A green innovation/industrial policy for Europe

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Shifting economies from brown to green represents one of the major socio-economic transformations ever seen in history. The green transformation brings socio-economic opportunities and challenges. While phasing out brown products, activities and jobs, new green products, activities and jobs are being created. Key to foster a deep decarbonisation process is clean energy. The IEA estimates that if countries worldwide fully implement their announced energy and climate 2030 pledges, the global market for key mass-manufactured clean energy technologies will have tripled in size. Clean energy manufacturing jobs would more than double from 6 million today to nearly 14 million by 2030 (IEA 2023). Recognizing the opportunities and challenges of the transition from dirty to clean energy, all major economies have ventured into clean energy industrial policy and are competing for their share of the global economic opportunities from clean energy, reconciling their decarbonisation and socio-economic transformation objectives.[1]

Countries are still figuring out how to reconcile the multi-dimensional objectives of a green industrial policy, particularly when these dimensions counteract each other. How to combine decarbonization with economic growth and jobs and world competitiveness, and all this with resilience and security of supply? What is the socio-economically best way to reach decarbonization and resilience? How and how far to go in moving towards resilience and security of supply and what cost in moving away from decarbonization and economic efficiency? How far to move away from a horizontal policy approach shaping framework conditions to ensure open markets, such as a strong competition policy and open trade? How far to go towards a vertical approach picking technologies and projects, deemed to be strategic to secure supply?

In this contribution we focus on the innovation angle in green industrial policy design. We argued that we will need the innovation system at full capacity to deliver improved and new technology solutions for the clean energy transition. In the context of broad, urgent, paradigmatic changes for economies, innovations can be the cornerstone of a successful transition that allows to best reconcile decarbonization, competitive value creation and jobs, and strategic autonomy at global scale. This however requires the innovation system to be properly directed. We first layed out the principles of a policy design that properly steers the innovation system. We then documented the current performance on clean energy innovations and clean energy policy making globally and zoom in on the recent IRA and NZIA trends in clean tech policy making in the US and the EU. We closed by assessing current clean energy innovation policy making and provide recommendations.

Visiting the evidence on current clean tech innovation performance and the causal impact from deployed policies, was sobering, first of all because of the poor quality, detail and scope of the available

[1] In March 2020, the freshly established von der Leyen EU Commission, with its climate goals firmly anchored in its Green Deal and Fit for 55 package, presented its *New Industrial Strategy for Europe*, centered around the twinning of its green and digital transition. China's latest Five-Year-Plan (2021-2025) has clean energy high on its radar. US introduced with its Inflation Reduction Act (IRA), adopted in August 2022, a massive package of support for clean tech technology deployment.

evidence both on policy instruments and performance and the lack of analysis on the causal impact from policies. Nevertheless, the partial and imperfect evidence revisited clearly shows the power of the innovation system, but also that it is not at full potential. The EU faces challenges in coordinating and achieving necessary economies of scale due to fragmentation of tools, funding sources, and national industrial policies, even more so in its NZIA reaction to the IRA. The current EU strategy continues to miss a convincing whole of governance approach to an innovation-based clean tech industrial policy.

A clear trend in recent policy making is the growing emphasis on strategic autonomy and security of supply as objective in clean tech policy making. However, if this remains translated into local content restrictions, such a restricted approach runs the risk of coming at a cost of environmental and economic efficiency, it will also keep the innovation system in low gear. This is particularly unfortunate also for reaching "security of supply" and strategic autonomy in clean tech, as the innovation system can be used to develop unique new clean tech solutions that would serve security of supply, while generating comparative advantages that can be exploited not only locally, but on world markets. Unfortunately such an innovation based "security of supply" policy trajectory, is not on the radar.

References:

Veugelers, R., S. Tagliapietra, C. Trasi, 2024, Green Industrial Policy In Europe: Past, Present and Prospects, Journal of Industry, Competition and Trade, forthcoming.

Kleimann, D., Poitiers, N., Sapir, A., Tagliapietra, S., Véron, N., Veugelers, R., & Zettelmeyer, J., 2023, Green tech race? The US Inflation Reduction Act and the EU Net Zero Industry Act. The World Economy, 46, 12, 3420-3434. Veugelers, R (2024) Powering the Clean Energy Innovation System, PIIE Working Paper 24-5.

Tagliapietra, S., Veugelers, R (2023) (Eds), *Sparking Europe's New Industrial Revolution: A policy for net zero growth and resilience,* Bruegel Blueprint series.

Tagliapietra, S., Veugelers, R. and Zettelmeyer, J., (2023) *Rebooting the European Union's Net Zero Industry Act*. Bruegel Policy Brief 15/2023.