

When is a carbon price floor desirable?

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David M. Newbery, David M. Reiner, Robert A. Ritz

Following the 2015 Paris Agreement, countries around the world have announced plans towards meeting the goal of net-zero emissions by the second half of the century. The EU “Energy Roadmap 2050” aims to reduce carbon emissions by 80-95% by 2050 (relative to 1990) and it has enacted a 40% reduction target for 2030. The electricity sector is decarbonizing earlier and more strongly than other sectors.

The EU Emissions Trading Scheme (ETS) has so far failed to deliver the carbon price signal that is widely seen as necessary to incentivize the low-carbon transition. Its carbon price has mostly fluctuated within a band of €5–10/tCO₂ since the early 2010s, well below estimates both of the social cost of carbon (SCC) and of “target-consistent” carbon prices. Moreover, as there is virtually no forward-trading liquidity beyond a three-year horizon, longer-run carbon prices remain a “missing market” problem.

Against this backdrop, the idea of a carbon price floor (CPF) is gaining prominence in the policy debate. Since April 2013, electricity generation in Great Britain has been subject to a CPF “to support and provide certainty for low-carbon investment”. In October 2017, the new Dutch government announced a similar plan to introduce a national CPF. By contrast, since 2016, the French Government has been advocating an EU-wide CPF. This policy debate sits alongside the proximate objective of closing (unabated) coal-fired power generation, which has emerged in several European countries.

We analyse the desirability of both of a national and an EU-wide CPF for the electricity sector and adopt a political-economy approach that incorporates both market failures and policy failures in current EU climate policy. Our main arguments are as follows.

First, there is a good economic case for the introduction of price-based element into the quantity-led EU ETS, thus making it a “hybrid” instrument. A CPF is an attractive practical way to introduce such a hybrid—which is more efficient than a pure ETS or a carbon tax alone.

Contact	Robert Ritz – rar36@cam.ac.uk
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Second, an EU-wide CPF can help fill the “missing market” gap of longer-term carbon prices and bring forward low-carbon investment by guaranteeing a minimum return to emissions reductions. This CPF is a “low regret” policy: it directly addresses the risk of the carbon price being “too low” in the absence of stronger EU ETS reform—and it can reassure investors whether or not other reforms gain pace. Combining an EU CPF with a carbon price ceiling—to create a price corridor—might also make it politically more attractive to countries with strong legacy coal interests.

Third, a national CPF can play a similar role but comes with greater intra-EU trade distortions. Climate leaders with serious domestic emissions targets may nonetheless find it attractive because it is easier to implement than an EU CPF. To enhance its durability, such a national CPF may need to be accompanied by an emissions performance standard (EPS). We also discuss the potential for a policy dynamic leading to regional CPF in North-West Europe.

We suggest that a power sector CPF should be designed as a carbon levy to “top up” the EUA price to €25–30/tCO₂, rising at 3–5% annually above the rate of inflation, at least until 2030. This would yield significant coal-to-gas switching, is more practical than relying on contested estimates of the SCC and in line with target-consistent carbon prices. Importantly, such a CPF could be introduced within the existing EU ETS policy framework.

We further argue that the EU ETS’s new Market Stability Reserve (MSR), which begins operations in January 2019, will, in the medium term, enhance the value of the CPF. In particular, the MSR is expected to begin cancelling surplus allowances (EUAs) from 2023 onwards; this mechanism will substantially alleviate the “waterbed effect” associated with additional policies—at the national or sectoral level—that operate within the covered sectors of the EU ETS.

We also review the international experience to date with CPFs (and price ceilings) in Europe (Great Britain, Netherlands and ongoing policy discussions in France and Germany), North America (Western Climate Initiative, Regional Greenhouse Gas Initiative, Canada, United States Waxman-Markey Bill) and other jurisdictions (Australia, New Zealand, Beijing pilot ETS). This past experience shows how a CPF can serve as a practical element of ETS design, while retaining the appeal of a market-based abatement mechanism.

Our analysis is necessarily based on simplifying assumptions. First, given its central role in early decarbonization and recent policy attention, we focus on the electricity sector—and thereby sidestep issues of international competitiveness that arise for industries with significant non-EU trade. Second, we analyze a CPF as a “sub-global” climate policy carried out by the EU (or parts of it), without addressing global coordination with jurisdictions outside the EU. Third, we implicitly work on the premise that significant (unilateral) climate action by the EU is itself desirable, given that this is in line with stated European climate policy commitments.