



Energy storage as a key element for solar energy implementation

Blagoy Burdin

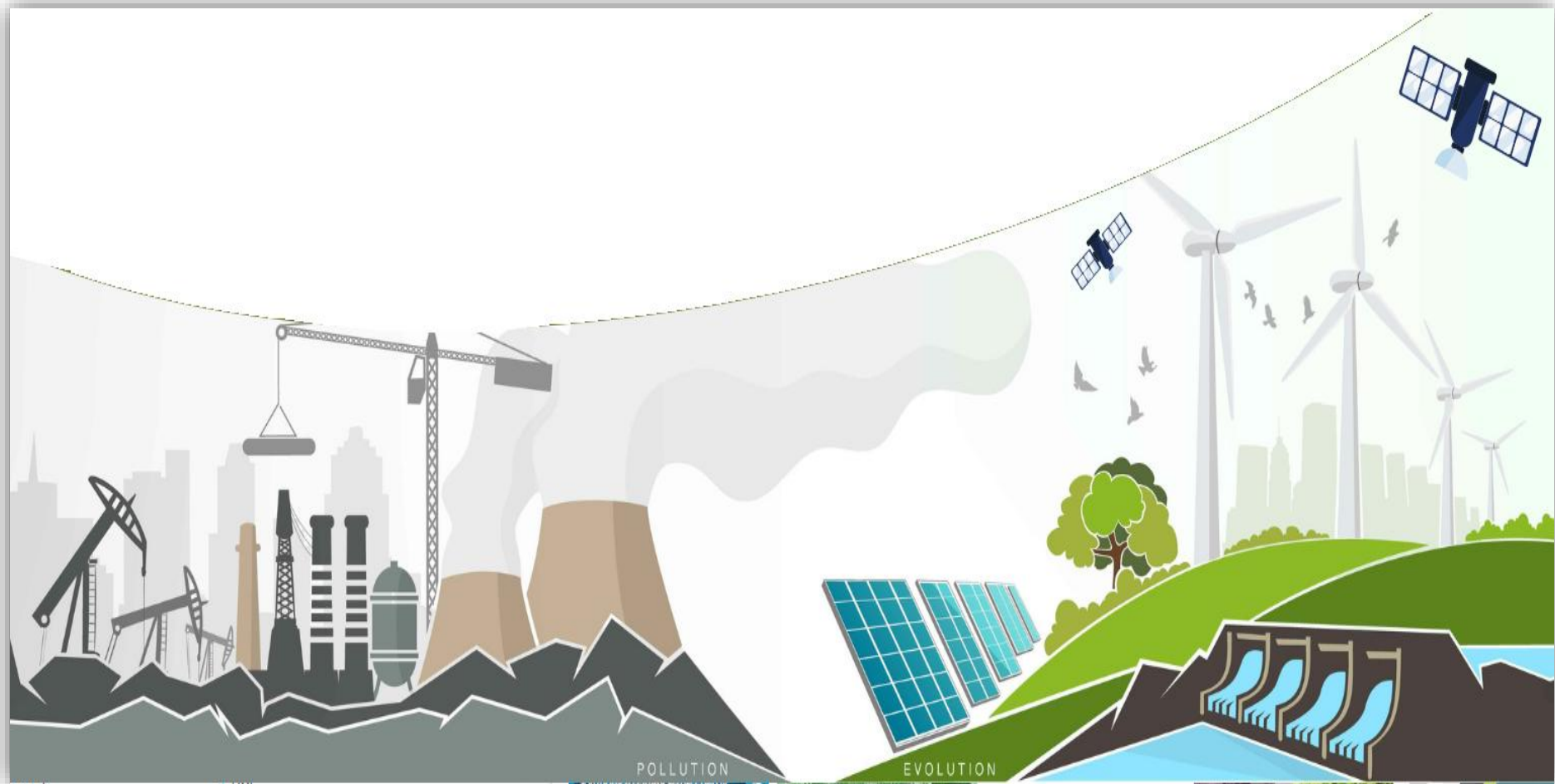
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Center of Competence HITMOBIL

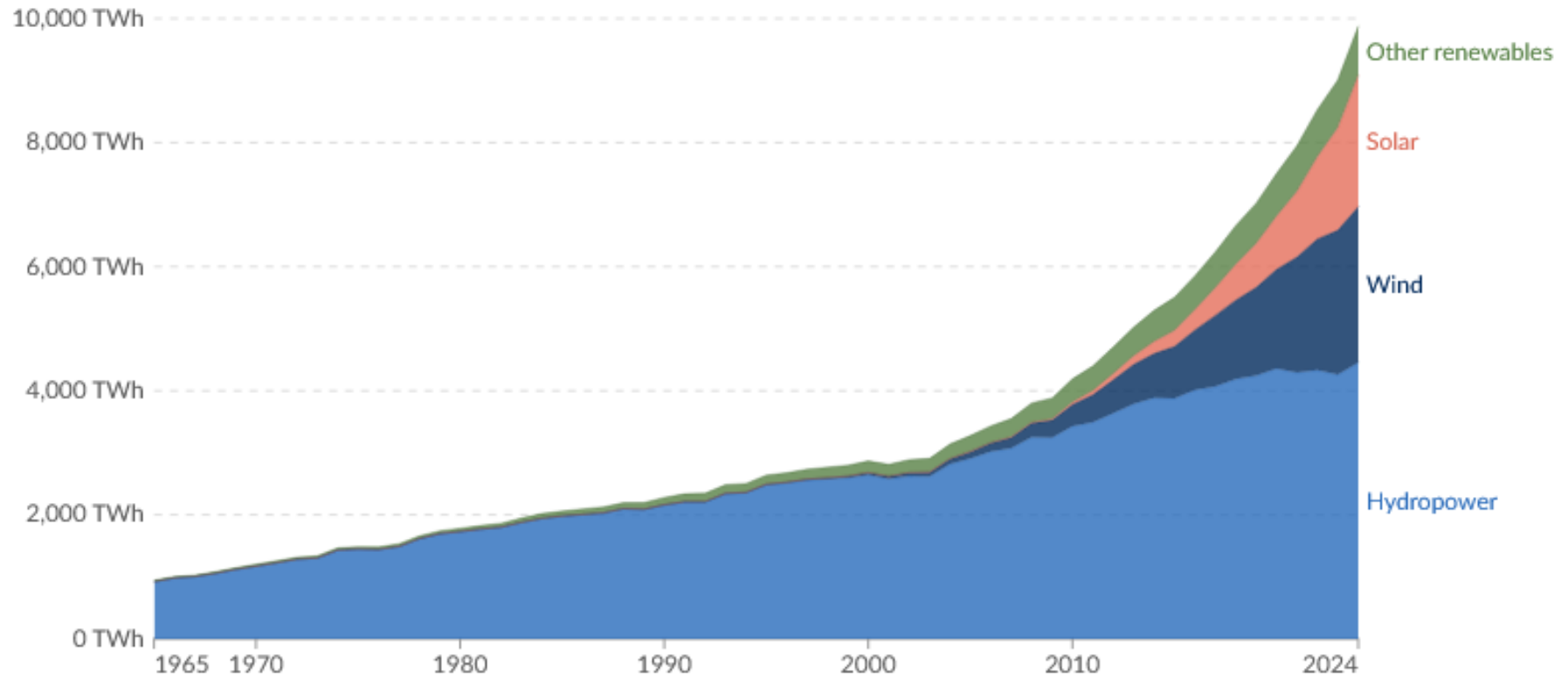
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EAGER - Study visit to Pazardzhik, 16 September 2026, Pazardzhik, Bulgaria

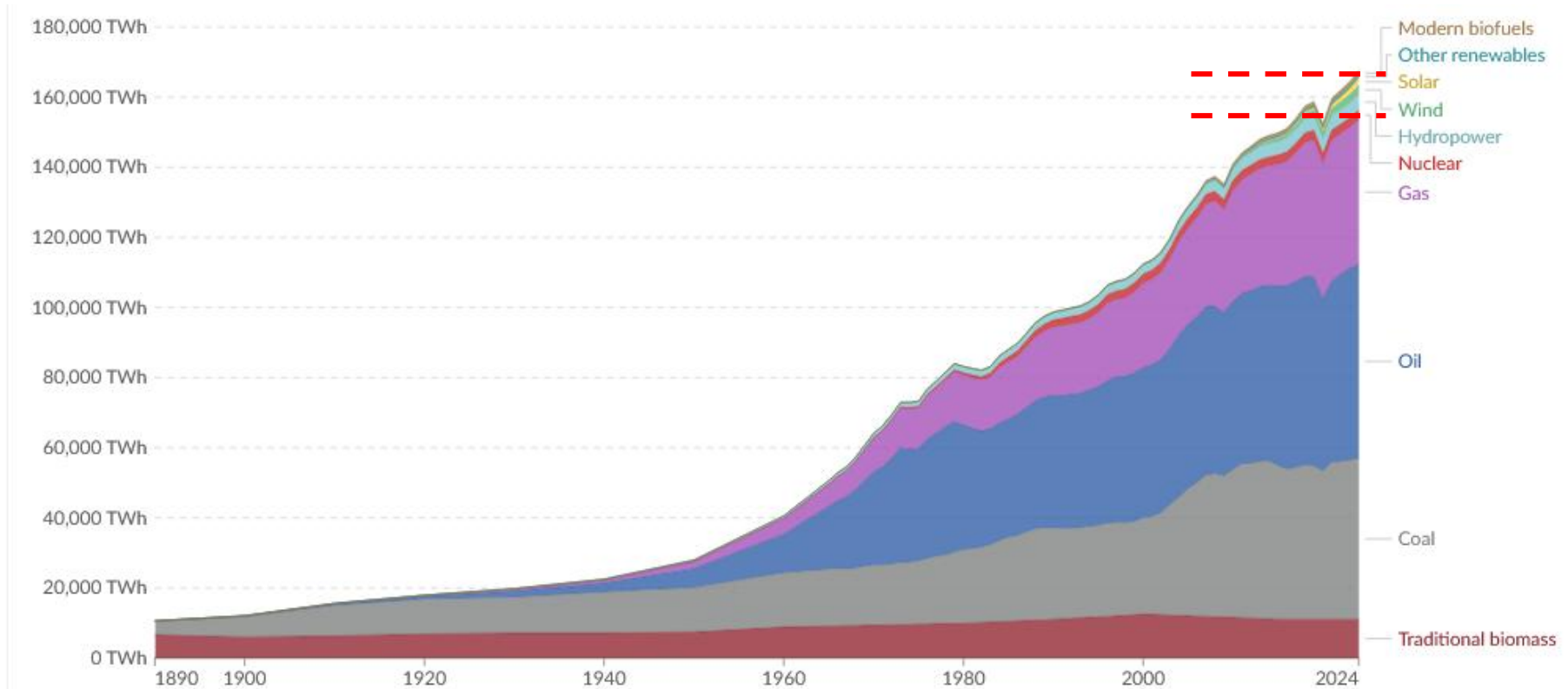
Ongoing energy transition



Global RES electricity generation



Global direct primary energy consumption

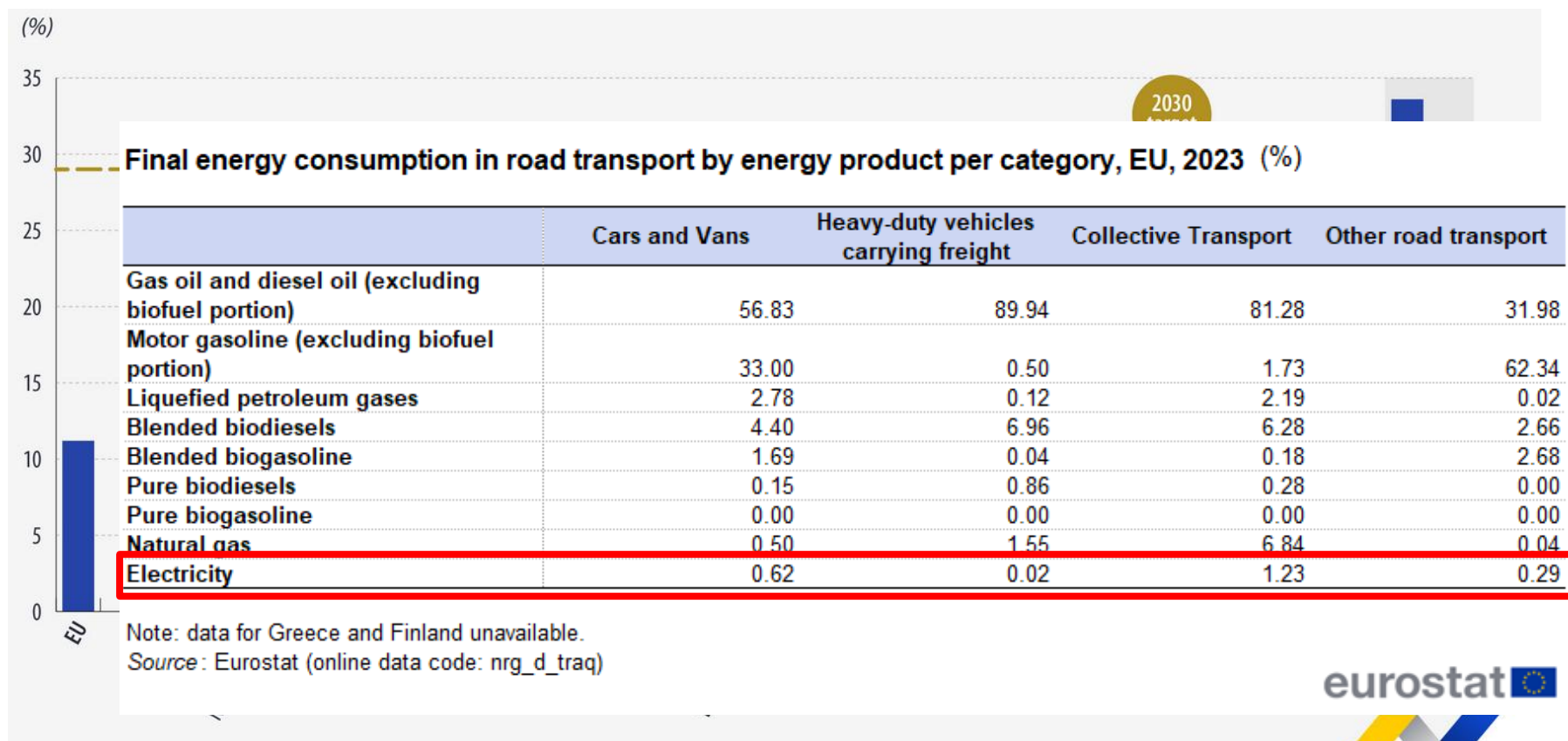


Data source: Energy Institute - Statistical Review of World Energy (2025); Smil (2017) – [Learn more about this data](#)

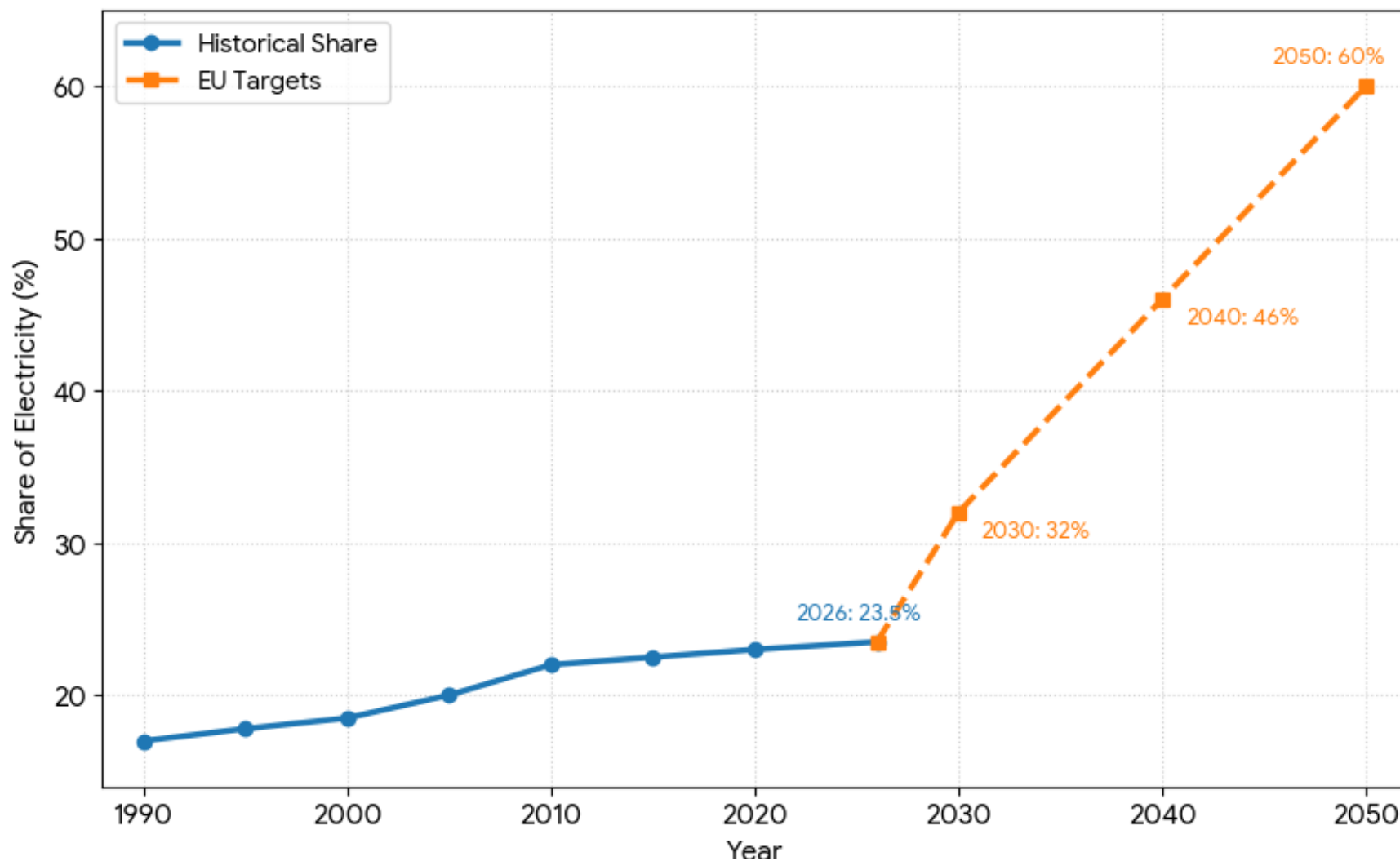
Note: In the absence of more recent data, traditional biomass is assumed constant since 2015.

OurWorldinData.org/energy | CC BY

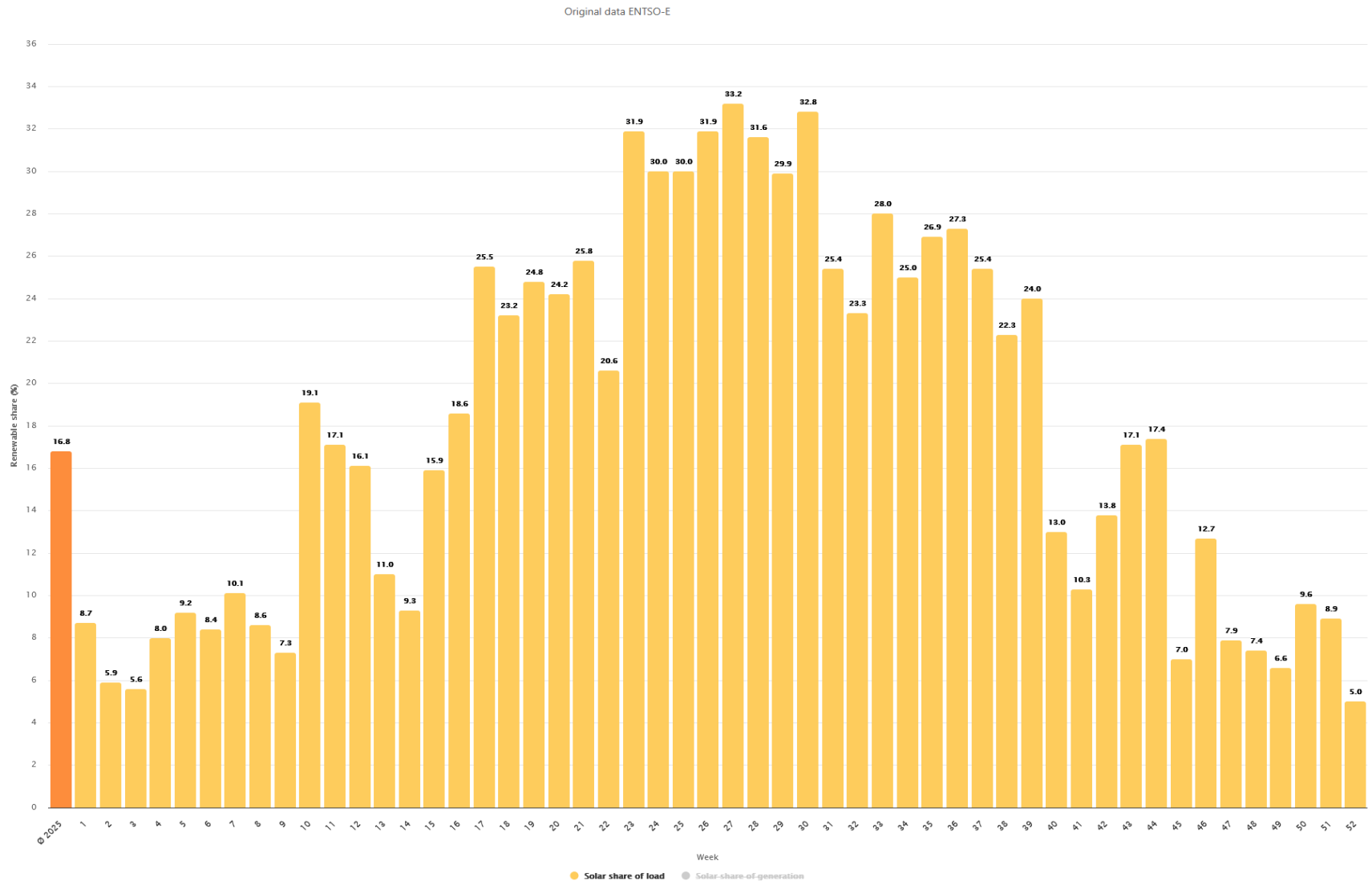
Europe's share of renewable energy in transport 2024



Electrification share in EU final energy consumption (1990-2050)

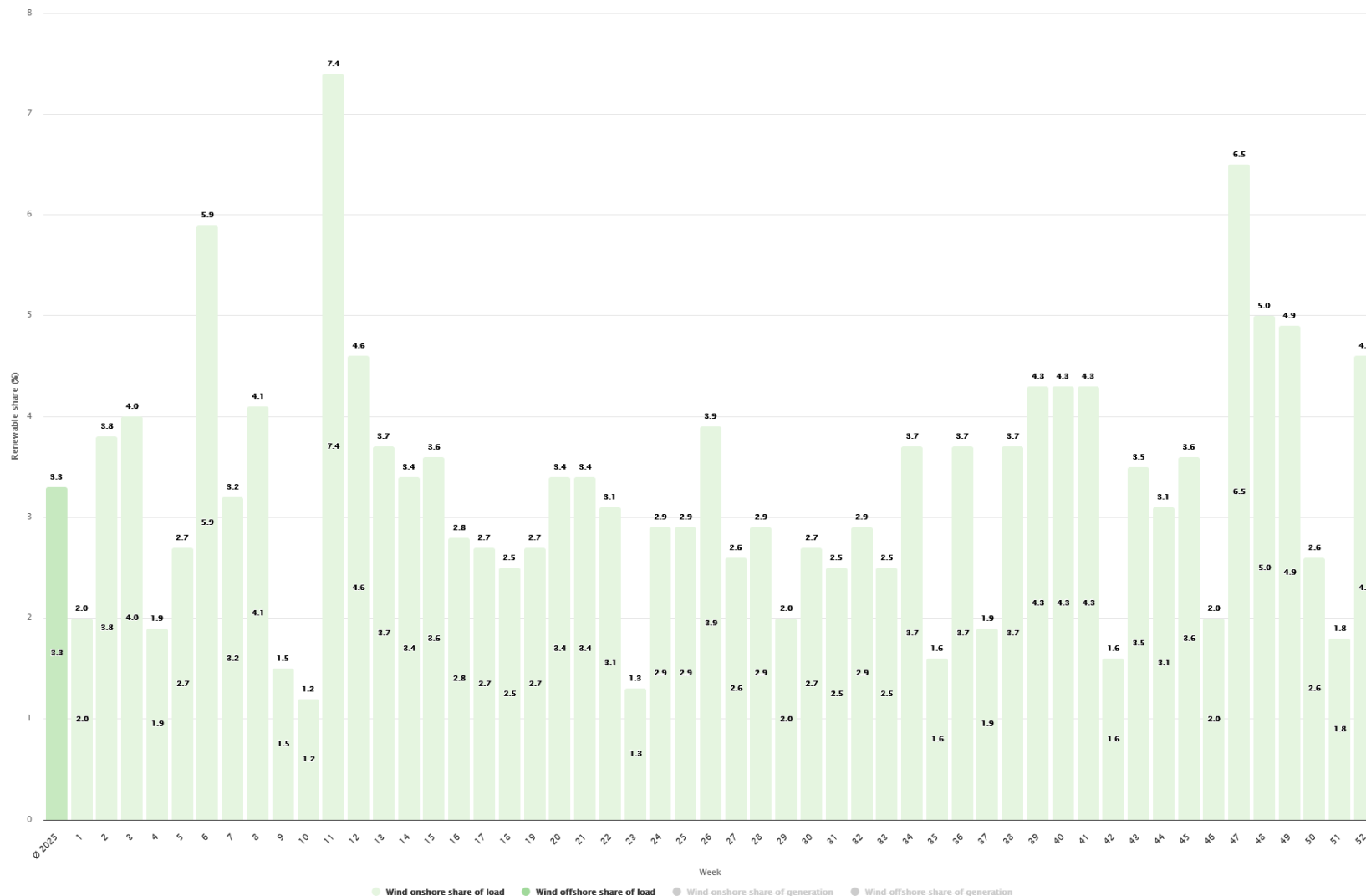


Weekly renewable share (**solar energy**) of public net electricity generation and load in Bulgaria in 2025



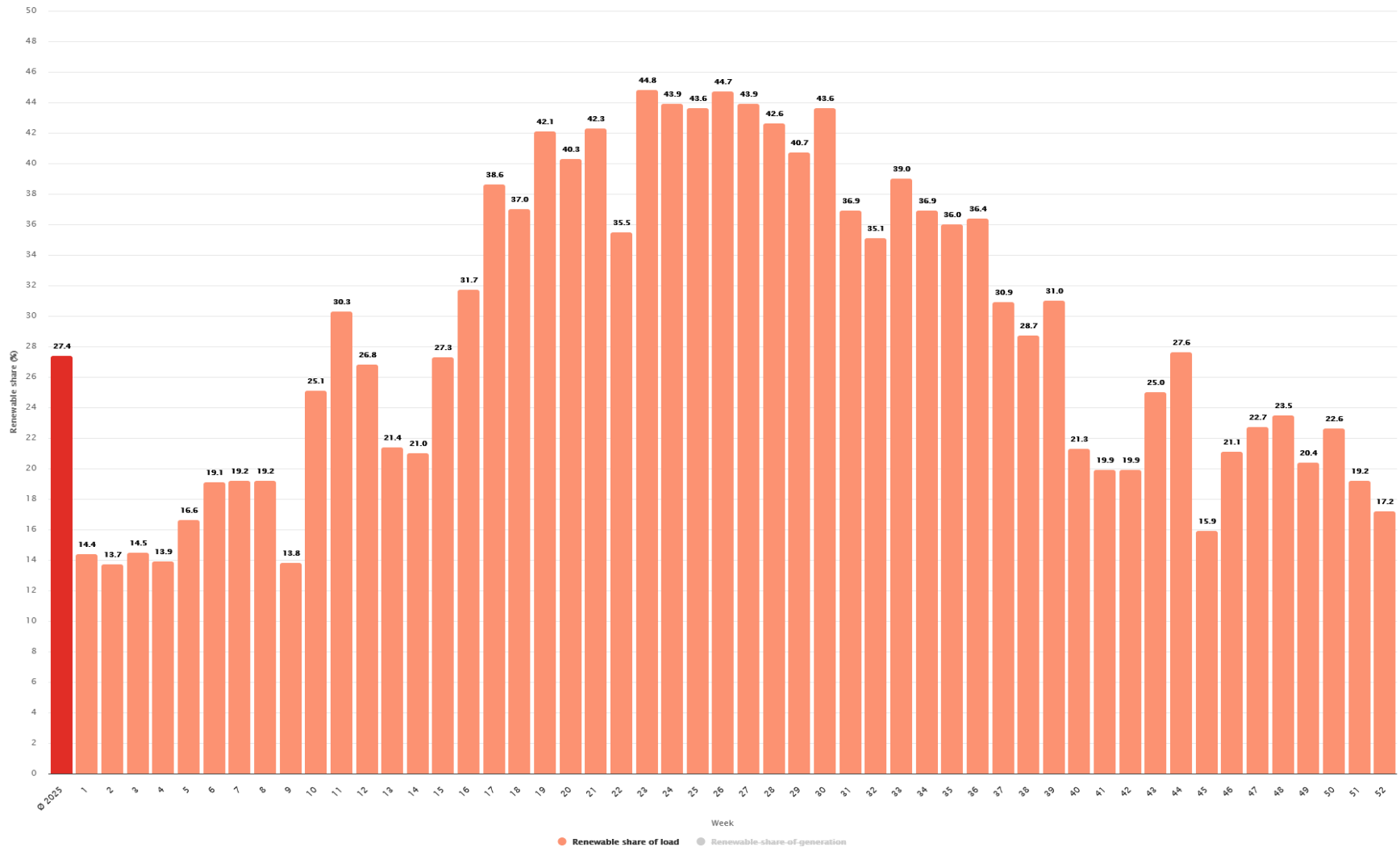
Weekly renewable share (**wind**) of public net electricity generation and load in Bulgaria in 2025

Original data ENTSO-E



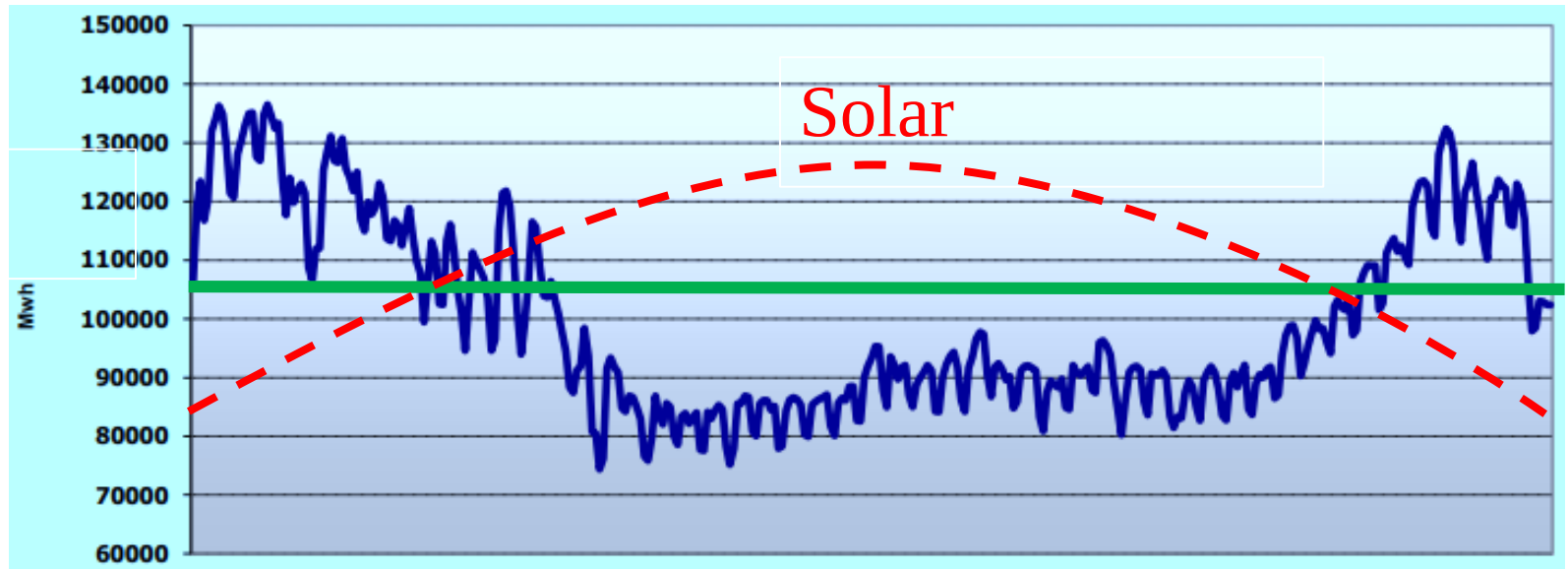
Weekly renewable (**wind + solar**) share of public net electricity generation and load in Bulgaria in 2025

Original data ENTSO-E

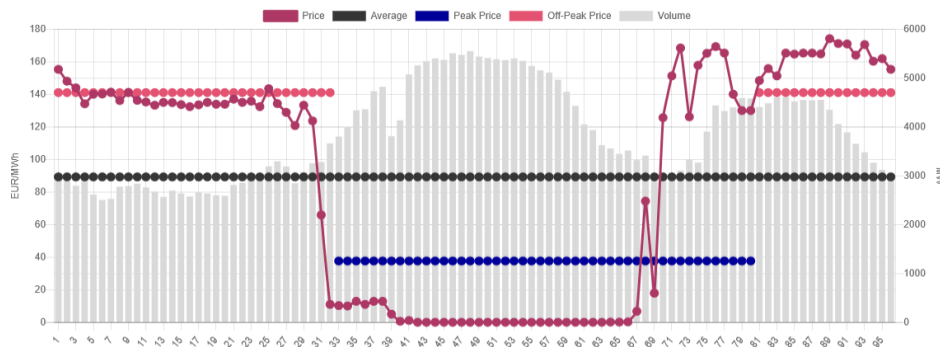


Gross electricity consumption in Bulgaria 2020

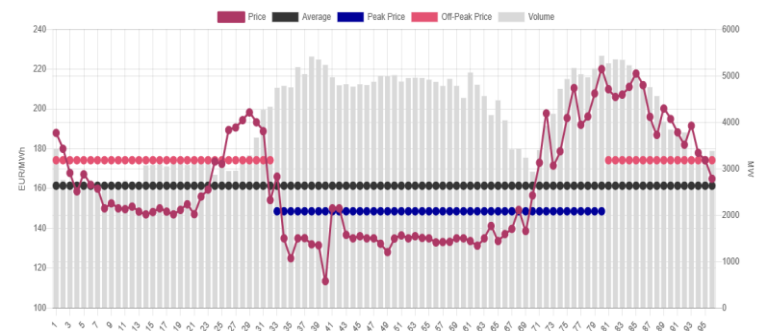
Solar
+
Wind



09.08.2026 (Sunday)



18.08.2026 (Tuesday)



➤ **Necessity of TWh-scale seasonal energy storage to ensure security of supply!**

CoC HITMOBIL Field Lab: “Integrated energy systems”



Photovoltaic power generation 250 kWp



Lithium battery energy storage system 744kWh



AC and DC charging stations



CoC HITMOBIL Field Lab: “Integrated energy systems”



PEM Electrolyzer 4 Nm³/h

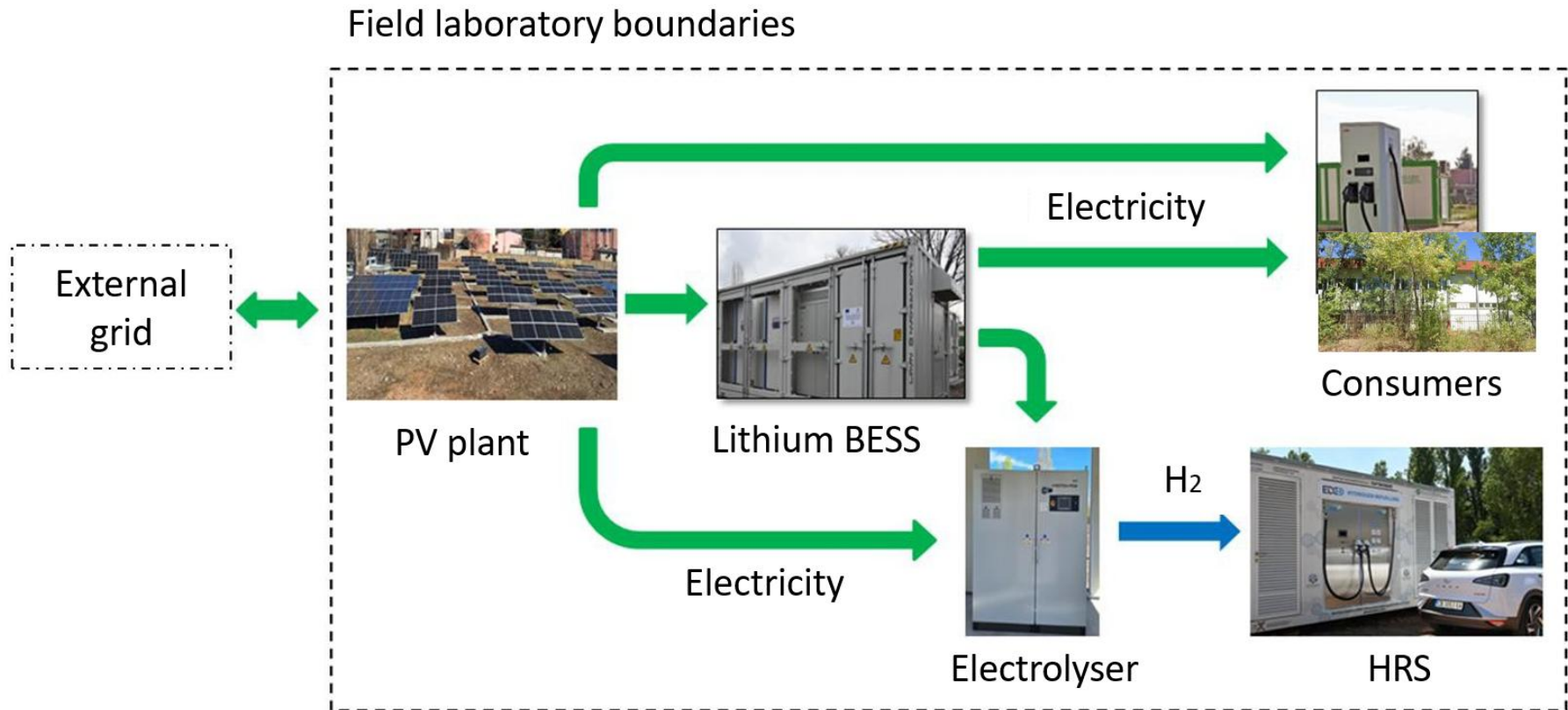


Hydrogen refueling station



Project № BG16RFPR002-1.014-0009, “Development and Sustainability of the Center of Competence HITMOBIL–Technologies and Systems for Generation, Storage, and Consumption of Clean Energy,” funded by the Program “Research, Innovations and Digitalization for Smart Transformation”, 2021–2027

CoC HITMOBIL Field Lab: “Integrated energy systems”



Conclusions

- Still have a low electrification and RES share in final energy consumption
- Heavy industry and transport still at the very beginning of their energy transition to electrification
- The goals for the next 30 years demand needs an unprecedented, record-breaking speed!
- Deep RES penetration needs TWh-scale storage, especially with a large solar share
- **At required scale we need to save land – agri-photovoltaics is a must-have solution**

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Thank you for your attention!

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