

# THE PROPOSED NATIONAL EMISSIONS TRADING SYSTEM IN GERMANY - DISCUSSION OF IMPLICATIONS FOR THE HEATING SECTOR

Sibylle BRAUNGARDT<sup>1</sup>, Veit BÜRGER<sup>2</sup>, Johannes HARTWIG<sup>3</sup>

## Introduction

The heating and cooling sector is responsible for around half of the EU's energy demand and its decarbonisation is a key element for meeting the EU's energy and climate targets. Due to the sector's complexity with its variety of energy sources, technologies and actors, policy efforts for achieving substantial emissions reductions have shown limited success so far.

The German government has recently decided to implement a national emissions trading scheme (ETS) covering the transport and the building sectors as a key instrument to help reach its climate targets [1]. The scheme is foreseen to start with a fixed price of 25 EUR per allowance (t CO<sub>2</sub>-eq) in 2021, subsequently increasing to 55 EUR in 2025. In 2026 the auctions will start with a price corridor between 55 and 65 EUR.

The implementation of the German national ETS is planned with an upstream approach, i.e. the participants of the auctions are not the end-users themselves, but the suppliers of the fuels. To our knowledge, the proposed national ETS in Germany is the only scheme that relies exclusively on an upstream approach.

In view of the novelty of the approach, we analyse the experiences from ETSs covering the heating sector in jurisdictions across the globe and estimate the direct and indirect effects that can be expected from an upstream ETS for the heating sector. Furthermore, we address the challenge of intra-yearly fluctuations of heating demand due to temperature differences (warm/cold winters) on the ETS for the heating sector.

## Methodological approach and data

To estimate the direct and indirect effects on the reduction of GHG emissions, we conduct a screening of all ETSs that are currently implemented in order to identify the ones covering the heating sector. For the ETSs that have been identified, a detailed literature analysis is conducted focusing on the impacts and challenges.

We estimate the impact of yearly temperature fluctuations on the ETS proposed in Germany by comparing the total emissions covered in the system with the yearly fluctuations: The yearly fluctuations of emissions are calculated based on the fluctuations of final energy demand for heating between 2008 and 2017 [2] as compared to the average over the ten-year period.

## Results

The analysis of the current emissions trading systems implemented (Table 1) shows that buildings are covered in 10 of the 27 schemes. Among these 10 schemes, only four cover the building sector upstream (California, New Zealand, Nova Scotia, Quebec), while the remaining ones take a downstream approach, limited to larger commercial buildings.

All of the four schemes covering the building sector upstream furthermore include the power sector, industry and transport and thus cover a larger share of the total emissions in the respective jurisdictions. Due to the wider coverage including the power and industry sector, unlike the system proposed in

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<sup>1</sup> Oeko-Institut e.V., Merzhauser Strasse 173, D-79100 Freiburg, Germany, s.braungardt@oeko.de, www.oeko.de

<sup>2</sup> Oeko-Institut e.V., Merzhauser Strasse 173, D-79100 Freiburg, Germany, v.buerger@oeko.de, www.oeko.de

<sup>3</sup> Universidad de Talca. Facultad de Economía y Negocios. Avenida Lircay S/N. Talca, Chile johannes.hartwig@utalca.cl

Germany, the schemes include obliged parties that can directly implement measures to reduce emissions.

In all of the four schemes, the main effect of the ETS on the heating sector is based on the price signal induced through the carbon pricing schemes, while the cap does not directly influence the emissions. This is partly due to the fact that a maximum price is set and certificates are introduced in the market as the maximum price is reached.

As a result of the limited sectoral coverage of the German ETS, the emissions from the buildings sector take a considerably larger share and yearly fluctuations due to temperature differences may have an important impact on the availability of certificates. The average fluctuations are estimated to 7 Mt of CO<sub>2</sub>-eq, accounting for about than half of the annual emissions reduction foreseen in the ETS.

Table 1: Overview of ETS implemented in 2019 and sectors covered<sup>4</sup>.

	Power	Industry	Transport	Buildings	Others*
Alberta CCIR	■	■			
Australia ERF Safeguard M.	■	■			
BC GGIRCA	■	■			
Beijing pilot ETS	■	■	■	■	
California CaT	■	■	■	■	
Canada federal OBPS	■	■			
Chongqing pilot ETS	■	■			
EU ETS	■	■			■
Fujian pilot ETS	■	■			■
Guangdong pilot ETS	■	■			■
Hubei pilot ETS	■	■			
Kazakhstan ETS	■	■		■	■
Korea ETS	■	■		■	■
Massachusetts ETS	■	■	■	■	■
New Zealand ETS	■	■	■	■	■
Newfoundland and Labrador PSS	■	■	■	■	■
Nova Scotia CaT	■	■	■	■	
Quebec CaT	■	■	■	■	
RGGI	■	■		■	
Saitama ETS	■	■		■	
Saskatchewan OBPS	■	■		■	
Shanghai pilot ETS	■	■	■	■	■
Shenzhen pilot ETS	■	■	■	■	■
Switzerland ETS	■	■			
Tianjin pilot ETS	■	■			
Tokyo CaT	■	■		■	
Washington CAR	■	■			

\* including domestic aviation, waste, forestry

## References

- [1] Bundesregierung 2019: <https://www.bundesregierung.de/breg-de/themen/klimaschutz/nationaler-emissionshandel-1684508>
- [2] BMWi 2019: Zweiter Fortschrittsbericht zur Energiewende. [https://www.bmwi.de/Redaktion/DE/Publikationen/Energie/fortschrittsbericht-monitoring-energiewende-kurzfassung.pdf?\\_\\_blob=publicationFile&v=18](https://www.bmwi.de/Redaktion/DE/Publikationen/Energie/fortschrittsbericht-monitoring-energiewende-kurzfassung.pdf?__blob=publicationFile&v=18).

<sup>4</sup> Data sources: <https://carbonpricingdashboard.worldbank.org/>, International Carbon Action Partnership