

A large, dark, circular tunnel with a bright white light at the far end, creating a strong sense of perspective and depth. The tunnel walls are made of dark, textured material, possibly concrete or stone, with some yellowish-brown spots.

**ACCELERATED COAL PHASE-OUT IN  
THE CEE REGION – THE CASE OF  
BULGARIA, GREECE AND ROMANIA**

**László Szabó**

director  
REKK

*Budapest*

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Photo by: Zoltan Tasi

# Introduction

- **Research question:** How to implement a timely phase-out of lignite (and coal) in these Bulgaria, Greece and Romania?
- **Methodology:** Scenario modelling the early retirement of some coal and all lignite power plants in the electricity sector in the three assessed countries. Model: REKK European Power Market Model (EPMM) plus TU Wien Green-X model.
- **Results:** Impact on electricity systems and local economy + Policy recommendations to deal with potential issues related to compensation, system security and local economic impacts

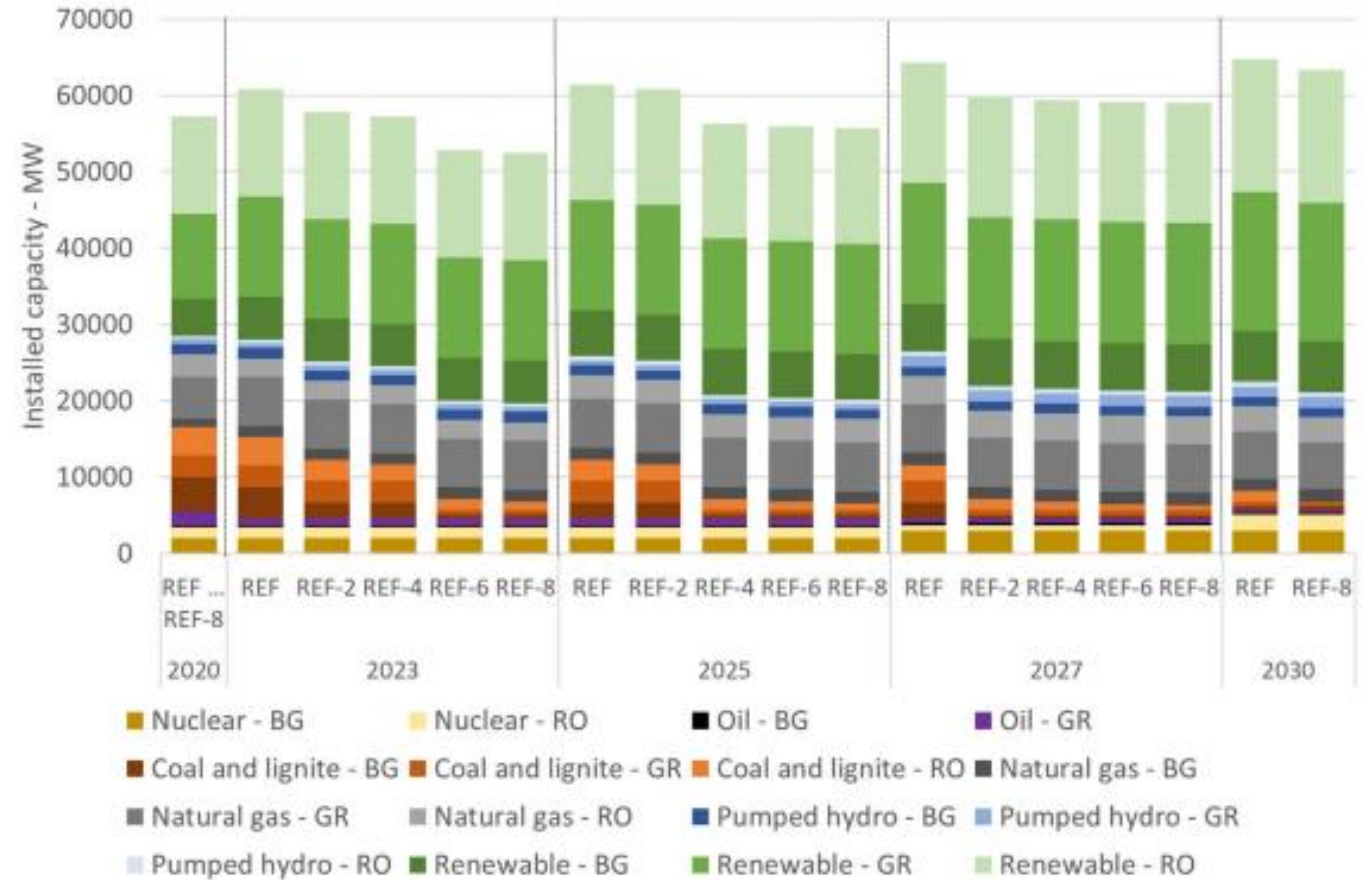
- **Partners:**



- Financing: European Climate Fundation (grant no: G1909 – 59628 (2019-2020))

# Accelerated lignite exit in BG, GR and RO – lessons learnt from a recent REKK assessment

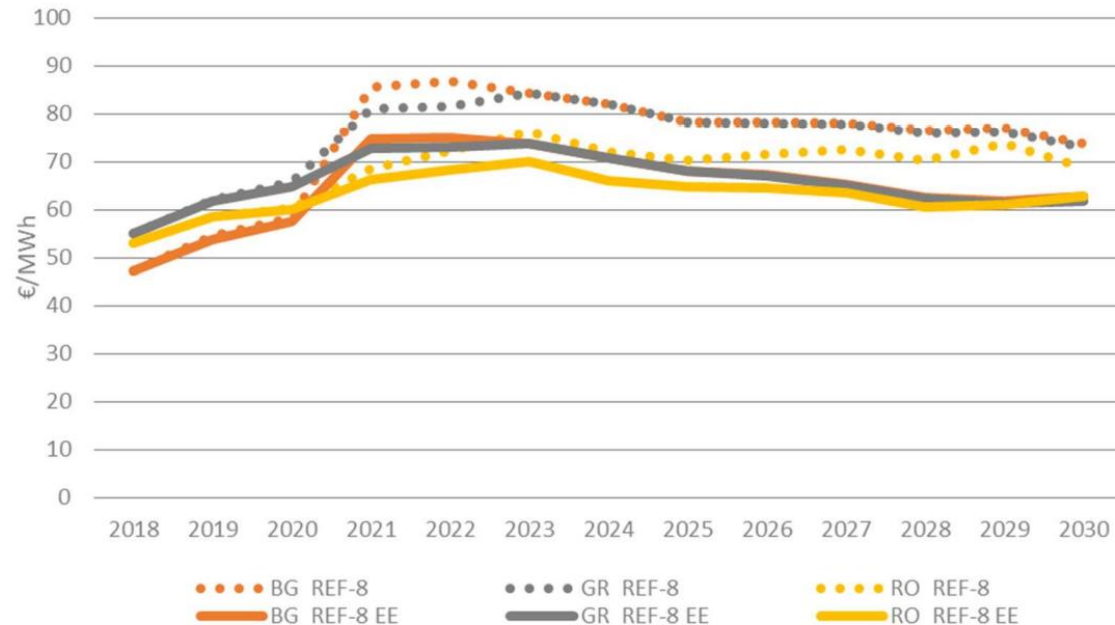
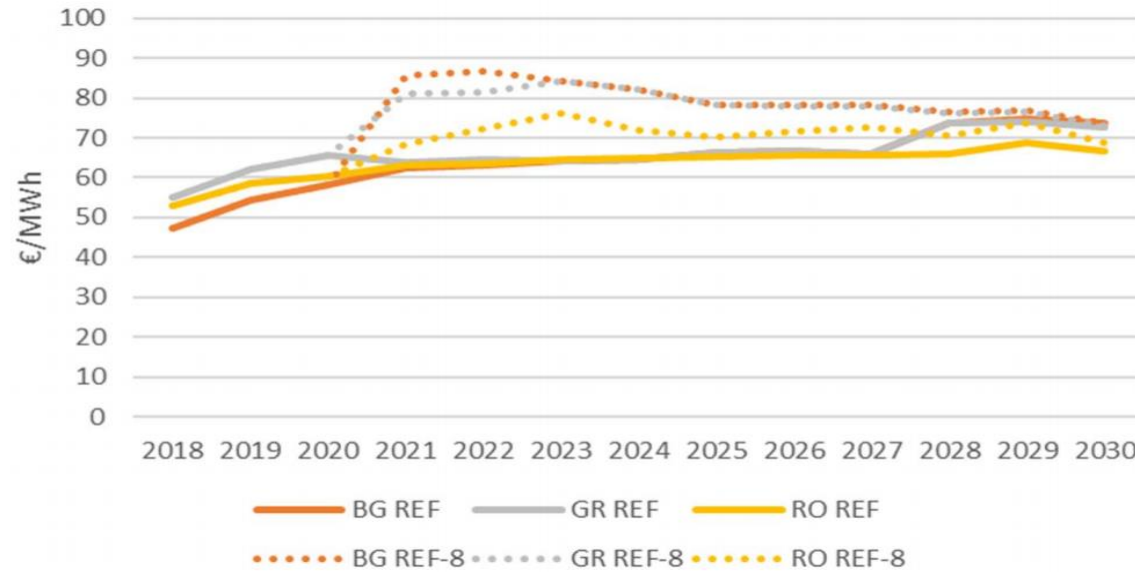
- **1+4 scenarios:**
  - **Reference** - with the closing date according to the latest available information
  - **Early phase-out scenarios:** they close 2, 4, 6 or 8 years earlier than in the Reference
  
- **3 sensitivities:**
  - lower RES pathway
  - impact of the carbon price (a lower and a higher CO<sub>2</sub> price trajectory)
  - impact of a lower electricity demand trajectory



Source: Accelerated lignite exit in Bulgaria, Greece and Romania  
<https://rekk.hu/>

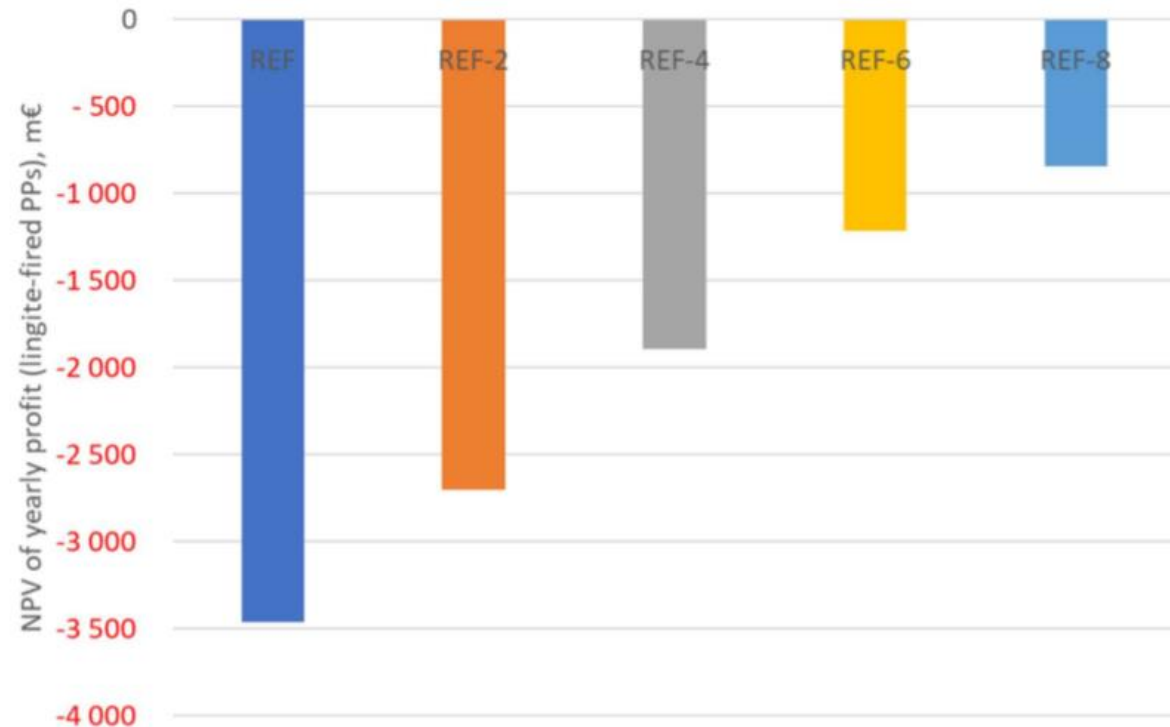
# Impacts on wholesale electricity prices

- The wholesale price impact of earlier phase-out can be significant, albeit **temporary**: up to 25 €/MWh in the strongest scenario, over 4-6 years
- Price impact can be reduced significantly if **energy efficiency** measures are introduced – below 15 €/MWh
- Higher **RES deployment** can also help to reduce the temporary price increase.
- Also **gas based generation** plays a role in the transition period.
- If **all measures** apply it can reduce price effects to 1-5 €/MWh



# Profitability of lignite plants

- Annual economic losses of lignite plants are higher if phase-out happens later. **Early phase-out can reduce aggregate losses** as some unprofitable plants are closed and utilisation rates (and thereby profitability) of remaining plants increase.
- As most lignite producers operate with some sort of government support, either explicit or through implicit support regimes, a decrease in profit losses in power plants translates into cost reductions for all the society. Advancing the closure of these plants would mean this **support can be reduced significantly**.
- Without support, the plants would most probably close without any further policy intervention, on a purely economic basis.
- Information on current state subsidy levels is not fully available, but is estimated at EUR 450 million in Bulgaria, at close to EUR 900 million in Greece, and EUR 200 million in Romania per year. These **avoided expenses could be used to invest in renewable energy, energy efficiency** or for the protection of vulnerable consumers.



# Greece NECP highlights

- Greece announced its new coal phase-out timeline in the NECP:
- Milestones:
  - Public Power Corporation (PPC) closes 80% of its lignite plant by 2023
  - The last unit (Ptolemaida V) will operate between 2022-2028 and then switches to alternative fuel
  - Replace outgoing lignite capacities by solar power (2.3 GW) in the same West Macedonia region
- This timeline roughly equals the 6 and 8 years accelerated lignite exit scenarios of the assessed scenarios

**Thank you for your attention!**

**Phase-out study available at:**

**<https://rekk.hu/analysis-details/283/accelerated-lignite-exit-in-bulgaria-romania-and-greece>**

**László Szabó**

laszlo.szabo@rekk.hu

www.rekk.hu