



Law

## Feedback from: Ember

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The power sector is key to delivering a net-zero energy system, as electrification (direct or indirect) drives emissions reductions. As the Commission correctly acknowledges in this roadmap, huge infrastructure investment will be required to enable this low-carbon revolution. Given the long timescales involved, it is crucial these projects are guided by robust, impartial evidence.

1) Infrastructure should anticipate an immediate and accelerating decline in fossil energy

The 4th PCI list should be the last to include fossil gas projects. A recent review of EU energy pathways [1] towards net-zero by 2050 found unanimous agreement across all pathways that fossil gas consumption decreases by 2030, and “dramatically decreases” by 2050.

Furthermore, it has been shown that the EU’s current fossil gas infrastructure is not only sufficient to cope with future demand, but resilient enough to maintain security of supply in the event of extreme supply disruption [2]. Investment in new fossil gas projects would therefore represent a catastrophic misdirection of public and private funds, at a time when investment in renewable energy and grid infrastructure is below what is needed.

Europe will eventually need large scale Hydrogen infrastructure. However, the efficiency, maturity, and supply of sustainable Hydrogen is currently limited. Projects should be prioritised in regions that have both high potential for large scale Hydrogen production from renewable electricity, and large potential offtakers in hard-to-decarbonise services and sectors. Repurposing existing gas infrastructure should be prioritised under the same conditions.

There is evidence that CO2 storage capacity will be needed as early as 2030. However, this should also be concentrated on difficult-to-decarbonise industries, as net-zero pathways do not show significant need for CCS in the power sector before 2050.

2) Increasing the share of RES in the power sector must be a priority

RES capacity must increase 2-3 fold to meet the EU target of at least a 50% reduction in CO2 emissions by 2030 [1]. Deployment of energy storage will be essential to maintain security of supply in a system that relies this heavily on variable RES. Batteries will be increasingly important, as well as smart grid technologies and demand side response. However, battery projects struggle to attract finance due to weak business cases and outdated regulation [3].

Despite this pressing need for flexibility, the 4th PCI list includes only 6 smart grid projects, and no battery storage (only pumped hydro and compressed air). It seems the current PCI criteria under-value the contribution of grid flexibility to security of supply, indicating a bias towards a supply-side paradigm.

PCIs should also address the differing deployment rates of RES across Europe. The roadmap rightly highlights the need for improved offshore grid infrastructure, crucial for north and west Europe. However, analysis of NECPs reveals the RES ambition gap is largest in CEE and SEE, suggesting this is where the real challenge lies.

Regarding interconnection with third countries, Ember research [4] has highlighted the risk of carbon leakage if this is not done in unison with a border carbon adjustment.

### 3) Ensure Independent and transparent infrastructure governance

The responsibility for writing the TYNDP should be expanded beyond the two ENTSOs. This will reduce conflicts of interest, and help rebalance scenarios towards demand-side and non-infrastructure solutions. The need for new infrastructure should be assessed against realistic predictions for future energy demand, which may be subject to significant downward revision as the efficiency first principle emerges as a central element to the EU's green recovery.

[1] Tsiropoulos et al. (2020)

[2] Artelys (2020)

[3] EU pubs (2020): Study on energy storage- Contribution to the security of the electricity supply in Europe

[4] Ember: The Path of Least Resistance

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