

NEW ENERGY STRATEGY OF UKRAINE TILL 2035: SECURITY, ENERGY EFFICIENCY, COMPETITIVE ABILITY

Brief description

Victor Logatskiy, Leading Expert, Energy Programmes, Razumkov Centre, Kyiv, Ukraine

Energy Sector of Ukraine at a Glance in 2016

THE STRUCTURE AND CAPACITY OF THE ENERGY SECTOR OF UKRAINE (2016)*

FUEL

NATURAL GAS	OIL	COAL	BIOMASS TO FUEL
Proven reserves: 1104 bcm	Proven reserves (incl. HGL): 250 mt	Reserves: 33873 mt	Available resources: 33 mt o.e.
Production: 20 bcm	Production: 2,2 mt	Production: 41 mt (33 mt - energy coal incl.)	Used: 2,5 mt o.e.

ELECTRIC POWER INDUSTRY

NUCLEAR	THERMAL	HYDRO
Installed capacity of 15 power units (reactors): 13835 MW-e (25%)	Installed capacity including cogeneration plants: 34314 MW-e (62%)	Installed capacity: 6221 MW-e (11%)
Electricity production: 81 mMWh (52%)	Electricity production: 63,2 mMWh (41%)	Electricity production: 9,1 mMWh (6%)

NATURAL GAS TRANSPORTATION AND STORAGE	CRUDE OIL TRANSPORTATION AND STORAGE	REFINERY
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Transit capacity: 140 bcm/year	Output capacity: 56,3 mt/year	Design capacity (crude oil) of 6 biggest refineries: 51,1 mt/year
Total length of main gas pipelines: 38550 km	Total length of main oil pipelines: 4767 km	In operation: only 1 from 6 biggest
Natural gas compressor stations: 72	Oil pumping stations: 51	Crude oil and HGL processed: 2,5 mt
Underground natural gas storage facilities: 12 with 31 bcm of storage working capacity	Reservoir parks: 11 with total storage capacity of 1083 thousand cm	
Total length of natural gas distribution networks: 367000 km	Sea oil terminal "Pivdenny" with total handling capacity of 14,5 mt/year	
Natural gas transit: 82 bcm (growth 22% from 2015 year)	Crude oil transit: 15,2 mt	

NON-HYDRO RES	POWER ELECTRICITY NETWORK
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Installed capacity of RES power stations: 962 MW-e (2%)	Length of main power transmission lines: 29190 km
Including:	136 basic substations with total transformation capacity of 78632 MVA.
- Solar – 458 MW-e	Length of electrical distribution grids: about 1 million km
- Wind – 439 MW-e	about 200 thousand 6-150 kV local transformer substations.
- Biomass fired – 65 MW-e	Electricity transportation: 153 mMWh
Electricity production: 1,6 mMWh (1%)	Export of electricity: 4 mMWh (91% in EU)

Ukrainian energy sector in key estimations:

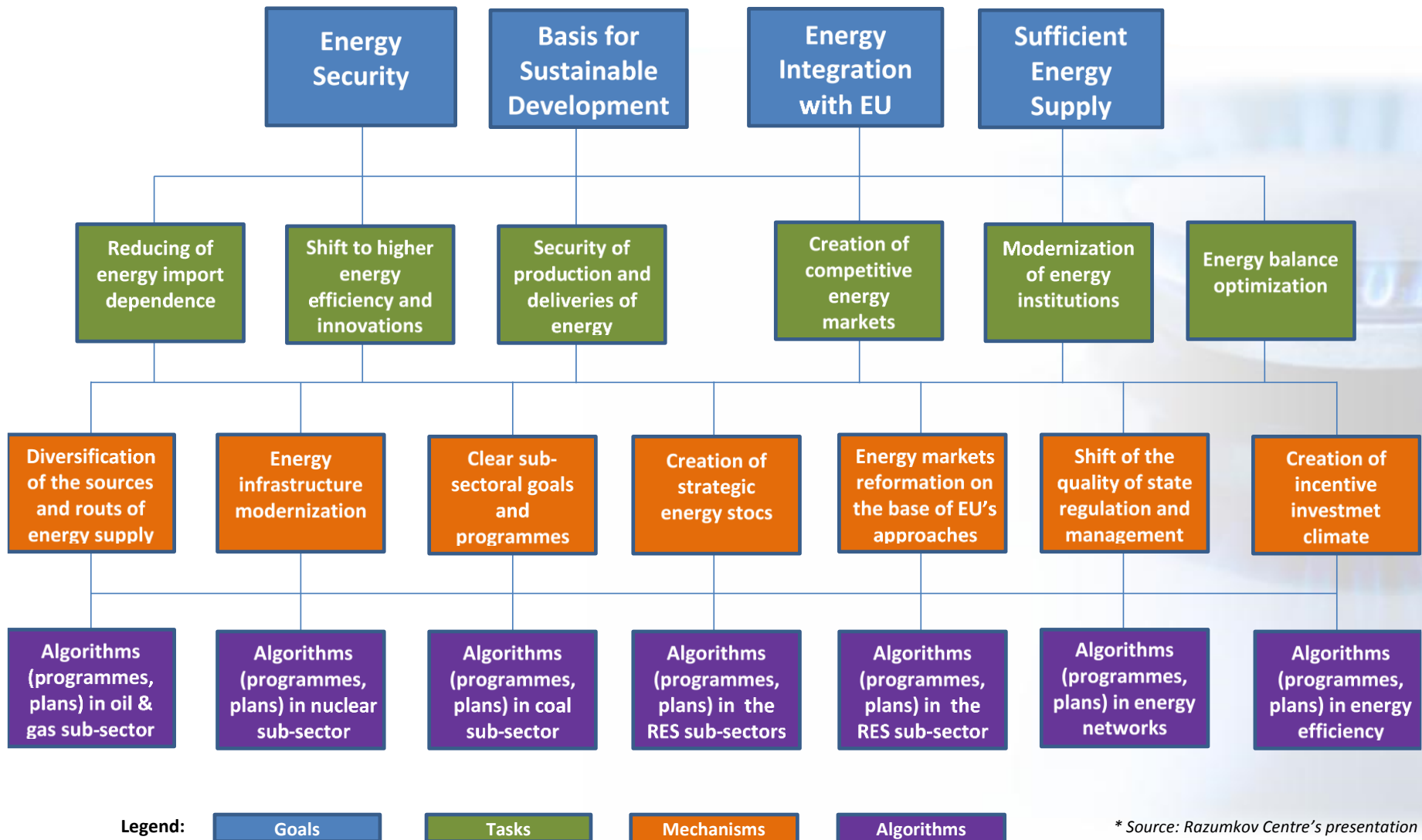
- Ranks in the top 10 in Europe
- Ranks in top 30 in the World
- Occupies ~ 30% of national economy
- Provides transportation ~ 20% of annual EU natural gas consumption
- Requires adaptation to new challenges, market conditions and modernization, and state policy for development



New Energy Strategy

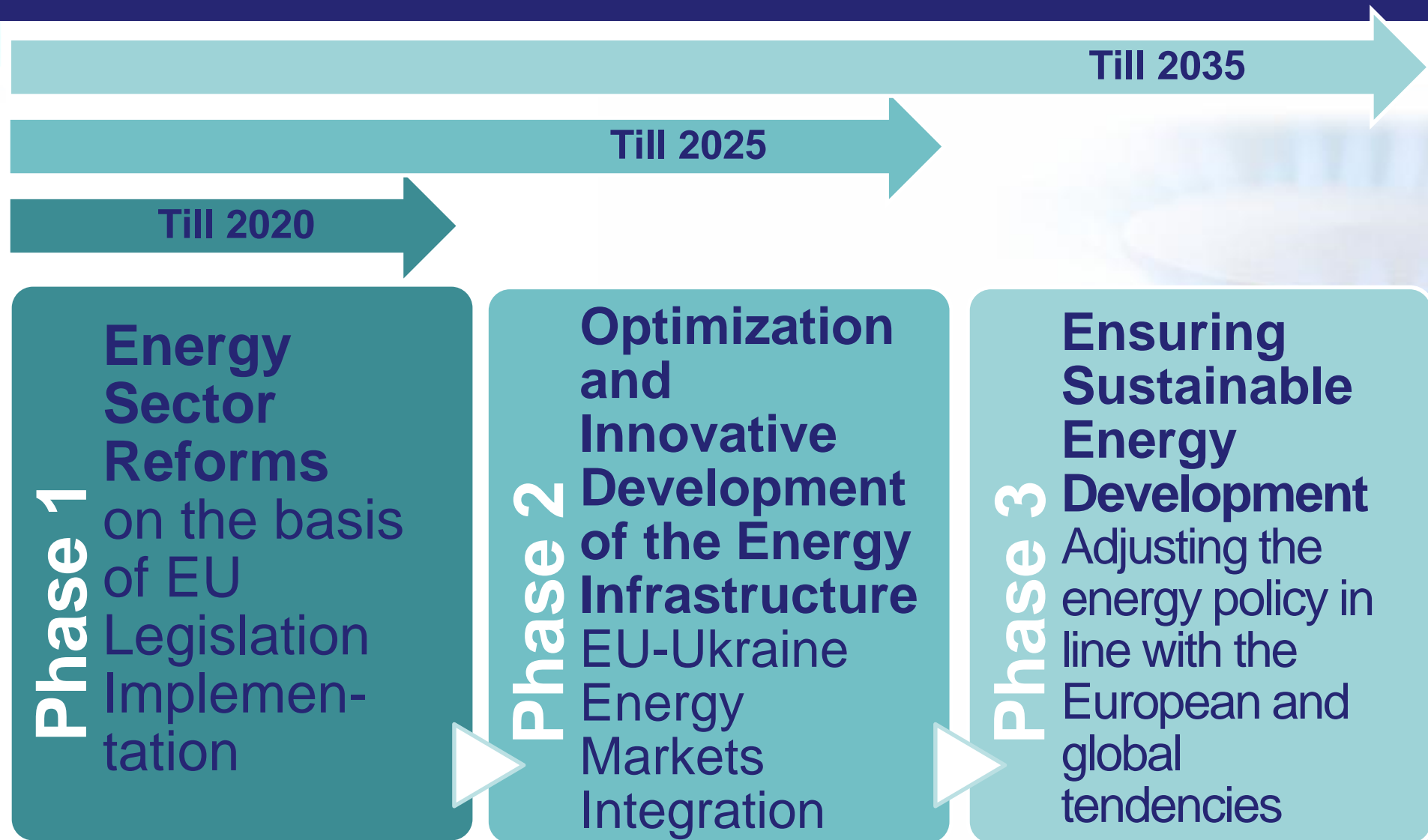
* Razumkov Centre's analysis

Hierarchical Structure of the New Energy Strategy of Ukraine till 2035: the goals, tasks, mechanisms and algorithms



* Source: Razumkov Centre's presentation

Temporal Vector: the Main Phases of the Energy Strategy



Phase 1. Energy Sector Reforms: Key Tasks

Till 2020



Completion of the implementation of the 3rd EU Energy Package; modern energy markets formation



Institutional reforming of the state energy companies and integration to ENTSO-G



Increasing of domestic natural gas production



Progressive decreasing of GDP energy intensity



Increasing of the RES share and investments in regard to Emissions Reduction National Action Plan

Phase 2. Optimization and Innovative Development of the Energy Infrastructure: Key Tasks

Till 2025



Integration to ENTSO-E



Modernisation of the energy grids infrastructure, smart-grids implementation



Development of heating infrastructure depending on local resources and regional specifics



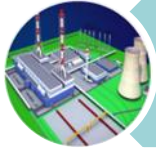
Country's achievement to self-provision with natural gas from domestic production



Follow-up increasing of the RES share and investments in regard to Emissions Reduction National Action Plan

Phase 3. Ensuring Sustainable Energy Development: Key Tasks

Till 2035



Innovative development and CHP plants and NPP construction instead of disposal or obsolete units



Extensive implementation of smart-grids and client-oriented networks



Adaptation of the gas transportation system to the actual demands of the all-European gas market

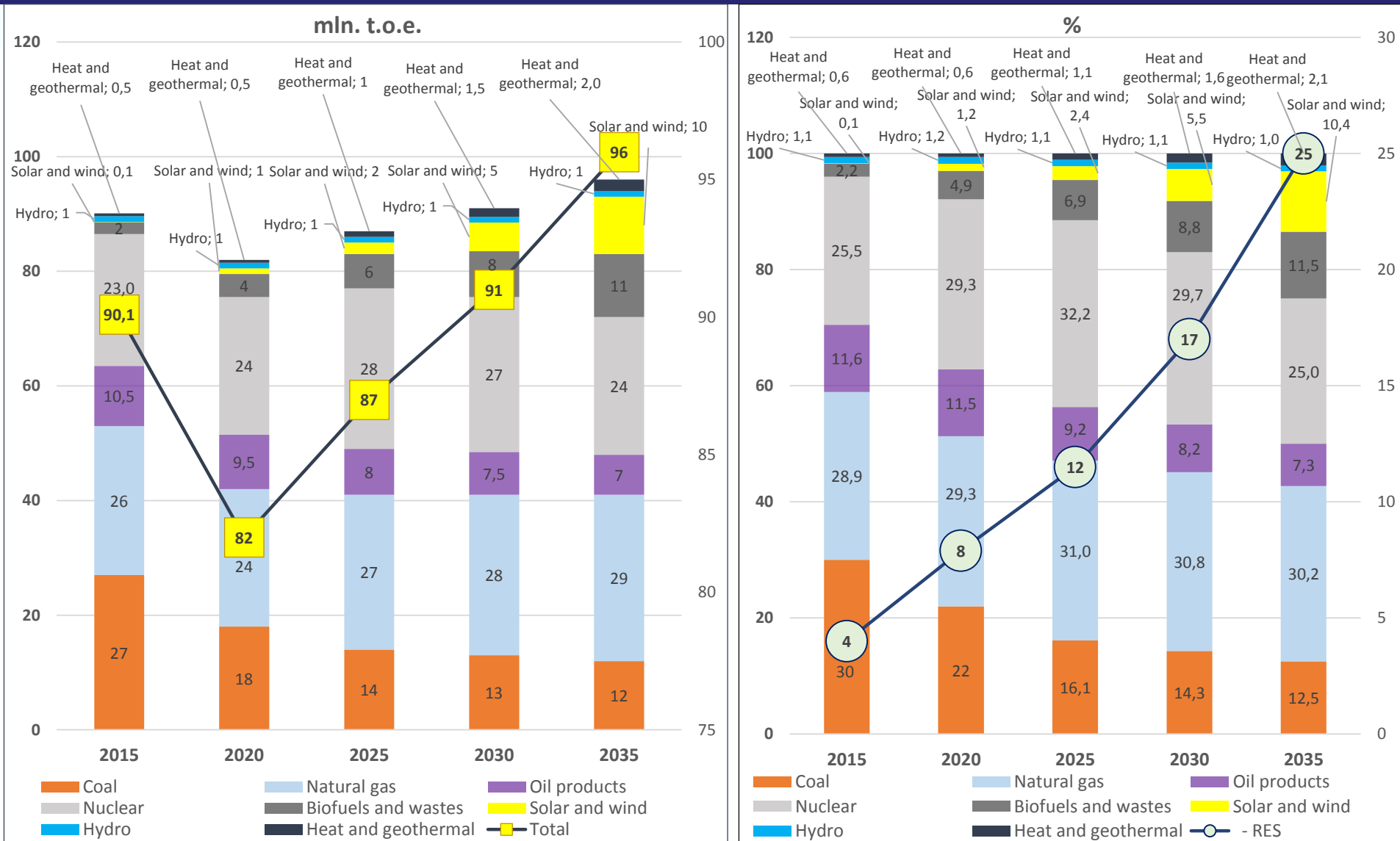


Increasing domestic natural gas production



Follow-up increasing of the RES share up to 25% of GES and investments to further emissions reduction

Forecast of the Structure of the Primary Energy Supply



Strategy's Benchmark Indicators

A. Energy Efficiency Approaching	2015	2020	2025	2030	2035
GDP energy intensity (t.o.e. /'000 \$ ^{PPP 2005})	0,28	0,20	0,18	0,15	0,13
Losses share in electricity grids (%)	>12	10	9	8	<7,5
B. Expansion of the RES	2015	2020	2025	2030	2035
RES share in the Total Primary Energy Supply (%)	4	8*	12	17	25

* RES share in the final energy consumption is estimated 11% of the total final energy consumption in 2020.

Thank you for your attention!



*01015, Kyiv, Lavrska street 16,
Telephone: + 38 0442011198
Facsimile: + 38 0442011199
<http://www.razumkov.org.ua>*

*victor.logatskiy@razumkov.org.ua
victor.logatskiy@gmail.com*