dixigroup

RENEWABLE ENERGY IN UKRAINE

FACT BOOK

DECEMBER **2018**

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Design: Remarker

Sources used:

State Statistics Service

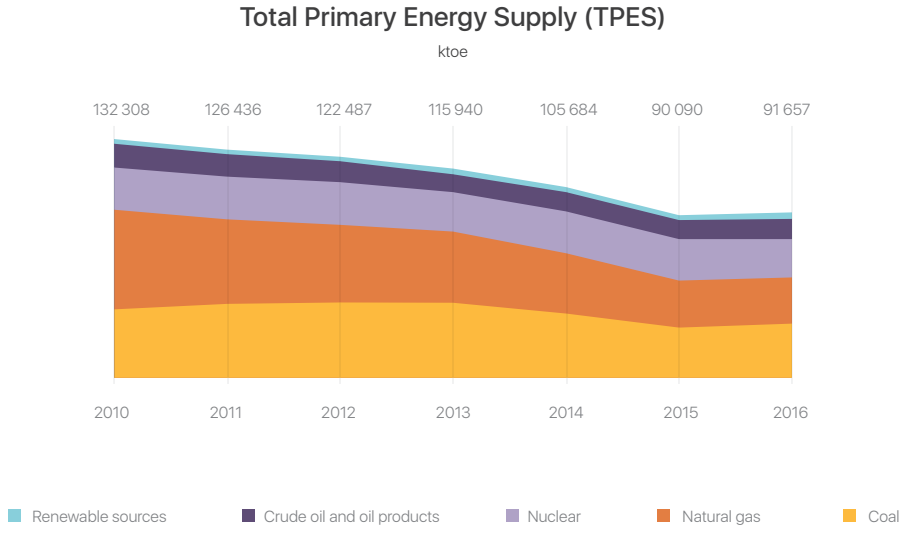
SE Energorynok

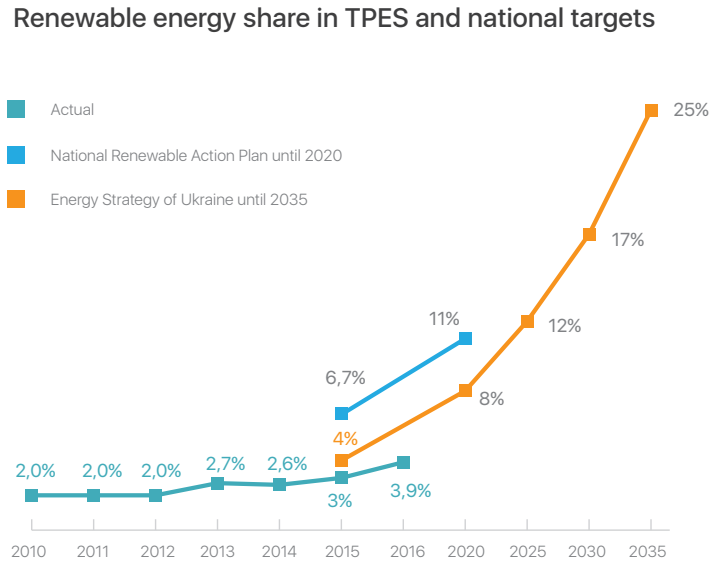
State Agency for Energy Efficiency and Energy Saving

National Energy and Utilities Regulatory Commission

December 2018

KEY STATISTICS





STATE SUPPORT

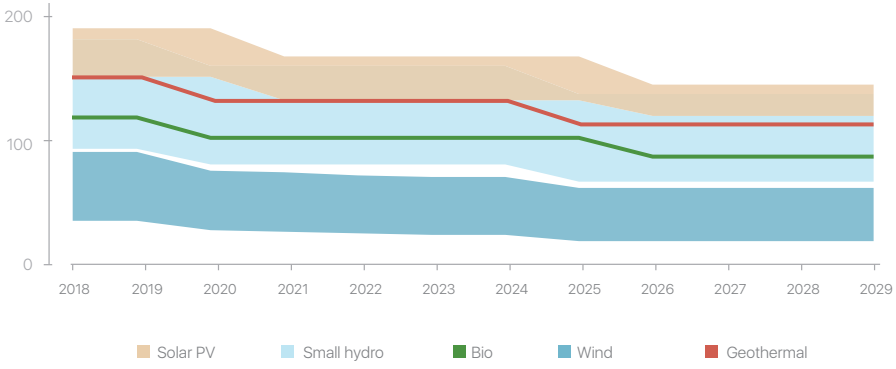
FEED-IN TARIFF (FIT) FOR RES ELECTRICITY:

Law of Ukraine №555-IV «On alternative energy sources" with amendments

- Fixed in EUR per kWh, stated in the Law
- FIT premium up to 10% for local equipment
- Granted until 31-12-2029
- Duration – from commissioning until 31-12-2029
- FIT values are now under review

FIT, EUR/MWh

granted at given year of commissioning



FIT premium

MW as at 31-10-2018

granted to **31** stations

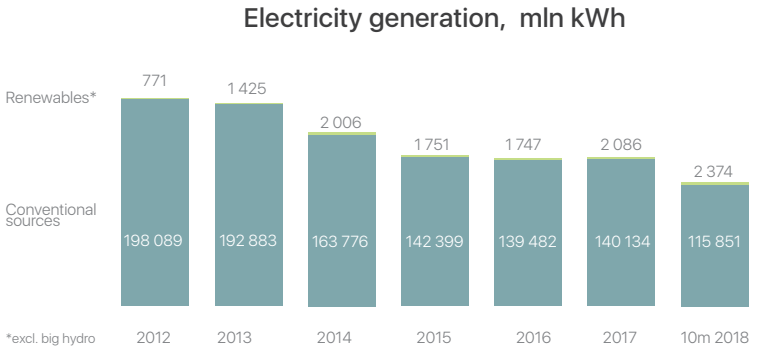
> **7%** of installed capacity

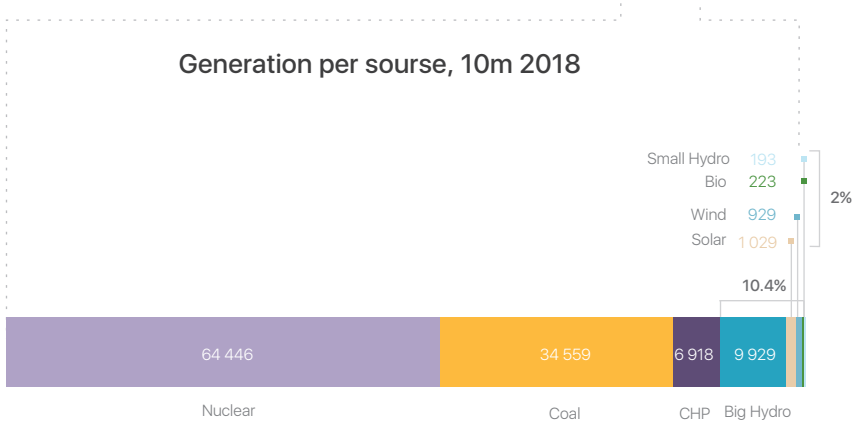
SPECIAL TARIFF FOR HEAT FROM RES

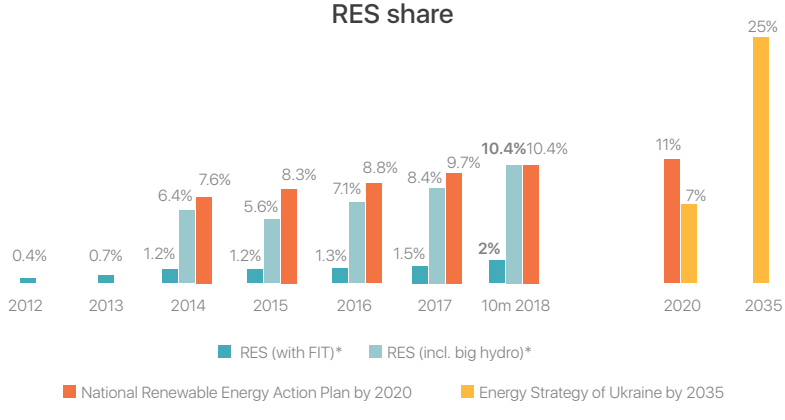
Law of Ukraine No. 1959-VIII "On changes amendments to Law of Ukraine on Heat Supply regardings stimulation heat generation from alternative energy source" from 21-03-2017

- set as 90% of tariff for heat from natural gas
- indicative tariffs are published by State Agency for Energy Efficiency and Energy Savings
- tariffs granted to producers by local authorities and NEURC

ELECTRICITY GENERATION

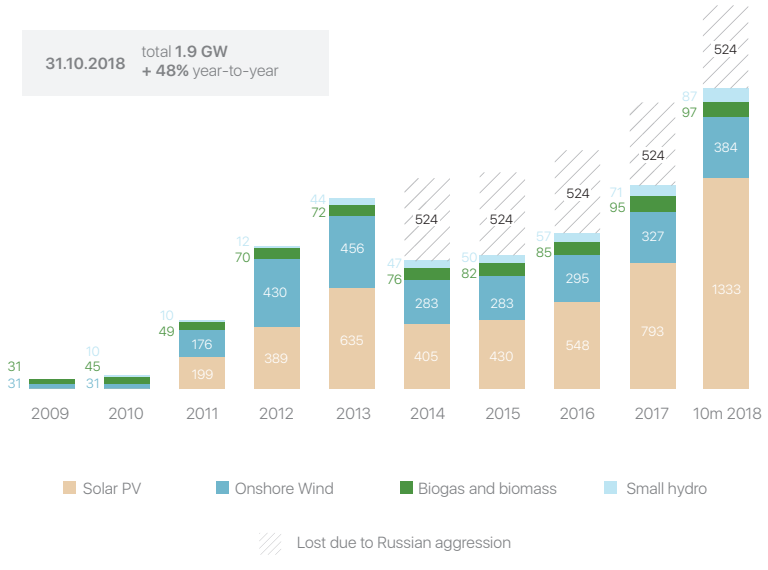




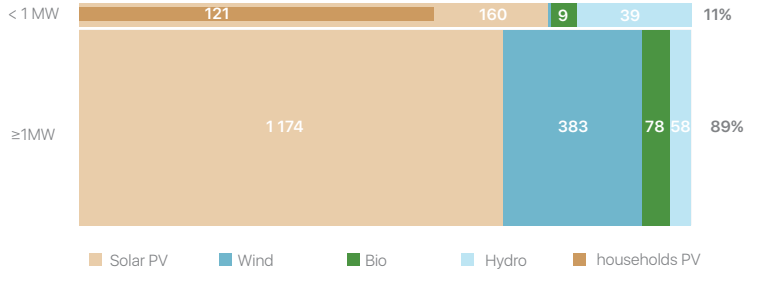


MARKET DYNAMICS

Renewables connected to the grid, MW

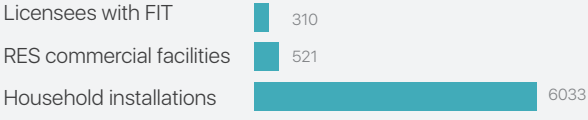


Utility scale VS small scale

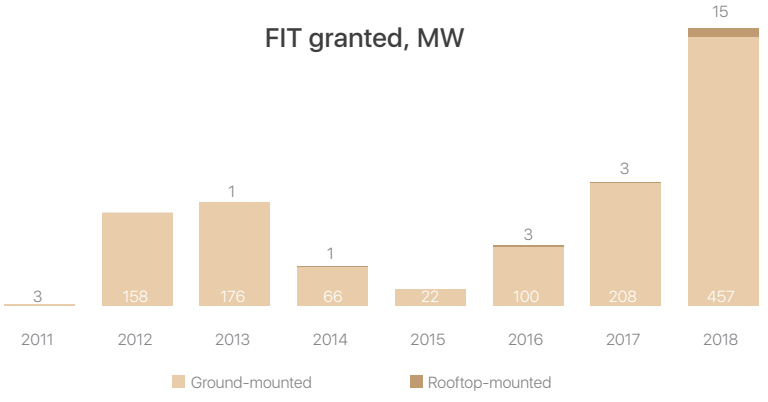


KEY FACTS

as of 31.10.2018



SOLAR PV



KEY FACTS

Biggest station:

53.4 MW Voskhod Solar, Mykolaiv region

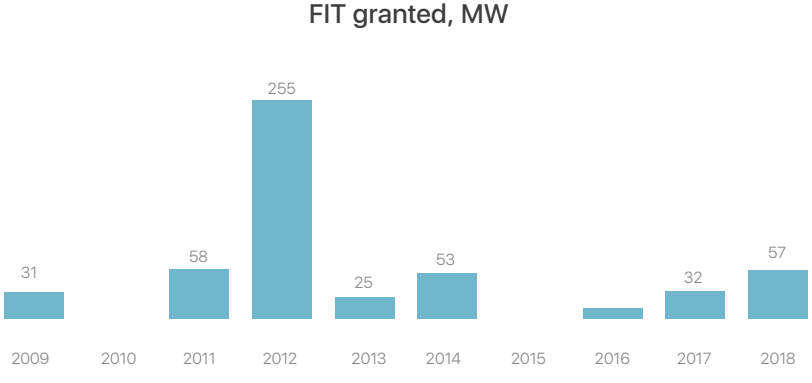
105.6 MW Perovo solar park, Crimea

Average capacity

Ground PV 5.20 MW

Rooftop PV 0.24 MW

WIND

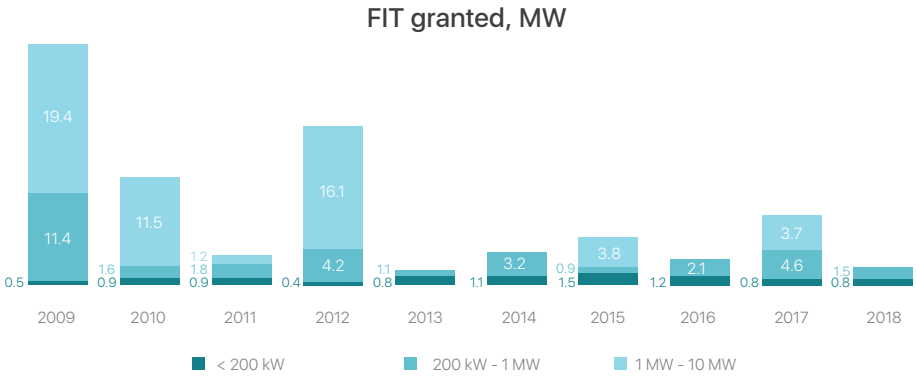


KEY FACTS

- Only 3 stations with kW-class generators obtained FIT - their total capacity is 4 MW
- Biggest station - 200 MW Botievo wind park in Zaporizhzhya region

data including facilities in Crimea and uncontrolled territories of Donetsk and Luhansk regions

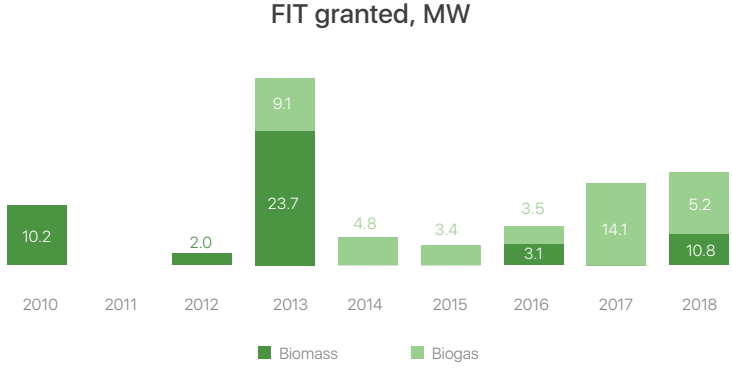
SMALL HYDRO



KEY FACTS

- >50% of objects - reconstruction of old sites
- FIT granted in 2009 mostly for already existing small hydro
- Total number of installations - 143
- Average capacity = 680 kW

BIO POWER



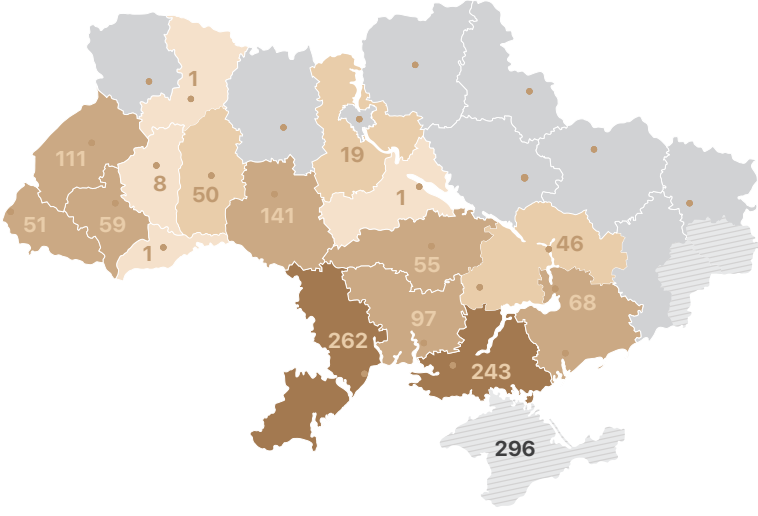
KEY FACTS

	Biomass	Biogas
Total number of installations	8	32
Average capacity, MW	5.5	1.4

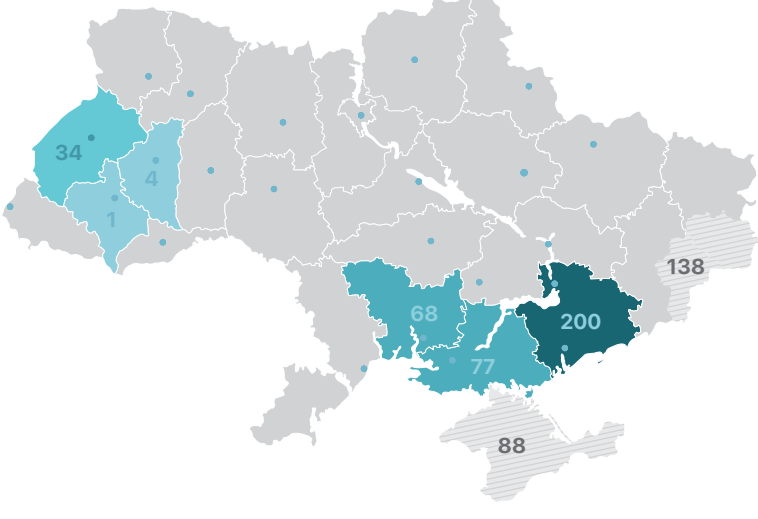
data including facilities in Crimea and uncontrolled territories of Donetsk and Luhansk regions

GEOGRAPHY

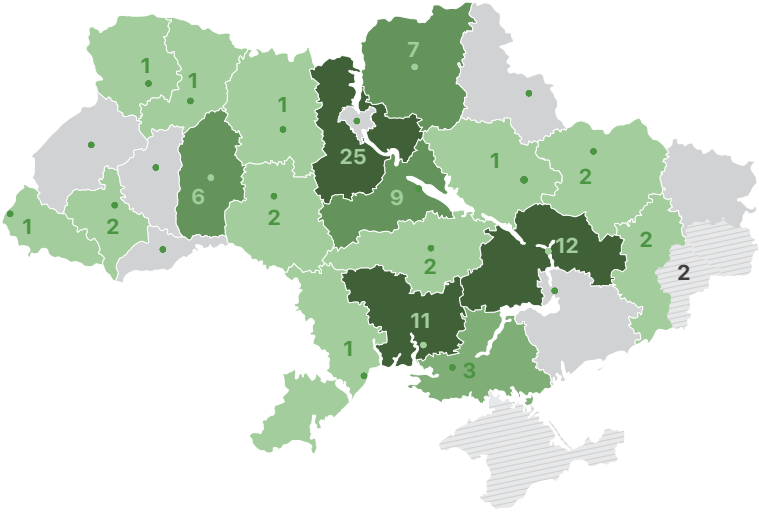
SOLAR, MW as at 31-10-2018



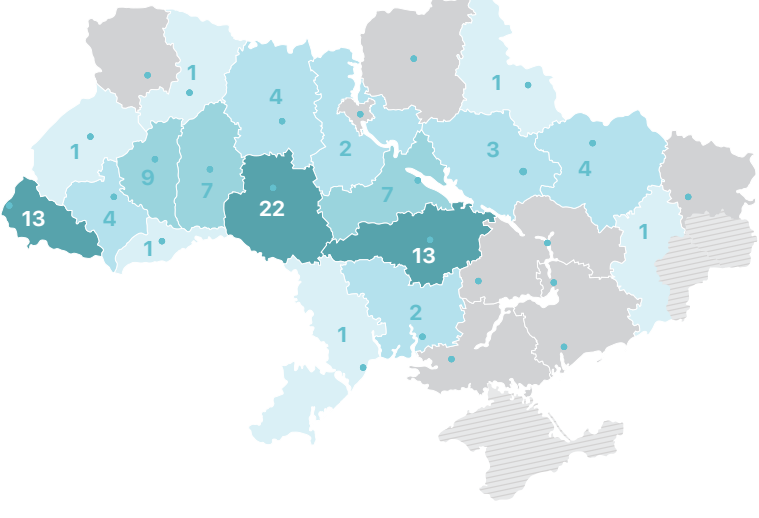
WIND, MW as at 31-10-2018



BIO POWER, MW as at 31-10-2018

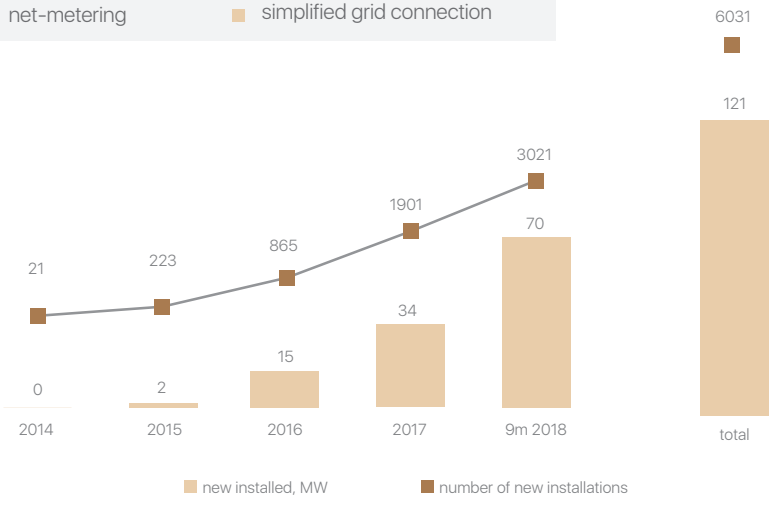


SMALL HYDRO, MW as at 31-10-2018



HOUSEHOLDS PV

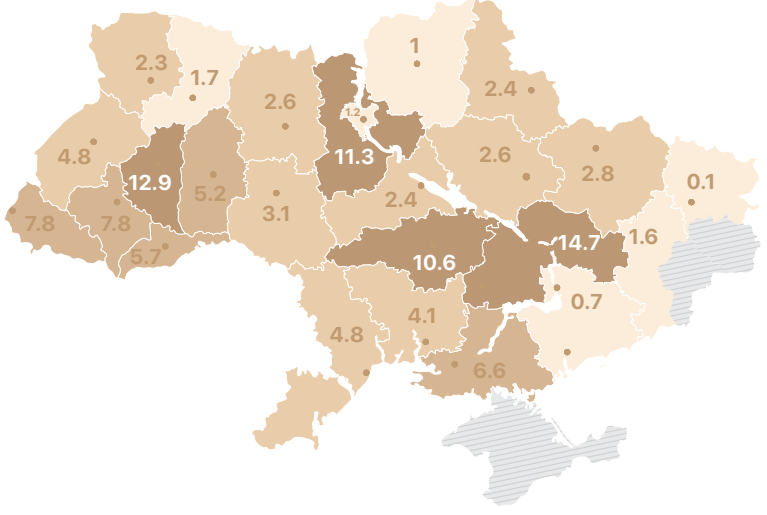
- up to 30 kW
- no license required
- net-metering
- simplified grid connection



KEY FACTS

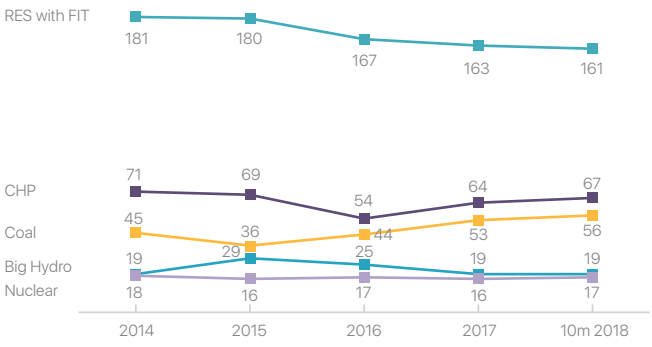
- Average capacity = 20 kW
- More power than commercial rooftop PV
- Share in total installed RES - 6.4%
- Key driver - profits, not energy savings

MW as at 30-09-2018

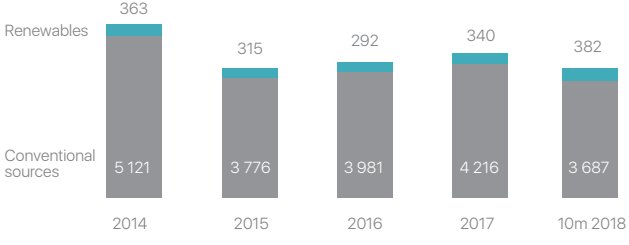


FINANCIAL IMPACT

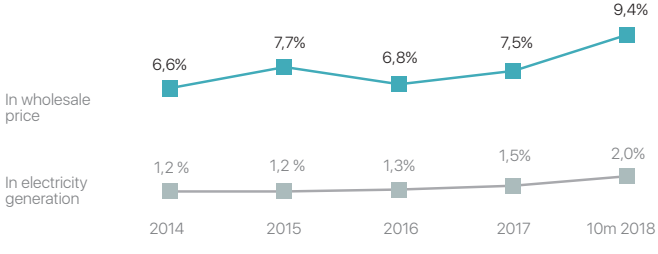
Average wholesale electricity price, EUR/MWh



Cost on wholesale market, EUR mln



RES share



Current RES support policy is not sustainable

KEY CHALLENGES

ELECTRICITY

- **FIT system will be not economically viable since 2020-2021**
  Duration of FIT not for number of years, but limited by 2030
  Changes required not only for tariffs, but for support system as a whole

- **Law on RES-e auctions in development**
  Crucial for long-term planning and sustainable development,
  but focuses on utility-scale projects
  Current draft law requires improvements to mitigate potential risks

- **Lack of focus for small-scale distributed generation**
  Current support system failed to support active development
  in commercial segment
  More focus should be on meeting energy demand

- **Grid constraints**
  Most of RES located in the Southern Ukraine, growing issues
  with grid connections

- **Renewables integration challenges**
  Ukrenergo claims max. 3 GW of RES can be added
  to the grid w/o additional balancing capacities

HEAT

- **Current support system does not provide incentives to competition**

- **Heat market reform is long expected**

- **Requires focus on value chain and stable supply of biofuel**

COMPREHENSIVE RES POLICY REQUIRED

- **To concentrate on long-term suppport system, balanced in terms of geography and projects scale.**

- **Should consider grid development costs and renewables grid integration approaches**