

Future growth of the energy wind sector as part of a modern energy system in Romania

Modernising energy systems through ETS-based instruments Workshop

14 November 2018

Renewables in Romania

Renewable achievements and challenges to the date

Achievements



5 new GW installed in wind and solar capacities between 2009 and 2012

3 GW of wind energy is the only technology meeting the projections of the last Romanian energy strategy from 2007

8 B € invested private capital (highest investment in the energy sector)



New job competencies

*Constructions
Operation & Maintenance
Energy management*

Romanian skilled specialist working abroad for international investors

Challenges / barriers



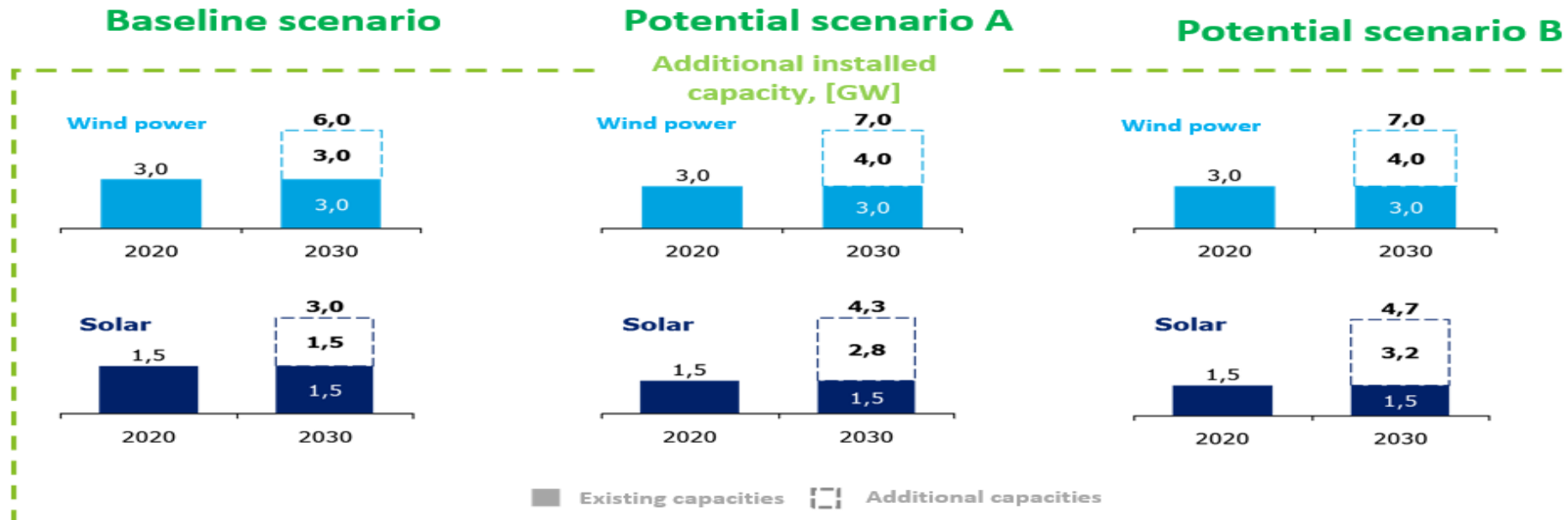
Significant reduction of incentives leading to a impairment of more than 30% percentage of the industry – time to recuperate investment is longer than 25 years – high costs of capital



Grid and market not fit for RES →
Costs for technical and commercial integration are high.

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2030 – possible scenarios for RES development



	2015	2030 Referință (32,5%)	2030 A (35%)	2030 B (35,5%)
Nuclear	1.305	1.975	1,305	1.975
RES	11.057	16.030	18,268	18.705
<i>Hidro</i>	6.616,0	6.842,8	6,842.8	6.842,8
<i>Eolian</i>	2.952,6	6.003,1	7,002	7.002
<i>Solar</i>	1.361,7	3.014,0	4,253.3	4.690,6
<i>Biomasă</i>	126,4	170,4	170.4	170,4
Combustibili solizi	5.276	3.212	3,212	2.318
Gaze naturale	3.644	3.500	3,500	3.500

- Old capacities reaching end of life
- Increase in energy demand
- Between 3 and 4 GW of additional wind energy by 2030
- Wind will reach grid parity by 2025 in Romania

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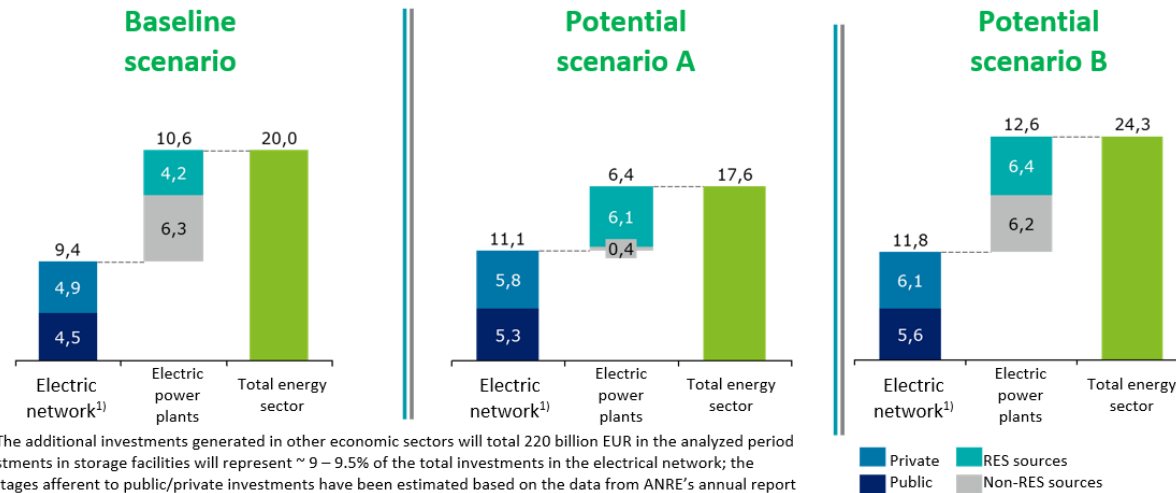
How do we integrate more wind?

- **Market Design and regional cooperation** – lower balancing costs even with a high share of RES
- **Grid expansion and increasing the level of interconnectivity**
- **Digitalization**
- **Aggregation** – wind and solar energy are complementary (daily and even seasonal)
- **Demand Side Management** – significant potential for increasing flexibility, untapped yet
- **Sector coupling (transport, H&C, industrial)** – Power-to-X – unlocks RES potential for a flexible energy system and paves the way for reaching decarbonization targets.
- **Storage** – massive cost reductions (50% in the last 3 years for Li-ion, about 25% for hydrogen based technologies) opening opportunities for electro-mobility and stationary applications

**Opportunities
to use the MF**

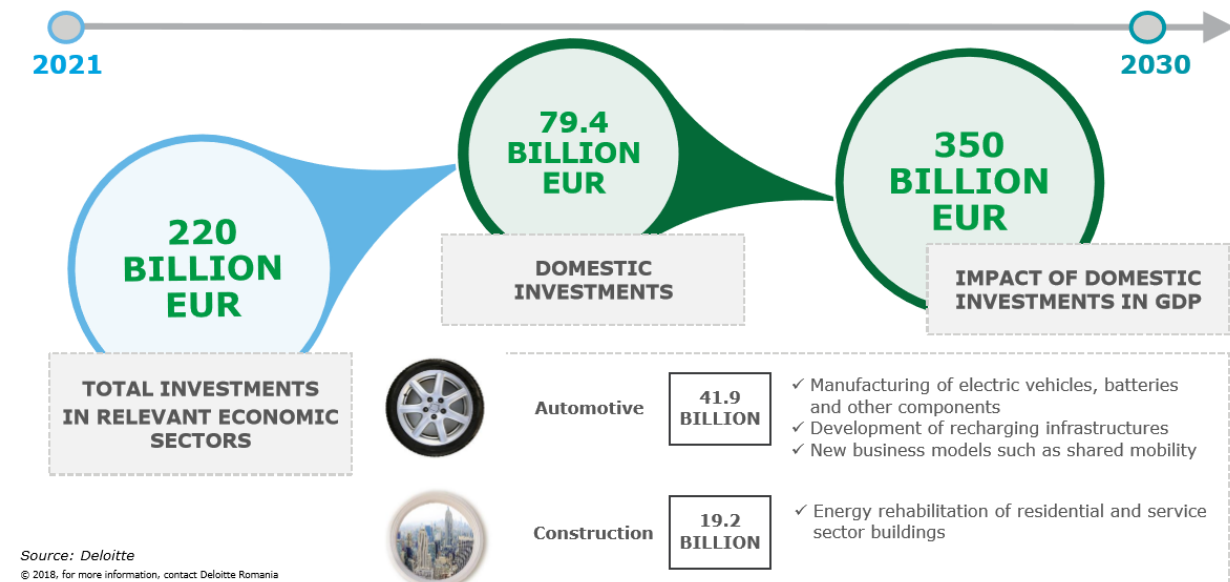


Investments and opportunities



Spillover effects of RES potential developments

Domestic investment in relevant economic sectors will generate an impact of 350 billion EUR in the Romanian Gross Domestic Product



- In order to achieve the EU's climate and energy objectives in 2030, an additional funding of 270 billion EUR per year is needed at European level, capital mainly derived from private investors.
- The share of estimated investments in Romania is about 10% of the EU estimates (24.5 billion EUR total investments in Romania per year, both in the energy sector and other economic sectors, with a RES share of 35.5%).

Source: RES in Romania: Roadmap to 2030 study, Deloitte for RWEA