Council of the
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ENER 152

INFORMATION NOTE

From:	General Secretariat of the Council
To:	Council
Subject:	Any other business The need for an EU electricity grid capable of sustaining and accelerating the green transition - Information from the Greek delegation

In view of the Transport, Telecommunications and Energy Council on 28 March, delegations will find in Annex an information note from the Greek delegation.

ANNEX

EL Non paper on European Grids

Electricity networks are the backbone of the clean energy economy. Modern grids will drive the growth of renewable energy, and they are needed to support the electrification of the building, transport, and industrial sectors. Yet investment in grids is below what is needed for a net zero energy system. The International Energy Agency estimates that global investments in grids must more than double by 2030 (relative to the average in 2017-2021).[1]

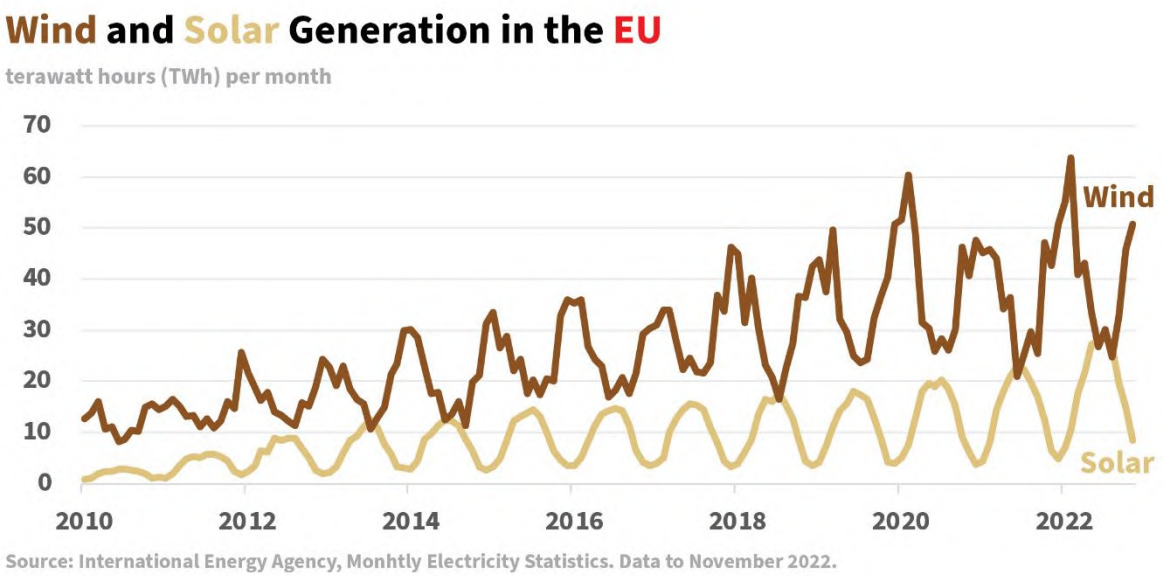
Securing a grid connection, moreover, is now a major bottleneck for renewable energy deployment. BloombergNEF estimates that there are almost 600 GW of solar and wind capacity awaiting for a grid connection in just four countries alone (in order, the United Kingdom, Spain, Italy, and France).[2] In the United States that number is 900 GW.

ENTSOE, in its 2022 Ten Year Network Development Plan (TYNDP), notes the great potential of cross-border interconnections in Europe to lower the amount of curtailed electricity, reduce generation costs, and led to less gas use and CO_2 emissions. Specifically, it writes that, "Between 2025 and 2030, the study finds that 64 GW of additional capacity on over 50 borders would be economically efficient, a 55 % increase over the 2025 grid."[3]

Given these challenges, it is imperative to redouble our efforts to expand and strengthen Europe's electricity grid. An initiative focused on the grid should have four pillars.

North-South Corridors. There is significant complementarity between solar and wind output on a season basis. Put simply, wind produces more electricity in the winter, and solar produces more electricity in the summer. And while there is solar production in Northern Europe, and wind production in Southern Europe, there is a strong rationale in connecting the windy north with the sunny south. Enhancing North-South electricity flows is probably one of the most significant drivers of energy security and the energy transition in Europe.

[1] International Energy Agency, World Energy Outlook 2022, https://www.iea.org/reports/world-energy-outlook-2022.
[2] BloombergNEF, "New Energy Outlook: Grids," Published March 2, 2023 (available by subscription).
[3] ENTSOE, System Needs Study, Version for ACER opinion, January 2023, https://needs.entsoe.eu/.



Focus on the Western Balkans. Increased cross-border connections are needed throughout Europe as a means to lower costs, to make the system more resilient and to enable the further development of renewable energy. One major gap in the European grid is the area of the Western Balkans (see map in the appendix). The Western Balkans is also a region where several countries still rely on coal for their generation, and where solar and wind capacity was just 1 GW in 2021.[4]

The European Union should have a focused initiative to upgrade the grid in the Western Balkans in order to (a) expedite the transition in the region, (a) enable the generation of renewable energy in countries like Greece, Bulgaria, Romania, etc. by increasing their ability to send electricity to the rest of Europe, and (c) facilitate the importation of electricity from the Eastern Mediterranean and from Egypt and the broader North Africa region into Southern Europe and, from there, into Central Europe where it is most needed.

Faster permitting. Council Regulation (EU) 2022/2577 of 22 December 2022 simplified the permitting for renewable energy projects. But the Regulation did not cover grids, specifying only investments needed to connect renewable projects to the grid. Expanding the provision to the grid more broadly could provide an added impetus to network development.

[4] IRENA, Renewable Capacity Statistics 2022, https://www.irena.org/publications/2022/Apr/Renewable-Capacity-Statistics-2022.

Investment facility. There are a number of programs that can provide funding to grids (e.g. Connecting Europe Facility, the European Investment Bank, etc.). But these are scattered, and the amounts necessary are far above what Europe has been spending so far. Additional resources are clearly needed. Most likely, existing programs can be streamlined and centralized, creating a "European Grid Facility" to supercharge investments in European grids, especially focused on those investments that are most needed and where a broader pan-European argument for investment is strongest.

A modern, expanded and digitalized European grid is the greatest enabler of the energy transition. Europe needs a more focused initiative on grids in order to allow each member state to fully develop its own resources and to ensure that cross border flows enhance security of supply and resilience and deliver lower costs.

Appendix

The map shows (in bubble) the gap between expected expansions to the grid by 2030 and what is truly needed (economically efficient) according the modeling done by ENSTOE.

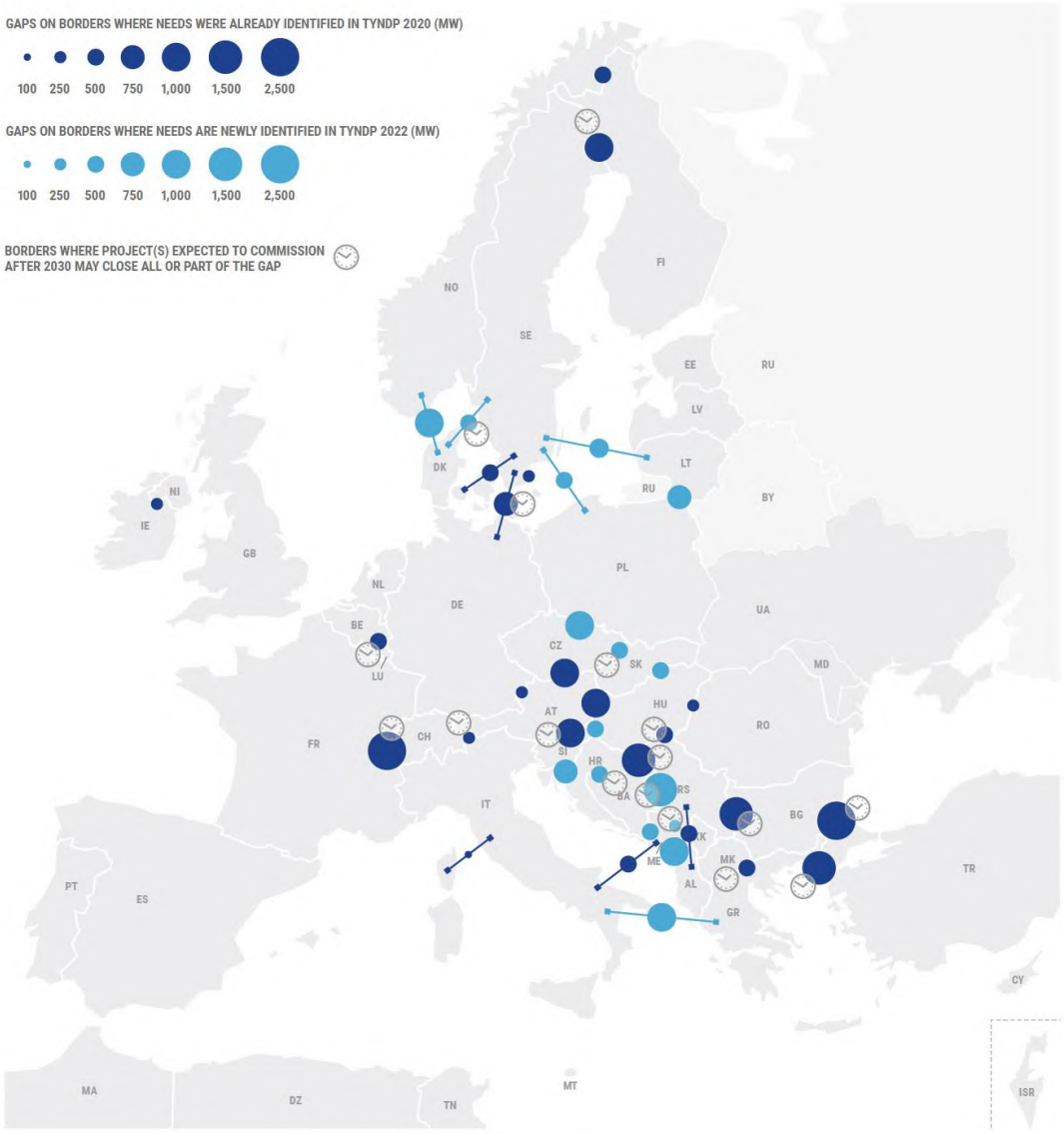


Figure 1.8 – Investment gaps in 2030. Circles represent the difference between the TYNDP 2022 electricity cross-border projects currently being developed with a commissioning date after 2025 and until 2030, and the identified needs in 2030. Clocks indicate where a project(s) is in the pipeline but foreseen to commission after 2030.