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Energiewende



# **CO<sub>2</sub>-oriented energy pricing: Lessons from the German debate for the EU's smart sector-integration strategy**

*Part 3 of the Agora webinar series*

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## The European Commission will present a *Strategy for Smart Sector Integration* by the end of the year

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- As part of the European Green Deal, the Commission will propose a Smart Sector Integration Strategy, currently scheduled for Q2.
- The aim of the strategy is to exploit the synergies enabled by an integrated energy system in order to achieve a deep but also cost-effective decarbonisation of the economy.
- Key opportunities identified by the Commission include:
  - **Electrification** of sectors that currently still rely on fossil fuels.
  - Replacing fossil-based gases and fuels by **renewable and decarbonised gases and fuels**.
  - Making full use of **circularity and the energy efficiency first principle**.
- For the next 3-4 weeks, the European Commission is seeking input from stakeholder. More information on this public consultation can be found on the [website of DG Energy](#).

## CO<sub>2</sub>-oriented energy price reform is critical to the success of smart sector integration in Europe

### Five reasons for a CO<sub>2</sub>-oriented energy price reform in Europe:

1. Member States must significantly increase their efforts to achieve their 2030 non-ETS targets under higher ambition
2. Efficient climate protection needs a CO<sub>2</sub>-price; this is currently missing across large parts of transport, heat and agriculture and too unstable in the EU ETS
3. Key decarbonization options for heating and transport fall directly (CHP installations >20MW) or indirectly (electric heat pumps and electric vehicles) under the EU ETS, while smaller CHP installations, residential fossil fuel boilers and transport fuels are largely exempt.
4. Other forms of environmental & energy taxation for the non-ETS sectors also differ significantly across Member States. Harmonized EU minimum-tax levels (defined by the Energy Taxation Directive) do not take CO<sub>2</sub>-emissions into account. A reform of the ETD is currently being considered.
5. Deflation of fossil fuel prices will keep the price of oil and gas low for the foreseeable future – potentially slowing the energy transition in transport and buildings.

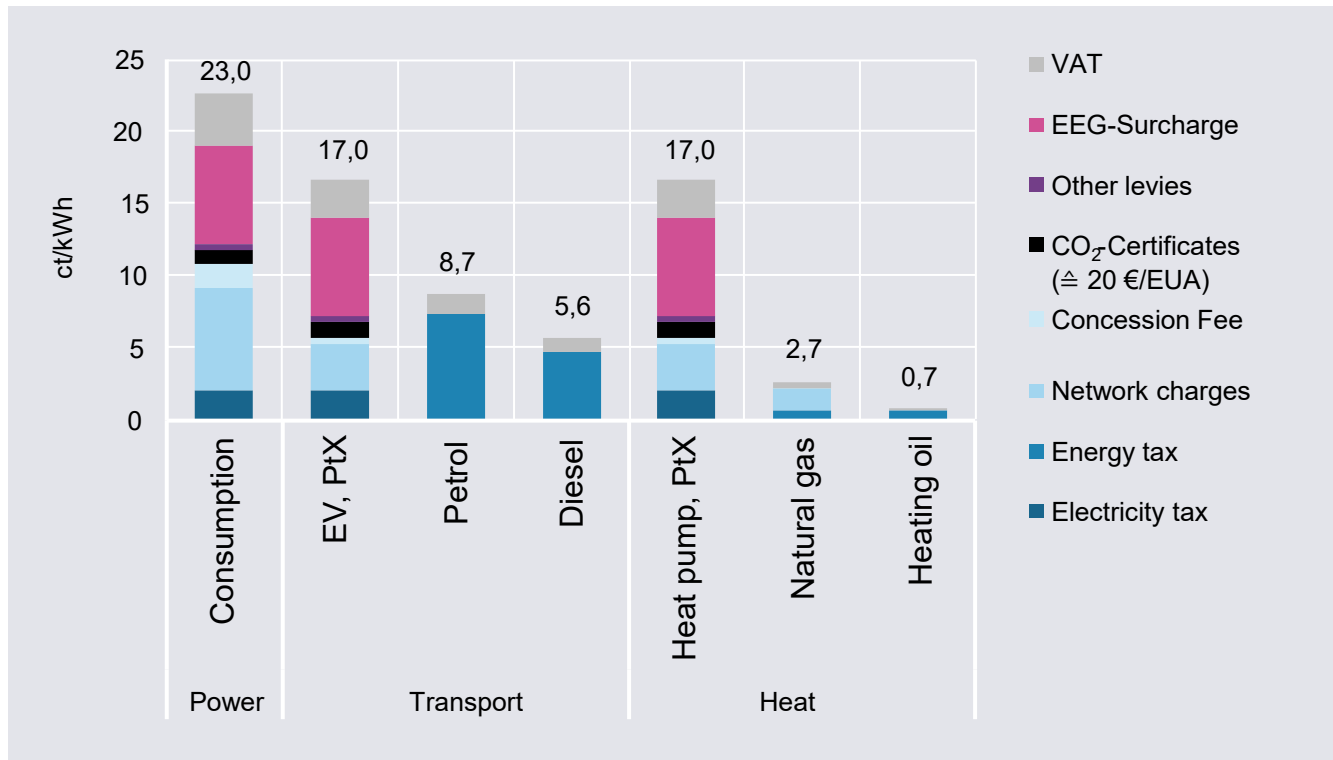


**Case Study:  
Levies and taxes  
in Germany**

# Why does Germany need a CO<sub>2</sub>-oriented energy price reform?

## Taxes, levies and surcharges on electricity are high in comparison to those placed on fossil fuels.

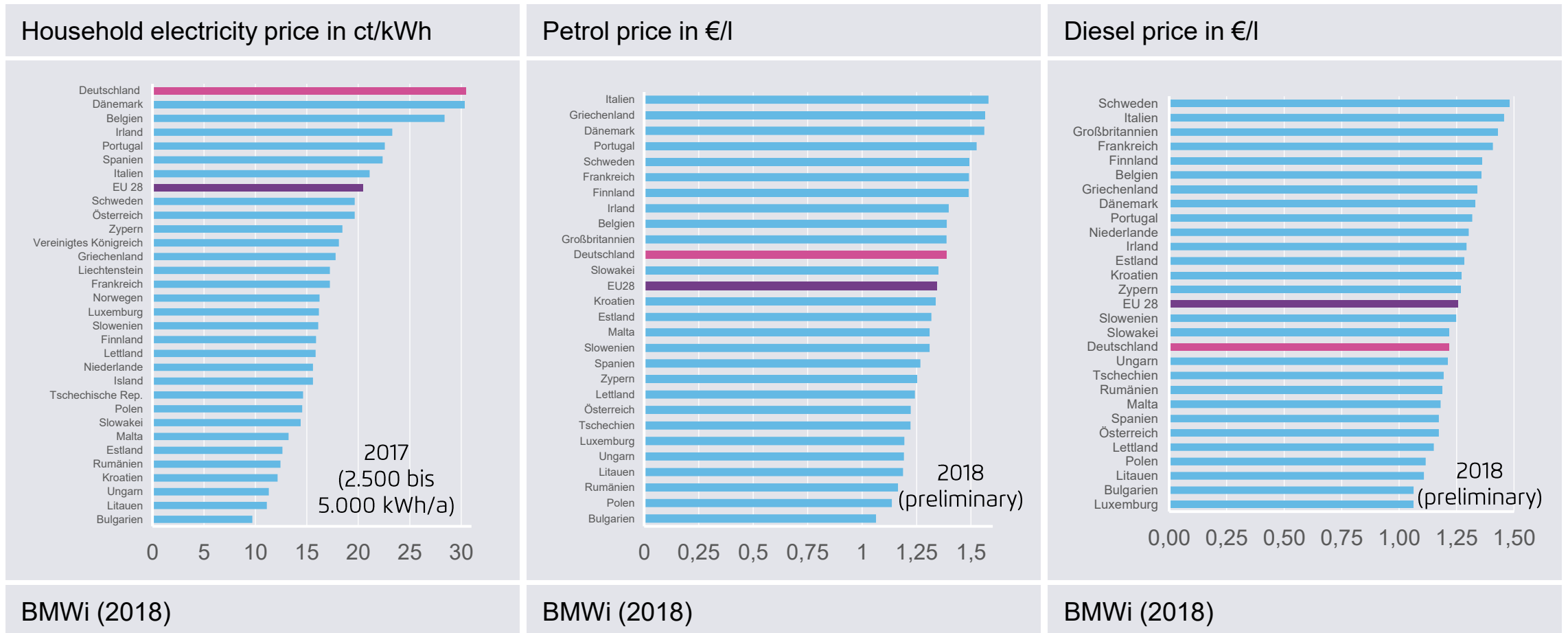
Energy-related regulated cost components for German households



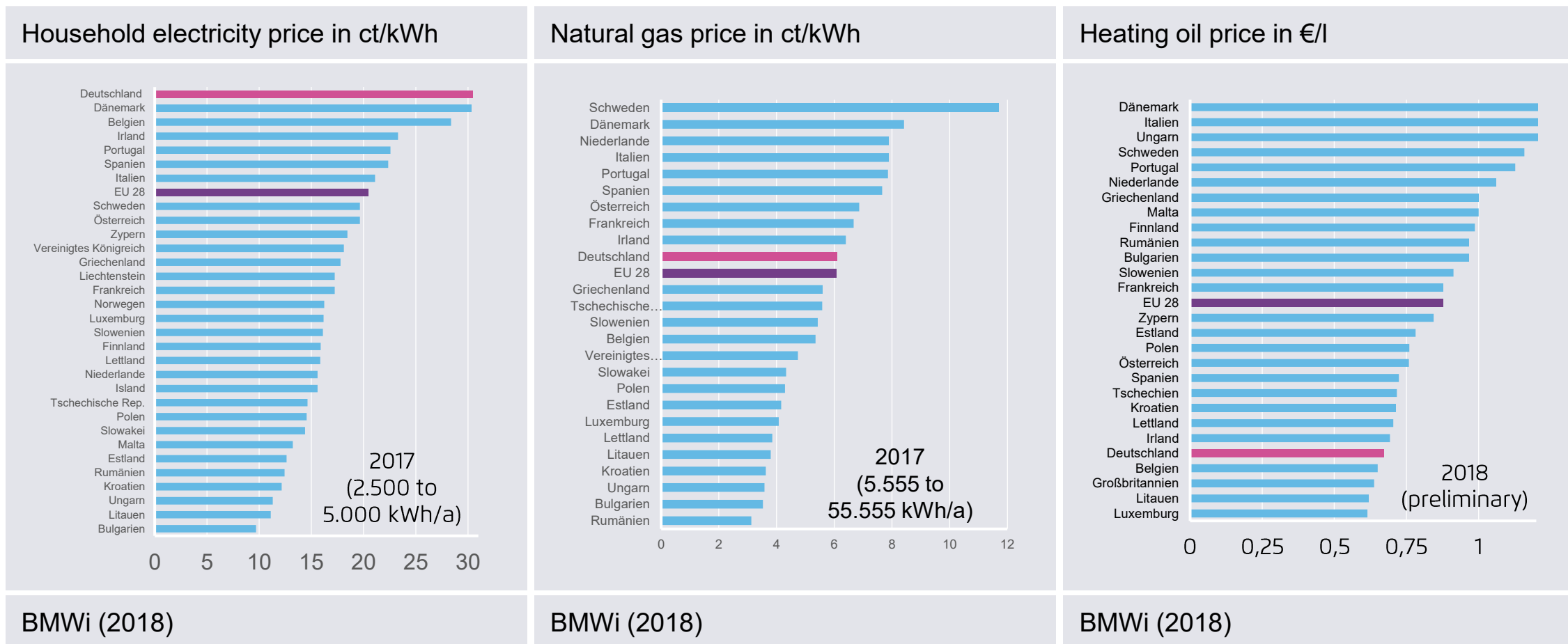
Agora Energiewende (2018)

- The decarbonization of the heat and transport sectors requires – next to an increase in energy efficiency – an increase in the consumption of wind and solar power in these sectors, inter alia for:
  - Heat pumps (ambient heat) and power-to-heat installations
  - Electric mobility
  - Electricity-based synthetic fuels, aka e-fuels (Power-to-Gas and Power-to-Liquid)
- Taxes, levies and surcharges on electricity that are 600% and 2000% higher compared to natural gas and heating oil, respectively, and 200% and 300% higher than petrol and diesel, respectively, act as a significant economic barrier to the electrification of heating and transport.

# Germany has the highest electricity prices in the EU, but petrol and diesel prices are at around the EU average...



...as are natural gas prices. For heating oil prices Germany is even fifth to last on cost. The reason is: Levies and taxes have never been related to CO<sub>2</sub> emissions.



# Germany's future *National Emissions Trading Scheme* for heating & transport – *Key elements*

CO<sub>2</sub>-price trajectory in the draft 'Fuel Emissions Trading Law' (BEHG)



Bundestag protocol declaration of the Federal Government of 19.12.2019

- **What will be priced?:** Transport and heating fuels not covered by EU ETS
- **Who will be priced?:** Companies that put fuels into circulation or suppliers of the fuels (upstream approach) - government says this means about 4,000 companies will participate

### Introductory phase (2021 – 2025)

- Surrender of certificates at fixed price with the price rising annually by 5-10 Euro / Tonne CO<sub>2</sub>

### Emissions trading within price corridor (2026)

- Price set by market within pre-determined price corridor of 55 - 65 Euro / Tonne CO<sub>2</sub>

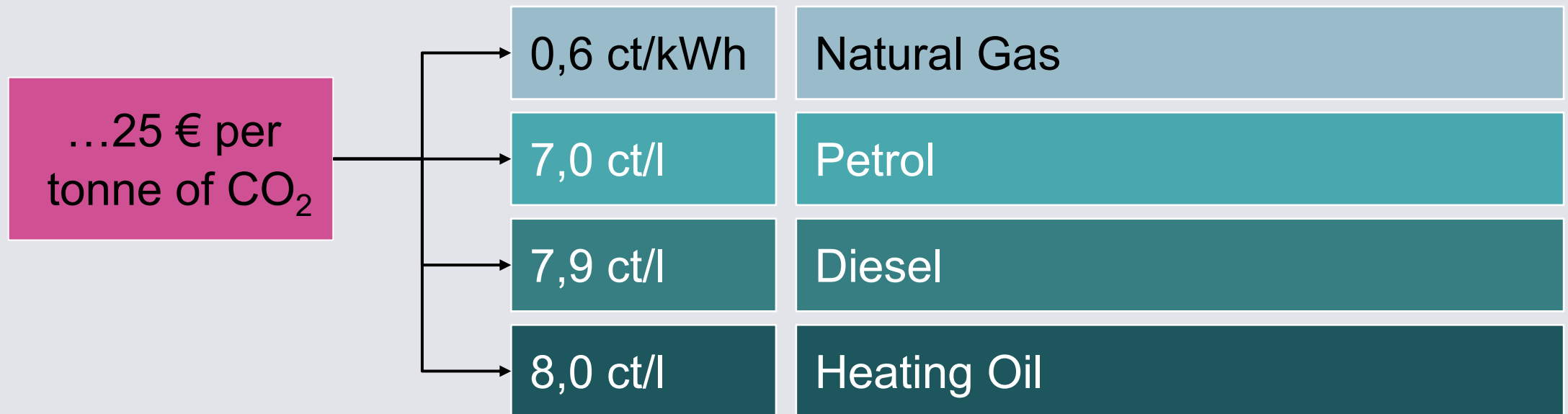
### Price floor and optional ceiling (from 2027)

- To continue the application of a price corridor approach from 2027, the law will need to be amended in 2025.



A CO<sub>2</sub> price on energy carriers takes into account how much CO<sub>2</sub> is released in the combustion of fuels. For electricity and natural gas the CO<sub>2</sub> price can be indicated in typical sales units ct/kWh and for petrol, diesel, heating oil in ct/l.

Converted into energy taxes (incl. 19% VAT)...

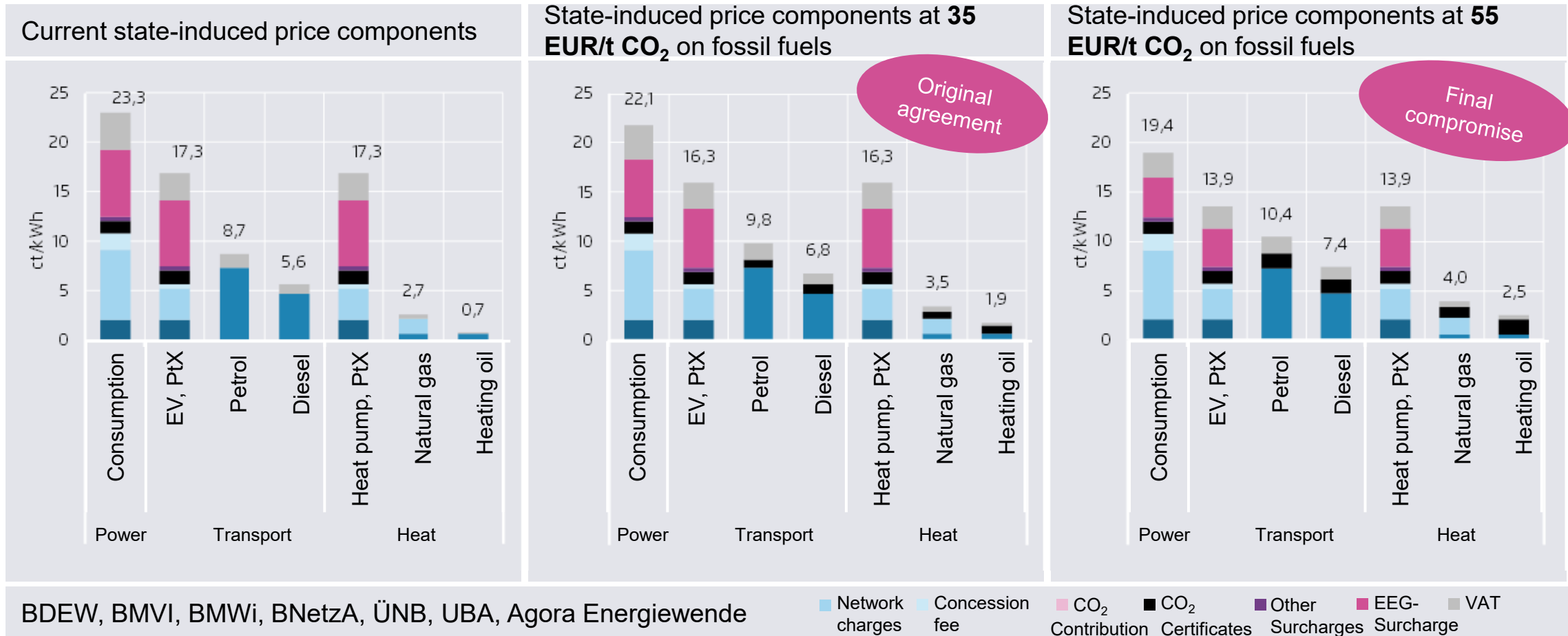


## Revenue recycling foreseen in Germany's Climate Action Programme 2030 (Mediation Committee Compromise)


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- 1. A reduction of electricity costs** through a reduction of the EEG-surcharge from 6,756 Cent/kWh (2020) or potentially other electricity price components; Revenues from CO<sub>2</sub>-pricing will be largely used to reduce the EEG-surcharge by;  
0,25 Cent/kWh (2021)  
0,5 Cent/kWh (2022)  
0,625 Cent/kWh (2023)
- 2. An increase in a tax allowance for commuter's** at travel distances higher than 21 km; by 5 Cent/km to 35 Cent/km (from 1.1.2021- 31.12.2026) and by an additional 3 Ct/km to 38 Ct/km from 2024 to 2026, financed by revenues from CO<sub>2</sub>-pricing.
- 3. An increase in the housing allowance** by 10 % und **reform of the rental laws** to protect tenants

# While an improvement, the effect of the CO<sub>2</sub> price agreed upon in Germany's Climate Action Programme 2030 is muted by the overall size of existing taxes and levies.

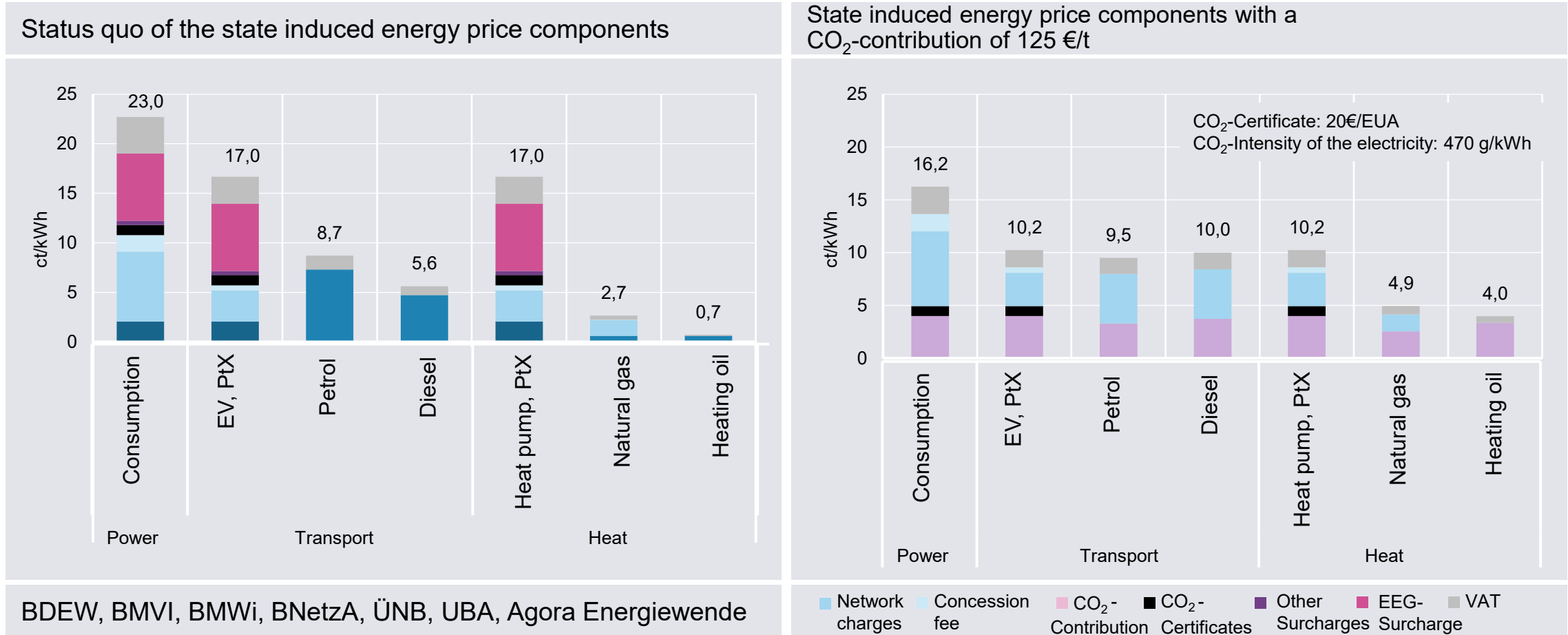


BDEW, BMVI, BMWi, BNetzA, ÜNB, UBA, Agora Energiewende



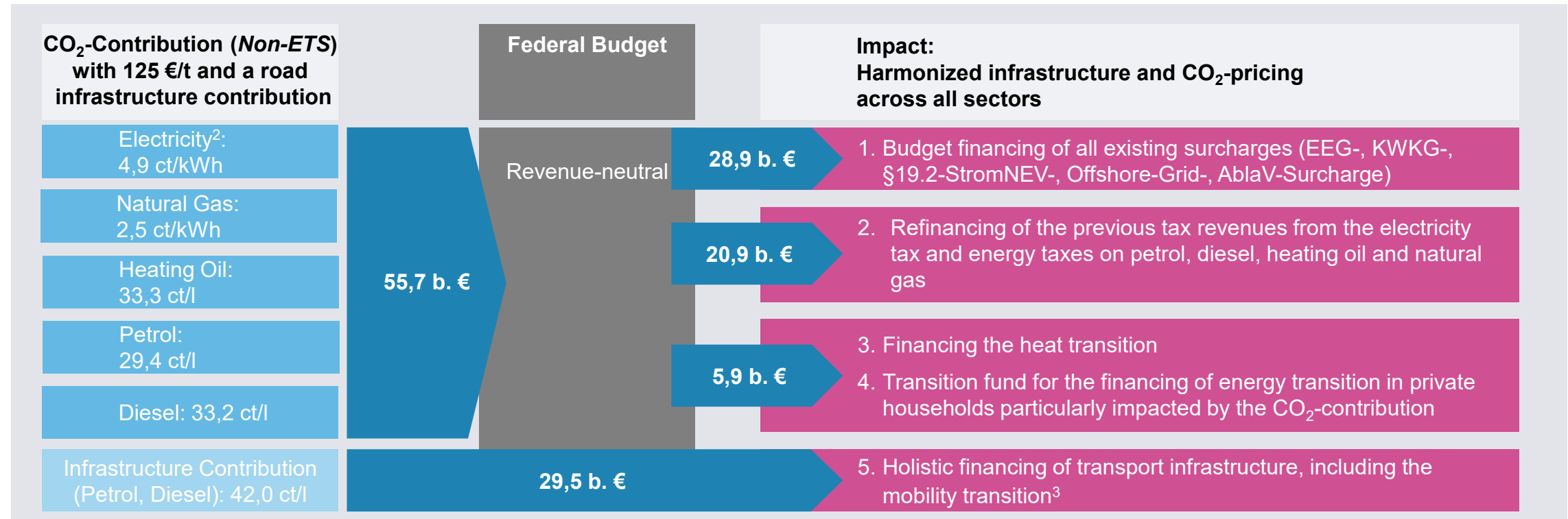
**Going one step  
further: rethinking  
taxes and levies for  
sector coupling**

# The “large proposal” harmonizes and systematizes levies and the energy taxation over all energy carriers – every sector pays its infrastructure costs plus a unified CO<sub>2</sub> price



**„Large“ Proposal: Electricity taxes, energy taxes and surcharges are replaced by a CO<sub>2</sub>-contribution of 125 €/t on all energy sources. In addition, petrol and diesel are charged a contribution for the financing of road infrastructure; electricity and gas for their network infrastructure.**


Impact of the harmonized infrastructure and CO<sub>2</sub>-pricing in the „large“ proposal in **2020** relative to the 2020 *status quo*



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1) Steuer- und Beitragssätze für Haushaltskunden  
 2) 20 €/t im EU-ETS angerechnet; CO<sub>2</sub>-Intensität des Stromverbrauchs: 470 g/kWh

3) zzgl. 7,2 Mrd. € LKW-Maut zur Deckung der gesamten Wegekosten von 36,7 Mrd. €



**Going one step  
further: rethinking  
CO<sub>2</sub>-oriented energy  
pricing in the EU  
context**

## A reform of the Energy Taxation Directive could allow for a coordinated CO<sub>2</sub>-oriented energy taxation reform.

- The EU Energy Taxation Directive of 2003 lays down rules for the taxation of energy products used as motor or heating fuels and for electricity. Specifically it sets **minimum levels of taxation** and lays down the **conditions for applying tax exemptions and reductions**.
- **The primary objective of the ETD is to support the proper functioning of the internal market** by avoiding double taxation and other distortions of trade and competition. Environmental protection is currently still treated as a secondary objective. For example, **no link exists between the minimum tax rates of fuels and their energy content and CO<sub>2</sub> emissions**.
- In principle, the **Member States are free to apply excise duty rates above these minimum levels of taxation**, according to their own national needs and environmental ambitions.
- **All revenues from excise duties entirely go to the budget of the Member States**.
- A coordinated freezing of existing energy taxes and **introduction of CO<sub>2</sub>-oriented energy taxation according to a common price-trajectory** could provide a harmonized European solution while respecting Member State tax sovereignty, as well as existing systems and traditions.



## European Commission President Ursula von der Leyen has proposed extending the Emissions Trading System

*“I will also propose to extend the Emissions Trading System to...cover traffic and construction. The different systems have to converge by 2030 if we are to be climate neutral by 2050.”*

***Broadening the ETS to transport and heating may make sense for the time after 2030 due to increasing sectoral integration:***



- With the growing uptake of EVs and heat pumps, an increasing share of transport and heating will be covered by the EU ETS in its current scope.
- Higher 2030 climate targets will lead to a weakening of the boundaries between the EU ETS and the ESR, calling for new thinking on an effective EU climate framework for the period post-2030.


***Expanding the EU ETS or linking separate trading schemes will not happen overnight:***

- An Agora Energiewende study on the legal, administrative, technical and procedural issues related to expanding the scope of emissions trading concludes that there are no insurmountable barriers to implementing the schemes. However, it is estimated that harmonizing a separate trading system with different Member States or expanding the EU ETS will take 3-4 and 5-6 years, respectively.

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A close-up photograph of several interlocking metal gears, likely brass or steel, with a warm, golden-brown lighting. The gears are in various stages of focus, creating a sense of depth and mechanical complexity.

**Thank you for  
your attention!**

Questions or Comments? Feel free to contact us:

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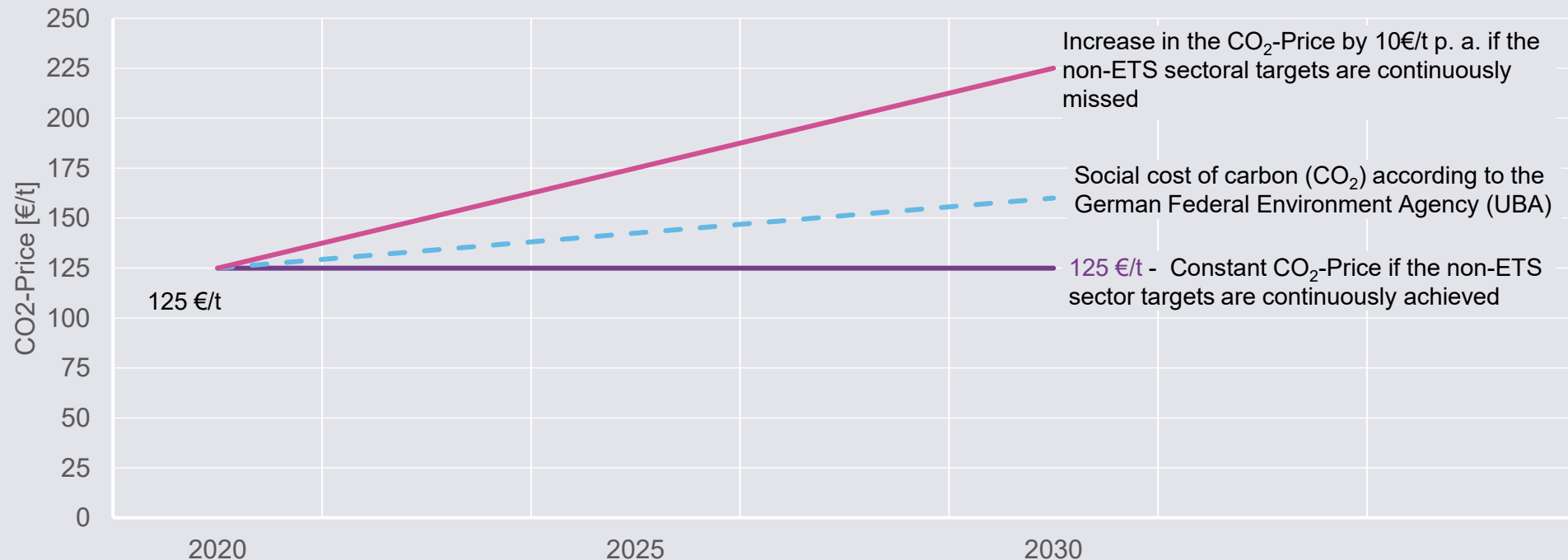
Agora Energiewende is a joint initiative of the Mercator Foundation and the European Climate Foundation.



**Backup**

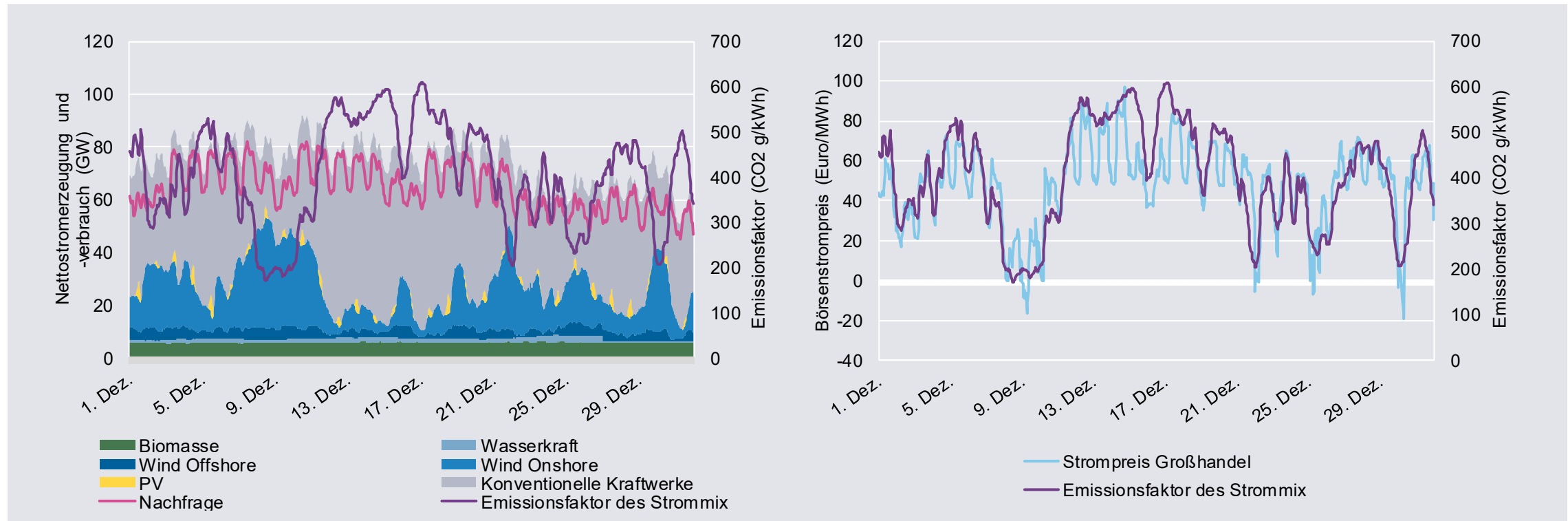
# The CO<sub>2</sub>-Price component in the energy tax begins at the level of the social cost of carbon (125 €/t CO<sub>2</sub>) – but then rises if the sectoral targets for heat and transport are not met.

Development of the CO<sub>2</sub>-Price in the ‚Large‘ Proposal



# At times of high wind and solar generation low CO<sub>2</sub>-emissions of the electricity mix are generally correlated with low electricity prices – however so far only in wholesale markets

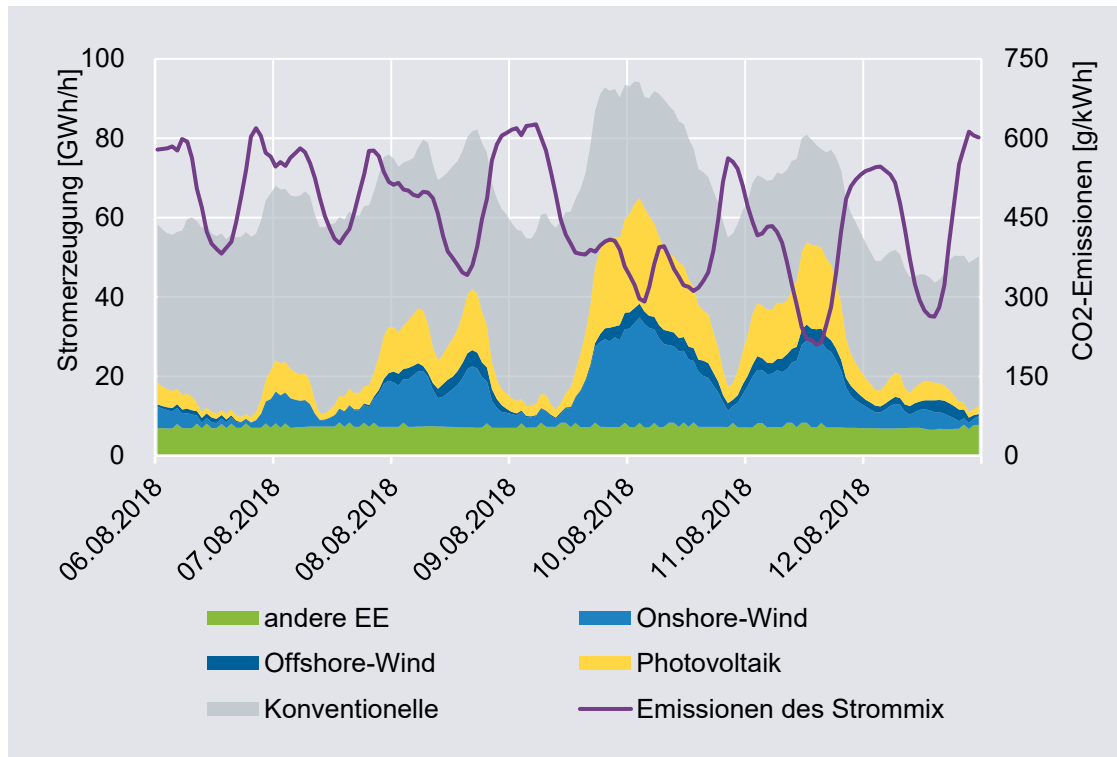
Electricity generation and consumption, emissions of the electricity mix and electricity prices in the wholesale market (December 2018)



Agorameter (2019)

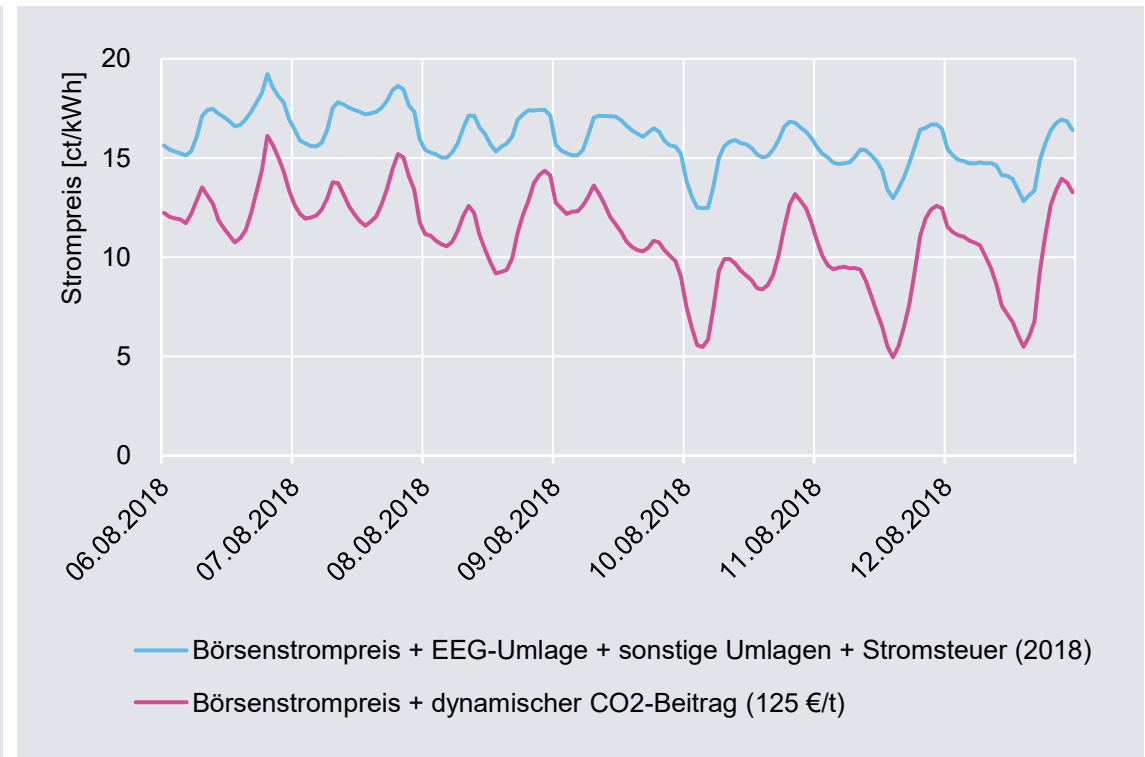
# A dynamic CO<sub>2</sub>-contribution would give an incentive for electricity to be consumed in times when the CO<sub>2</sub>-intensity of the electricity mix is small

Electricity production and emissions (Eg. August 2018)



Agora Energiewende (Agorameter)

Effect of a dynamisation of the CO<sub>2</sub>-Contribution according to the CO<sub>2</sub>-intensity of the electricity mix' (Eg. August 2018)



EEX, Agora Energiewende