Chart of the Week #2025-22
The April 2025 Iberian Peninsula Power Failure: An Overview with Considerations

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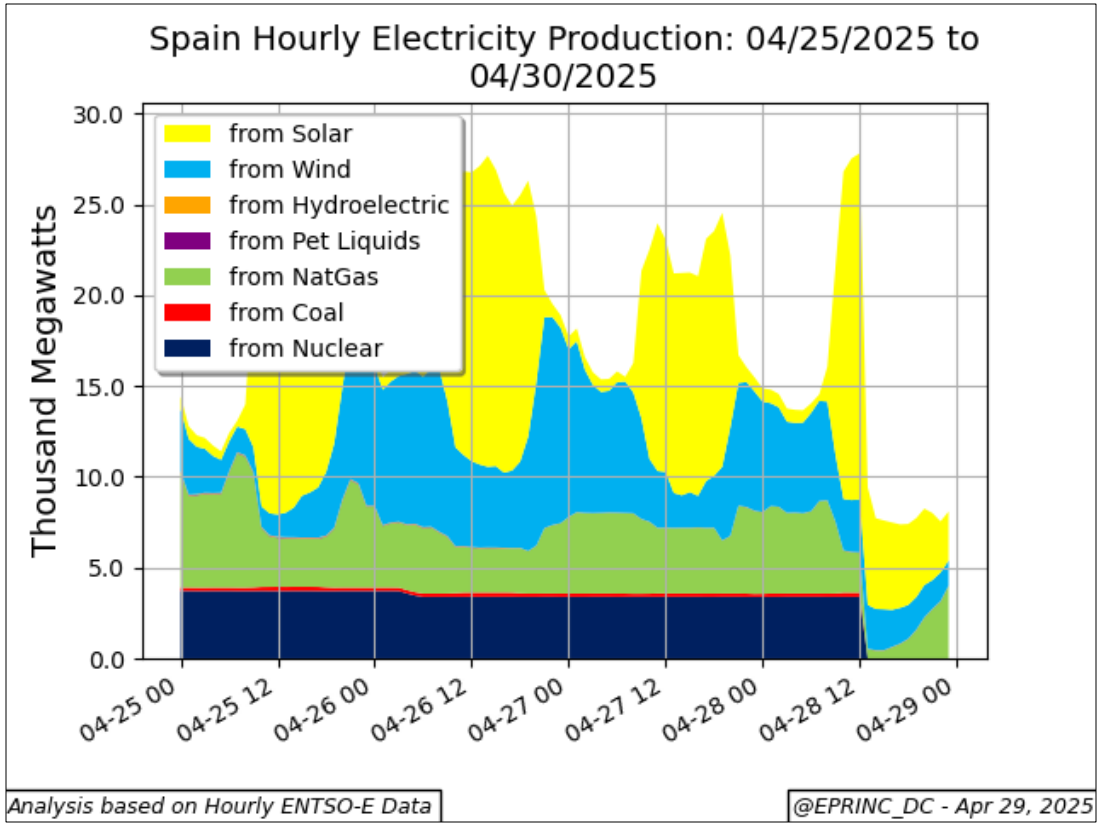
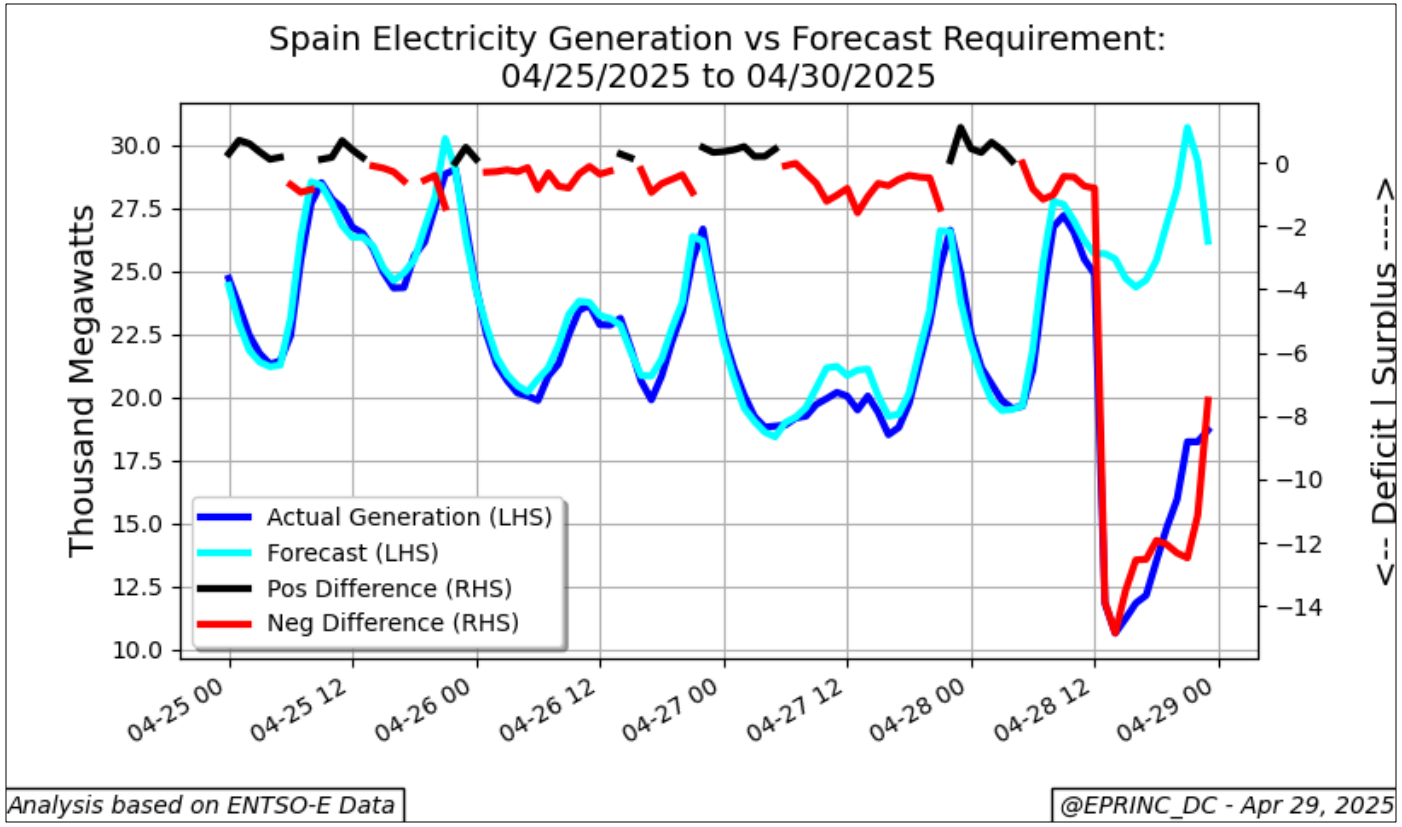
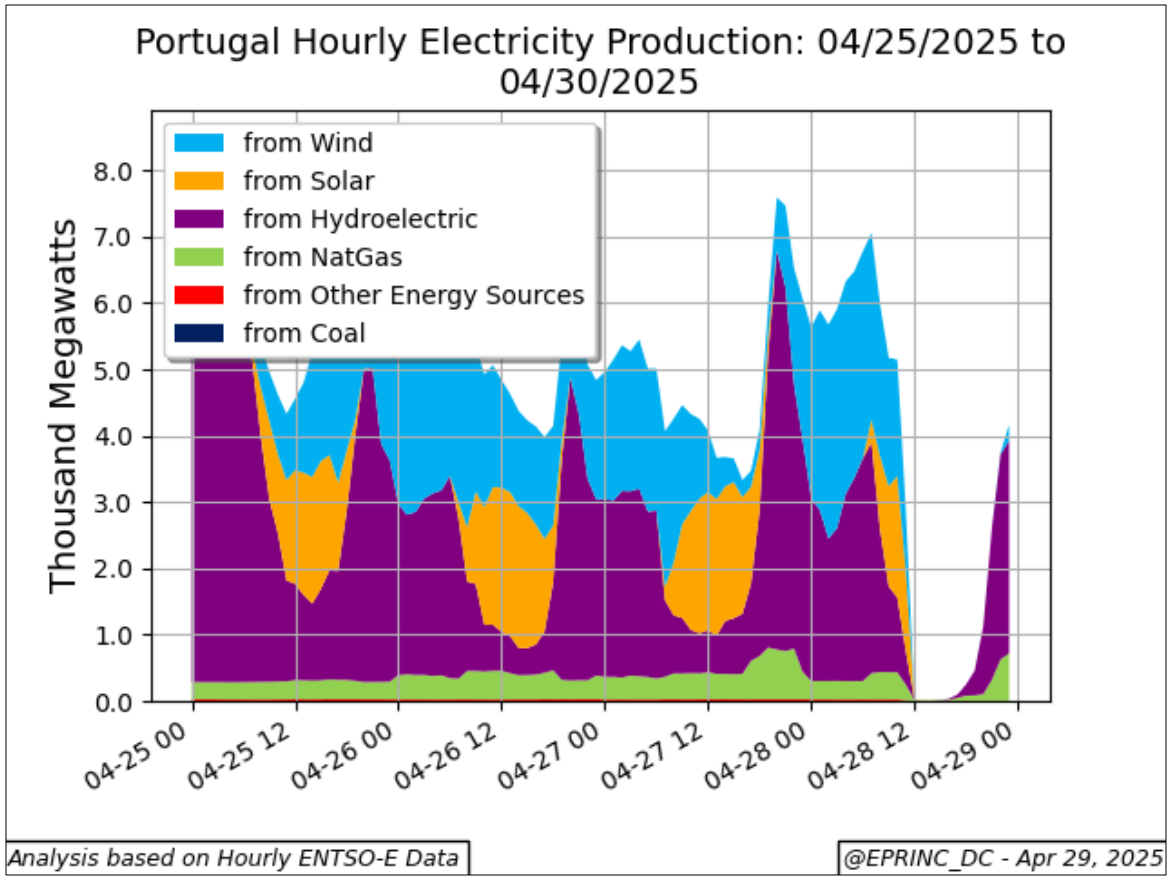
Washington, DC

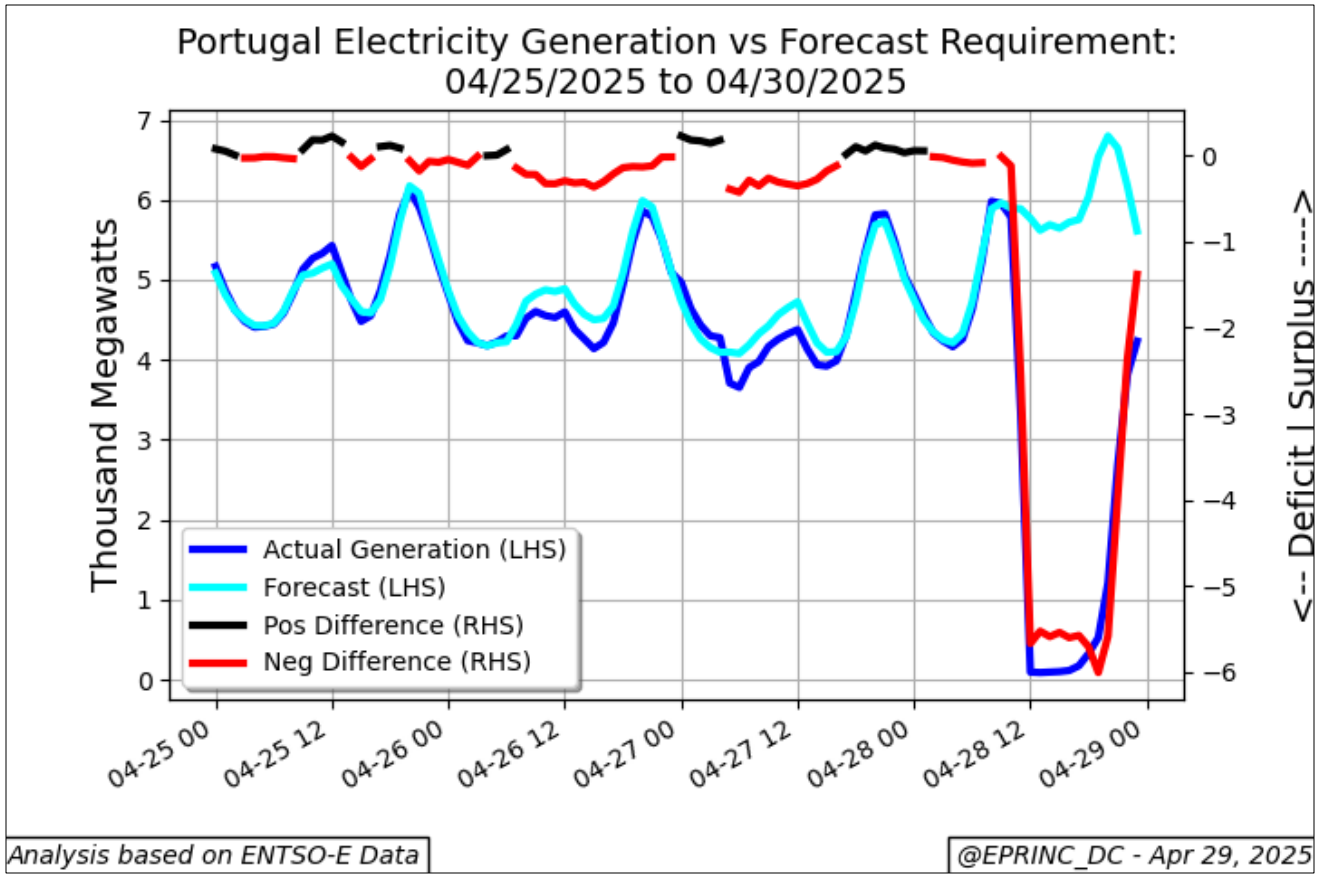
The April 2025 Iberian Peninsula Power Failure: Spain





The April 2025 Iberian Peninsula Power Failure: Portugal





The April 2025 Iberian Peninsula Power Failure: Overview and Some Considerations

Energy Policy Research Foundation

- **Shortly after noon on April 28, 2025, the countries of the Iberian Peninsula (Spain and Portugal) suffered a massive power blackout. Of a total projected midday demand of 35 GWs, 20 GWs was taken offline. In the prior thirty days, intermittent sources (solar and wind) were providing an average of almost 60% of electricity between noon and 6pm. No root cause has been determined with investigations continuing. But an imbalance in system frequency (the need to generate power equal to demand/load requirements) is assumed to be the primary suspect where there was a sudden drop in intermittent sources with no dispatchable capacity available to match the shortfall in reserve.**
- **Full power to the peninsula was restored by 2am the following day, fourteen hours after the blackout started. Seven deaths are attributed to the power outage. Various estimates of economic impairment were assessed, notably with Reuters citing investment bank RBC that the economic cost could range between 2.25 billion euros ($2.56 billion) and 4.5 billion euros ($5.11 billion), equating to 0.11% to 0.3% of the country's 2024 GDP of $1.72 trillion.**
- **Similar to the Iberian countries, California and Texas, the two largest U.S. states by population, are dependent on intermittent power. In the thirty days prior to April 28th during midday, both states generated 60% of their requirements from wind and solar during midday. However, unlike Spain where there is only 25 MWs of utility-scale battery storage, California and Texas currently have 9.9 and 4.8 GWs, respectively. This allows battery storage systems to not only store surplus solar or wind generation during midday for generation during nightfall, but also to maintain system frequency." (For additional information, please see EPRINC COW 2024-44 — U.S. Utility-Scale Battery Storage Systems Developments).**
- **This slide deck is available at: https://eprinc.org/chart-of-the-week/**
- **For more information on this chart, please contact Max Pyziur (maxp@eprinc.org).**