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To
Editorial Board of IOP Environmental Research Letters

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Justification statement for manuscript submission

Dear Prof. Kammen

In the following, we provide brief justification statements accompanying our manuscript titled «*The role of Projects of Common Interest in reaching Europe's energy policy targets*».

1. Key results and findings

- Investing in Projects of Common and Mutual Interest (PCI-PMI) boosts net social welfare and accelerates decarbonisation of hard-to-abate sectors.
- However, potential delays in hydrogen and CO₂ infrastructure commissioning can cause substantial economic regrets, adding up to €24.2 billion in annual costs.
- We identify pipeline candidates beyond the current PCI-PMI projects that have the potential to unlock additional welfare gains of €7-18 billion per year.
- Diversifying the technology portfolio through CO₂ infrastructure avoids lock-in to costly technologies, such as Direct Air Capture, and can reduce reliance by up to 136 Mt annually.

2. Contributions to human efforts to address environmental global change

The findings of our study reduce uncertainty surrounding the ‘chicken-and-egg’ dilemma in infrastructure investment — whether to build ahead of demand or wait — by quantifying economic and timing risks. This is especially important considering the high capital costs and long lead times of large-scale infrastructure planning. We provide policymakers and industry stakeholders with evidence that proactive investment is both feasible and economically advantageous, supporting a faster transition to a decarbonized energy system.

3. Relevance to researchers of other fields and regions

Additionally, our findings inform researchers in other disciplines, such as regulatory policy, aiding the development of frameworks that facilitate timely infrastructure deployment. Insights from this European case study can also be adapted to other regions and sectors facing similar challenges.

4. Publication in IOP Environmental Research Letters

Our study provides a data-driven foundation for aligning infrastructure policy with Europe's long-term decarbonisation goals, ensuring that strategic investments today yield systemic benefits tomorrow. We believe it fits well with IOP ERL, being a leading journal in environmental research that integrates model-based assessments with policy relevance. Additionally, the open-source and fully reproducible scientific workflow of this research paper aligns closely with the journal's commitment to transparency, reproducibility, and open access.

Kind regards,
Bobby Xiong (corresponding author), Prof. Dr. Tom Brown & Dr. Iegor Riepin