

# **Third Annual Report under the Energy Efficiency Directive**

**UKRAINE**

**Prepared by: STATE AGENCY ON ENERGY EFFICIENCY AND  
ENERGY SAVING OF UKRAINE**

2019

This report was drawn up by State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE). By submitting this report, Ukraine is supporting the Decision of the Ministerial Council of the Energy Community D/2015/08/MC-EnC and fulfilling its reporting obligation under Article 24(1) of Directive 2012/27/EU, which requires Contracting Parties to report on the progress achieved towards national energy efficiency targets.

This report provides key statistical indicators as required by Annex XIV Part 1 EED, describes tendencies in energy consumption by sector that occurred in 2017, presents energy efficiency targets which Ukraine has established (drafted) by 2020, and provides an overview of the main legislative and non-legislative measures, including for public buildings with regard to Article 5 EED, energy savings with regard to Article 7(1) EED (energy efficiency obligation scheme) and Article 7(9) EED (alternative measures), which have been taken or which are planned in order to meet national energy efficiency targets. According to the EED Annex XIV the reporting period is the year 2017. Some data provided in the 1<sup>st</sup> and 2<sup>nd</sup> annual reports are adjusted in this report based on recently published statistic information.

## A. Key statistics and indicators

**Table 1: Key energy statistics data.**

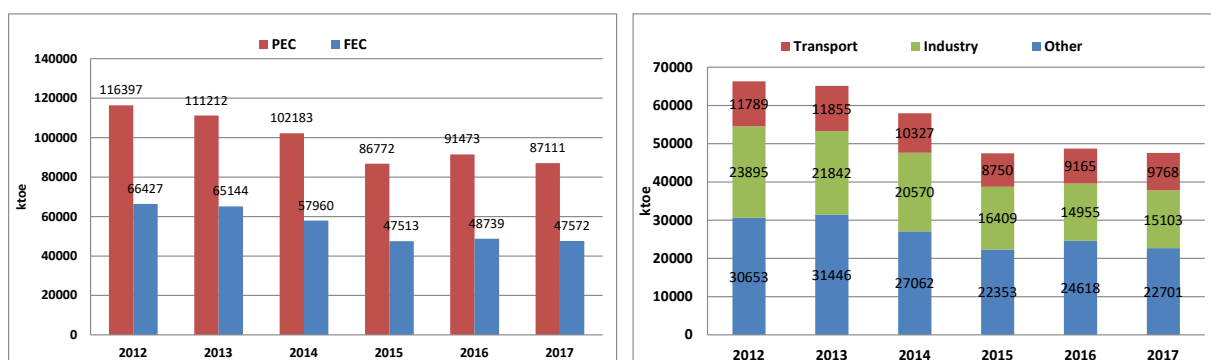
	Estimation of key statistics and indicators	Value			Unit	Comments/Eurostat codes
		2015	2016	2017		
(i)	Primary energy consumption	86 772	91 473*	87 110	ktoe	As defined in Art. 2 EED and consistent with B_100910 definition, IEA approach
(ii)	Total final energy consumption	47 513	48 739*	47 571	ktoe	Consistent with B_101700 definition, IEA approach
(iii)	Final Energy consumption – Industry	16 409	14 955	15 103	ktoe	Consistent with B_101800 definition, IEA approach
(iii)	Final energy consumption – Transport	8 750	9 165	9 768	ktoe	Consistent with B_101900 definition, IEA approach
	Final energy consumption in pipeline transport	1 582	1 410	1 643	ktoe	Consistent with B_101945 definition, IEA approach
(iii)	Final energy consumption – Households	16 554	17 588*	16 435	ktoe	Consistent with B_102010 definition, IEA approach
(iii)	Final energy consumption – Services	3 838	4 856	4 396	ktoe	Consistent with B_102035 definition, IEA approach
	Final energy consumption – Agriculture	1 957	2 139*	1 867	ktoe	Consistent with B_102030 definition, IEA approach
	Final energy consumption – Other sectors	22 353	24 618*	22 701	ktoe	Consistent with B_102000 definition, IEA approach
(iv)	Gross value added by sector – Industry	432 070	552 889	697 318	mIn UAH	Sections B to F of NACE Rev. 2
(iv)	Gross value added by sector – Services	1 017 511	1 190 638	1 518 294	mIn UAH	Sections G to U of NACE Rev. 2
(v)	Disposable income for households	1 398 499*	1 624 382*	2 061 009	mIn UAH	Gross disposable income, ESA 2010
(vi)	Gross domestic product (GDP)	1 988 544	2 385 367	2 983 882	mIn UAH	ESA 2010
(vii)	Electricity generation from thermal power plants	155 150	153 824	143 794	mIn kWh	Old Eurostat codes: 15_107030, 15_107031, 15_107032, 15_107033, 15_107038, 15_107048, 15_107054, 15_107039, 15_107049, 15_107055, 14_1070422, 15_107040, 15_107050, 15_107052, 15_107056, 15_107041, 15_107051, 15_107053, 15_107057, 14_1070432 New Eurostat codes: GEP // C0000X0350-0370, C0350-0370, P1000, S2000, O4000XBIO, G3000, RA410, RA200, R5110-5150_W6000RI, R5300, W6210, R5210P, R5220P, R5290, N900H

	Estimation of key statistics and indicators	Value			Unit	Comments/Eurostat codes
		2015	2016	2017		
(viii)	Electricity generation from combined heat and power	12 339	15 992	12 048	mIn kWh	Old Eurostat codes: 15_107031, 15_107033, 15_107039, 15_107049, 15_107055, 15_107041, 15_107051, 15_107053, 15_107057 New Eurostat codes: GEP_MAPCHP, GEP_APCHP // C0000X0350-0370, C0350-0370, P1000, S2000, O4000XBIO, G3000, RA410, RA200, R5110-5150_W6000RI, R5300, W6210, R5210P, R5220P, R5290, N900H
(ix)	Heat generation from thermal power generation	90 334	106 890	96 689	thousand Gcal	Old Eurostat codes: 15_107060, 15_107061, 15_107062, 15_107063, 15_107064, 15_107072, 15_107076, 15_107080, 15_107086, 15_107068, 15_107066, 15_107074, 15_107078, 15_107082, 15_107084, 15_107088, 15_107070, 15_107065, 15_107069, 15_107073, 15_107077, 15_107081, 15_107087, 15_107067, 15_107071, 15_107075, 15_107079, 15_107083, 15_107085, 15_107089 New Eurostat codes: TO_EHG // H8000
(x)	Heat generation from combined heat and power plants, incl. industrial waste heat	36 945	36 610	38 548	thousand Gcal	Old Eurostat codes: 15_107060, 15_107062, 15_107064, 15_107072, 15_107076, 15_107080, 15_107086, 15_107068, 15_107066, 15_107074, 15_107078, 15_107082, 15_107084, 15_107088, 15_107070 New Eurostat codes: TO_EHG_MAPCHP, TO_EHG_APCHP, TO_EHG_OTH // H8000
(xi)	Fuel input for thermal power generation	48 796	50 003	46 602	ktoe	Old Eurostat codes: B_101002, B_101001, B_101009 excluding B_101017 New Eurostat codes: TI_EHG_E // TOTAL excluding RA100, RA500, RA300, RA420, RA410, RA200, H8000, E7000
(xii)	Passenger kilometres (pkm)	97 036 395,1	102 199 392,4	99 408 649	thousand pkm	
(xiii)	Tonne kilometres (tkm)	334 668 706,5	344 196 150,6	364 192 164	thousand tkm	
(xv)	Population	42 760,5	42 584,5	42 386,4	thousand	As of January 1 the following year. Total enumerated population

Data provided by the State Statistics Service of Ukraine. Data for temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol, and part of the temporarily occupied territories in the Donetsk and Luhansk oblasts is not available.

(\*) *Adjusted data*

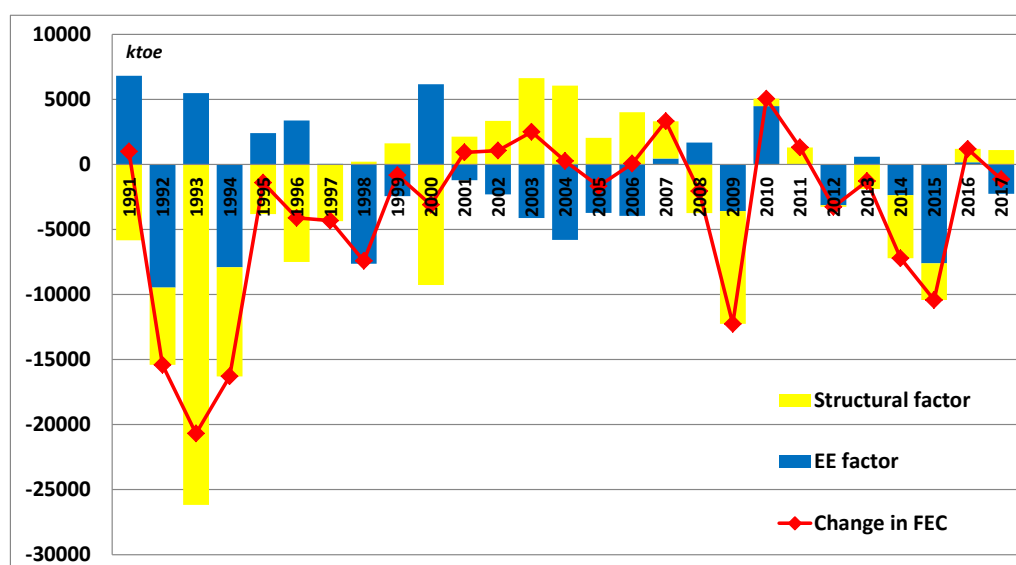
## B. Overview of energy consumption trends



**Fig. 1. Final and primary energy consumption (left) and final energy consumption by sectors (right) in 2012 – 2017.**

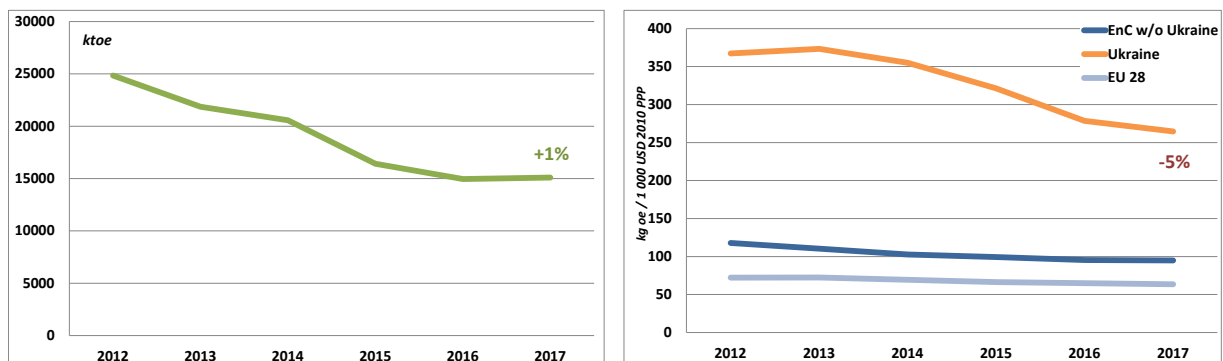
In 2017 the State Statistics Service of Ukraine (SSSU) has revised the Energy balance for 2016 and adjusted the volume of coking coal used for coke production. This resulted in increase of PEC to 91 473 ktoe comparing 88 748 ktoe reported earlier. We expect that upon revision of the Energy balance for 2015 this figure will also be adjusted so the trajectory of PEC becomes smooth without gap in 2015. Final consumption for 2016 was adjusted insignificantly.

Primary energy consumption decreased in 2017 by 4.8% in comparison with 2016 driven by the decrease of final energy consumption by 2.4% (Fig. 1). Such a decrease was not uniform among sectors, as energy use in the Industry and Transport sectors increased comparing to 2016. Meanwhile, growth of energy consumption in Industry was accompanied by reduction of energy intensity. And in contrast to the EU countries, the effect of energy efficiency outweighed structural factors, i.e. fully compensated the increase of sectoral output (Fig. 2).



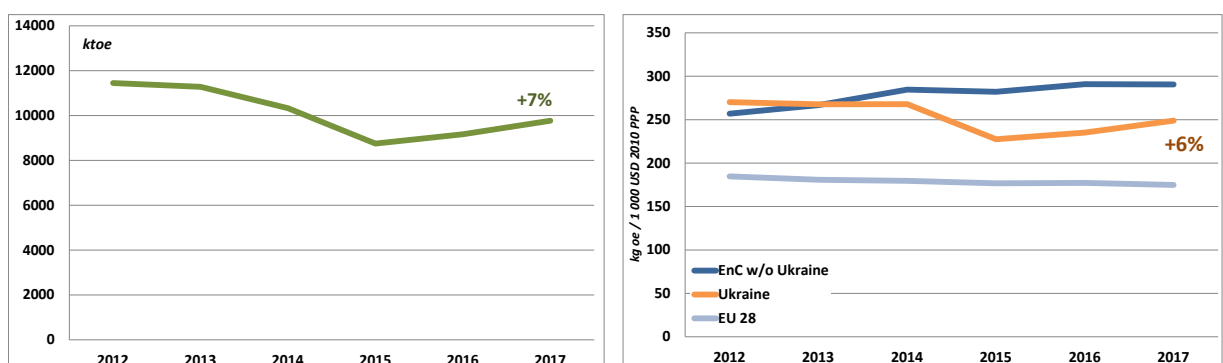
**Fig. 2. Change in final energy consumption driven by structural and EE factors.**

The most energy intensive industries – Metallurgy, Chemical and Non-metallic mineral production together comprising more than two thirds of sectoral energy consumption and 15% of sectoral GDP, further reduced energy use by 5.4%, while industrial output in the Metallurgy has increased by 0.2%, in the Chemical industry – by 18.4%, and in Non-metallic mineral production – by 6.4%. In other industries, however, energy consumption has increased unevenly comparing to output growth and savings in energy intensive industries were neglected. The combined effect of both structural and EE factors resulted in the lowest level of energy intensity in Industry to date, and the biggest progress in energy efficiency was shown by industries with higher levels of electricity consumption for their processes (Fig. 3).



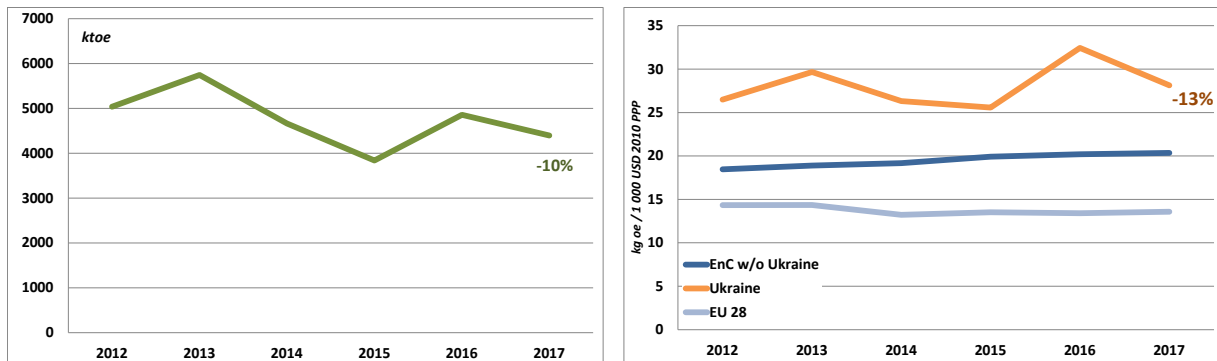
**Fig. 3. Final energy consumption (left) and energy intensity (right) in Industry.**

Military activities and social instability in Donbas region in the second half of 2016 led to the reallocation of freight and passenger traffic from the rail to more flexible, but less energy efficient road transport. Thus, even the cutback of energy consumption by other modes of transport did not compensate the increase in oil products' demand by road vehicles – which increased by 10%. This resulted in an increase of the overall energy use and energy intensity in Transport (Fig. 4).



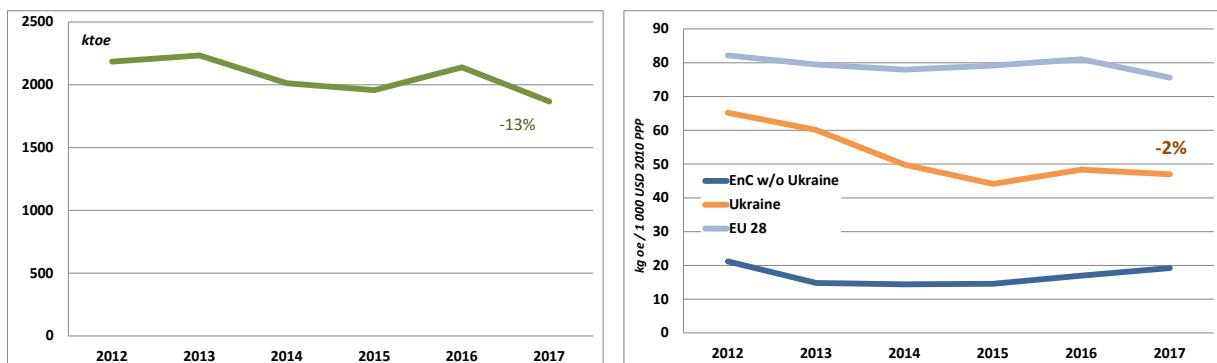
**Fig. 4. Final energy consumption (left) and energy intensity (right) in Transport.**

Favourable weather conditions and shortened meteorological winter made it possible to shorten the official “heating season” by 1-2 weeks throughout Ukraine in 2017 – the period of time where district heating units operate. Considering the high share of residential and commercial buildings connected to district heating, this seems to be the main driver for reducing heat consumption by 20% in the Commercial and Residential sectors. Energy efficiency improvements also have to be considered, though there are still insufficient mechanisms for monitoring in place which would make it possible to track the direct general effect of EE measures per sector (Fig. 5).



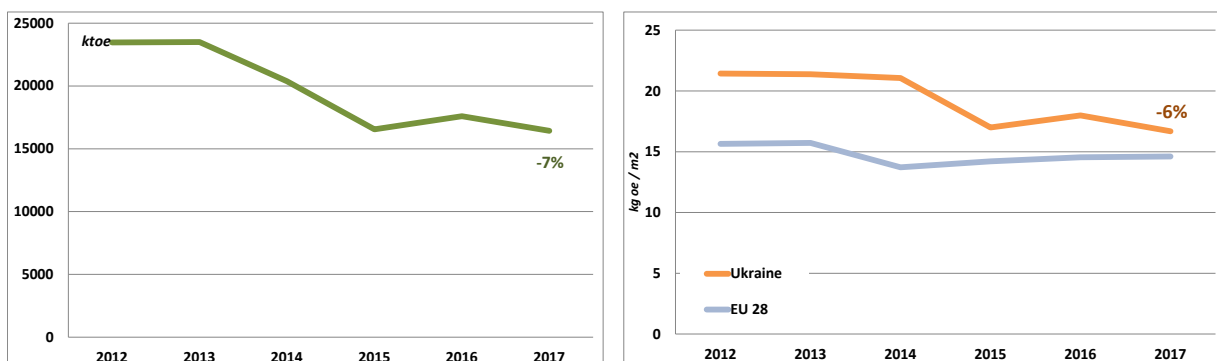
**Fig. 5. Final energy consumption (left) and energy intensity (right) in Commercial and Public sector.**

Despite the heavy yield of winter crops, prolonged summer precipitation deficits on the background of excess of the average daily temperature by 1.5-2°C from the normal long-term average resulted in reduction of agricultural production by 2%. Meanwhile diesel savings by 18% allowed the overall decrease of final consumption by 13% (Fig. 6).



**Fig. 6. Final energy consumption (left) and energy intensity (right) in Agriculture.**

In the Residential sector the decrease of energy consumption could be observed upon all types of fuel except biomass (wood) (Fig. 7). Thus, market energy prices and EE measures stipulated by them were as much important drivers as the favourable weather conditions that took place in 2017. Indeed, 16.7 kg oe per square meter of heating space in residential buildings which was observed in 2017 was the historically lowest level of unit energy consumption and just 14% higher than the EU average. We expect for further reduction of energy consumption in this sector, as market signals enhanced by the slash of energy subsidies and supported by the governmental programs in 2018 should lead to feedback and behavioral change from energy consumers.



**Fig. 7. Final energy consumption (left) and energy intensity (right) in Residential sector.**

## C. National energy efficiency targets

**Table 2: Division of targets per sectors and per EED articles**

TARGETS	2016	2017	2018	2019	2020
EED ARTICLE 3 [ktoe or other unit]					
EED ARTICLE 5 [ktoe or other unit]					
EED ARTICLE 7 [ktoe or other unit]			652 <sup>3</sup>	978 <sup>3</sup>	1 304 <sup>3</sup>
PEC [ktoe]					101 316 <sup>2</sup>
FEC [ktoe]					55 507 <sup>2</sup>
<b>FEC - BUILDINGS</b> <i>Residential Sector</i> <i>Commercial and public services</i> [ktoe]					4 267 <sup>1</sup> 3 226 <sup>1</sup> 1 041 <sup>1</sup>
<b>FEC - INDUSTRY</b> [ktoe]					1 610 <sup>1</sup>
<b>FEC - TRANSPORT</b> [ktoe]					624 <sup>1</sup>

<sup>1</sup> Cumulative savings for 2016-2020, First National energy efficiency action plan

<sup>2</sup> Absolute target, Resolution of the Cabinet of Ministers of Ukraine on August 14, 2019 No. 607-p

<sup>3</sup> Draft EED targets

## D. Update of measures implemented in last year

### • Legislative measures

After preparation of the 2<sup>nd</sup> annual report the following important regulatory document were adopted:

- **National energy efficiency target 2020**, adopted by the Resolution of the Cabinet of Ministers of Ukraine on August 14, 2019 No. 607-p  
<https://zakon.rada.gov.ua/laws/show/607-2019-%D1%80>
- **Law of Ukraine “On amendments to some laws of Ukraine regarding the investment attractiveness of the construction of renewable energy facilities”**, adopted by the Verkhovna Rada of Ukraine on September 04, 2018 (No. 2517-VIII)  
<https://zakon.rada.gov.ua/laws/show/2517-viii>
- **Resolution “On the Appeal of the Verkhovna Rada of Ukraine to the Institutions of the European Union on Enhancing Cooperation between Ukraine and the European Union”**, adopted by the Verkhovna Rada of Ukraine on July 5, 2018 (No. 2490-VIII)  
<https://zakon.rada.gov.ua/laws/show/2490-19>



- **Order “On approval of the Order of equipping of separate premises in buildings by metering units / heat-distributing devices and equipment of engineering systems to ensure such metering”,** adopted by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine on August 9, 2018 (No. 205)  
<https://zakon.rada.gov.ua/laws/show/z0981-18>
- **Order “On the Establishment of the State Institution “Energy Efficiency Fund””,** adopted by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine on August 13, 2018 (No. 209)  
<https://zakon.rada.gov.ua/laws/show/1099-2017-%D0%BF>
- **Order “On Approval of the Procedure for Maintenance of Domestic Household Heating Systems, Water Supply, Drainage and Hot Water Supply”,** adopted by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine on August 15, 2018 (No. 219)  
<https://zakon.rada.gov.ua/laws/show/z1074-18>
- **Resolution “On approval of the Payment procedure for co-owners of multi-apartment buildings who have arrears before the association of the co-owners of such multi-apartment buildings, in case such co-owners perform the work necessary to maintain the joint property of the co-owners”,** adopted by the Cabinet of Ministers of Ukraine on September 5, 2018 (No. 711)  
<https://zakon.rada.gov.ua/laws/show/711-2018-%D0%BF>
- **Resolution “On approval of the Rules for providing a multi-apartment building management service and the Model Agreement for providing a multi-apartment management service”,** adopted by the Cabinet of Ministers of Ukraine on September 5, 2018 (No. 712)  
<https://zakon.rada.gov.ua/laws/show/712-2018-%D0%BF>
- **Law of Ukraine “On ensuring transparency in the extractive industries”,** adopted by the Verkhovna Rada of Ukraine on September 18, 2018 (No. 2545-VIII)  
<https://zakon.rada.gov.ua/laws/show/2545-19>
- **Resolution “On approval of the Methodology for calculating the tariff for the services of the universal service provider”,** adopted by the National Commission for state regulation in the energy and utilities on October 5, 2018 (No. 1176)  
<http://www.nerc.gov.ua/?id=35057>
- **Resolution “On approval of the Order of formation of prices for universal services”,** adopted by the National Commission for state regulation in the energy and utilities on October 5, 2018 (No. 1177)  
<http://www.nerc.gov.ua/?id=35077>

- **Resolution “On approval of the Methodology for calculating the tariff for the services of the supplier of last resort”,** adopted by the National Commission for state regulation in the energy and utilities on October 5, 2018 (No. 1178)  
<http://www.nerc.gov.ua/?id=35078>
- **Resolution “On Approval of the Procedure for Forming the Price at which electricity is supplied to consumers by the supplier of last resort”,** adopted by the National Commission for state regulation in the energy and utilities on October 5, 2018 (No. 1179)  
<http://www.nerc.gov.ua/?id=35079>
- **Resolution “On approval of the Procedure for determining the technical feasibility of installing units for heat metering and the economic feasibility of installing heat distribution devices”,** adopted by the Cabinet of Ministers of Ukraine on October 10, 2018 (No. 829)  
<https://zakon.rada.gov.ua/laws/show/829-2018-n>
- **Order “On approval of the Order on subscribing the metering device”,** adopted by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine on October 12, 2018 (No. 270)  
<https://zakon.rada.gov.ua/laws/show/z1304-18>
- **Resolution “On Approval of the Regulation on the Special Duties on Natural Gas Market Entities for the Public Interest in the Functioning of the Natural Gas Market”,** adopted by the Cabinet of Ministers of Ukraine on October 19, 2018 (No. 867)  
<https://zakon.rada.gov.ua/laws/show/867-2018-%D0%BF>
- **Resolution “On modification of the Procedure for submission of metering equipment for periodic verification, maintenance and repair”,** adopted by the Cabinet of Ministers of Ukraine on October 24, 2018 (No. 880)  
<https://zakon.rada.gov.ua/laws/show/880-2018-%D0%BF>
- **Resolution “On approval of the Methodological Recommendations for the transmission of data of household and small non-household consumers to the electricity supplier, which, in accordance with the Law of Ukraine “On the Electricity Market”, is responsible for performing the function of universal service in the assigned territory”,** adopted by the National Commission for state regulation in the energy and utilities on October 26, 2018 (No. 1268)  
<http://www.nerc.gov.ua/?id=35613>
- **Order “On approval of the Methodology of distribution between consumers of the amount of utilities consumed in the building”,** adopted by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine on November 22, 2018 (No. 315)  
<https://zakon.rada.gov.ua/laws/show/z1502-18>

- **Resolution “On some issues of professional certification in profession “manager of a residential building (group of buildings)””,** adopted by the Cabinet of Ministers of Ukraine on November 28, 2018 (No. 1010)  
<https://zakon.rada.gov.ua/laws/show/1010-2018-%D0%BF>
- **Resolution “On approval of the Procedure for conducting a selection to determine the universal service provider”,** adopted by the Cabinet of Ministers of Ukraine on November 28, 2018 (No. 1055)  
<https://zakon.rada.gov.ua/laws/show/1055-2018-%D0%BF>
- **Resolution “On Approval of the Procedure for selection to Determine the supplier of last resort”,** adopted by the Cabinet of Ministers of Ukraine on December 12, 2018 (No. 1056)  
<https://zakon.rada.gov.ua/laws/show/1056-2018-%D0%BF>
- **Resolution “Some issues on providing housing subsidies to the household customers in cash”,** adopted by the Cabinet of Ministers of Ukraine on December 27, 2018 (No. 1176)  
<https://zakon.rada.gov.ua/laws/show/1176-2018-%D0%BF>
- **Resolution “On approval of the main directions of activity of the state institution “Energy Efficiency Fund”,** adopted by the Cabinet of Ministers of Ukraine on December 28, 2018 (No. 138-p)  
<https://zakon3.rada.gov.ua/laws/show/138-2018-%D1%80>
- **Resolution “Some questions about natural gas consumption by household customers”,** adopted by the Cabinet of Ministers of Ukraine on January 30, 2019 (No. 63)  
<https://zakon.rada.gov.ua/laws/show/63-2019-%D0%BF>
- **Resolution “On approval of the NEURC Report Forms No. 15-NEURC-Heat Supply (annual) “Report on the Continuity of Heat Supply and Quality of Energy” and No. 16-NEURC-Heat Supply (quarterly) “Report on the Commercial Quality Indicators of the Provision of Services in the Sphere of Heat Supply” and instructions on how to fill them”,** adopted by the National Commission for state regulation in the energy and utilities on February 15, 2019 (No. 209)  
<http://www.nerc.gov.ua/index.php?id=38810>
- **Resolution “On approval of the Program for the Development of National Statistics by 2023”,** adopted by the Cabinet of Ministers of Ukraine on February 27, 2019 (No. 222)  
<https://www.kmu.gov.ua/ua/npas/pro-zatverdzhennya-programi-rozvitku-derzhavnoyi-statistiki-do-2023-roku>
- **Resolution “On approval of the Instruction on monitoring of oil and gas markets in the National Commission, which implements state regulation in the fields of**

**energy and utilities”,** adopted by the National Commission for state regulation in the energy and utilities on April 22, 2019 (No. 615)

<http://www.nerc.gov.ua/index.php?id=40394>

- **Resolution “Amendments to the State Targeted Economic Program for Energy Efficiency and Development of the Energy Sector for Renewable Energy and Alternative Fuels for 2010-2020”,** adopted by the Cabinet of Ministers of Ukraine on June 19, 2019 (No. 556)

<https://zakon.rada.gov.ua/laws/show/556-2019-%D0%BF>

- **Resolution “On some Rights Protection Issues for Utility Consumers”,** adopted by the Cabinet of Ministers of Ukraine on June 26, 2019 (No. 560)

<https://www.kmu.gov.ua/ua/npas/deyaki-pitannya-zahistu-prav-spozshivachiv-zhitlovo-komunalnih-poslug-i260619>

- **Non-legislative measures**

**Certification of buildings, energy audit, energy management and training.**

Ukraine continues to implement Directive 2010/31/EC, first of all through the implementation of the Law on Energy Efficiency of buildings, adopted in June 2017, but fully implemented only at the end of July 2018.

State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) arranges training of relevant professional staff to introduce the energy efficiency market and to enhance the ability of market players to implement energy efficiency (EE) measures. SAEE has signed memorandums on cooperation with 44 universities on setting up commissions for qualification of energy auditors. As of October-2019, this cooperation resulted in the creation of 43 qualification commissions. Training in the areas of certification of energy efficiency of buildings and inspection of engineering systems has already begun in 30 of them. As of today 1509 qualification certificates have been issued already, in particular in the following areas:

- 846 on certification of energy efficiency of the buildings;
- 663 on inspection of engineering systems.

Since July 2019, mandatory energy certification of buildings has been introduced in Ukraine. The database has already included 744 energy efficiency certificates for buildings.

All energy certificates that have been submitted to the Certificate Database passed the initial verification and were distributed according to the level of reliability and functional purpose of the building, in particular:

212 – residential buildings;

205 – public buildings;

158 – educational institutions;

114 – hospitals;

45 – kindergartens;

7 – trade enterprises;

3 – hotels

According to the results of the initial verification of energy certificates, the Certificate Database contains:

517 certificates of high level of reliability;

219 certificates of mid-level reliability;

8 certificates of low-level reliability.

As of 25.10.2019, according to the Independent Monitoring (Verification), which was carried out on the 28 energy certificates:

12 energy certificates – do not meet the requirements of the legislation.

16 energy certificates – successfully passed verification

SAEE continues compiling information lists on (<http://saee.gov.ua/en/business/energetichny-audit-ta-manadzment>):

- certified experts in the implementation of the energy management system, and in related fields;
- energy auditing and energy service companies, implementing energy management systems.

**In the residential sector** the "Warm Loans" program is still under implementation. During over five years about 716 000 households participated in this program and implemented energy efficient measures worth 8.1 bln UAH (95 mln EUR):

- UAH 5 614.3 million (204.2 mln EUR) for insulation of private houses;
- UAH 1 394.7 million (50.7 mln EUR) were allocated for condominiums;
- UAH 490.5 million (17.8 mln EUR) were granted to cheapen the purchase of solid fuel boilers.

In total, 2,8 bln UAH (100,6 mln EUR) of 8.1 bln UAH were reimbursed by the Government during 2014-2019.

All implemented measures will annually save nearly 346.3 mln m<sup>3</sup>. of gas (2019-Survey data).

Over the ten months of 2019 banks issued more than UAH 1.34 billion of "warm loans", in particular: UAH 593.2 million for insulation of private houses; almost UAH 714.2 million were allocated for condominiums; about UAH 34.9 million were granted to cheapen the purchase of solid fuel boilers. After the first half of the year, the government decided to allocate an additional UAH 380.7 million for co-financing of "warm loans" for condominiums in 2019. This is almost 2 times more than the amount of funds for insulation allocated for condominiums within the first tranche of financing this year – UAH 190.1 million. Overall, in 2019 it is planned to allocate about UAH 1.8 billion of "warm loans".

**Energy efficiency awareness campaigns.** In 2019 various energy efficiency foundations have started active awareness raising campaigns in the industrial and buildings sectors. For example, with the support of the GIZ project "Energy efficiency in companies", the Energy Efficient Baker Network was launched in March 2019, which included 12 major bakeries. In

the area of improving the EE of the residential sector, the F. Ebert Foundation in Ukraine, in collaboration with local authorities, plans to continue a series of awareness raising seminars for the United Territorial Communities on the benefits of the “Warm Loans” program, energy management and energy services.

**Metering.** The Ministry of Regional Development, having approved the order of November 22, 2018 No. 315 “On approval of the Methodology of distribution between consumers of the amount of utilities consumed in the building”, completed the preparation of secondary legislation, which should ensure the implementation of the Law of Ukraine “On commercial metering of heat and water supply”. With the exception of a number of requirements, the main ones being the introduction of individual household consumption accounting, as well as the promotion of smart metering.

Meanwhile Ukraine still does not fully meet obligations on commercial heat metering standards – according to information coming from local executive authorities:

- equipped with heat meters – 80.2% of residential and 78.3 % of non-residential buildings;
- equipped with cold water meters – more than 72.9% of residential and 94.9% of non-residential buildings;
- equipped with hot water meters – 16.5% of residential and 53.7% of non-residential buildings.

**Energy service market and Energy Performance Contracts.** Due to a large-scale information campaign by the authorities and the creation of the necessary tools for implementation, the energy service market continues to grow. According to SAEЕ as of September 2019, the ESCO budget mechanism is being implemented in 18 regions and over 360 EPC contracts have been concluded for a total amount of contracts exceeding UAH 520 million. At the same time, SAEЕ has completed verification of the actual level of energy savings achieved under the 130 EPCs (or 36% of the total number of contracts concluded) under which energy service have been provided for at least 1 heating season. Thus, the average actual energy saving was 35%. Over the past 2.5 years, 3 million m<sup>3</sup> of gas (≈ 25 thousand Gcal) or UAH 40 million have been saved. For the 9 months of 2019 more than 300 new ESCO tenders were announced and 131 ESCO contracts were concluded for the amount of about UAH 283 million. Therefore, 8 of such EPCs were concluded for the Central government authorities’ facilities - Ministry of Internal Affairs, State Statistics Service, State Water Resources Agency etc.

There are several initiatives for further development of ESCO legislation – respective draft laws have been prepared and registered.

**Eco-design and energy labeling.** SAEЕ have developed 40 technical regulations, of which 23 are technical regulations on eco-design and 17 on energy labeling.

Up to date, 22 technical regulations for eco-design have been adopted:

- products related to energy consumption;
- fans with a motor with a rated electric power of 125 W to 500 kW ;
- electric motors;
- power transformers of small, medium and large ;

- non-pressureless autonomous circulation pumps and non-pressureless circulation pumps integrated in the device;
- water pumps;
- household refrigerating appliances;
- external power sources without load and their average active efficiency coefficient;
- vacuum cleaners;
- simple digital TV receivers;
- directional lamps, light-emitting diode lamps and related equipment;
- household tumble driers;
- electrical and electronic household and office equipment in standby, off work and networked standby;
- household washing machines;
- household dishwashers;
- household ovens, hobs and cooker hoods;
- TVs;
- fluorescent lamps without integrated ballast, high intensity discharge lamps, and ballasts and luminaires designed to operate with such lamps;
- water heaters and storage tanks;
- computers and computer servers;
- directional radiation lamps;
- air conditioners and fans designed for personal comfort.

11 energy labeling technical regulations were adopted:

- energy products;
- household electric refrigerators;
- household washing machines;
- electric lamps and lamps;
- household dishwashers;
- TVs;
- air conditioners;
- vacuum cleaners;
- household tumble driers;
- household ovens and cooker hoods;
- water heaters, storage tanks and kits of water heaters and solar equipment.

**Energy efficiency in industry.** With the support of the Ukrainian-Danish Energy Center, draft laws were developed: “On amendments to the Tax Code of Ukraine on the introduction of a carbon fuel tax”, “On amendments to the Budget Code of Ukraine on providing a guaranteed source of financing for energy modernization of the Ukrainian industrial enterprises” (No. 10364) and “On amendments to Customs Code of Ukraine on the introduction of a fee for the use of carbon fuel”, as well as proposals on the conditions for providing to enterprises the compensation of loans taken for the implementation of the energy efficiency measures. Currently, the implementation of this mechanism has been partially implemented – since 01.01.2019 the tax rate on CO<sub>2</sub> emission has been raised from UAH 0.41 to UAH 10 per tonne of emissions. Also, the Cabinet of Ministers of Ukraine is working on a draft resolution on the use of funds for energy efficient projects for industrial enterprises.

In August 2019, the Government of Ukraine have approved the national energy efficiency target on 2020 according to the Article 3 of Directive 2012/27/EU on Energy Efficiency, which anticipates 20% reduction in final energy consumption in 2020 relative to the baseline scenario: primary energy consumption should not exceed 101 316 thousand tons; final energy consumption should not exceed 55,507 thousand tons of oil equivalent. The relevant draft Order of the Government was developed by SAEE in collaboration with the Energy Community Secretariat, the National Academy of Sciences of Ukraine, local and international experts.

SAEE established the Working Group for developing new NEEAP and national energy efficiency target for 2030. With technical assistance of EU4Energy Governance project first draft of this document was developed.

### **E. Central Government buildings (Article 5)**

Specific target(s) with regard to Article 5 EED are not defined.

Under coordination of SAEE, a database of operational and energy characteristics of buildings of public (budgetary) institutions has been formed and constantly updated. This database already contains information of more than 20,000 buildings, most of which are owned or operated by local authorities and at least 3,000 belong to central executive bodies. By the end of 2018, 169 local authorities had implemented energy management or energy monitoring systems in budgetary institutions. Currently, another 80 local authorities are preparing to implement energy management system, and in 2019, as expected by SAEE, 250 united territorial communities (UTC) will implement an energy monitoring system. As of the end of 2018, energy monitoring has been implemented in 98 cities, 47 districts, 14 regions and 10 UTC.

Kyiv remains a leader in the implementation of the ESCO mechanism; for example, in June 2019 energy service was introduced in 94 educational institutions. As of today, 119 contracts worth over UAH 100 million have already been concluded. Due to the implementation of 33 ESCO contracts in educational institutions in Kyiv, costs for heating were already reduced by 50% (or almost 7 million UAH) in the 2018/2019 heating season.

In order to expand energy management systems in particular in UTC, in April 12, 2019 SAEE hosted the 5th Energy Efficiency Partnership Forum, with more than 700 participants from all regions, including 100 UTC, 15 Regional State Administrations and 35 cities. Within the framework of this Forum, Memorandums of Understanding between SAEE and 41 UTC were signed, according to which parties confirmed their intentions and specified actions needed to introduce energy management systems in the public (budgetary) sector.

During 2018-2019, SAEE conducted information and awareness seminars for 9 Central Executive Bodies (CEBs) including State Agency of Water Resources, Ministry of Education, Ministry of Defense, State Statistics Service, Ministry of Internal Affairs, State Consumer Service, Ministry of Justice and National Academy of Sciences of Ukraine. As a result, 114 ESCO tenders for CEB have been announced and the first 8 ESCO contracts have been concluded for the buildings and facilities of the State Agency of Water Resources, Ministry of Education (University of Food Technologies) and the State Statistics Service. Another ESCO contracts for the Ministry of Internal Affairs, the Ministry of Defense, the State Agency



of Water Resources, the Ministry of Justice, the State Service of Employment, the State Reserve and the State Border Guard Service are now under preparation.

## **F. Energy efficiency obligations (Article 7)**

Ukraine has not introduced an EEO scheme, and is planning to implement alternative measures according to Article 7(9) EED, such as operation of the **Energy Efficiency Fund** as it is provided by the draft Law on Energy Efficiency. Despite the lengthy process of drafting the Law, it has not yet been adopted. The Government planned to review and approve the final draft in May 2019, but it has not yet been considered.

As a key alternative measure, the legislation for the Energy Efficiency Fund was developed and adopted in 2018; objectives of the Fund include financing not only in terms of energy efficient equipment and in terms of materials, but also for EE works, energy audits and other. Funding for the Fund should come not only from the state budget but also from international donors. The relevant Financing Agreements were signed between Ukraine and the EU (EE4U and EE4U - II programs) to provide 100 million Euro in non-reimbursable financing for the Fund's projects, and between the International Finance Corporation (IFC), the EU and the Government of Germany on the establishing of a Special Multi-Donor Fund. For the Fund's work in 2019, the state budget provided UAH 1.6 billion. Since the beginning of 2019, testing of the Fund's operations has begun and the "First Swallows" program has been launched, which has selected 15 condominiums to implement EE measures. In March 2019, the competitive selection for the top management positions of the Energy Efficiency Fund was completed and the Director, Technical Director, Chief Financial Officer and Head of Internal Audit were selected. The Energy Efficiency Fund has approved the "Decision on the Selection of Partner Banks" that would participate in the implementation of the Fund's programs to compensate final beneficiaries in terms of the cost of EE measures. In addition, the Fund's annual activity plan for 2019 was approved. In summer 2019, the terms of an agreement between the Fund and the International Finance Corporation (IFC) were approved to cooperate on grants to co-owners of apartment buildings and the implementation of EE measures. This Agreement is aimed at the implementation of the Financing Agreement for the "Energy Efficiency Support Programs in Ukraine - EE4U" and the Financing Agreement for the measure "Energy Efficiency Support Program in Ukraine – EE4U - II". These Financing Agreements provide financial, technical and institutional support for the Energy Efficiency Fund.

In addition, Energy Efficiency Fund launched its own website, where a structure of organizations and regional advisors was published. Organizations and advisors would provide information and practical support for condominiums on grants for energy modernization procedures.