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Governing climate ambition increase through a sectoral club of governments and industries

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Innovation is important to meet the Paris Climate Agreement's long-term goals. Not necessarily because we need new or disruptive technologies across sectors, but because innovation lowers overall decarbonisation costs, allows for a wider set of options to guarantee an effective transition, and compellingly, can translate into national economic opportunity and contribute to multiple Sustainable Development Goals. But how

critical is the role of the public sector to accelerate innovation in specific industries?[1]

Innovation policies are not new. Current research explores whether there are any distinct features in low-carbon technologies compared to others that could help designing more effective policies. The COP21 RIPPLES Project's analysis shows that early investments in low-carbon energy technologies are very appealing because they tend to have high learning rates, and their deployment is still very limited, so that a bit more effort is likely to translate into significant cost reductions compared to investments in fossil fuel-based technologies. It also argues that the speed at which these lower costs can be obtained depends on the timing and the scale of support. The faster experience is increased, the greater the chance of achieving lower costs sooner. Experience is defined as an accumulation of learning which is not only a result of R&D, but also of 'learning by doing' effects that can follow from increased deployment.

The interesting question is whether we are applying what we know from innovation policies to serve the local, national and global transformations required to deep decarbonise our economies. This ultimately requires a granular understanding of the levers of the transformation in individual sectors and countries. As a result, we will need to examine the set of technologies that will allow each country to decarbonise, the social and economic consequences of different options and the governance measures that can support deployment.

This analysis, for the iron and steel sectors, has been developed by Lukas Hermwille (Wuppertal Institute) within the COP21 RIPPLES Project, and by Hilton Trollip (University of Cape Town) in South Africa within the DDP BIICS Project (Deep Decarbonization Pathways in Emerging Countries – Brazil, India, Indonesia, China, South Africa). Discussions continued as part of one of the side events held in Madrid during COP25. Two main outputs emerged: first, closer attention to the industrial sector is necessary within the ambition debate; second, greater understanding of the heterogenous risks and opportunities is required to consider which partnerships are best suited for effective action that delivers Paris-compatible outcomes. This was illustrated by the case made for the potential of a decarbonisation club in the steel sector.

Lukas Hermwille outlined the features of a steel sector decarbonization club, involving major steel producing countries and major companies in this sector. This club would have as an overall objective to phase out process and energy-related carbon emissions of primary steel production by 2050 and to establish a moratorium on investments in unabated conventional blast furnaces by 2025 or 2030 respectively in developed and developing countries. As explained in this brief, the club would achieve the objectives by addressing political uncertainty on zero-emission technologies and on markets for zero-emission steel. The corporate members of such a club would benefit from support provided by government members (national or subnational) for the development of demonstration and industrial-scale production plants, for instance by means of public-private joint ventures. Moreover, the club would coordinate the planning and development of the necessary infrastructure, be it hydrogen infrastructure, CCUS (Carbon Capture Usage and Sequestration) infrastructure or enhanced electricity infrastructure. Finally, a club could help create a reliably growing lead market of low-carbon steel (be it through public procurement, a complementary commitment of large private buyers such as car manufacturers, carbon-based contracts for difference or even standards/quotas for the use of low carbon steel in consumer products).

In Europe, the recently approved European Green Deal points to the fact that energy-intensive industries, such as steel, are indispensable to Europe's economy, as they supply several key value chains, but it also acknowledges the need for them to decarbonise. This follows the political statement delivered by President-elect Ursula Van der Leyen to explain that "all parts of European industry should contribute fully to the objective of a climate-neutral economy by 2050". Making a step forward, the Commission commits to adopt an EU industrial strategy to address the twin challenge of the green and the digital transformation in March 2020 and to support clean steel breakthrough

technologies leading to a zero-carbon steel making process by 2030, which is an example of promoting new forms of collaboration, aligned with research findings on supporting transitions.

With the political and technological uncertainties starting to be tackled in Europe, the main outstanding concern should be on market creation. This points to the need to integrate EU domestic and international agendas or, in other words, to understand global sector transformations beyond national (or EU) borders. A transnational steel sector decarbonisation club could help the EU achieving the twofold objective: advance domestic decarbonisation and renew its role as a leader in international climate diplomacy.

An issue to be considered is how this club could relate to discussion on carbon border adjustments, which is notably framed in the Green Deal as an instrument to reduce the risk of carbon leakage in a context of heterogenous level of ambition across countries. Whereas addressing competitiveness concerns should remain central, the club could go beyond protectionism measures to create a space for accelerating innovation and technology transfer, infrastructure coordination, and embrace a cohesive industrial strategy that has the potential to reap local benefits for participating countries.

From an emerging economies perspective, COP21 RIPPLES research finds that domestic funding and international investments are essential to sustain skills development and the evolution of technological capability. Yet, sustaining a financial basis for low-carbon technology diffusion has proven very difficult for middle-income countries with constrained public funds and ‘bumpy’ investment climates. The main challenge in designing low-carbon industrial and technology policy is to tilt the incumbent domestic system to allow for effectively supporting these emerging sectors. A well-designed decarbonisation club could alter current political economy by strengthening the role of country-level public policies and embracing transnational public and private partnerships.

1 his blog builds on the research work done under COP21 RIPPLES and the discussions hold on December 13, 2019, during the side event (“Acceleration of innovation for reducing CO2 emissions”) organised by the New Energy and Industrial Technology Development Organization (NEDO, Japan), Wuppertal Institute for Climate, Environment and Energy (Germany), The Carbon Trust (UK) and Griha Council (India).

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