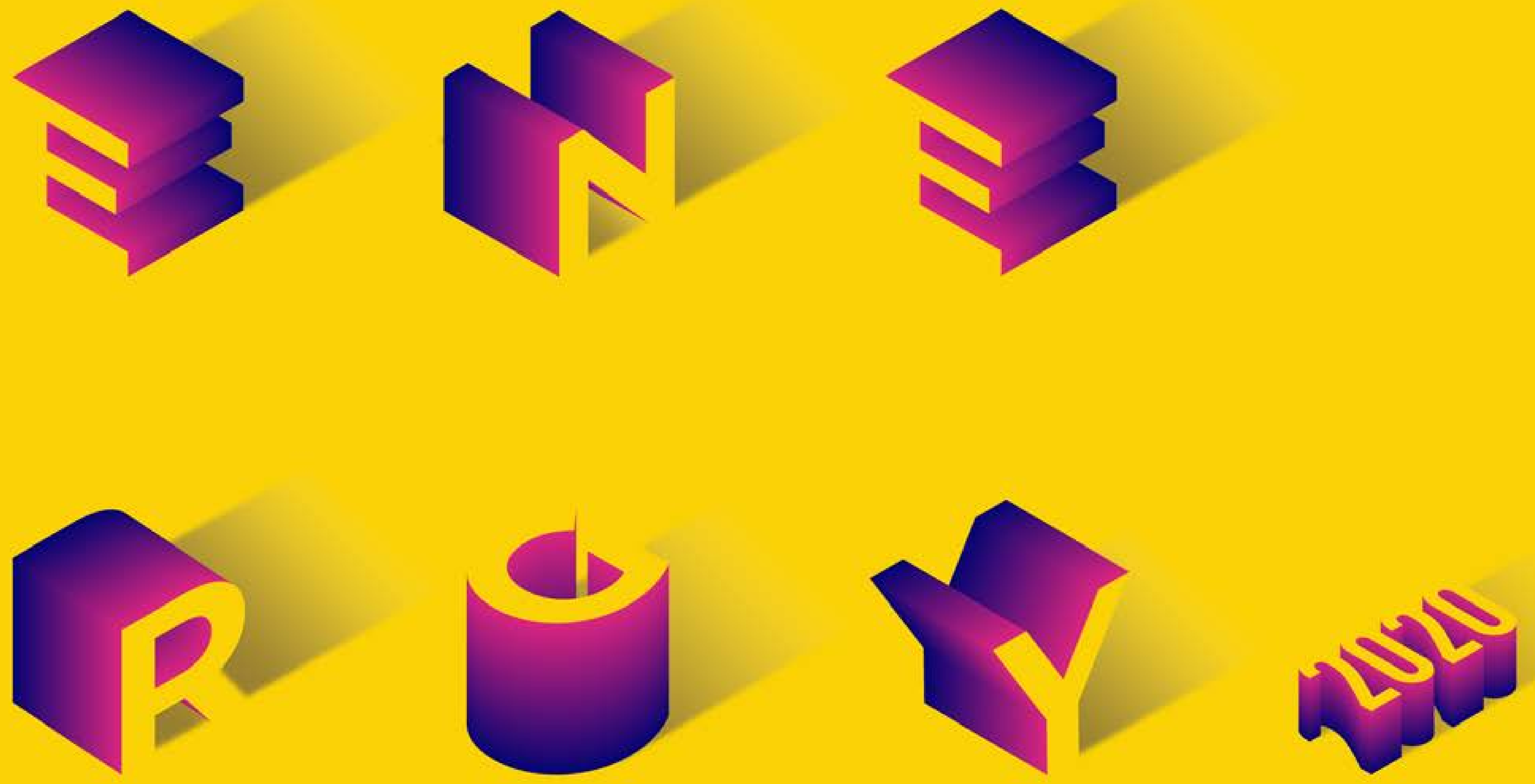


ENGINEERED BY
TOP LEAD

D.TEK
energy in action

AEQUO

bakertilly

INTRODUCTION

THE PURPOSE OF THIS GUIDE

The Ukrainian energy industry continues Eurointegration. The gas and electricity markets have been launched; the heat market will be introduced soon; the "green" energy development pace is growing; and consumers are getting more options. It is difficult to list all the changes.

The transformation of the energy industry opens incredible opportunities. However, to benefit from them, the process and its paradigm should be embraced. In this study, we use infographics to show how the energy industry of Ukraine is transforming, how its markets are changing, and what new opportunities it creates.

WHAT THIS GUIDE DEMONSTRATES

How is Ukrainian and global energy sector transforming

How is Ukrainian electricity sector transforming

How is Ukrainian gas sector transforming

THIS RESEARCH CONDUCTED BY

TOP LEAD

DTEK 15 YEARS ENERGY IN ACTION

AEQUO

bakertilly

dixigroup

Association of Gas Producers of Ukraine

ДЕРЖАВНА СЛУЖБА ГЕОЛОГІЇ ТА НАДР УКРАЇНИ

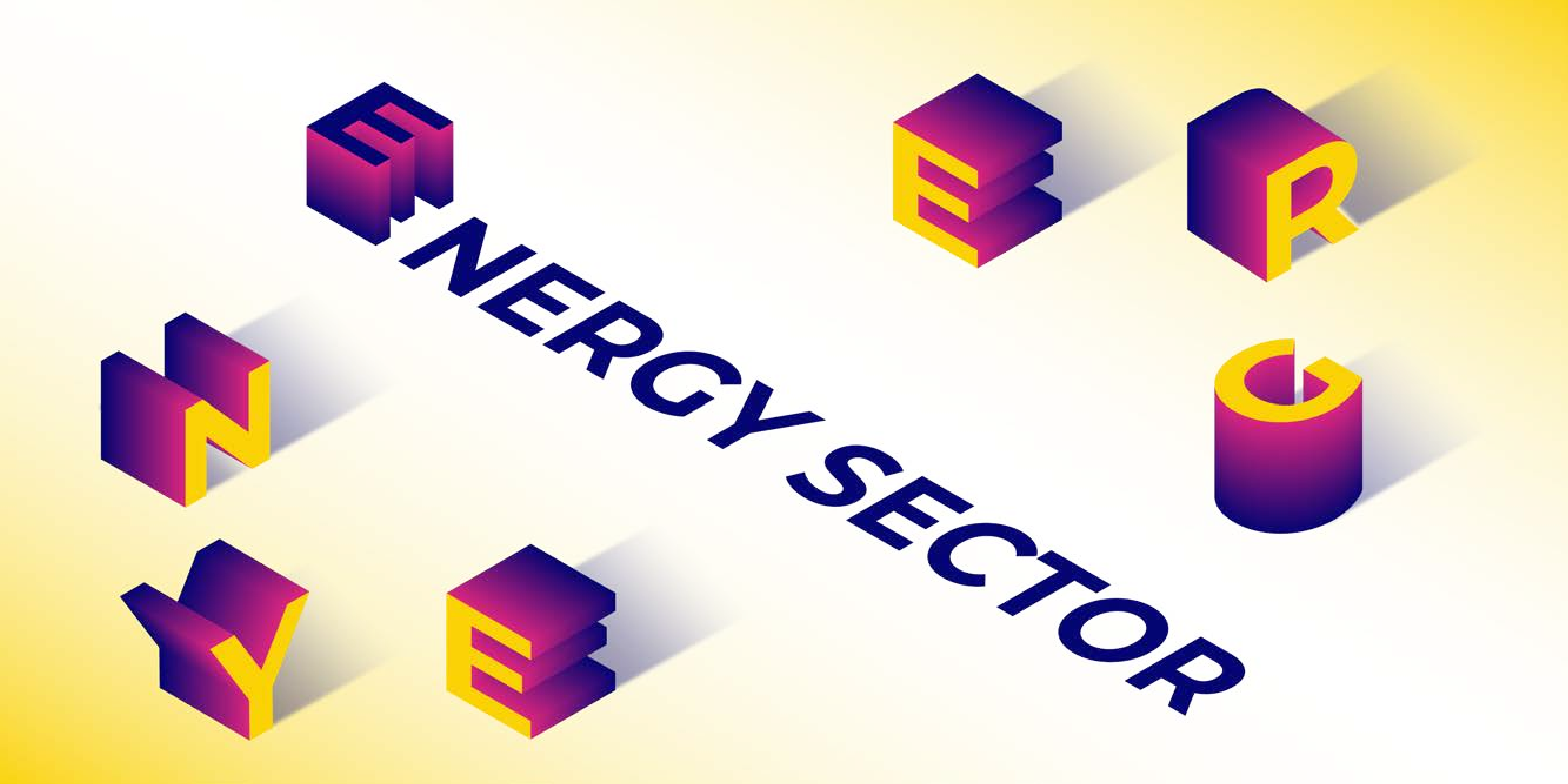
UAEITI Extractive Industries Transparency Initiative

SOURCES

- AEQUO Law Firm (AEQUO)
- Association of Distribution System Operators (electricity) of Ukraine (ADSO(e)U)
- Association of Gas Producers of Ukraine (AGPU)
- British Petroleum (BP)
- DTEK
- Energy Community
- European Statistical Office (Eurostat)
- Extractive Industries Transparency Initiative (EITI)
- Extractive Industries Transparency Initiative Ukraine (UAEITI)
- Federal Ministry for Economic Affairs and Energy (BMWi)
- Gazprom export
- Household Energy Price Index (HEPI)
- International Energy Agency (IEA)
- International Renewable Energy Agency (IRENA)
- Ministry of energy and environment protection of Ukraine (MEEP)
- National Energy and Utilities Regulatory Commission (NEURC)
- NJSC Naftogaz of Ukraine (Naftogaz)
- SE NPC Ukrenergo (Ukrenergo)
- State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE)
- State Scientific and Production Enterprise Geoinform Ukraine (Geoinform)
- The Commodity Exchange "Ukrainian Energy Exchange" (UEEX)
- The Law of Ukraine “On the Natural Gas Market” №329-VIII of 17.11.2019 (The Law of Ukraine “On the Natural Gas Market”)
- U.S. Energy Information Administration (EIA)
- United Nations (UN)
- Working Group on Energy Balances (Energy Balances Group)
- World Bank Group (WBG)

ABBREVIATIONS

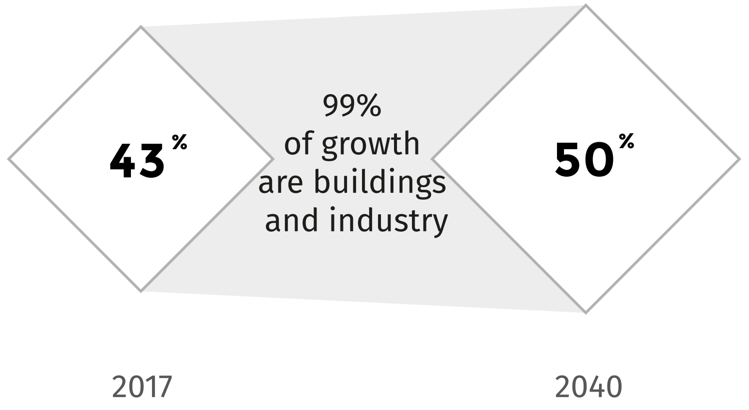
- RES - renewable energy sources (solar, wind, geothermal, bioenergy)
- UESU - United Energy System of Ukraine
- OECD - Organisation for Economic Co-operation and Development
- PPP - purchasing power parity
- UGS - underground gas storage
- PSOs - public service obligations
- toe - tonnes of oil equivalent
- TEP - third energy package
- HP - Heat Plants
- ELEC - electricity

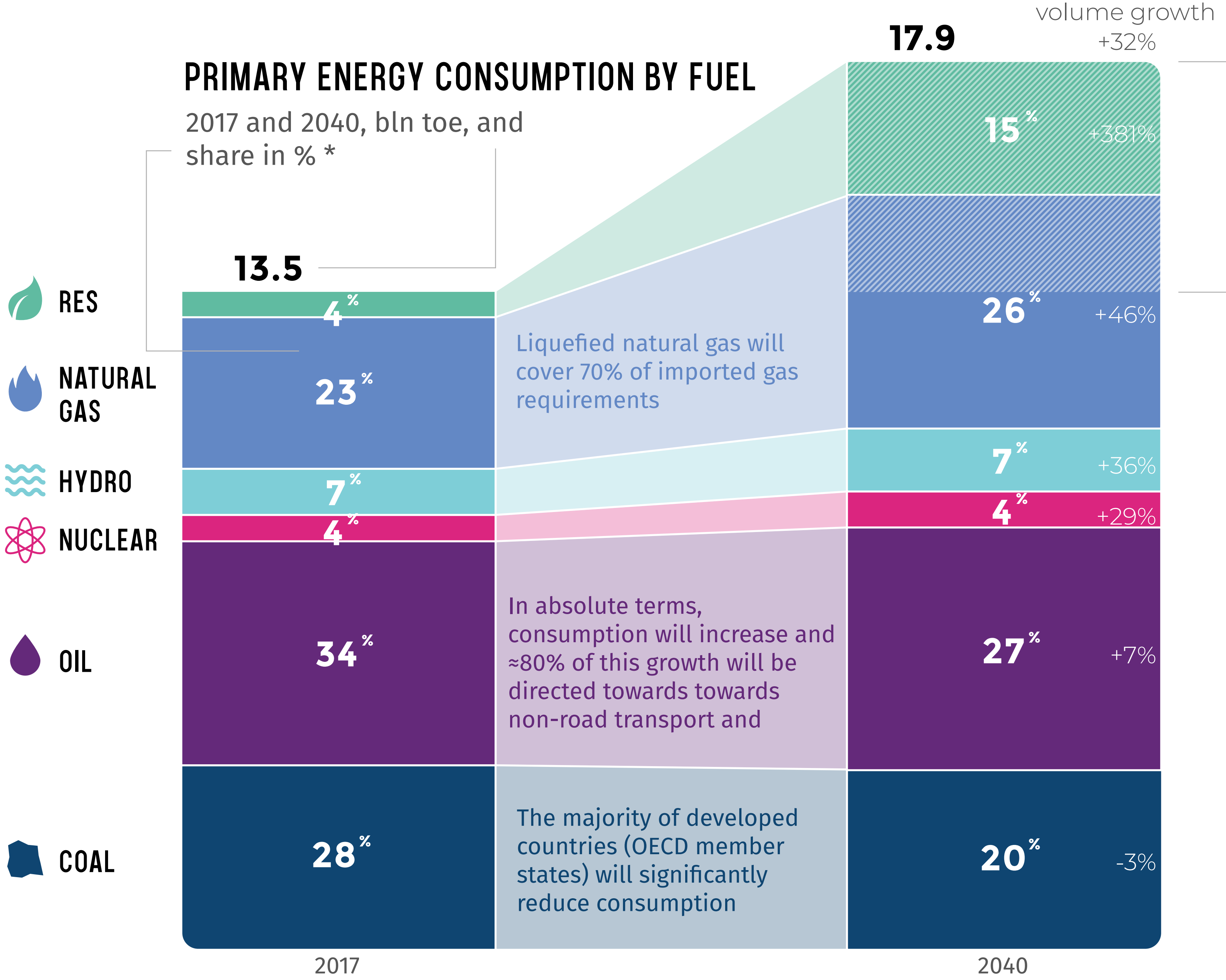

ENERGY SECTOR

IN 2040, HALF OF THE WORLD'S ENERGY WILL BE CONSUMED AS ELECTRICITY

RES is №1
electricity production source in 2040 (29%)

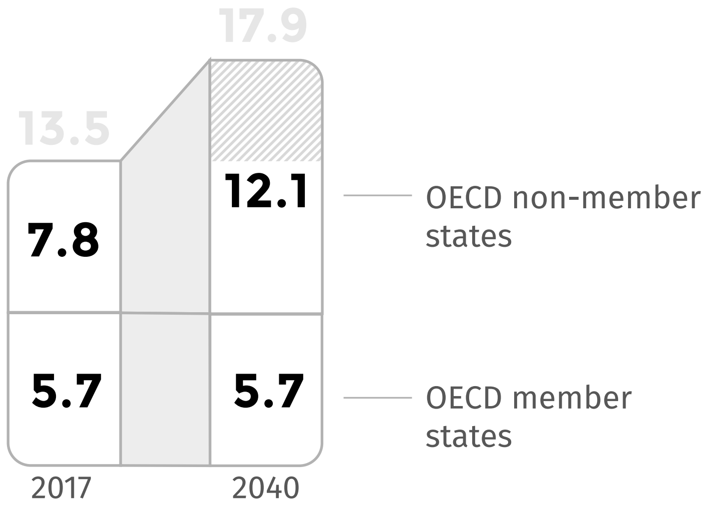
The role of electricity in final energy consumption continues to grow.
Share of fuel used for electricity generation, %





84%
of energy consumption growth will be covered by RES (50%) and Natural Gas (34%)

All of the growth in energy demand comes from fast-growing developing economies,
bln toe

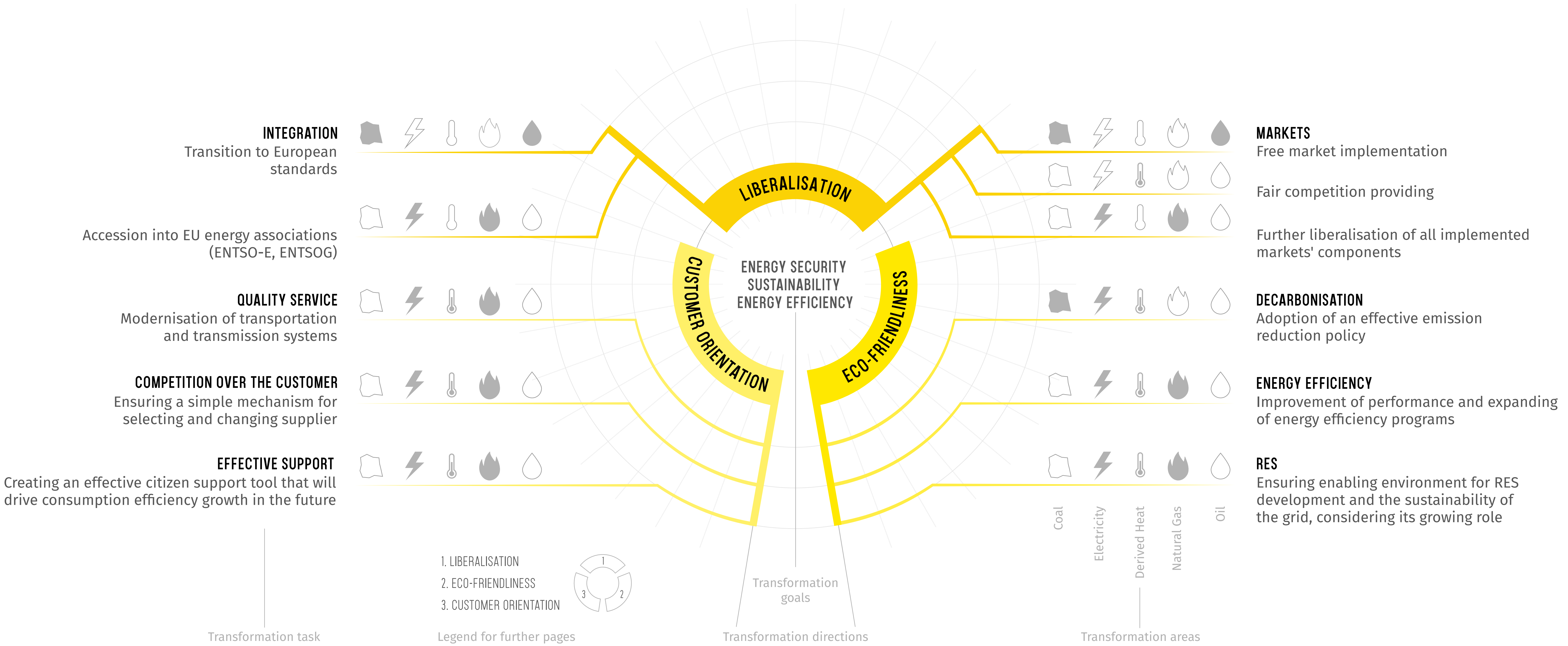


Sources: BP, EIA, IEA

*based on British Petroleum's base forecast for 2019 - Evolving transition

AEQUO bakertilly DTEK TOP LEAD

THE UKRAINIAN ENERGY SECTOR IS TRANSFORMING: MARKET, CLIENTS, ECOLOGY



Source: Top Lead analysis based on open sources

EUROPEAN INTEGRATION OF THE ENERGY SECTOR CONTINUES

LIBERALISATION
ECO-FRIENDLINESS
CUSTOMER ORIENTATION

IMPLEMENTATION OF EU LAW IN UKRAINIAN LEGISLATION

as of November 2019, readiness of legislation %

ENERGY EFFICIENCY

- 92% labelling of energy efficient products
- 85% Development of ESCO services market
- 80% Energy efficiency of buildings
- 64% National energy efficiency action plan
- 63% Institutional capacity

Implementation of provisions of Directives 2010/31/EU and 2012/27/EU

ALREADY DONE	TO BE DONE
The National Energy Efficiency Action Plan until 2020 is approved	To approve the National Energy Efficiency Action Plan until 2030
Minimum requirements for energy efficiency of buildings and the state programme of "winterisation loans" are introduced	To adopt the Law of Ukraine “On Energy Efficiency” to implement the requirem1ents of Directive 2012/27/EU
Laws on energy service are adopted	To provide for technical fit-out of custody transfer meters in all buildings
The Energy Efficiency Fund is established	To bring the Law of Ukraine on Co-generation in line with the requirements of Directive 2012/27/EU*

ENVIRONMENT

- 73% Sulphur content of fuel
- 66% Environmental impact assessment (EIA) and strategic environmental assessment (SEA)
- 53% Environmental protection system
- 50% Reduction of emissions by large combustion plants

STATISTICAL DATA

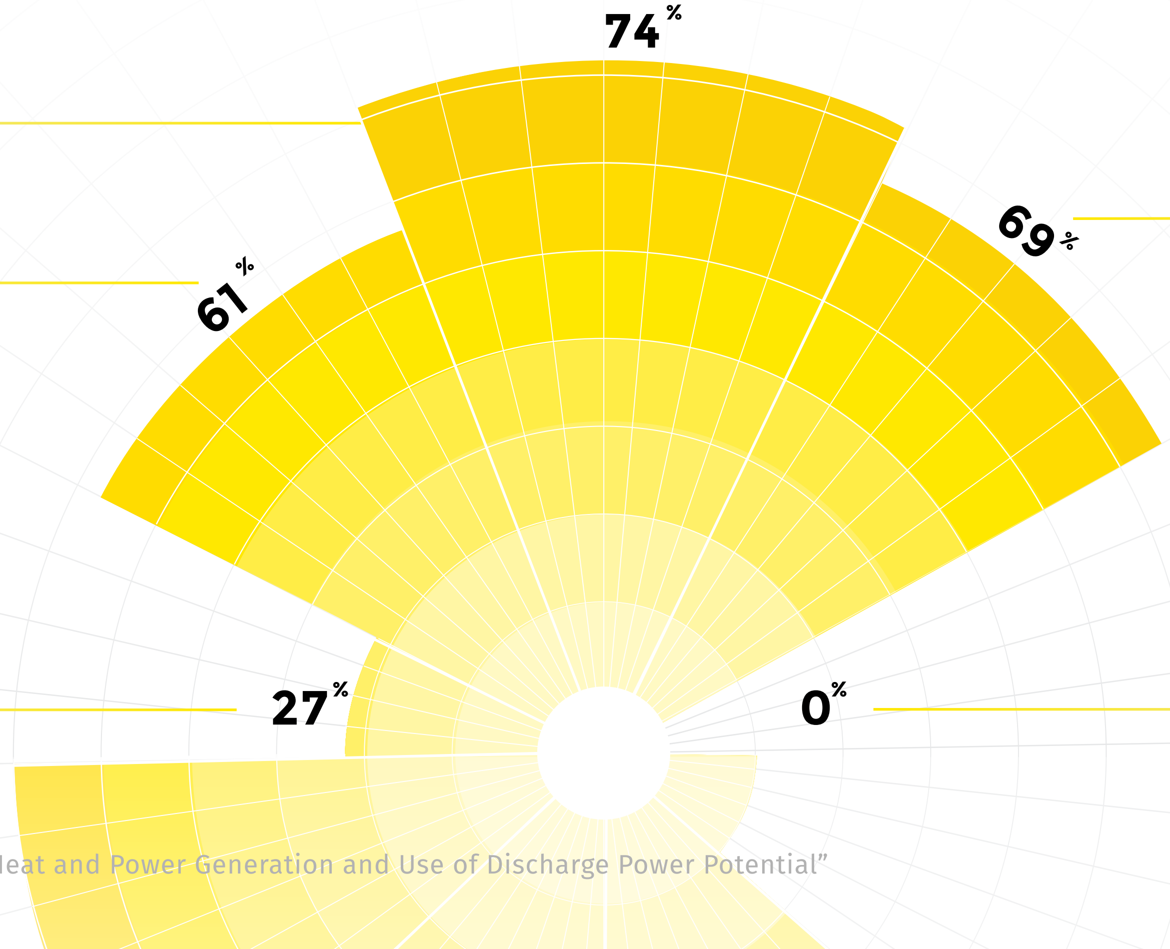
- 100% Quality report
- 70% Annual statistics
- 67% Price statistics
- 50% Monthly statistics

CLIMATE

- 36% National systems of monitoring and reporting on greenhouse gas emission
- 20% National energy and climate plans

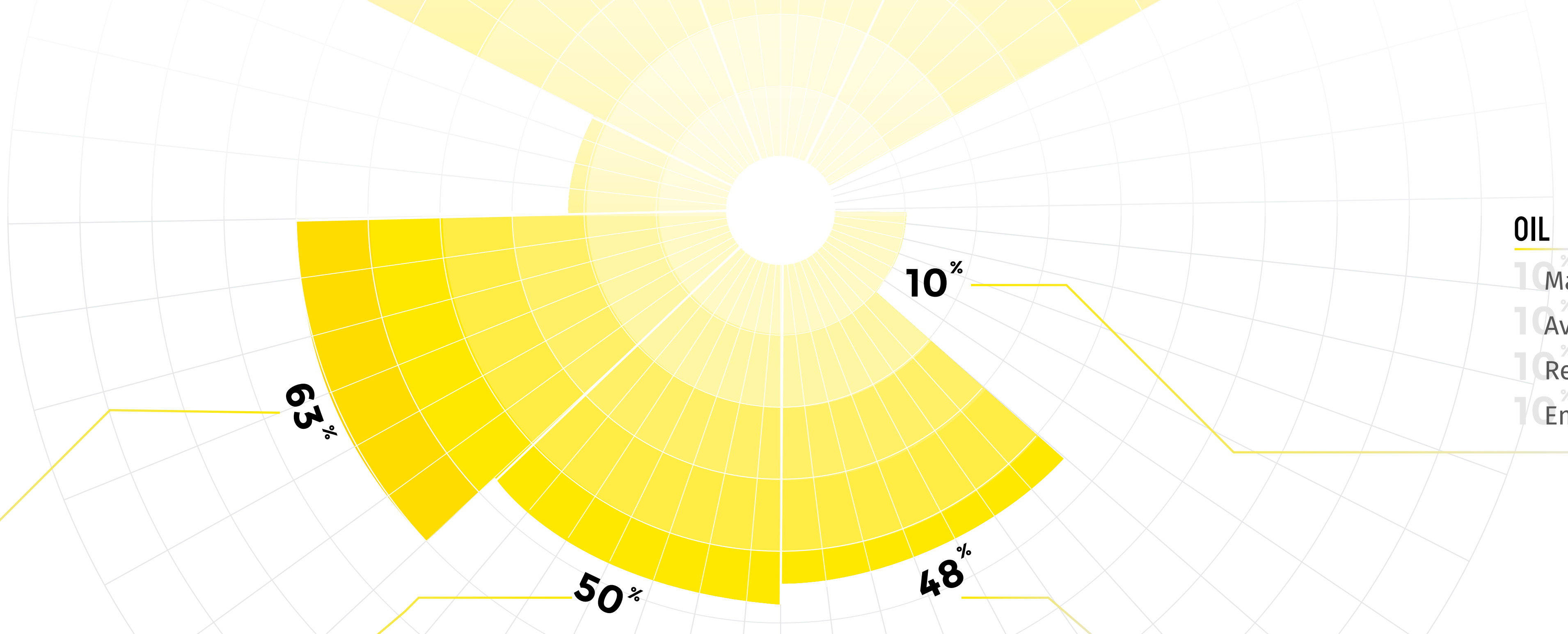
INFRASTRUCTURE

- 0% National competent authority
- 0% Preparation of a regulation on procedures
- 0% Involvement of the National Commission for Energy Regulation



Sources: Energy Community, AEQUO

*The Law of Ukraine “On Combined Heat and Power Generation and Use of Discharge Power Potential”



RENEWABLE ENERGY SOURCES

84% Grid integration
74% Administrative procedures
72% Quality of support schemes
61% National Renewable Energy Action Plan

2% Renewable energy sources in transport sector

OIL

10% Mandatory stocks policy
10% Availability and accessibility of stocks
10% Reporting
10% Emergency procedures

ELECTRICITY

General provisions of the Third Energy Package “ on Electricity Market” are implemented by the Law of Ukraine

TO BE DONE

- To launch the market of ancillary services, which is not currently operating
- To set tariffs based on the system of incentive tariff setting
- To develop the procedure for protection of vulnerable consumers, as provided in the law
- To have the Transmission System Operator (Ukrenergo) certified

ALREADY DONE

- New electricity market has been operating from 1 July 2019
- The laws provide for the system of incentive tariff setting
- Retail market has been operating from 1 January 2019
- Ukrenergo was transferred to the Ministry of Finance for management purposes and a preliminary decision on the certification thereof was made

66%	Wholesale market	62%
60%	Access to networks	60%
52%	Retail market	41%
14%	Interconnectivity	71%
49%	Unbundling	20%

GAS

General provisions of the Third Energy Package are introduced by the Law of Ukraine “On Natural Gas Market”

ALREADY DONE

- New tariff setting methodologies are adopted
- To protect household consumers, the system of public specific obligations is introduced
- The model (ISO) is selected and unbundling of the Gas Transportation Operator is completed
- New rules of gas market balancing are introduced

TO BE DONE

- To set tariffs for gas transportation, subject to economically feasible costs of the Gas Transportation Operator
- To provide for a process of free selection by household consumers of a supplier

Sources: Energy Community, AEQUO

SUSTAINABLE ENERGY INDUSTRY STARTS WITH TRANSPARENCY

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (EITI) —

is a global Standard that has the main purpose of promoting the transparency of revenues of a state from natural resources

The information to disclose:

- payments received by the state from natural resources extractive companies and their distribution
- any information related to the use of natural resources
- licenses owner

EITI MEANS:

For Ukraine

- a reform indicator that fosters the trust of international partners
- the transparency that prevents corruption and improves government finances
- a set of information driving sustainable use of subsoil and investment

For local authorities

- it fosters investment that creates jobs
- explains the role of the industry, thereby reduce social tensions between businesses and citizens

For extractive companies

- the transparency that helps to enhance the image of the company
- the ground for dialogue between companies, local authorities and citizens
- it contributes to the establishment of transparent operation rules

2009
The government of Ukraine committed to **implement the EITI**

Norway joined EITI

2012
Ukraine joined EITI

2013
The Multi-Stakeholder Group was formed. The Group implements and oversees EITI Standards. It consists of 8 representatives from each side: government, civil society and business

2014
Great Britain joined EITI

2015
The first EITI Ukraine Report published

2016
Germany joined EITI

2017
The first validation of Ukraine by the International Secretariat of EITI
Ukraine made meaningful progress

Progress beyond requirements in :
- Beneficial ownership
- Distribution of extractive industry revenues
- Civil society engagement
- Public debate
- Mandatory social expenditures

Inadequate progress in:
- State participation
- SOE transactions
- SOE quasi-fiscal expenditures

The second EITI Ukraine Report published

2018
The Law of Ukraine "On Ensuring Transparency in Extractive Industries" was adopted. It aims to harmonise Ukraine's legislation and the EITI Standards.

The third EITI Ukraine Report published

The Netherlands joined EITI

2019
The second validation started

2020
The fourth EITI Ukraine Report published

Sources: EITI, UAEITI

EXCHANGE TRADE BOOSTS FREE MARKET

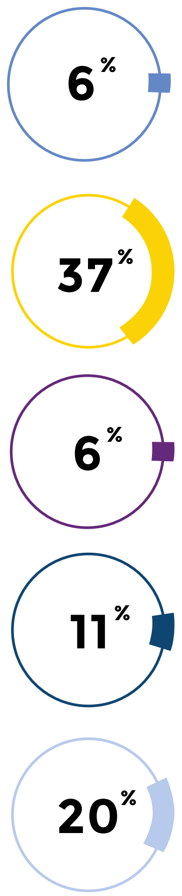
UKRAINIAN ENERGY EXCHANGE УКРАЇНСЬКА ЕНЕРГЕТИЧНА БІРЖА

LIBERALISATION
ECO-FRIENDLINESS
CUSTOMER ORIENTATION

EXCHANGE TRADE ADVANTAGES:

- The anonymity of participants and free pricing
- Fair market prices
- Transparency and publicity
- Integration with global markets
- Transparent economy and investment inflow

ROLE OF EXCHANGE TRADE IN UKRAINE,
% of market*



Natural gas — 35% in EU

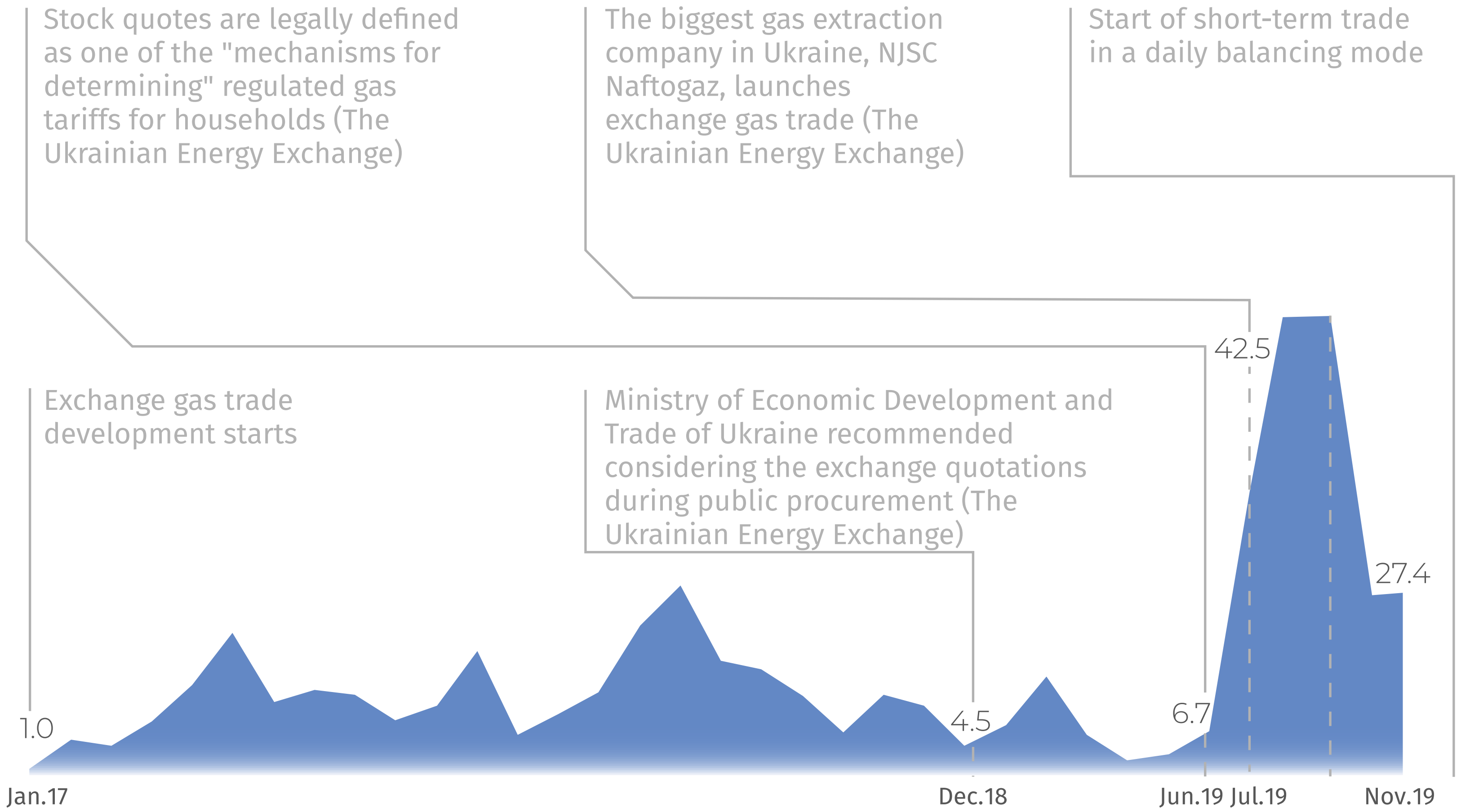
Electricity — European Union legislatively prioritise exchange trade over the mechanism of public procurement

Oil products

Coal — Stimulating the exchange trade development is the established international practice to ensure competition in the markets

Liquefied petroleum gas

EXCHANGE GAS TRADE DEVELOPMENT IN UKRAINE,
bcm**



Ukraine is the 8th country in Europe in terms of gas consumption. With such volumes, energy security is impossible without a liquid market and gas hub creation in the future. Exchange trade is the basis to achieve these goals

Further steps:

Providing energy market transparency and reporting standards

Implementation of standardized products and standard close of deals

Improvement of clearing and launch of a full-fledged risk management system

Formation of national energy price indices

Sources: UEEX

*for Ukraine the indicators are calculated, for gas - from the volume of the free market; EU - based on 7 gas hubs: Great Britain, The Netherlands, Germany, France, Italy, Belgium, Austria

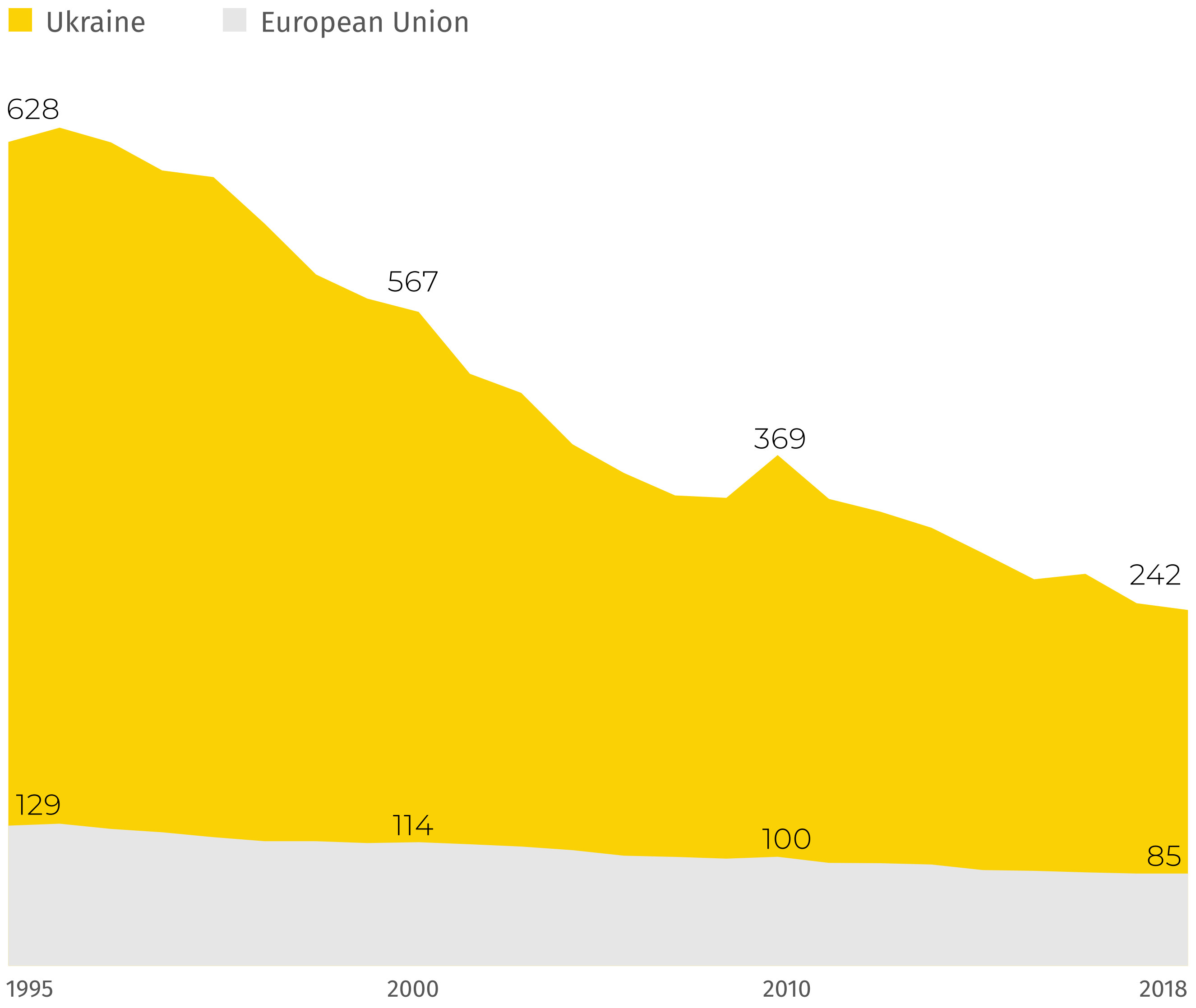
**data of the Ukrainian Energy Exchange, where more than 80% of gas trade is concentrated

UKRAINE BECOMES MORE ENERGY EFFICIENT

THE ECONOMY BECOMES MORE EFFICIENT

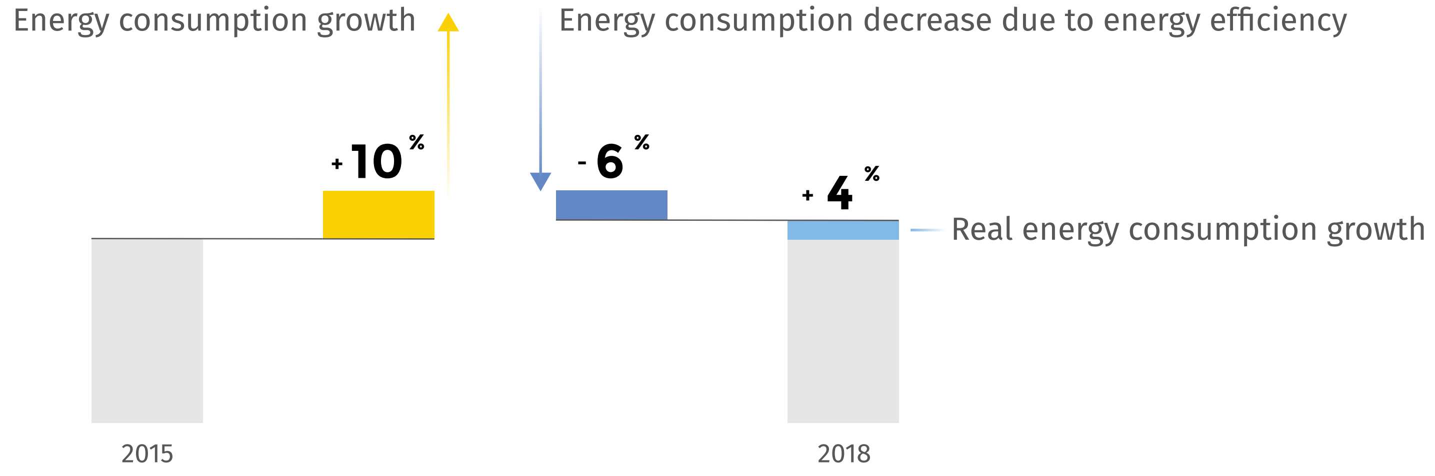
energy used to create 1000 USD of added value

1995-2018, kgoe/1 000 USD GDP (constant 2011 PPP)



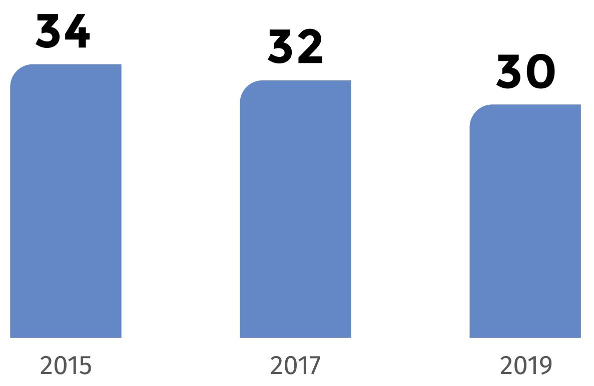
ENERGY EFFICIENCY IS THE "FIRST FUEL" OF ALL ENERGY TRANSITIONS*

International Energy Agency



GAS CONSUMPTION STEADILY DECLINES

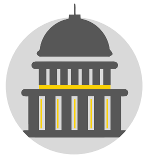
2015-2019, bcm



ENERGY EFFICIENCY PROGRAMS

gas consumption falling due to energy efficiency measures

≈20-30%
"warm loans" for households and housing cooperatives



≈35%
ESCO agreements for budget organisations

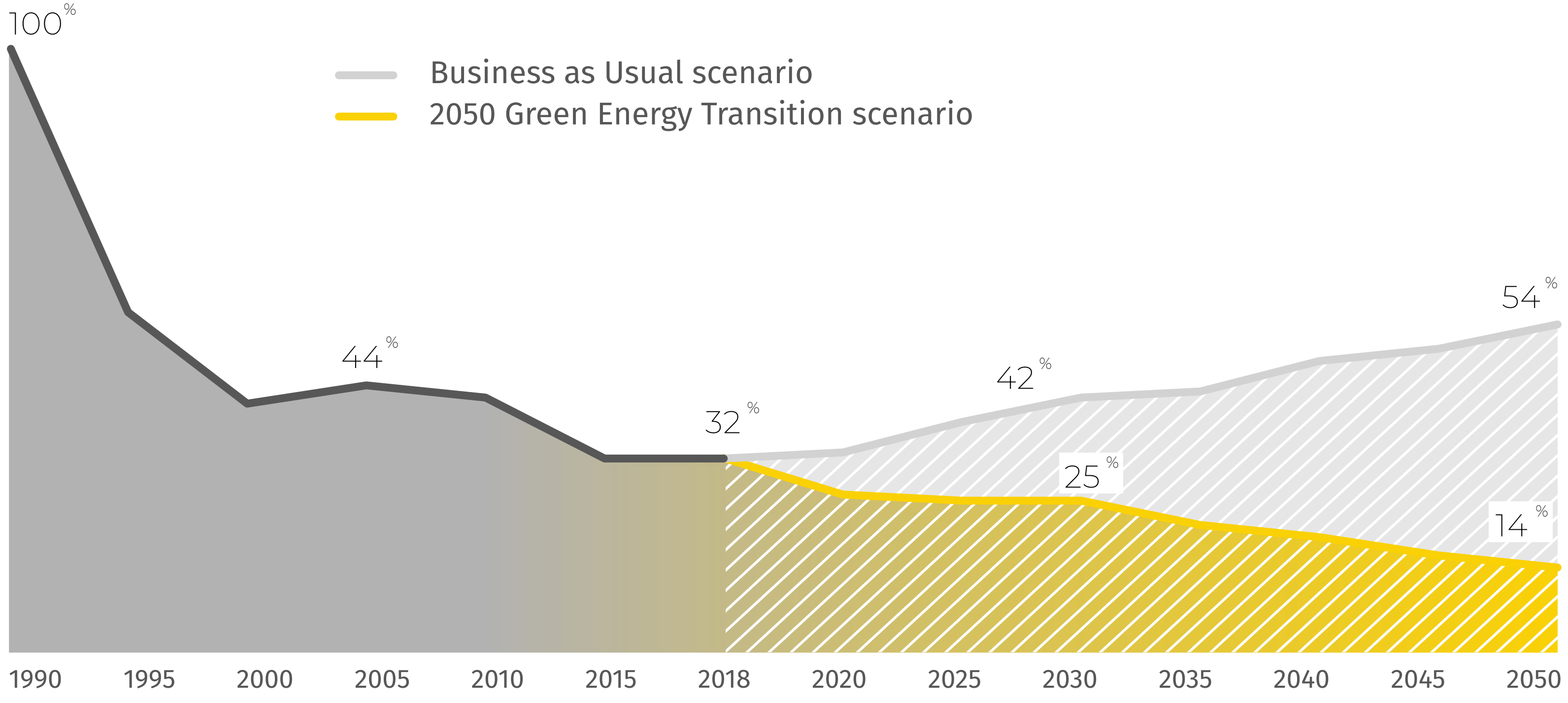
Sources: WBG, NEURC, IEA, Naftogaz

*the example includes data from IEA member-states, Russia, South Africa, China, India, Argentina, Brazil, Indonesia

ENERGY INDUSTRY BECOMES MORE ECO-FRIENDLY

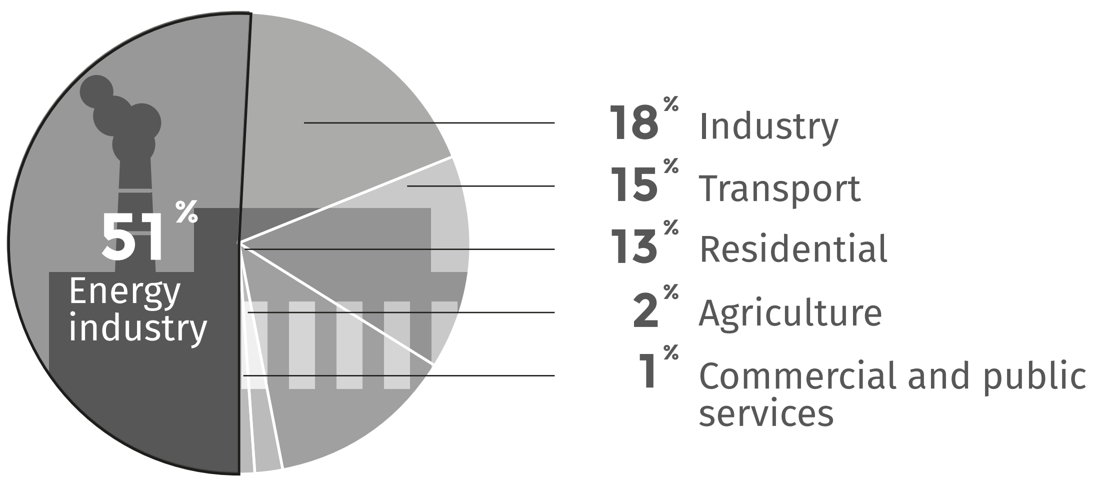
ENVIRONMENTAL FRIENDLINESS OF THE UKRAINIAN ECONOMY AND POSSIBLE DEVELOPMENT SCENARIOS

CO_2 emission relative to the level of 1990, %, 1990-2050



CO2 EMISSIONS BY SECTOR

share of sector in total CO_2 emission, %, 2017



Critical goals of Ukraine's 2050 Green Energy Transition Concept*

70% share of RES in electricity production by 2050

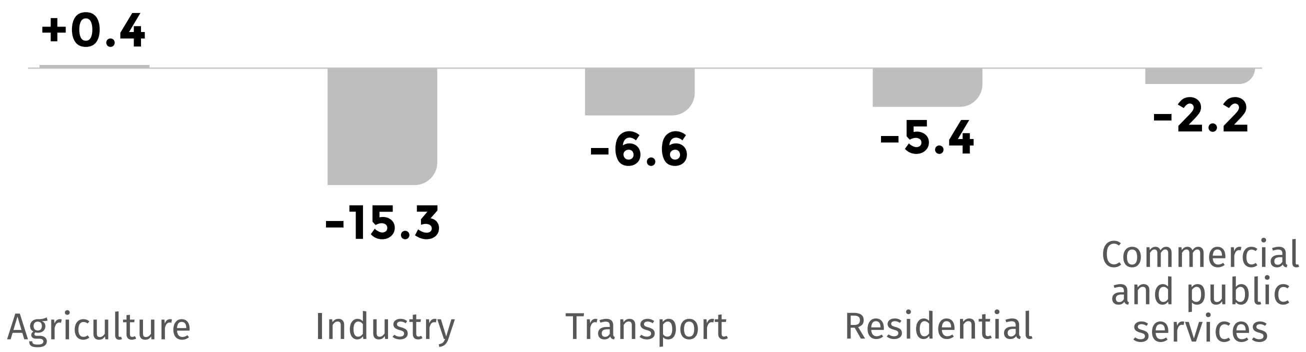
0% share of coal TPPs in the energy industry by 2050

Implementation of **the Smart grid**

Environmentally friendly vehicles

ENERGY CONSUMPTION DECREASE BY SECTORS

bln toe, 2020-2050



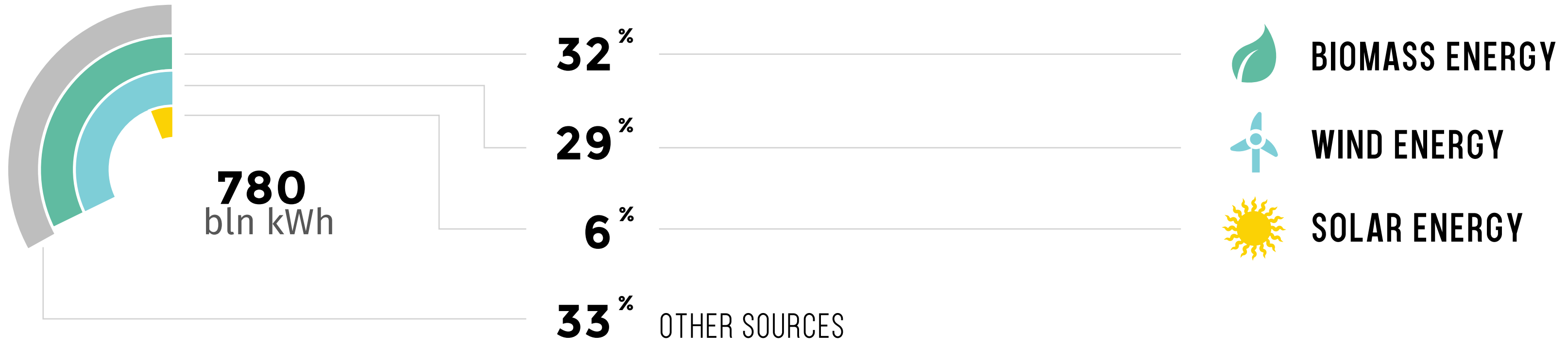
Sources: MEEP, UN

*publicly represented by MEEP at 21.01.2020

UKRAINE HAS SUFFICIENT RESOURCES

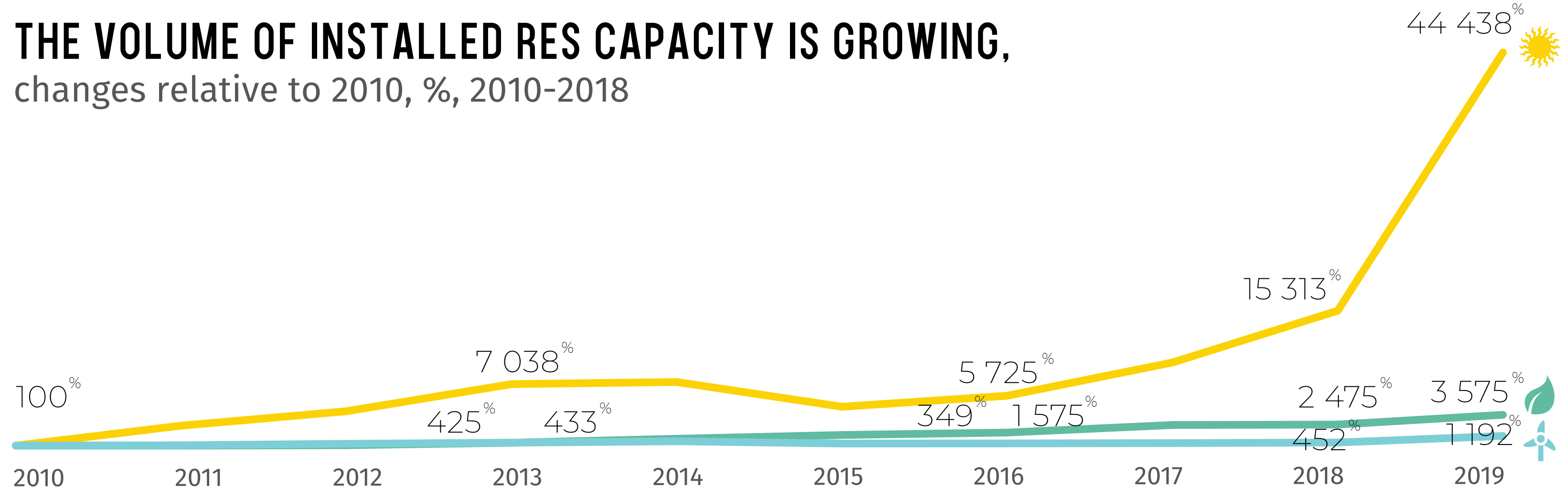
RENEWABLE ENERGY PROVIDES TREMENDOUS OPPORTUNITIES

RES-E production potential and its structure
bln kWh (%)

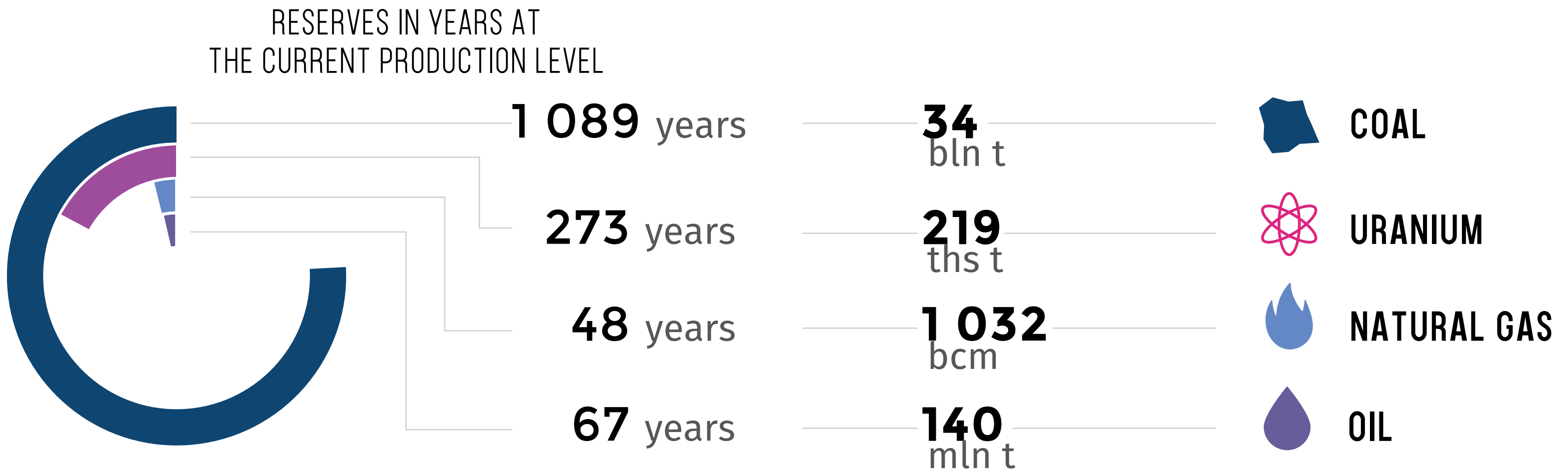


THE VOLUME OF INSTALLED RES CAPACITY IS GROWING,

changes relative to 2010, %, 2010-2018

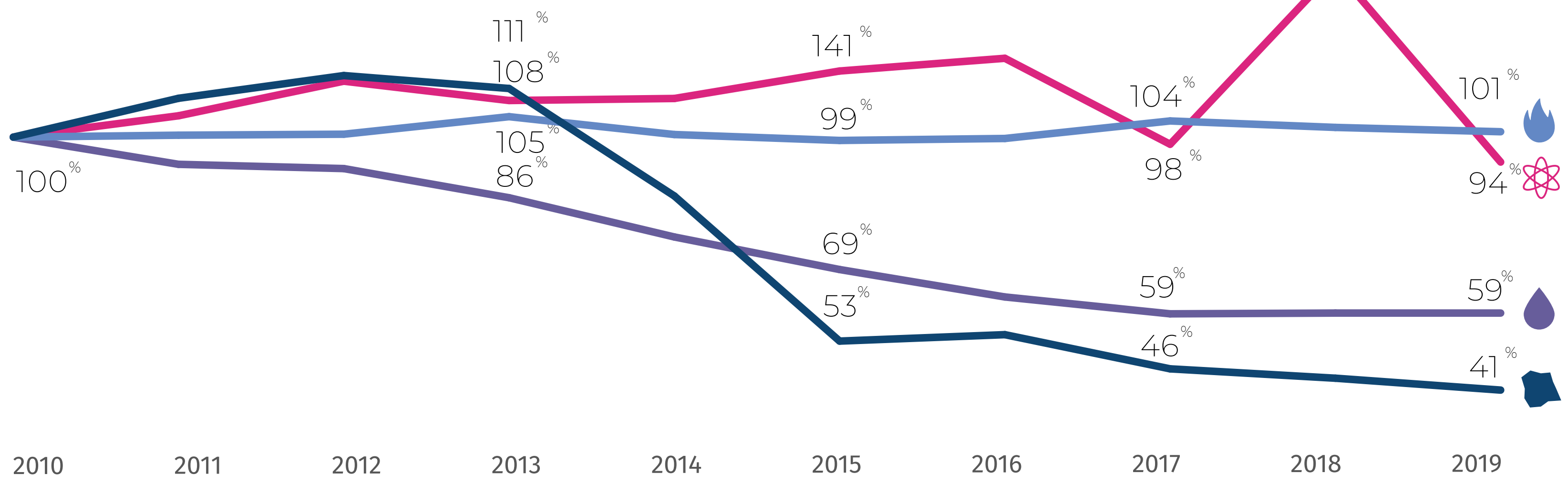


SUFFICIENT RESERVES OF TRADITIONAL ENERGY SOURCES*



THE PRODUCTION OF TRADITIONAL ENERGY SOURCES IS FALLING,

changes relative to 2010, %, 2010-2018



Sources: SAEE, MEEP, Ukrenergo, Geoinform

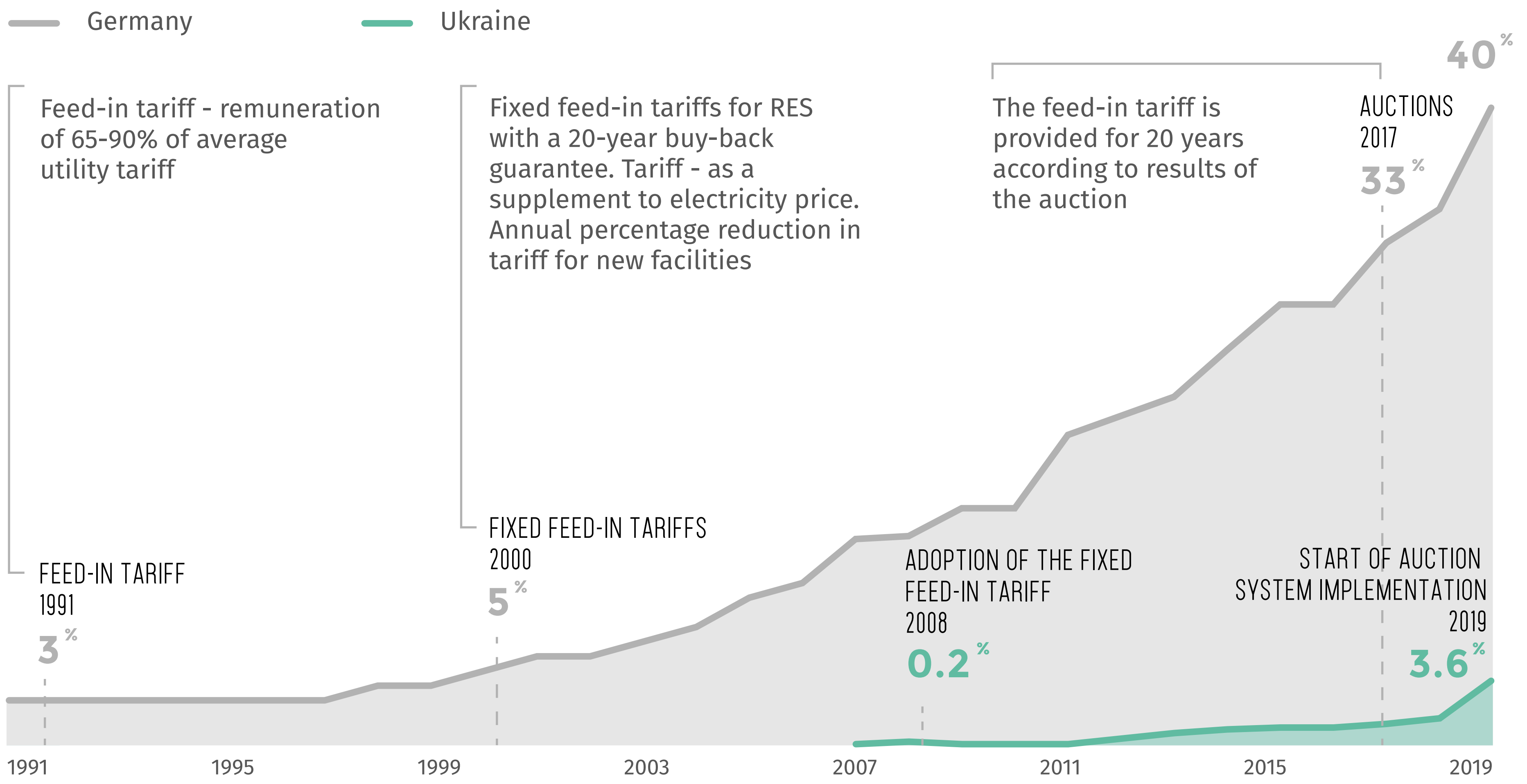
*explored reserves

CASE STUDY: DEVELOPMENT OF RES SUPPORT MECHANISMS

RES DEVELOPMENT REQUIRED CONSTANT TRANSFORMATION OF SUPPORT MECHANISMS

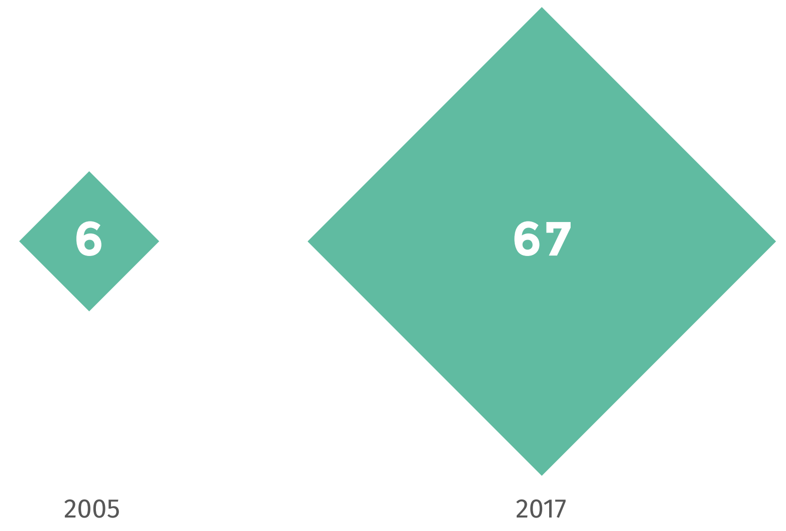
share of RES in electricity production and support mechanisms (the example of Germany and Ukraine), % of total production, 1990-2019

70% is the target for the share of RES in electricity production according to Ukraine's 2050 Green Energy Transition Concept



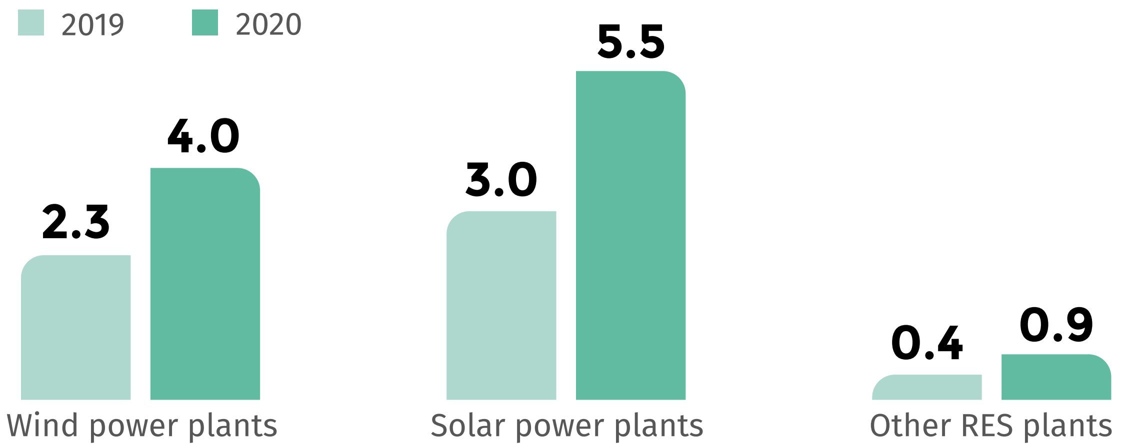
AUCTIONS BECOME THE MAIN RES SUPPORT MECHANISM

number of states implemented auction as RES support mechanism



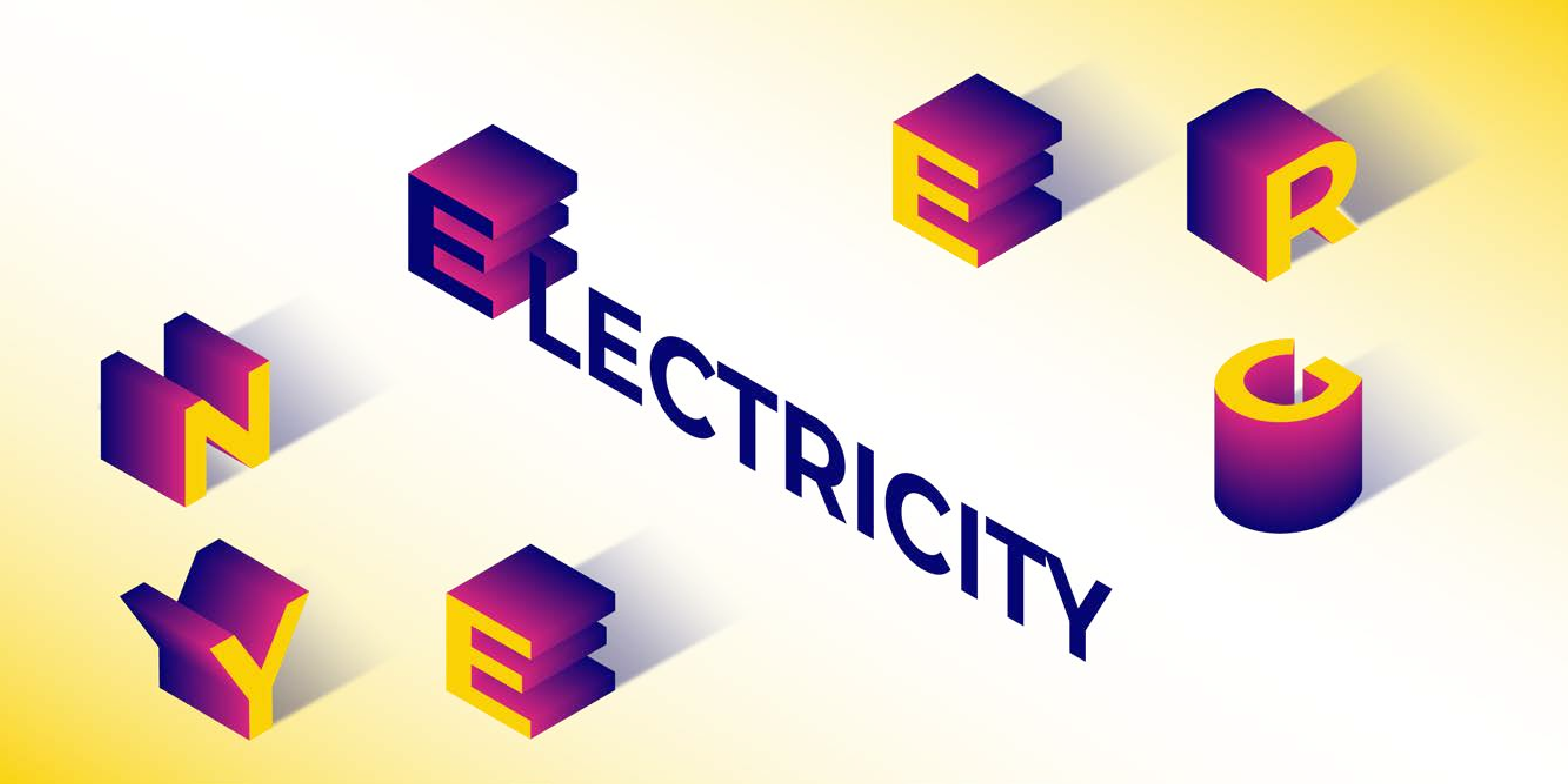
THE VOLUME OF RES-E IN UKRAINE IS GROWING FAST

RES-E volume forecast, bln kWh*



Sources: IRENA, IEA, MEEP, BMWi, AGEB, Ukrenergo

*according to the forecast of the MEEP: 2019 from 05/09/2019, 2020 from 13/03/2020


ELECTRICITY
E
E
R
N
G
Y
E

ELECTRICITY PRODUCTION AND CONSUMPTION

It is expensive to store electricity with current technologies, so its production is adjusted to consumption. Everything that is produced we consume immediately

PRODUCERS
(power plants)

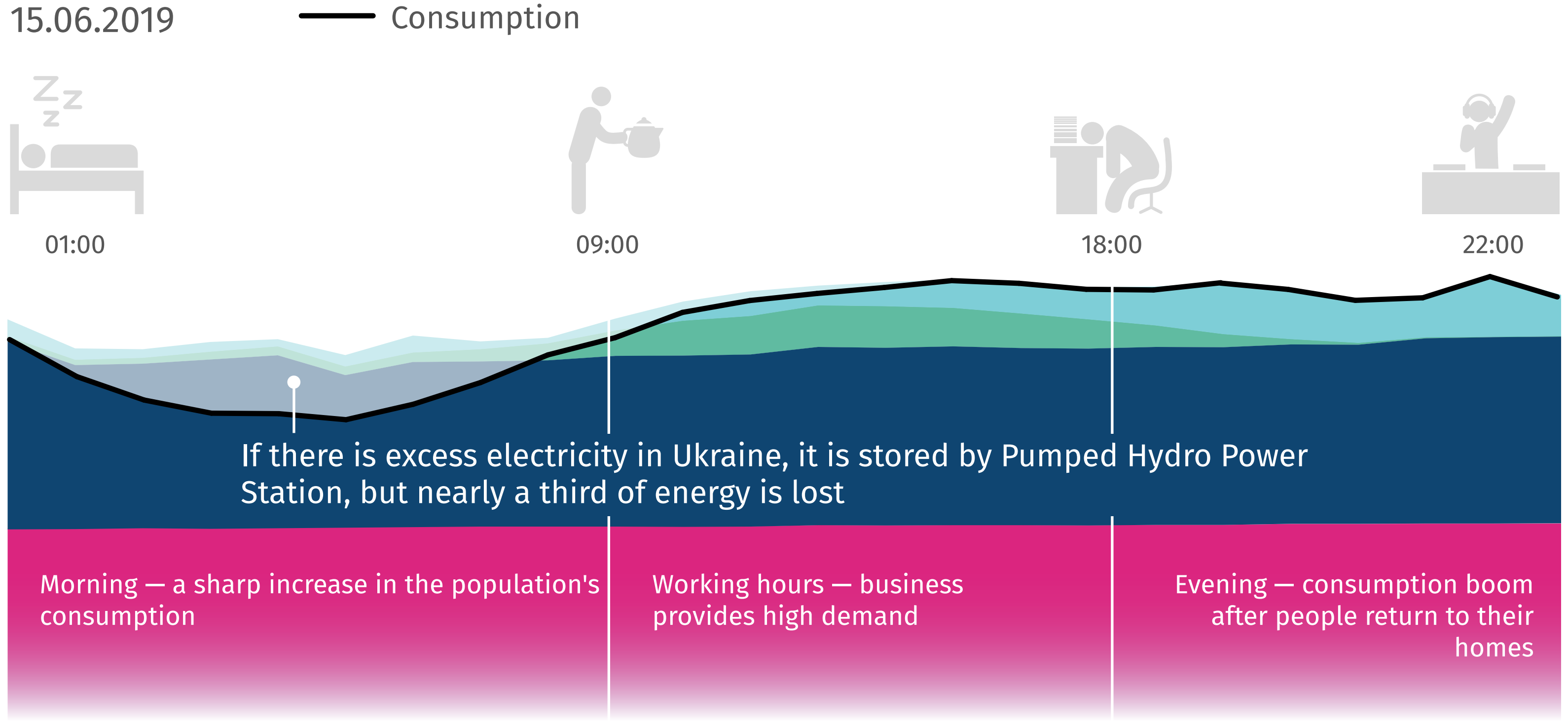
≈54% NUCLEAR (NPP)
Provide sustainable production of a significant amount of energy. However, NPPs lack of output flexibility

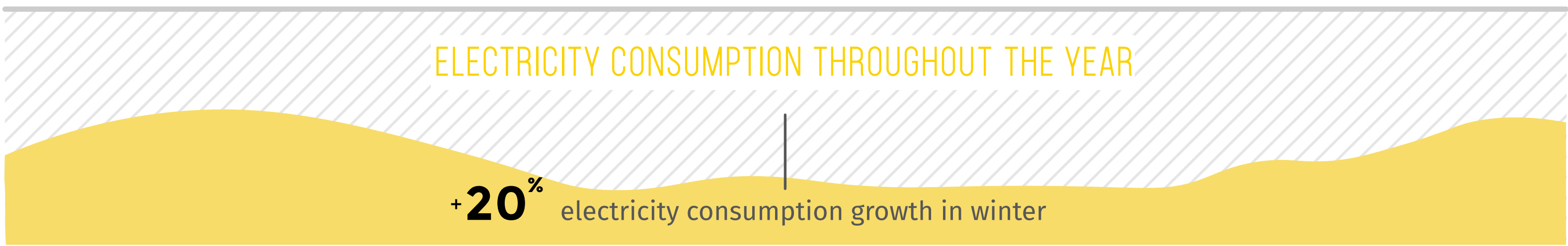
≈37% THERMAL (TPP & CHP)
Enable to react rapidly to changing needs via increasing or decreasing production

≈5% HYDRO (HPP & PHPS)
Help to balance the energy system. PHPs can also store excess electricity

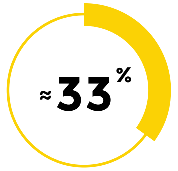
≈4% RES
Produce clean electricity, but with significant fluctuations, so RES need balancing from other producers

ELECTRICITY PRODUCTION AND CONSUMPTION THROUGHOUT THE DAY
15.06.2019





CONSUMERS



INDUSTRIES
More than a half is consumed by metallurgy

HOUSEHOLDS & MUNICIPAL CONSUMERS
The share of the households in consumption is equal to the one in EU, meanwhile, the volume per capita is two times lower

≈4%

TRANSPORT
≈90% — consumed by railway

≈30%

OTHER
11% — transfer losses;
8% own power production needs;
export, construction and agriculture consume the rest

Source: Ukrenergo

ELECTRICITY SUPPLY: FROM PRODUCERS TO CONSUMERS

PRODUCTION

Electricity bill
Electricity path

HYDRO
THERMAL
POWER PLANTS
NUCLEAR
RES

MARKET/TRANSMISSION

MBC (Market of Bilateral Contracts)
DAM (Day-Ahead Market)
IM (Intraday Market)
BM (Balancing Market)

Market segments where electricity and services can be purchased

MARKET

TRANSMISSION SYSTEM OPERATOR

Ensures the operation and development of the transmission system, undertakes central control of the United Energy System of Ukraine and interacts with operators of the transmission system of neighbouring countries

SUPPLY/DISTRIBUTION

Supply anywhere to anyone

Purchase electricity on various market segments for further supply to consumers

ELECTRICITY SUPPLIERS

HOUSEHOLDS
BUSINESS
PUBLIC INSTITUTION

DISTRIBUTION SYSTEM OPERATORS

≈30 operators in Ukraine

Sumy Oblast

Ensure reliable operation and development of the network within a certain territory. This may be an Oblast or a separate area, such as a network of Ukrzaliznytsia

Sources: Ukrenergo, MEEP

HOW THE ELECTRICITY MARKET WORKS: STRUCTURE AND SUBJECTS

Electricity payment

Electricity path

BUYERS

CONSUMERS
Purchase electricity for their own consumption in all market segments, subject to the conclusion of agreement on the settlement of imbalances and agreement on the provision of transmission/ distribution services

TRADERS
Carry out the sale and purchase of electricity, including export-import (except for sale under a supply contract with consumer)

GUARANTEED BUYER
Purchases RES electricity from producers to increase its share and sells at DAM, IM, and also provides the implementation of other services of public interest

USS
(Universal Service Supplier)
Determined by the CMU as a result of the competition and supplies electricity:
- only to household and small non-household consumers, public institutions and consumers up to 150 kW
- exclusively within its territory without the right of refusal

SOLR
(Supplier of Last Resort)
Supplies electricity within 60 days if there are no other suppliers. Determined by the CMU as a result of the competition within a particular territory

ELECTRICITY SUPPLIERS
Supply electricity to final consumers:
- anywhere
- to anyone
- at free prices

WHOLESALE MARKET

BCM
(Bilateral Contracts Market)
Electricity trading by concluding agreements with any counterparty at free prices

DAM
(Day Ahead Market)

IM
(Intraday Market)

For all contractors, trading electricity on the stock exchange is at free prices. Participants must enter into an agreement with the Market Operator, which ensures the functioning of these markets.

How much time in advance electricity for consumption is purchased

- Earlier than one day before consumption
- Today for tomorrow
- Today for today, at least 1 hour before consumption

Hourly, that is, for a particular hour of a particular day, electricity trading for consumption

BM
(Balancing Market)
TSO buys and sells electricity taking into account price limits set by the NEURC to balance the UES. In order to participate in the market, agreement with the TSO must be entered into

ASM
(Ancillary Service Market)
TSO purchases ancillary services* at free prices pursuant to agreements*

To ensure reliability of UES

DISTRIBUTION SYSTEM OPERATOR
(DSO)

TRANSMISSION SYSTEM OPERATOR
(TSO - Ukrenergo)
Operates the transmission system and ensures its constant and reliable operation, including by ensuring the functioning of the BM and the ASM

RETAIL MARKET

- BUSINESS
- HOUSEHOLDS
- PUBLIC INSTITUTIONS

PRODUCERS

- NPP
- HPP, PHPS
- RES
- TPP
- CHP

Sources: Law of Ukraine "On electricity market", AEQUO

*Reserved capacity of producers/consumers for increasing/decreasing energy system load

NETWORKS ARE BOTH THE MAJOR CHALLENGE AND DEVELOPMENT OPPORTUNITY

UKRENERGO INVESTMENT PROGRAM IMPLEMENTATION

fulfilment level, % of plan, 2015-2019

2015–2017 2018–2019

FURTHER INVESTMENTS ARE ALLOCATED FOR THE MAJOR NETWORK UPGRADE,

transmission system development plan for 2020-2029

CONSTRUCTION OF NEW:

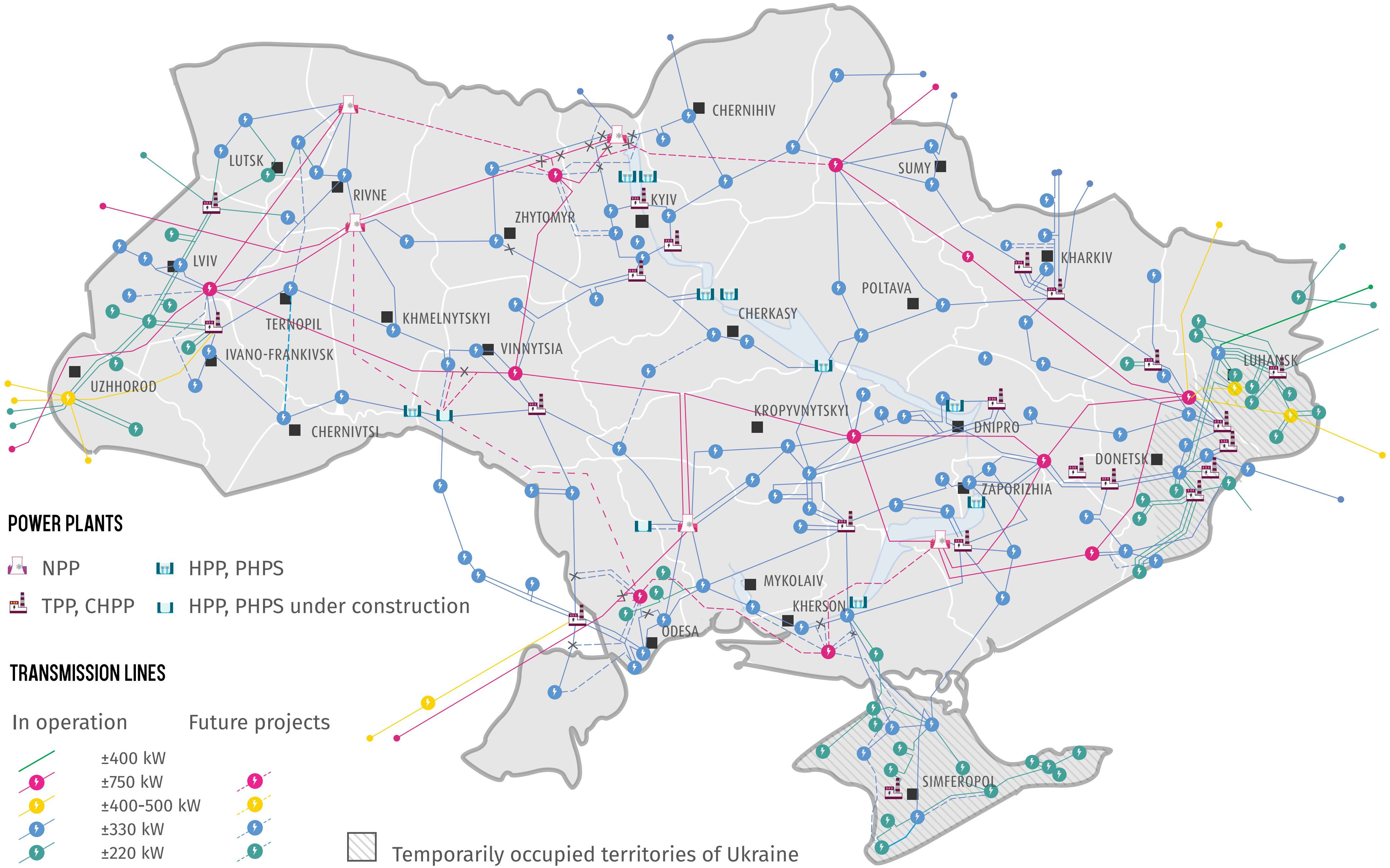
12% substations

18% transmission lines

RECONSTRUCTION OF OLD:

58% substations

7% transmission lines

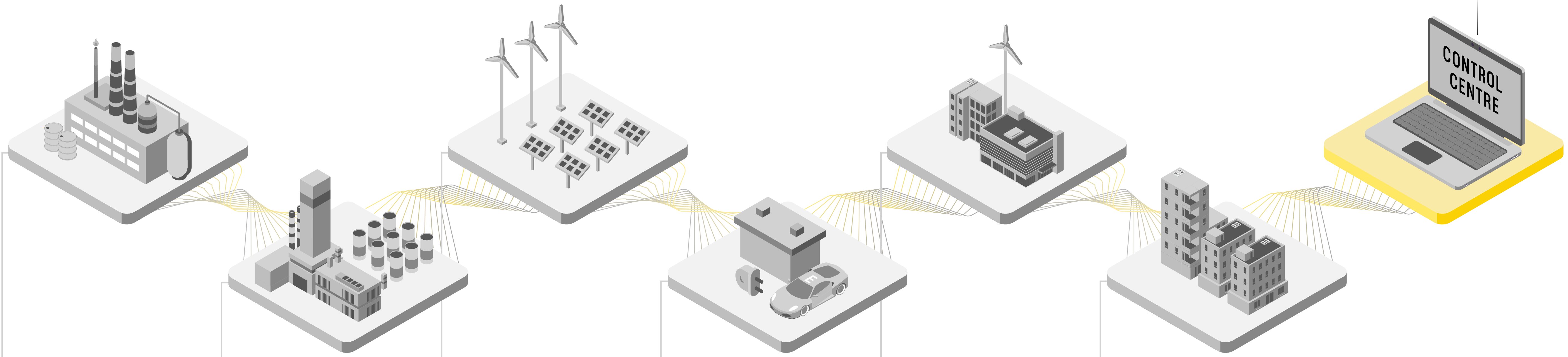


Source: Ukrenergo

NEXT DEVELOPMENT STAGE IS THE SMART GRID

HOW AND WHAT FOR SMART GRID WORKS

Smart Grid is a set of technologies, providing consumers with feedback and allowing to automize electricity distribution as well as to manage the grid and pricing in the real-time



HUGE CONSUMERS

Actively participate in balancing and reduce costs by using high precision forecasting

POWER PLANTS

Reduce balancing costs

SOLAR AND WIND FARMS

Effective forecasting and management ensure the growing role of RES

ELECTRIC VEHICLES

Act as distributed storage of electricity

SMALL RES-E PRODUCERS

Real-time forecasting and management

HOUSEHOLD CONSUMERS

Can act as producer.

Smart meters allow to manage the consumption and commit online-monitoring of the grid

22 ths households in Ukraine installed PV plants as of the beginning of 2020

CURRENT SITUATION

100% of the population has access to electricity

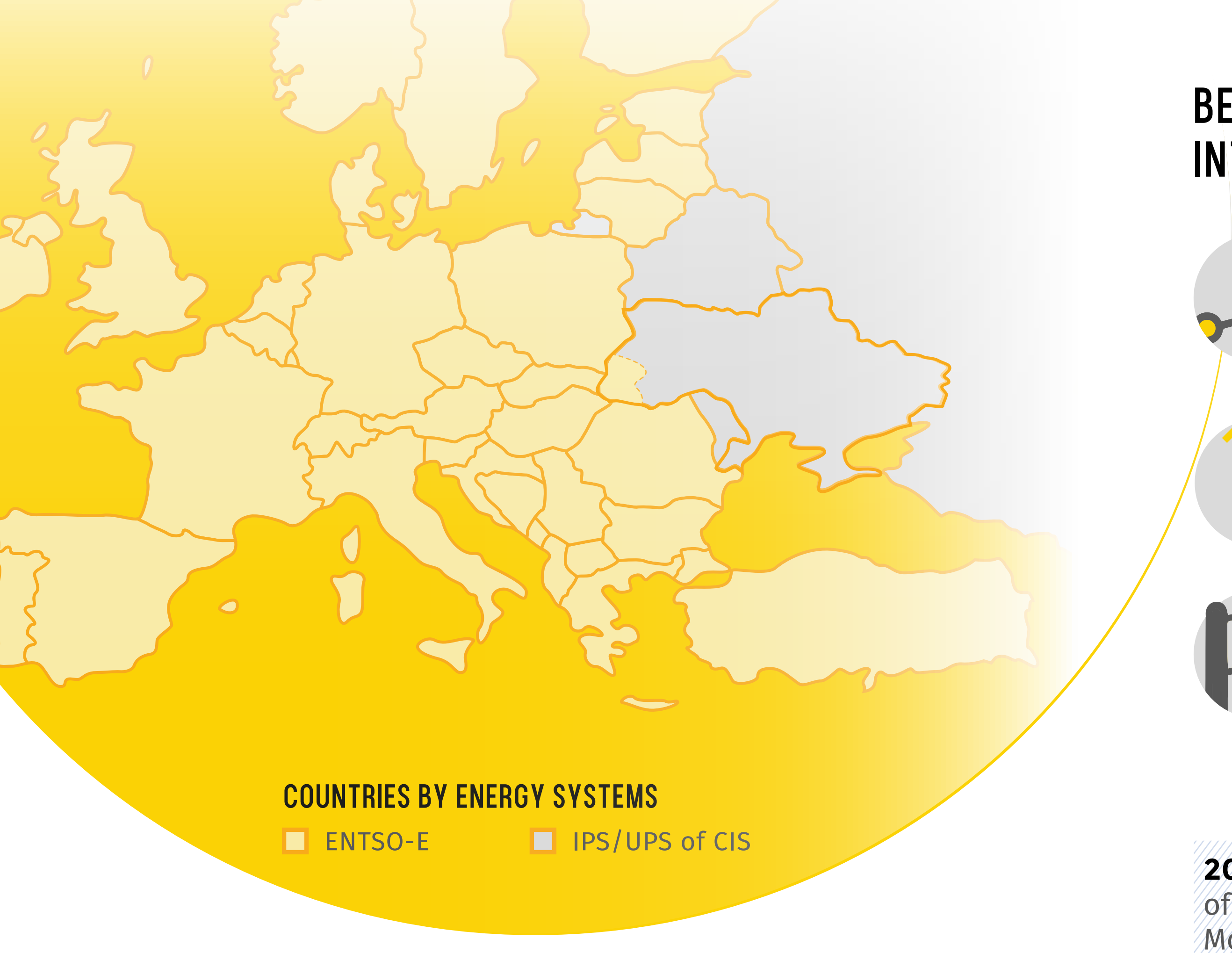
850 ths km the length of Ukrainian grids

>50% the current level of grid deterioration

4 Eurocent per kWh — the lowest tariff for households in Europe

Sources: NEURC, WBG, HEPI Ukrenergo, ADSO(e)U

EUROINTEGRATION IS A GRID DEVELOPMENT PRIORITY



BENEFITS OF INTEGRATION INTO ENTSO-E

Increased reliability and flexibility of the grid

4-6-times electricity export to Europe increase

Independence from the Russian and Belarusian energy systems

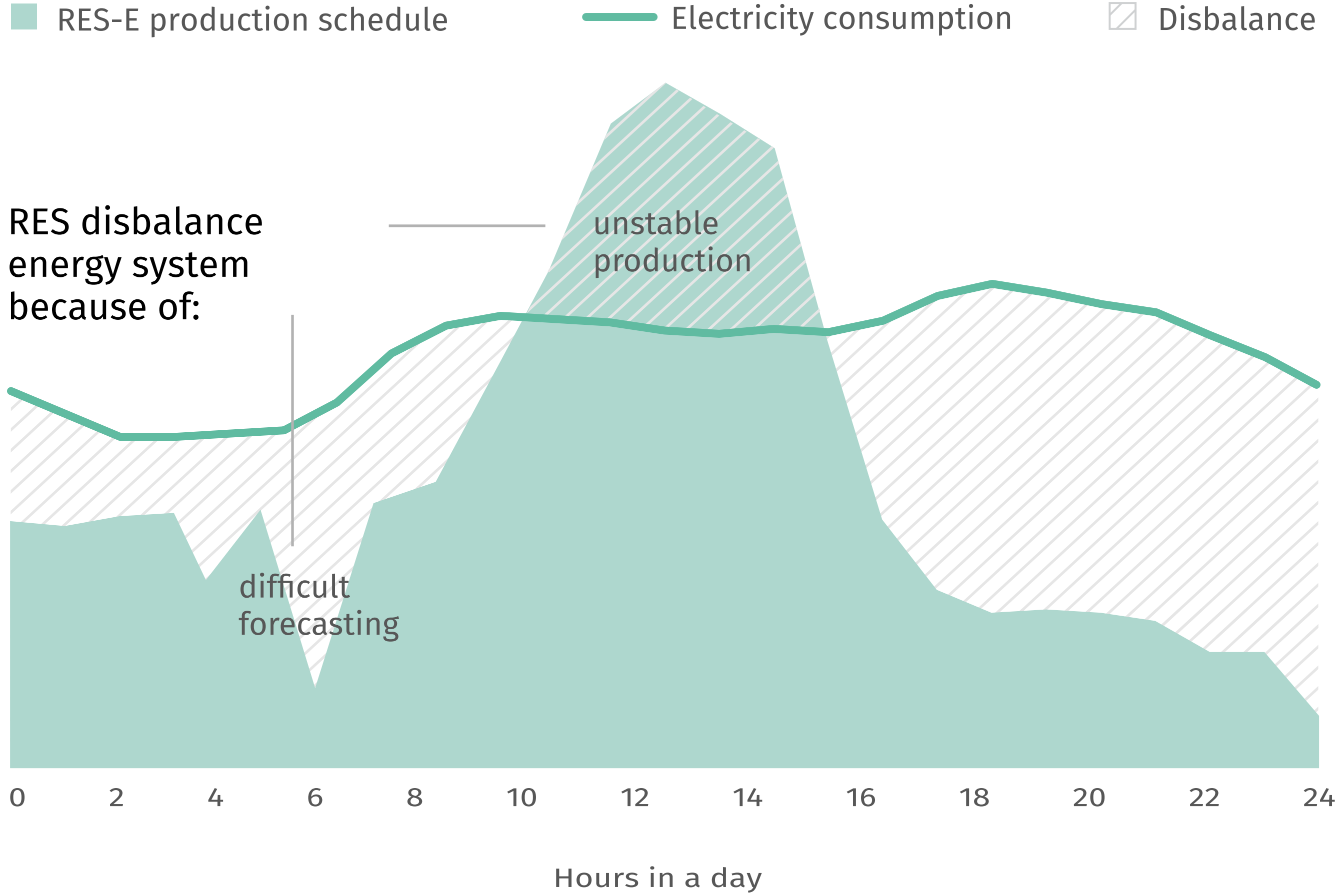
2017 The Agreement on ENSO-E integration of the Energy Systems of Ukraine and Moldova was signed in 2017

TRANSFER TO ISOLATED OPERATION REQUIRES EFFECTIVE RES INTEGRATION

Effective RES integration into the grid requires:

+1 GW frequency support and regulation systems

+2,5 GW high-manoeuvrable capacities



FURTHER STEPS TO FINISH THE INTEGRATION

2020 Testing of NPP

2021
- Creation of a common mathematical model of Ukrainian United Energy System and ENTSO-E
- Re-equipment and modernisation of power plants

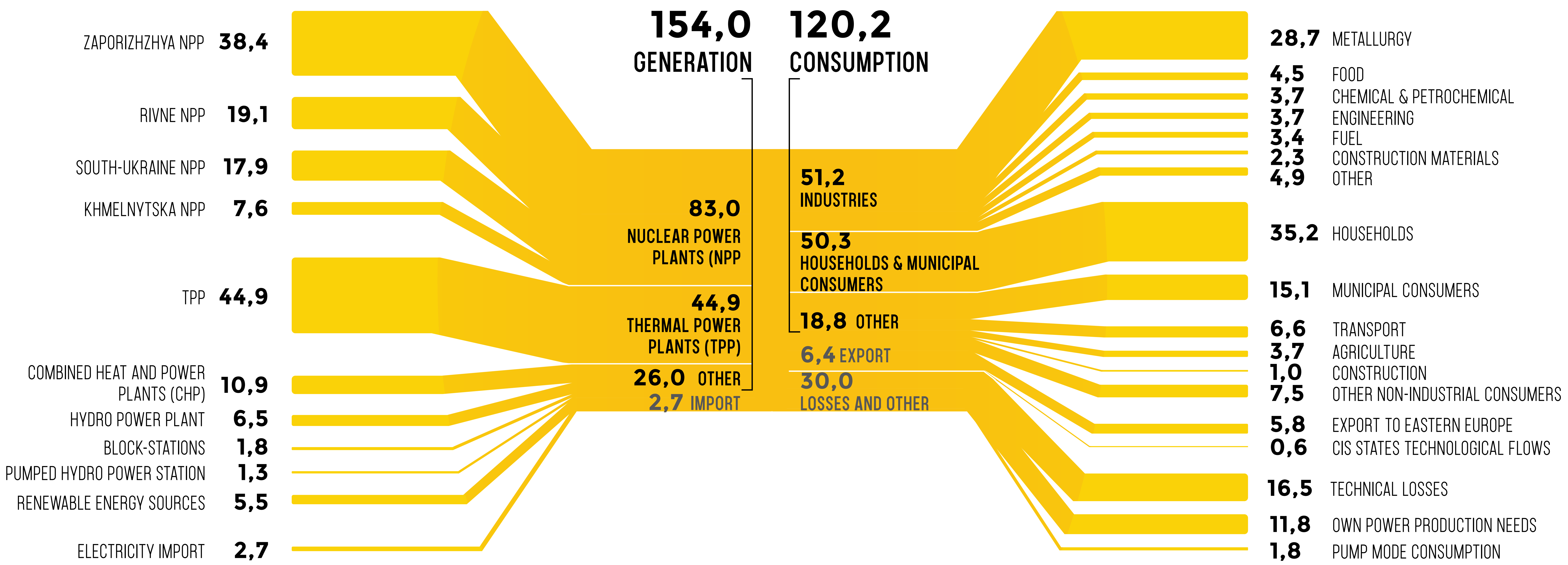
2022 Trial operation in isolated and synchronised modes

2023 Synchronisation of Ukrainian and European energy systems

Sources: Ukrenergo, NEURC

ELECTRICITY BALANCE

2019, bln kWh



Sources: MEEP, Ukrenergo


GAS

NATURAL GAS PRODUCTION AND CONSUMPTION

Unlike electricity, gas is easy to store. Whereas with peak demand, it is tough to increase production, that is why storage is not an option but a necessity

PRODUCERS

NAFTOGAZ

≈70%

(production and import)

Its huge role can be explained by the concentration of the most oil and gas assents in property of the government

PRIVATE COMPANIES

≈25%

(production and import)

50% of the volume imported, while the role of the domestic output is continuously growing

UNDERGROUND GAS STORAGES

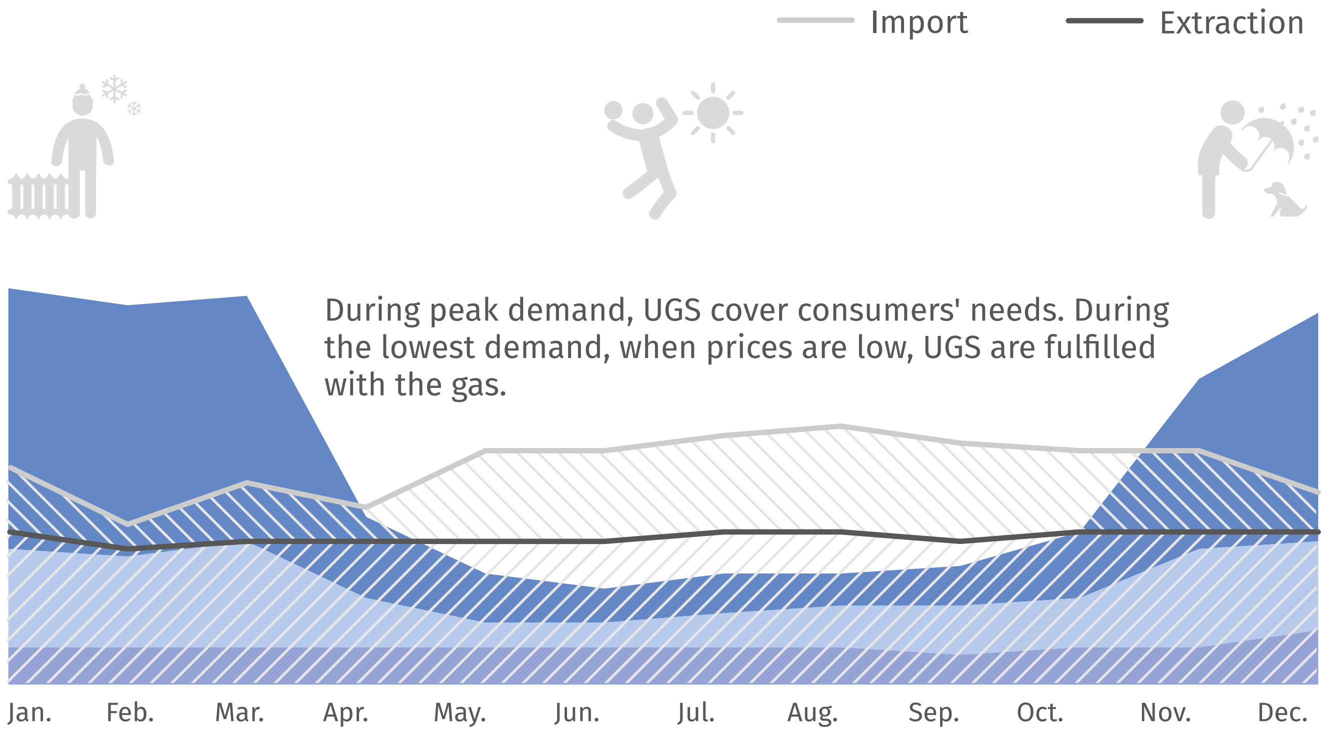
≈-3%
≈+3%

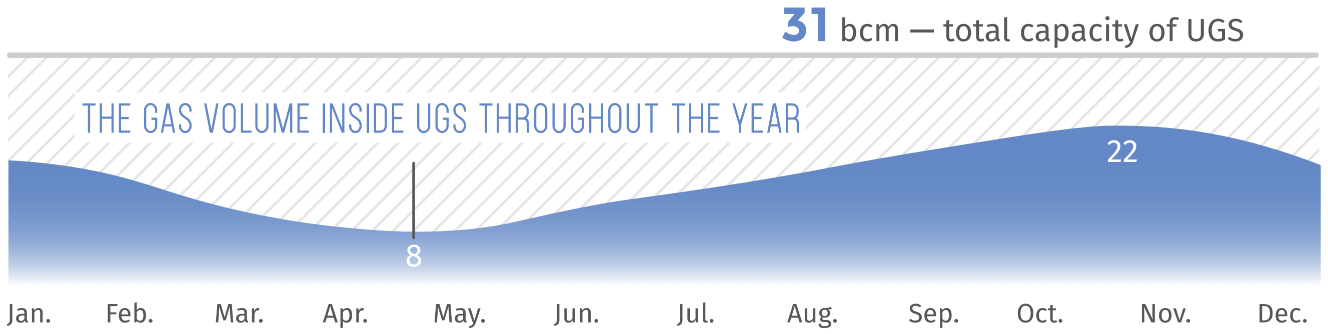
owned by Naftogaz

Allow to use stored gas during peaks demand or price shocks

Storages commit a balancing function. They can act as a source, as well as a gas "consumer".

NATURAL GAS CONSUMPTION AND TRANSPORTATION THROUGHOUT THE YEAR, 2019





CONSUMERS

≈60% HOUSEHOLDS AND BUDGET ORGANISATIONS

Use gas mostly for heating, that is why the demand is continuously changing

≈30% INDUSTRY

Consumes to ensure a production process or as a raw material. Thus, demand is relatively sustainable

≈15% TECHNICAL NEEDS AND LOSSES

Ensure gas extraction and transportation

Sources: Naftogaz, MEEP

NATURAL GAS MARKET: STRUCTURE AND SUBJECTS

Gas bill — Gas path

PURCHASERS

CONSUMERS
Can buy gas in the wholesale market when ordering transmission/distribution services

WHOLESALE PURCHASER
Purchase and sell (incl. export and import) gas not for personal consumption

LRS
(last resort supplier)
Supply gas:
- with no right to refuse,
- no longer than 60 days,
- defined by the Cabinet of Ministers of Ukraine for three years on a competitive basis.

SUPPLIERS
Supply natural gas to end-users:
- anywhere,
- anyone,
- at free market prices

WHOLESALE MARKET

EXCHANGE TRADE
Purchase and sale of gas by participating in exchange trade

DIRECT AGREEMENTS
Purchase and sale of gas by concluding direct agreements between counterparties

Natural gas trade to provide consumers' needs

BALANCING MARKET
Ensures the coverage of customers' daily imbalances of transportation services by GTS operator

to provide supply and demand balance

GDS OPERATOR
(gas distribution system operator)

GTS OPERATOR
(gas transmission system operator)
Ensures transmission and transit of gas all over Ukraine

GAS STORAGE OPERATOR
Provide natural gas storing services

RETAIL MARKET
BUSINESS
HOUSEHOLDS
PUBLIC INSTITUTION

PRODUCERS
IMPORTERS

STATE

PRIVATE

Source: The Law of Ukraine "On the Natural Gas Market"

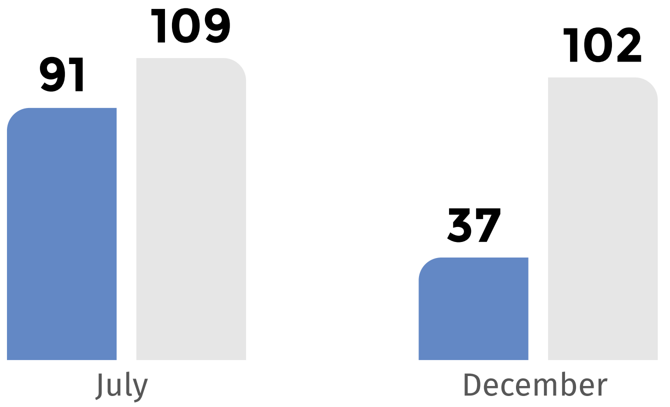
UKRAINE MOVES TOWARDS GAS SELF-SUFFICIENCY

GAS PRODUCTION REFORMING

- The Code of Ukraine on Bowels update
- digitisation of all subsoil information
- introduction of payments for non-use of the field
- creation of a single-window system for subsoil users

DRILLING IN UKRAINE AND EUROPE

the number of active drilling machines, 2019, units



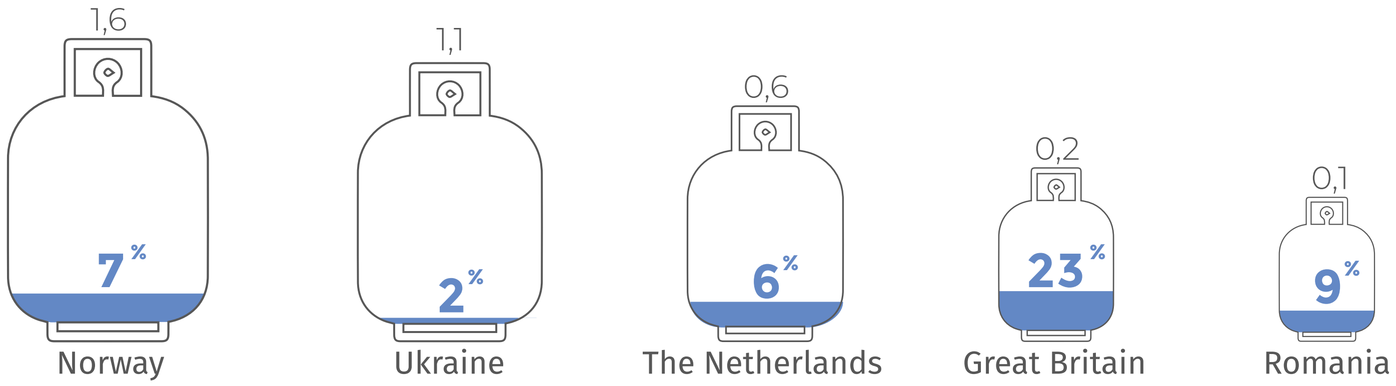
HE NEW STRATEGY OF THE LARGEST GAS PRODUCTION COMPANY

- Focus on financial results instead of increasing production
- Development and efficiency improvement of existing deposits
- Expansion of new partners circle

61%
of natural gas deposits
in Ukraine are developing (out of 444)

GAS PRODUCTION BY COUNTRIES

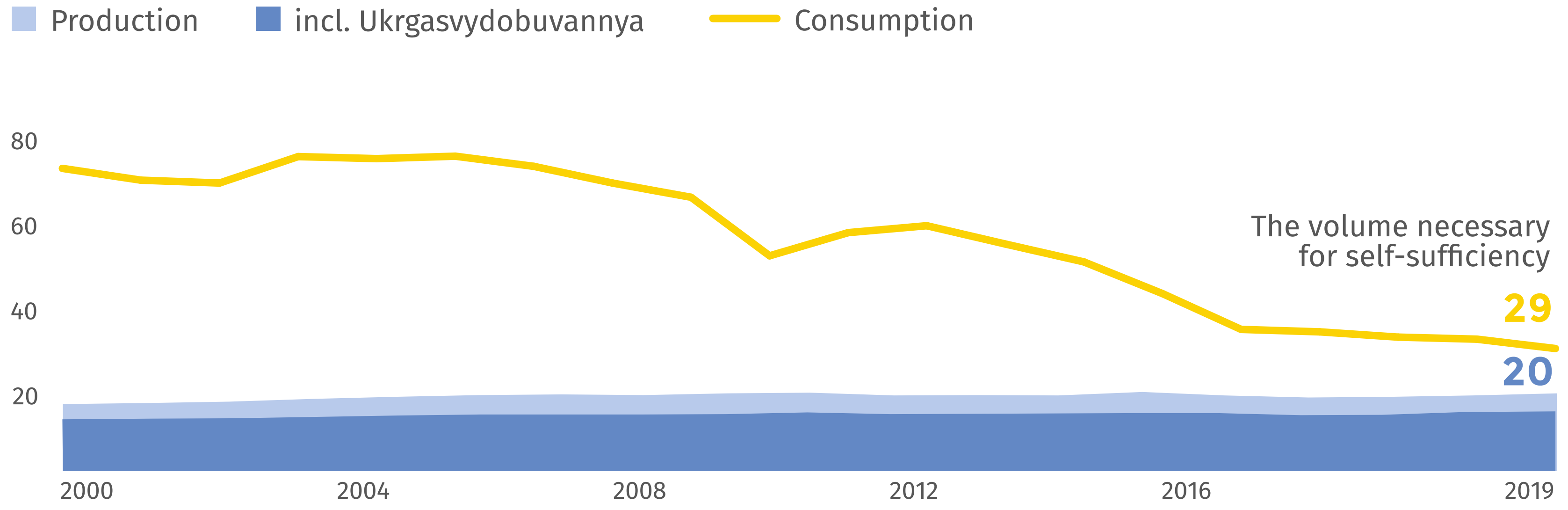
production-to-reserves, 2018, %



Ukraine has excellent potential for self-sufficiency, primarily through energy efficiency. At the same time, Ukraine can increase gas production. The only limitations are concentrated in the regulatory and economic domain.

GAS PRODUCTION AND CONSUMPTION IN UKRAINE

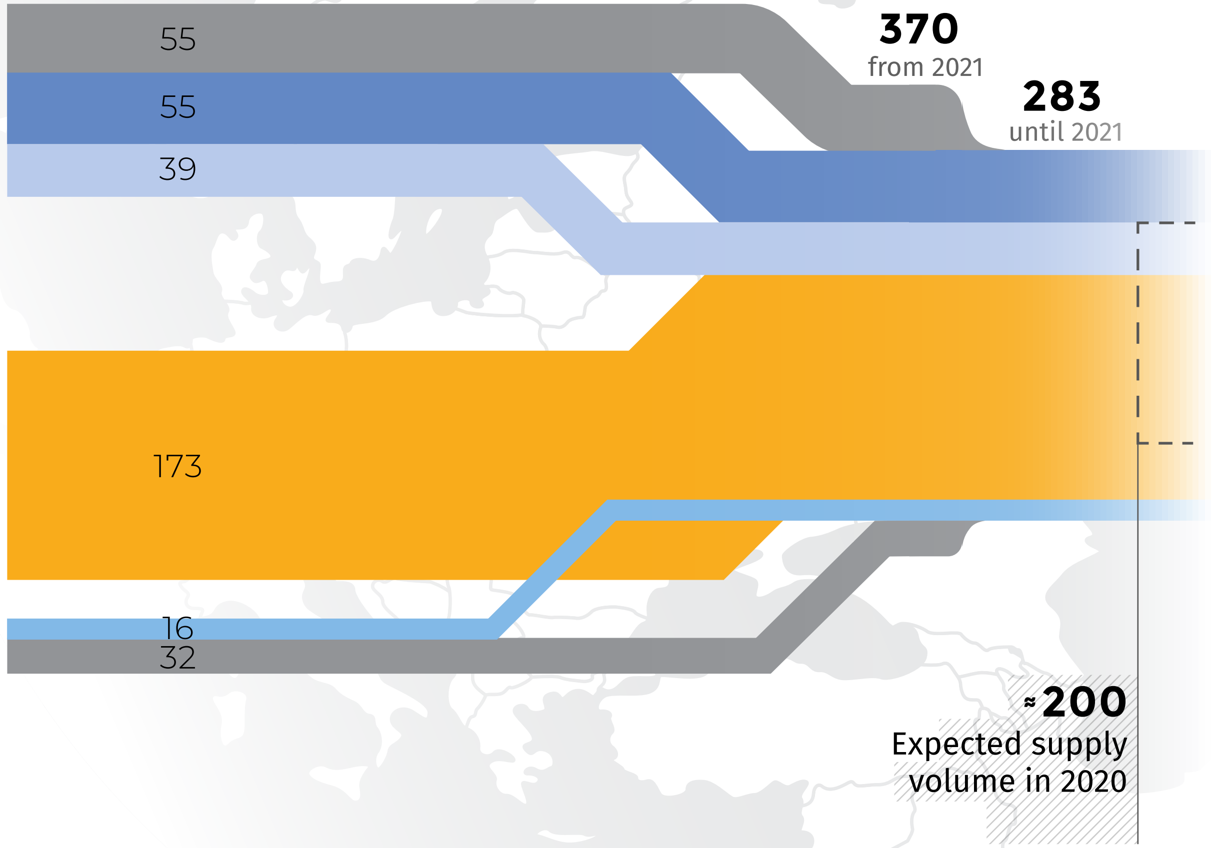
2019-2000, bcm



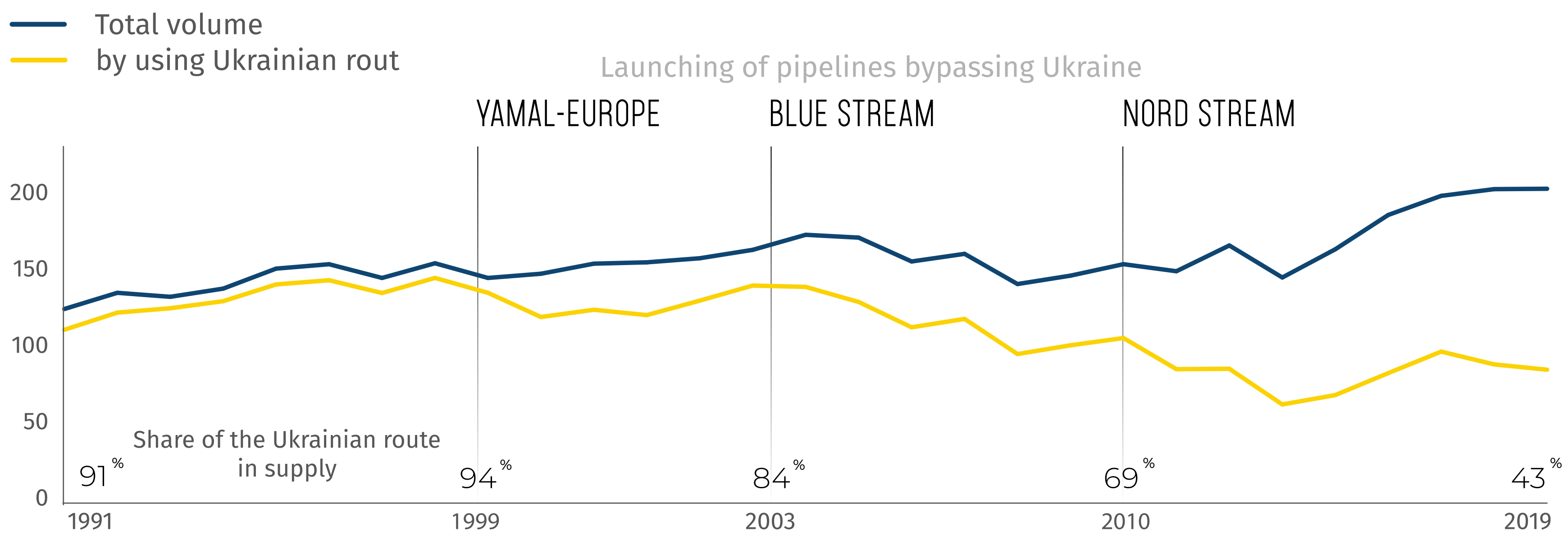
Sources: Naftogaz, BP, AGPU

UKRAINE ON THE GAS MAP: ROLE RETENTION REQUIRE TRANSFORMATION

RUSSIAN GAS TRANSIT CAPACITY TO EUROPE
bcm



RUSSIAN GAS SUPPLY TO EUROPE,
1991-2018, bcm*



Abandonment of route via Ukraine has disadvantages

Decreased security of supplies

Ramified structure and easy access to maintenance and repair of the Ukrainian gas transmission network ensures a high level of reliability

Monopolisation of supplies

In Q2 2019, Russia provided 45% of gas pipeline supply to the EU outside the EU, abandoning the Ukrainian route will create a monopoly in the gas supply sector

CREATION OF OWN GAS HUB CAN GUARANTEE UKRAINE'S ROLE RETENTION,
necessary enablers

Developed infrastructure

31 bcm
the biggest gas storages in Europe

Further modernisation is required

European standards

≈**50**% estimated level of European standards implementation***

Finalisation of all components and markets liberalisation is required

Diversified supplies

Favourable geographical location and access to the sea

Production increase and gas attraction from many countries (e.g., USA LNG gas via Poland's terminal) is required

Sources: Naftogaz, Gazprom export, Energy Community, Eurostat *Europe including Turkey **Energy Community as of November 2019

UNBUNDLING — COMPONENT OF THE GAS SECTOR TRANSFORMATION

UNBUNDLING means the separation of natural gas transmission function from its production, supply and storage activities

ADVANTAGES OF UNBUNDLING

- Growth of the market's investment climate and effectiveness
- Integration to the Energy Community
- Ability to create the Ukrainian gas hub
- Ensuring market conditions

HOW WAS THE UNBUNDLING CARRIED OUT IN UKRAINE

based on ISO model*

CABINET OF MINISTERS OF UKRAINE

NAFTOGAZ
- production
- supply
- storage
- transmission
- Ukrtransgaz JSC

MINISTRY OF FINANCE — MAIN GAS PIPELINES OF UKRAINE (MGPU)

transmission → transmission GTSOU LLC

KEY EVENTS

major steps were made in the last 3 months

2015
April
Law of Ukraine "On the Natural Gas Market" envisioning unbundling

2017
September
Founding of the "Operator of the GTS of Ukraine" as a branch of Ukrtransgaz JSC for further separation

2016
November
Resolution of the Cabinet of Ministers of Ukraine "On creation of Main Gas Pipelines of Ukraine PJSC," the future owner of the GTS operator

2018
July
Memorandum of understanding between Naftogaz and MGPU PJSC regarding the separation of the GTS operator

2019
February
Founding of GTSOU LLC, the future GTS operator

2019
September
Management over MGPU PJSC is transferred to the Ministry of Finance of Ukraine

2019
August
Personnel transfer from Ukrtransgaz JSC to GTSOU LLC and separation of business processes

2019
July
Ukrtransgaz JSC transferred the technical operation function over the GTS of Ukraine to GTSOU LLC

2019
November
Ukrtransgaz JSC sells GTSOU LLC to MGPU PJSC

2019
December
NEURC and Energy Community Secretariat certified the GTS operator

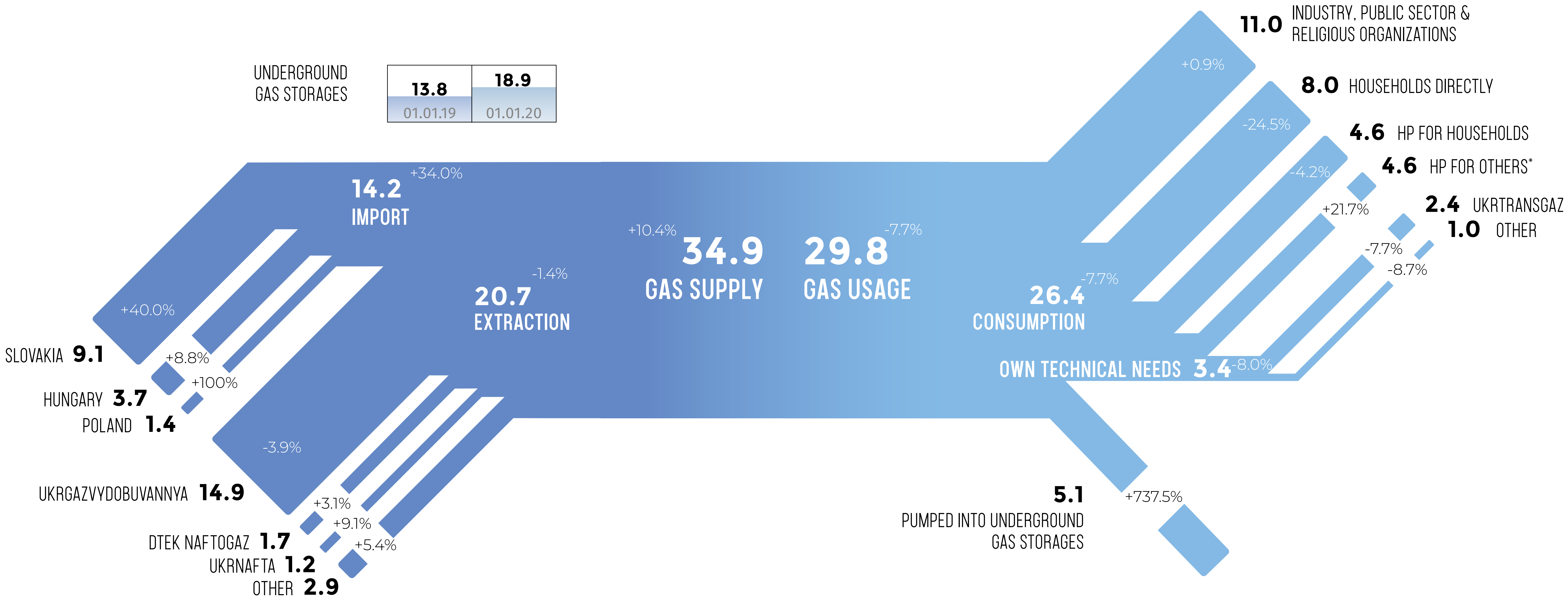
2020
1 January
Unbundling process ends. Launch of the GTSOU LLC

Source: AEQUO

*independent system operator (separate operator), which after the transition period transforms into OU model - ownership unbundling (separate ownership)

NATURAL GAS BALANCE

2019, bcm



Source: Calculation based on Naftogaz, Ukrtransgaz and DTEK

*for budget and religious organizations, industrial consumers

AUTHOR

TOP LEAD
office@toplead.com.ua
toplead.com.ua

SUPPORTED BY

DTEK
Ukraine, 01032,
57 Leo Tolstoy St,
Business Center
101 Tower
info@dtek.com
dtek.com

AEQUO
Senator BC
32/2 Moskovska st., 15th floor
01010 Kyiv, Ukraine
lysenko@aequo.ua
aequo.ua

BAKER TILLY UKRAINE
28 Fizkultury st.
03150 Kyiv, Ukraine
bakertilly.ua

Download pdf

Terms of Use

EXPERT PARTNER

dixigroup

MEDIA PARTNER

BusinessViews

INFORMATION PARTNERS

UAEITI
Extractive Industries Transparency Initiative

Association of Gas Producers of Ukraine

ДЕРЖАВНА СЛУЖБА ГЕОЛОГІЇ ТА НАДР УКРАЇНИ

DISCLAIMER

This Guide is intended for information purposes only. We have made every effort to ensure that the information contained in this Guide is accurate and up-to-date. Although this Guide was prepared by experts, it only provides general information about the subject in question. Information contained in this Guide should not be used for professional advice on specific matters or professional judgement. Featured data were collected and prepared for publication in 2020.