



Ministry of Energy and Coal Industry of  
Ukraine



# Draft NERP – Ukraine

36TH PERMANENT HIGH LEVEL GROUP

VIENNA 26 MARCH 2015





# Basic information – governing EU legislation

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**The basis for development of NERP is governed by Article 32 of Directive 2010/75/EU and by Decision 2012/115/EU**

As the time period of NERP is proposed for 16 years starting from 2018, Ukraine proposes to follow Directive 2010/75/EU directly without intermediate compliance with Directive 2001/80/EC

After the end of NERP implementation periods (2028 for dust and SO<sub>2</sub>, 2033 for NO<sub>x</sub>, all existing LCPs will comply with the emission limit values according Directive 2010/75/EU (Annex V, part 1)





# Energy sector in Ukraine – expected development

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At present, 147 LCPs with total rated thermal input of 107.29 GW are being operated in Ukraine

**79 LCPs with total rated thermal input of 65.35 GW are expected to be included into NERP** and to introduce emission abatement measures Details of planned emission abatement measures (type of measure, date of implementation) are available for 32 LCPs with total rated thermal input of 46.2 GW

**68 existing LCPs with total thermal input of 41 GW are planned to be phased out**

**17 new plants with total rated thermal output of 21.97 GW are planned at present to be built before 2033**





## Basic information – Timing

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**1 January 2018 – 31 December 2033 for nitrogen oxides**

**1 January 2018 – 31 December 2028 for dust and sulphur dioxide**

### *Reasons:*

This time period is based on the decision by the Ukrainian Government from 2012 on complete reconstruction of the whole energy sector in the country. However, to remain at the safe side in energy supply, it has been assessed that, from the total of 90 power units (TPPs) to be reconstructed or replaced, *no more than 5 can be phased out* temporarily for reconstruction or for replacement at the same time.





# Age of LCPs in Ukraine

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- **With one exception only** (CFB boiler at Starobeshivska power plant, rated thermal input 515 MW), **all existing LCPs in Ukraine had been permitted before 01.07.1992 and can be considered existing plants according to Directive 2001/80/EC.**
- **No additional new LCP is expected to be permitted before 2019**







## Limited operating time

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**From 68 existing LCPs with total thermal input of 40,97 GW which are planned to be phased out:**

- 24 LCPs with total rated thermal input of 10.07 GW are planned to be closed down by the end of 2023 and limited time of 20 000 hours is proposed**
- Resting 44 LCPs with total rated thermal input of 30,9 MW are planned to be closed down between 2024 and 2023 and limited time of 40 000 hours is proposed**





## Aggregated emission ceilings for all existing large combustion plants included in NERP [1000 t]



	31.12.2018	31.12.2023	31.12.2028	31.12.2033
SO <sub>2</sub>	1 251	651	51	51
NO <sub>x</sub>	213	161	109	57
Dust	306	156	5	5





## Emission reduction measures – dust and SO<sub>2</sub>

modernization of existing combustion plants to improve energy efficiency of fuel conversion;

modernization of installations for dust cleaning of flue gases (electrostatic precipitators, fabric filters);

co-firing of biomass with solid fuel (coal) in boilers;

for the plants with thermal input of 50 to 500 MW coal should be used with low sulfur content, or semi-dry or wet flue gas desulfurization should be introduced, depending on specific conditions of the plant;

for the plants with thermal input > 500 MW it is advisable to use wet desulphurization of flue gases;







# Emission reduction measures - NO<sub>x</sub>

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introduction of primary measures to reduce emissions of nitrogen oxides (technological regime measures - stagewise supply of air and fuel, low emission burners, flue gas recirculation and a combination there of);

introduction of secondary measures to reduce emissions of nitrogen oxides – technology of selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) depending on the individual conditions.





## Estimated investment costs

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- Flue gas cleaning plants for existing LCPs: EUR 2.615 billion
- Construction of new TPPs: EUR 16.380 billion
- Construction of new CHPs: EUR 4.600 billion
- **Total:** **EUR 23.595 billion**





**THANK YOU  
FOR ATTENTION**

**And  
UNDERSTANDING  
Mikhaylo  
Bno-Arryan**

**Ministry of Energy and  
Coal Industry**

