

FIRST ANNUAL REPORT

**on the progress achieved by Ukraine towards national
energy efficiency target**

February 2018

A. National energy efficiency target for 2020

UKRAINE TARGETS	2016	2017	2018	2019	2020
BUILDINGS [ktoe]		2 160 ¹			3 226 ¹
INDUSTRY [ktoe]		581 ¹			1 610 ¹
TRANSPORT [ktoe]		274 ¹			624 ¹
OTHER [ktoe]		598 ¹			1 041 ¹
ARTICLE 3 [ktoe]					
ARTICLE 5 [ktoe]					13,1 ²
ARTICLE 7 [ktoe]			652 ²	978 ²	1 304 ²
FEC [ktoe]					55 507 ²
PEC [ktoe]					101 316 ²

¹ First National energy efficiency action plan

² Draft of the EED Targets; based on Report CO5_EnCS_EU4Energy_PN08_12-06-2017

B. Key statistics data

	Estimation of key statistics related to energy consumption in 2015 (*)	Value	Unit	Comments/Eurostat code
(i)	Primary energy consumption	86 772	ktoe	As defined in Art. 2 EED and consistent with B_100910 definition, IEA approach
(ii)	Total final energy consumption	47 513	ktoe	Consistent with B_101700 definition, IEA approach
(iii)	Final Energy consumption – Industry	21 145	ktoe	Consistent with B_101800 definition, IEA approach
(iii)	Final energy consumption – Transport	8750	ktoe	Consistent with B_101900 definition, IEA approach
	Final energy consumption in pipeline transport	1 582	ktoe	Consistent with B_101945 definition, IEA approach
(iii)	Final energy consumption – Households	16554	ktoe	Consistent with B_102010 definition, IEA approach
(iii)	Final energy consumption – Services	3838	ktoe	Consistent with B_102035 definition, IEA approach
	Final energy consumption – Agriculture	1 957	ktoe	Consistent with B_102030 definition, IEA approach

	Estimation of key statistics related to energy consumption in 2015 (*)	Value	Unit	Comments/Eurostat code
	Final energy consumption – Other sectors	22 353	ktoe	Consistent with B_102000 definition, IEA approach
(iv)	Gross value added– Industry	432 070	mIn UAH	Sections B to F of NACE Rev. 2
(iv)	Gross value added by sector – Services	1 017 511	mIn UAH	Sections G to U of NACE Rev. 2
(v)	Disposable income of households	1330089	mIn UAH	
(vi)	Gross domestic product (GDP)	1988544	mIn UAH	
(vii)	Electricity generation from thermal power generation	155150	mInkWh	Consistent with definitions 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
(viii)	Electricity generation from combined heat and power	12 339	mInkWh	Consistent with definitions 15_107031, 15_107033, 15_107039, 15_107049, 15_107055, 15_107041, 15_107051, 15_107053, 15_107057
(ix)	Heat generation from thermal power generation	90 332	thousand Gcal	Consistent with definitions 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
(x)	Heat generation from combined heat and power plants, incl. industrial waste heat	36 943	thousand Gcal	Consistent with definitions 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

	Estimation of key statistics related to energy consumption in 2015 (*)	Value	Unit	Comments/Eurostat code
(xi)	Fuel input for thermal power generation	48 796	ktoe	Consistent with definitions B_101002, B_101001, B_101009
(xii)	Passenger kilometres (pkm)	97036395,1	thousand pkm	
(xiii)	Tonne kilometres (tkm)	334668706,5	thousand tkm	
(xv)	Population	42760,5	thousand	As of January 1, 2016, Total enumerated population

(*) Data provided by the State Statistics Service of Ukraine

C. Overview of energy consumption trends

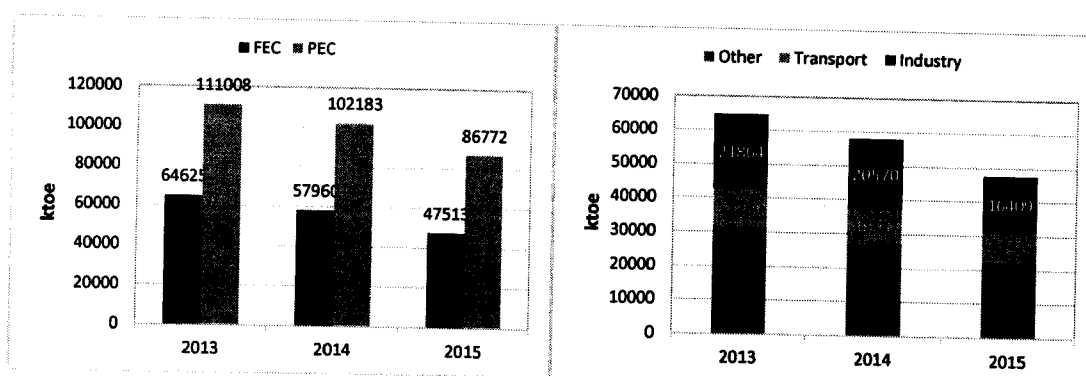


Figure 2: Final and primary energy consumption (left) and final energy consumption per sectors (right) in 2013 – 2015.

D. Update of measures implemented in last year

- **Legislative measures**

During 2017 the following important regulatory document were adopted:

- **Law of Ukraine "On Commercial Metering of Heat and Water Supply"**, adopted by the Parliament of Ukraine on June 22, 2017 (No. 2119-VIII).

This Law defines the main concepts of commercial, including distributional, accounting for heat, hot water and centralized water supply and providing correspondent accounting information to the consumers of such services.

- **Law of Ukraine "On the Energy Efficiency Fund"**, adopted by the Parliament of Ukraine on June 8, 2017 (No. 2095-VIII).

This Law defines the legal, economic and organizational principles for the establishment and operation of the Energy Efficiency Fund. As such, the Energy Efficiency Fund should support energy efficiency initiatives via supporting schemes

on energy saving and improving energy performance of buildings. This should be done by mean of diverse tools, such as:

- grants and partial reimbursement of the costs for energy efficiency projects implementation;
 - programs of partial reimbursement of the costs of economically feasible energy efficiency measures;
 - development of financial criteria for the project compliance with energy efficiency goals, technical evaluation of projects;
 - cooperation with partner banks and donors;
 - technical training in the field of energy efficiency;
 - permanent monitoring and quality analysis of the energy efficiency measures;
 - implementation of marketing and communication campaigns, market research;
 - carrying out communication activities related to the raising awareness of population in the field of energy saving and energy efficiency.
- ***The Law of Ukraine "On the Energy Efficiency of Buildings"***, adopted by the Parliament of Ukraine on June 22, 2017 (No. 2118-VIII).

The law identifies the set of the most important measures to improve the energy efficiency of buildings and relative financing tools to support these policies, creates preconditions for the implementation of the national plans to increase the number of near zero energy buildings, and regulates the introducing energy efficiency certificates of buildings that will let to establish publicly available inventory of the Ukrainian stock of building. This law comes into force on July 23, 2018.

- ***Energy Strategy of Ukraine by 2035 "Safety, Energy Efficiency, Competitiveness"***, adopted by the Cabinet of Ministers of Ukraine on August 18, 2017 (No. 605-p).

In the scope of Energy Efficiency, Energy Strategy by 2035 provides the following:

- reduce the primary energy intensity of Ukraine by 2035 by half from 0.28 toe/1000 USD GDP PPP in 2015 to 0.13 toe/ USD GDP PPP in 2035;
- transition of the Ukrainian energy sector to the market principles of functioning and competition that will stimulate the increase of economic performance of energy companies and the efficiency of energy use by economic entities;
- technological renovation of the energy sector ensuring its competitiveness in the European energy market by creating favorable conditions for attraction of investment and technical modernization of energy facilities.

- ***Action Plan for the energy management system implementation in public institutions***, adopted by the Cabinet of Ministers of Ukraine on April 26, 2017 (No. 732-p).

In particular, Action Plan provides the development in 2017 of the following documents:

- the draft Law on energy efficiency, which would include provisions for the introduction of energy management systems, including in institutions funded by local budgets;

- Certification Scheme of the energy management systems and energy managers in public institutions;
- Regulation on the energy monitoring in public institutions.

In addition, Action plan entrusts on the State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) and local governments:

- to establish and make operational of publicly available database of energy use and performance characteristics of public buildings;
 - to promote activities (seminars, trainings, etc.) on the implementation of energy management systems in public institutions;
 - to establish professional development programs;
 - to fulfil activities to promote the introduction of energy management systems in public institutions and to promote certification of such systems;
 - to introduce energy management systems in public institutions.
- The discussion *of the draft Law of Ukraine "On Energy Efficiency"* was initiated. The draft Law is aimed at the implementation of the EED and defines the schemes and mechanisms to stimulate reduction of energy use by energy suppliers and consumers. The Draft Law was approved by the Ministry of Regional Development, Construction and Utilities of Ukraine and is going through inter-service consultations with Ministries and national energy regulator (NEURC).

In the scope of energy labeling implementation in Ukraine there were several regulation adopted that establish requirements for the following types of equipment:

- Technical regulation on energy labeling of energy related products (Resolution of the Cabinet of Ministers of Ukraine dated 07.08.13 No.702);
- Technical regulation on energy labeling of domestic electric refrigerators (Resolution of the Cabinet of Ministers of Ukraine dated 07.08.13 No.702);
- Technical regulation on energy labeling of household washing machines (Resolution of the Cabinet of Ministers of Ukraine dated 07.08.13 No.702);
- Technical regulations on energy labeling of electric lamps and luminaries (Resolution of the Cabinet of Ministers of Ukraine dated 27.05.15, No.340);
- Technical regulation on energy labeling of household dishwashers (Resolution of the Cabinet of Ministers of Ukraine dated 17.07.15, No. 514);
- Technical regulation on energy labeling of air conditioners (Resolution of the Cabinet of Ministers of Ukraine dated 24.05.17, No. 360);
- Technical regulations on energy labeling of televisions (Resolution of the Cabinet of Ministers of Ukraine dated 24.05.17 No. 359);
- Technical regulation on energy labeling of vacuum cleaners (Resolution of the Cabinet of Ministers of Ukraine dated 31.05.17, No. 381);
- Technical regulation on energy labeling of household tumble driers (Resolution of the Cabinet of Ministers of Ukraine dated 31.05.17, No. 380).

SAEE has also developed a draft Technical Regulation on energy labeling of household ovens and range hoods. The draft Technical Regulation is now undergoing the process of ministerial approval.

With regard to establishment of eco-design requirements, the SAEE keeps working with EBRD experts to prepare the following Technical Regulations:

- industrial fans;
- water pumps;
- transformers;
- electric motors;
- lamps;
- circulators.

All the six draft Technical Regulations are now undergoing the process of inter-service consultation.

• Non-legislative measures

Quite a few individual horizontal and cross-sectoral measures had place during previous years in the framework of the *first NEEAP* implementation process in Ukraine. In general, according to the *NEEAP Task 13 "Informing and promoting of the economic, environmental and social benefits from effective energy use and implementation of energy efficiency measures"*, raising public awareness on energy efficiency is permanently being implemented by the SAEE. Different communication activities such as national forums, regional and national workshops, roundtables, press-tours and broadcastings were supplemented by the governmental website teplo.gov.ua which highlights the most important issues and news on energy efficiency as well as raising the utility tariffs and Housing&Utility Subsidies for low income households.

The really important contribution in meeting the energy efficiency targets makes the support for the greatest final energy consumer – Households. In accordance with *Task 1 "Facilitating the attraction of investments in thermo-modernization of residential buildings, in particular through the implementation of mechanisms to reduce the cost of such measures"* and *Task 28 "Development of a draft resolution of the Cabinet of Ministers of Ukraine regarding the establishment of the Energy Efficiency Fund"* the Concept of such fund has been developed, which provides the use of sustainable and effective mechanisms for funding of energy efficiency measures. The Concept became the basis for the following adoption of the Law of Ukraine "On the Energy Efficiency Fund" and its establishment. However, an actual establishment of this Fund requires significant organizational and legislative efforts. It is necessary to develop a statute of the Fund, a provision on the Supervisory Board, which will oversee the activities of the Directorate of the Fund. The preparation of the secondary legislation requires considerable time, therefore it is expected that the Fund starts function from 2018. Although it is expected that donor organization will participate in funding in the, the law also provides for a rather rigid requirement for filling out the Fund at the expense of the State Budget in the amount necessary to achieve a minimum level of energy efficiency in accordance with the current international obligations of Ukraine.

While the Energy Efficiency Fund is still on the way, over 320 thousand households invested more than 4.7 billion UAH (150 million EURO) to implement energy efficient measures in the framework of the Governmental program "Warm loans" since

October 2014. Over 239 thousand households invested 4.1 billion UAH of credit costs to buy energy efficient materials and equipment; more than 23 thousand households received loans in commercial banks on the amount of 405 million UAH for the installation of solid fuel boilers. Condominiums and housing associations that consist of more than 100 thousand of households accumulated 211,4 million UAH for insulation and overall sanation of multi-apartment buildings. All this households received reimbursement of their loans from state budget in the total amount of 1.8 billion UAH.

SAEE constantly works with local governments to develop local programs. In connection with this, during 2015-2017, a new system of interaction with local authorities in the field of energy efficiency of residential buildings was developed by SAEE. At the moment SAEE has attracted all heads of local authorities (regional state administrations, regional councils, city councils) to such kind of cooperation by signing 25 Memorandums. For their implementation during 2015-2017, 310 local programs were adopted in all regions of Ukraine. It was planned to allocate over 102 million UAH for implementation of such programs in 2017 from local budgets, out of which more than 19 million UAH were allocated between 33 thousands of recipients. By launching such programs households may now receive much larger compensation from the regional or municipal budget – additional 15-20% of the bank interest or 10-55% of the principal amount of loan. In addition, today about 40 now local programs are under development and adoption.

Monitoring of the programs' implementation has shown out that for condominiums and housing associations the heat savings could reach 10%-24% depending on the measures taken (in case of comprehensive projects that include exhaustive set of energy saving decisions, energy consumption could be reduced at times), electricity savings reached 71%. For households energy-efficient measures may reduce gas consumption by 12% -40%.

The IQ Energy program initiated by EBRD has been started in Ukraine in 2016. Households living in multi-apartment buildings as well as private houses may get a loan or grant to implement energy efficiency measures under this program. The program budget is 90 million EUR till 2020, of which 75 million EUR were allocated for loans and 15 million EUR from other donors – for grants. Ukrainian Ukrsibbank, Raiffeisen Bank Aval and OTP Bank were appointed as distributors of funds provided by EBRD and other donors. A prerequisite to obtain a loan is to choose energy efficient equipment from the specifically composed "Catalog of Technologies".

The introduction of legal principles for increasing the number of near zero energy consumption buildings was provided by the Law of Ukraine "On the Energy Efficiency of Buildings" adopted in June 2017 in line with the *Task 14 "Establishment of the minimum requirements for energy efficiency of buildings and energy-use equipment, introduction of the energy labeling system for household electrical equipment"* and *Task 30 "Development of the national action plan to increase the number of near zero energy buildings"*. In addition, SAEE has developed and implemented technical regulations for the energy labeling for a wide range of housing appliances mentioned earlier. Compliance with these requirements should be ensured by the system of energy monitoring, being introduced already in 153 Ukrainian cities with

respect to the **Task 11** *“Implementation of the energy audit and energy management systems”*.

Equally important for achieving the targets is the realization of the energy efficiency potential in industry. With respect to **Task 4** *“Promotion of investments in energy efficiency measures in industry”* and by the order of the Head of SAEE on October 28, 2016, No. 70 it was established the Interdepartmental Working Group (IWG) on the policy development for stimulating the energy efficiency at industrial enterprises in the framework of the transition to the low carbon development. After several meetings IWG has adopted the general concept of mechanism of the targeted use of the emission tax for stimulating industrial enterprises for energy efficiency and the use of renewable energy sources. Currently IWG is being carried out additional studies and collected proposals to make necessary changes to regulatory acts.

Despite the fact that energy consumption in the Transport sector has been decreasing over the recent years in proportion to the overall reduction in final consumption, energy saving policy in this sector was also given with proper attention. With regard to **Task 5** *“Optimization of the structure of passenger and freight traffic within cities”* correspondent measures to improve the environmental performance and energy efficiency of vehicles have been added to the effective Transport Strategy of Ukraine by 2020, approved by the Cabinet of Ministers of Ukraine on October 20, 2010, No. 2174-p, as well as to the relevant operational target programs developed for the Strategy implementation.

The energy efficiency measures in transport that are under responsibility of the local authorities are foreseen in the action plans for sustainable energy development (SEAP) in the framework of the EU Covenant of Meyers for the period up to 2020. The most common measures implemented by municipalities so far are the establishment and increase of the number of zones (within the cities) with the prohibition use of private transport, increase of pedestrian areas and paid parking places. In SEAPs municipalities often plan to replace the obsolete vehicles with more comfortable and passenger-friendly ones by modernization and purchasing new vehicles. The latter reflects the **Tasks 7** *“Modernization of the rolling stock of public transport, in particular, implementation of incentive measures for the purchase of energy-efficient buses / trams / trolleybuses by companies of all types of ownership”*. The removal of obsolete vehicles is a major reason affecting the reduction of energy consumption in the Transport sector, although this does not always address the development and height the quality of public transport in a particular city.

Besides optimization of the transport flows, in response to the **Task 6** *“Adaptation of the fuel standards and technologies of their use to the European standards”* the Ministry of Infrastructure is currently being developing new technical regulations for motor fuels, including for alternative (RE) fuels. The Ministry of Economic Development has developed and adopted the revised version of the Law of Ukraine "On Standardization" in order to bring the national system of standardization closer to the international and European standards and rules. The Ministry of Energy and Coal Industry has elaborated the draft regulation, which provides for amendments to the Technical Regulation concerning requirements for gasoline, diesel, ship and boiler fuels in accordance with the requirements of Directive 2016/802/EU and Directive 98/70/EC.

E. Central Government buildings (Article 5)

The latest version of the Draft Law of Ukraine "On energy efficiency" opts for an alternative approach to paragraphs 1 to 5 of this Article.

To implement point 5 of article 5 of the Directive the SAEE, with the technical help from GIZ project, had made a template of an inventory of heated and/or cooled central government buildings. This template was already been filled by the central bodies of executive power and soon it will be made publicly available on the SAEE web-site.

Except the Law of Ukraine "On the Energy Efficiency of Buildings", other Laws aimed on implementation of Article 5 EED were put in force, such as the Law "On introduction of new investment opportunities, guaranteeing the rights and legitimate interests of business entities for large-scale energy modernization" (on September 4, 2015, No. 327-VIII) and "On amendments to the Budgetary Code of Ukraine (regarding the introduction of new investment opportunities, guaranteeing the rights and legitimate interests of business entities for large-scale energy modernization)" (on September 4, 2015 No. 328-VIII). These laws provide an opportunity for public institutions to conduct energy service agreements for the period of more than one year and define guarantees for investors in remuneration for the achieved energy savings in the framework of the energy service agreement. Another significant provision of these documents is transparent mechanisms for public procurement of energy saving performance contracts through the electronic government procurement system (PROZORRO). Methodologically, this is the most difficult auction in Ukraine, because the main selection criterion for choosing a winner is not the price, but the net present value - the indicator of the investment projects efficiency.

During 2016 20 ESCO-contracts were concluded for the total sum of more than EUR 630 000. As of 9 February 2018 325 tender notices were published, already 140 auctions took place and 21 energy performance contracts totalling EUR 720 000 were concluded.

To promote renovation of public buildings SAEE conducted 40 Memorandums on Partnership with Local Authorities regarding implementation of the energy service schemes at the municipal level.

Under support of the Friedrich Ebert Stiftung SAEE together with other stakeholders conducted an information campaign on energy audits implementation and introduction of energy management among regional administrations. This educational campaign was aimed at dissemination of information on the benefits of energy audit and energy management in the public sector. In addition to conducting workshops on the introduction of energy management in public institutions, the work with international donor organizations in the provision of technical support was successfully conducted.

Moreover, the SAEE in partnership with Friedrich-Ebert-Stiftung Office in Ukraine (FES) and GIZ Project "Energy Efficiency Reforms in Ukraine" developed Communication plan on ESCO and energy management in regions, which entailed weekly thematic workshops. These workshops were aimed at explanation of energy management systems implementation to heads of local administration, local

governments, budgetary institutions, etc. During May-December 2017 the SAEЕ held 24 such workshops, which covered more than 3 700 participants.

Currently, energy monitoring, as an integral part of the energy management system, is already implemented in 93 cities, 9 regions, 25 districts and 4 united territorial units of Ukraine and has been implementing in 6 regions, 4 districts, 1 united territorial unit and 35 cities.

F. Energy efficiency obligations (Article 7)

The SAEЕ with support of the ECS experts drafted the Law of Ukraine "On energy efficiency" that is aimed at the implementation of the Directive 2012/27/EU (EED). The provisions of the draft Law introduce alternative approach of Article 7 EED to achieve the target of the total annual end-use energy savings each year of at least 0,7% of total annual sales to consumers of energy suppliers. The draft Law provides the list of policy measures to be implemented in order to achieve the target including:

- development and implementation of state programs in energy efficiency;
- energy taxes or taxes on greenhouse gas emissions (ecological taxes);
- the state support and / or tax incentives to encourage the application of energy efficient technologies and reducing final energy consumption;
- voluntary agreements with the aim of the application of energy efficient technologies that lead to the reduction of final energy consumption;
- adoption of standards, rules and regulations to improve the energy efficiency of goods and services, including buildings and vehicles, except when these are mandatory for compliance with the requirements of legislation of Energy Community;
- the introduction of energy labeling, except when this is mandatory for compliance with the requirements of legislation of Energy Community;
- training and consulting on energy efficiency, resulting in stimulation of energy efficient technologies application and reducing of final energy consumption;
- an energy efficiency fund;
- other measures that result in providing an annual end-use energy savings.

The Draft Law is going through inter-service consultations with Ministries and national energy regulator (NEURC).