annual total compensation for the organization's highest—paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highest—paid individual) in the same country	No evaluation was performed during the reporting period
GRI 102-40	A list of stakeholder groups engaged by the organization	101
GRI 102-41	Percentage of total employees covered by collective bargaining agreements	No evaluation was performed during the reporting period
GRI 102-42	The basis for identifying and selecting stakeholders with whom to engage	101, Annex 1
GRI 102-43	The organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process	101
GRI 102-44	Key topics and concerns that have been raised through stakeholder engagement and how the organization has responded to those key topics and concerns	101, 119, 122—123
GRI 102-45	Legal entities included in the organization's consolidated financial statements: • legal entities included in the organization's consolidated financial statements or equivalent documents; • whether or not any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	Annex 1
GRI 102-46	The process for defining the report content and the topic Boundaries	Annex 1
GRI 102-47	A list of the material topics identified in the process for defining report content	Annex 1
GRI 102-48	The effect of any restatements of information given in previous reports, and the reasons for such restatements	Standards update to GRI 4 version in accordance with https://www.globalreporting.org/standards/

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 102-49	Significant changes from previous reporting periods in the list of material topics and topic Boundaries	Annex 1
GRI 102-50	Reporting period for the information provided	Annex 1
GRI 102-51	The date of the most recent previous report	Annex 1
GRI 102-52	Reporting cycle (such as annual, biennial)	Annex 1
GRI 102-53	The contact point for questions regarding the report or its contents	Victoria Grib, Sustainability Department Director at the Regional Policy Directorate csr@dtek.com
GRI 102-54	The claim of report in accordance with the GRI Standards	This Integrated Report was prepared in accordance with GRI 4 Sustainability Reporting Guidelines — self—declaration of GRI 4 application
GRI 102-55	The GRI Content Index	Annex 3
GRI 102-56	The organization's policy and current practice with regard to seeking external assurance for the report	This Integrated Report was prepared in accordance with GRI 4 Sustainability Reporting Guidelines — self—declaration of GRI 4 Comprehensive application. Non-financial reports of DTEK Group before 2012 were subject to the independent audit
GRI 103-1	An explanation of the material topic and its Boundary (an explanation of why the topic is material, where the impacts occur; the organization's involvement with the impacts), why each topic is material and topic Boundary	Annex 1
GRI 103-2	The topic management approach and its components: • an explanation of how the organization manages the topic; • a statement of the purpose of the management approach; • policies, commitments, goals and targets, responsibilities, resources, grievance mechanisms, specific actions and initiatives included in the management approach	Annex 1

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 103-3	How the organization evaluates the management approach, including the mechanisms for evaluating the effectiveness of the management approach, the results of the evaluation of the management approach and any related adjustments to the management approach	Annex 1
GRI 201-1	Direct economic value generated and distributed	82—83
GRI 201-2	Risks and opportunities posed by climate change that have the potential to generate substantive changes in operations, revenue, or expenditure (including a description of the risk or opportunity and its classification as either physical, regulatory, or other; a description of the impact associated with the risk or opportunity; the financial implications of the risk or opportunity; the costs of actions taken to manage the risk or opportunity)	No data is available
GRI 201-3	Coverage of the organization's defined benefit plan obligations and other retirement obligations	126
GRI 201-4	Financial assistance received by the organization from any government during the reporting period	The Company does not received any financial assistance from the government
GRI 202-1	Ratios of standard entry level wage by gender compared to local minimum wage	No evaluation was performed during the reporting period
GRI 202-2	Proportion of senior management hired from the local community at significant locations of operation	No evaluation was performed during the reporting period
GRI 203-1	The development and impact of infrastructure investments and pro—bono services, including positive and negative impacts on local community and whether these investments are commercial or for the public good	116—123
GRI 203-2	Significant identified indirect economic impacts of the organization, including positive and negative impacts and significance of the indirect economic impacts in the context of stakeholder priorities	116—123
GRI 204-1	Proportion of spending on local suppliers	123
GRI 205-1	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	95
GRI 205-2	Communication and training about anti—corruption policies and procedures	95
GRI 205-3	Confirmed incidents of corruption and actions taken	95
GRI 206-1	Number of legal actions pending or completed during the reporting period regarding anti—competitive behavior and violations of anti—trust and monopoly legislation in which the organization has been identified as a participant	None registered

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 301-1	Total weight or volume of materials that are used by non—renewable materials and renewable materials	Annex 2
GRI 301-2	Percentage of recycled input materials used to manufacture the organization's primary products and services	Annex 2
GRI 302-1	Energy consumption within the organization	No analysis was made
GRI 302-2	Energy consumption outside the organization	34; 42—43; 46—47
GRI 302-3	Energy intensity	No analysis was made
GRI 302-4	Reduction of energy consumption	80; 118—119
GRI 302-5	Reductions in energy requirements of products and services	80; 118—119
GRI 303-1	Total volume of water withdrawn, with a breakdown by sources	109—110, Annex 2
GRI 303-2	Water sources significantly affected by withdrawal of water by the organization	109—110, Annex 2
GRI 303-3	Total volume of water recycled and reused by the organization	Annex 2
GRI 304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	112—113
GRI 304-2	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	114—115
GRI 304-3	Habitats protected or restored	114—115
GRI 304-4	Total number of the IUCN Red List species and national conservation list species with habitats in areas affected by the operations of the organization	112—115
GRI 305-1	Direct (Scope 1) GHG emissions	111, Annex 2
GRI 305-2	Energy indirect (Scope 2) GHG emissions	111, Annex 2
GRI 305-3	Other indirect (Scope 3) GHG emissions	111, Annex 2
GRI 305-4	GHG emissions intensity	111, Annex 2
GRI 305-5	Reduction of GHG emissions	Annex 2
GRI 305-6	Emissions of ozone—depleting substances (ODS)	Annex 2

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Annex 2
GRI 306-1	Total volume of discharges with indication of quality of water discharges and receiving facility, including planned and unplanned water discharges by destination and quality of water; whether the water was reused by another organization. Standards, methodologies, and assumptions used	109—110, Annex 2
GRI 306-2	Total weight of waste, with a breakdown by type and disposal methods, and how the waste disposal method has been determined	Annex 2
GRI 306-3	Total number and total volume of recorded significant spills	Irrelevant
GRI 306-4	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention, Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	Irrelevant
GRI 306-5	Identity, size, protected area, and biodiversity value of water bodies and related habitats that are significantly affected by the organization's discharges of water and runoff	114—115
GRI 308-1	Percentage of new suppliers that were screened using environmental criteria	108
GRI 308-2	Significant actual and potential negative environmental impacts identified in the supply chain and actions taken	No evaluation was performed during the reporting period
GRI 401-1	Total number and rate of new employee hires and total number and rate of employee turnover, by age group, gender and region	No evaluation was performed during the reporting period
GRI 401-2	Benefits which are standard for full—time employees of the organization but are not provided to temporary or part—time employees, by significant locations of operation	126
GRI 401-3	Total number and percentage of employees that returned to work after parental leave ended, and percentage of employees retained by the organization after parental leave ended, by gender; total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work, by gender; return to work and retention rates of employees that took parental leave, by gender	No evaluation was performed during the reporting period
GRI 402-1	Minimum notice periods regarding operational changes and whether the notice period is specified in collective agreements	126
GRI 403-1	Percentage of workers whose work, or workplace, is controlled by the organization, that are represented by formal joint management—worker health and safety committees	132—135

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 403-2	Type of injury and injury rates, occupational diseases rate, lost days rate, and absentee rate, and total number of work—related fatalities, by region and by gender	Annex 2
GRI 403-3	Workers with high incidence or high risk of diseases related to their occupation	131
GRI 403-4	Health and safety topics covered in formal agreements with trade unions	130—131
GRI 404-1	Average hours of training that the organization's employees have undertaken during the reporting period, by gender and employee category	127—129, Annex 2
GRI 404-2	Transition assistance programs provided to facilitate continued employability and the management of career endings resulting from retirement or termination of employment	127—129
GRI 404-3	Percentage of total employees by gender and by employee category who received a regular performance and career development review during the reporting period	129
GRI 405-1	Percentage of individuals within the organization's governance bodies and percentage of employees per employee category by gender, age group, and other indicators of diversity	Annex 2
GRI 405-2	Ratio of the basic salary and remuneration of women to men for each employee category, by significant locations of operation	No analysis was made
GRI 406-1	Non—discrimination	No data on such situations was received
GRI 407-1	Operations and suppliers in which workers' rights to exercise freedom of association or collective bargaining may be violated or at significant risk, and measures taken by the organization in the reporting period intended to support rights to exercise freedom of association and collective bargaining	The right to freedom of associations is set forth in collective bargaining agreements Employees have the right to strike Negotiation is the main dispute resolution method
GRI 408-1	Operations and suppliers considered to have significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor, including: • operations and suppliers that employ child labor and young workers (under the age of 18 years) exposed to hazardous work; • operations and suppliers that employ child labor by type of operation and supplier, and by countries or geographic areas of operations and suppliers.	Irrelevant Child and forced labor are prohibited under Ukrainian law The Company does not operate in the countries exposed to risks of such violations of human rights

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 409-1	Operations and suppliers considered to have significant risk for incidents of forced or compulsory labor either in terms of type of operation and supplier; countries or geographic areas with operations and suppliers considered at risk; measures taken by the organization intended to contribute to the elimination of all forms of forced or compulsory labor	Irrelevant Child and forced labor are prohibited under Ukrainian law The Company does not operate in the countries exposed to risks of such violations of human rights
GRI 410-1	Percentage of security personnel trained in the organization's human rights policies or specific procedures that are relevant to operations	No evaluation was done
GRI 411-1	Total number of identified incidents of violations involving the rights of indigenous peoples and actions taken	The Company does not operate within the territories of indigenous peoples
GRI 412-1	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	No evaluation was done
GRI 412-2	Total number of hours devoted to training on human rights policies or procedures concerning aspects of human rights that are relevant to operations	No evaluation was done
GRI 412-3	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	No evaluation was done
GRI 413-1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	116—123
GRI 413-2	Operations with significant actual and potential negative impacts on local communities	Irrelevant
GRI 414-1	Percentage of new suppliers that were screened using social criteria	No evaluation was done
GRI 414-2	Significant actual and potential negative social impacts identified in the supply chain and actions taken	No evaluation was done
GRI 415-1	Total monetary value of financial and in—kind political contributions made directly and indirectly by the organization by country and recipient/beneficiary	The Company does not provide aid to political parties
GRI 416-1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	118—119, 122—123
GRI 416-2	Total number of incidents of non—compliance with regulations and/or voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes	No such incidents were registered

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
GRI 417-1	Types of information required by the organization's procedures for product and service information and labeling, and percentage of significant product or service categories covered by and assessed for compliance with such procedures	Irrelevant Pursuant to the sanitary standards, electrical equipment under 220 KW does not provide for actions aimed at protection of consumers' health in connection with the effects of electromagnetic fields
GRI 417-2	Total number of incidents of non—compliance with regulations and/or voluntary codes concerning product and service information and labeling, by type of outcomes	No such incidents were registered
GRI 417-3	Results of surveys measuring customer satisfaction	74—77
GRI 418-1	Total number of substantiated complaints received concerning breaches of customer privacy and losses of customer data	No such incidents were registered
GRI 419-1	Total monetary value of significant fines for non—compliance with laws and/or regulations concerning the provision and use of products and services	No evaluation was done
MM1	Amount of land disturbed or rehabilitated/recultivated by the company in the reporting period	Annex 2
MM2	Area and percentage of lands where biodiversity reproduction is required, at the end of the year	635.32 hectares
MM3	Total amounts of overburden, rock, tailing at the beginning and at the end of the reporting period	Annex 2
MM4	Number of strikes and lock—outs exceeding one week's duration	No such incidents were registered The right to freedom of associations is set forth in collective bargaining agreements Employees have the right to strike Negotiation is the main dispute resolution method
MM5	Total number of operations taking place in or adjacent to indigenous peoples' territories, and number and percentage of operations or sites where there are formal agreements with indigenous peoples' communities	The Company does not operate within the territories of indigenous peoples

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
MM6	Whether there were disputes or situations where land use issues had to be discussed with the local communities (population, authorities)	The Company is engaged in a permanent dialog with population and authorities in the areas where the company operates No disputes have been registered
MM7	Which mechanisms relating to investigation of complaints related to land use are used by the company	The Company is engaged in a permanent dialog with population and authorities in the areas where the company operates No disputes have been registered
MM9	Any resettlements within the reporting period in connection with the mining works	No resettlements took place in connection with the allocation of objects
EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	56—73
EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime	56—62; 69
EU12	Transmission and distribution losses as a percentage of total energy	64
EU13	In which way biodiversity of offset habitats is compared to biodiversity of the affected areas	No evaluation was done
EU15	Percentage of employees eligible to retire in the next 5 and 10 years, broken down by job category and regions	Annex 2
EU17	Days worked by contractor and subcontractor employees involved in construction, operation and maintenance of energy objects	No data is available
EU18	Percentage of contractor and subcontractor workers who took relevant health and safety training courses	No data is available
EU22	Number of people physically or economically displaced and compensation, broken down by type of project	No evaluation was done
EU25	Number of injuries and fatalities, diseases to the public related to damage caused by company assets	No evaluation was done

Table of Standard Reporting Elements and Indicators of the Global Reporting Initiative Guidelines and UN Global Compact

GRI, UN GA reporting element	Description	Page/references to additional information sources/direct answer
EU26	Percentage of population unserved in licensed distribution or service areas	No data is available
EU27	Number of residential disconnections for non—payment	No evaluation was done
EU28	Power outage frequency	76
EU29	Average power outage duration	76
EU30	Average plant availability factor by energy source and by regulatory regime	No evaluation was done