



EFFECTIVE CARBON RATES 2018

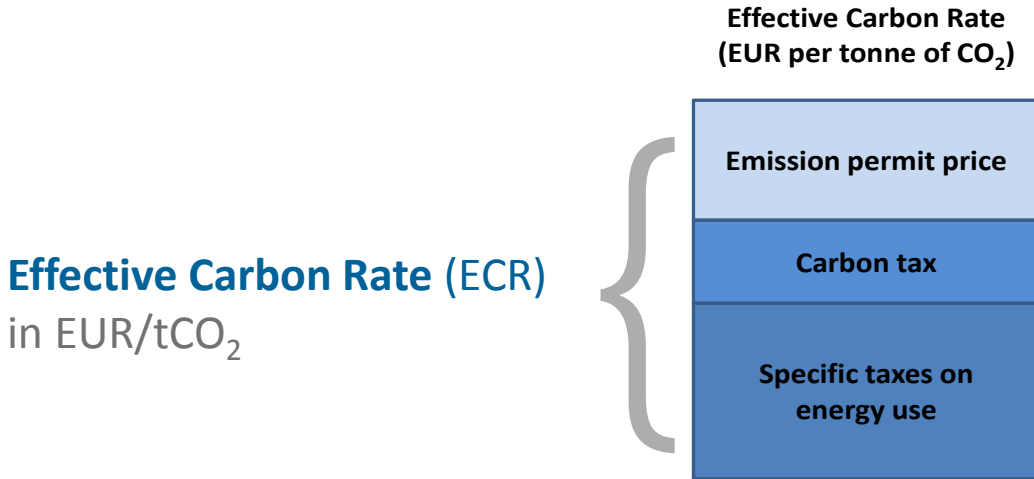
Measuring the state and momentum
of carbon pricing



@OECDtax



Effective Carbon Rates – What



Effective Carbon Rates:

Measure the strength of price-based incentives to reduce CO₂ emissions from energy use

Report estimates ECRs for 42 OECD and G20 countries, accounting for 80% of global CO₂ emissions from energy use



Effective Carbon Rates – Why

Carbon prices are effective

Increase price of carbon intensive energy, so decrease demand for it

Examples:
UK, Australia

Encourage substitution towards low carbon fuels

Carbon prices are a very economic decarbonisation policy

Profit from cutting emissions as long as it is cheaper than paying the price

→ Cut emissions where it is cheapest economy-wide and thus
maximise emission reductions for each Euro invested in low-carbon technologies

Decentralise low-carbon investment decisions, overcomes information
asymmetries, no need to stipulate where to cut emissions

Ongoing incentive to cut emissions encourages innovation



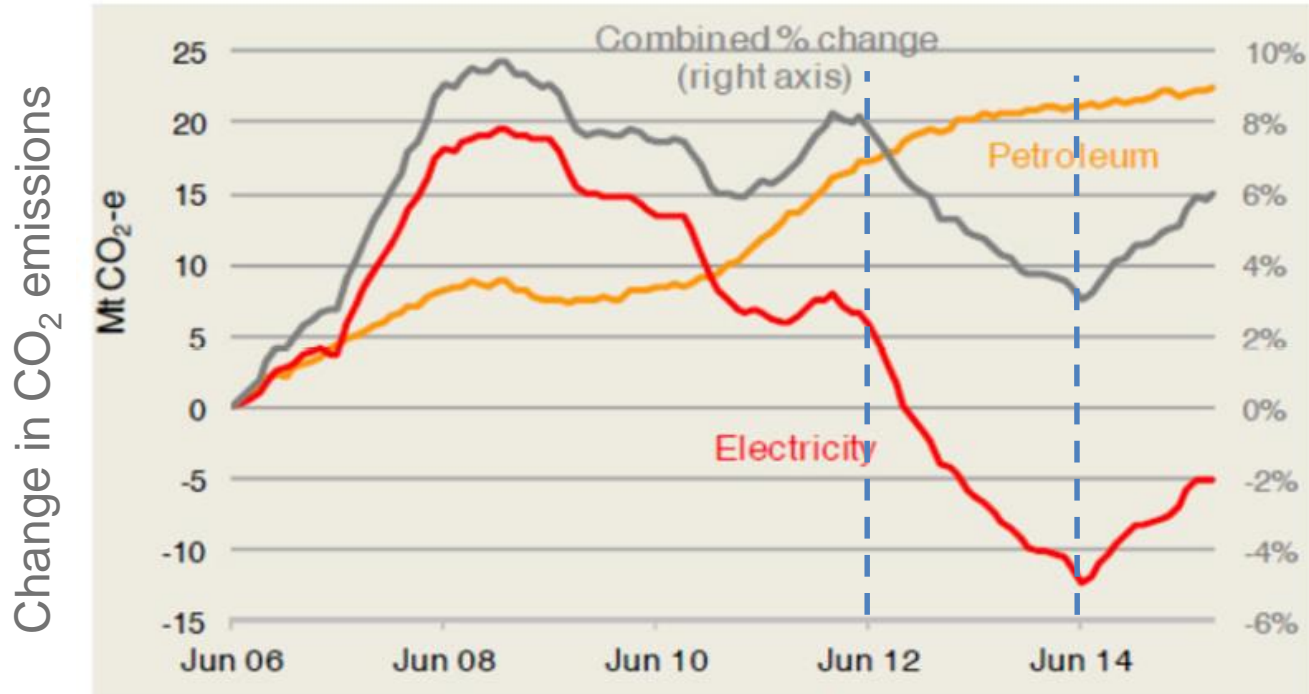
United Kingdom CO₂ emissions fell sharply with the introduction of the carbon price support

Electricity sector	2012	2016	Change (2012-2016)	Change in %
Effective Carbon Rate (in EUR per tonne of CO ₂)	7.24	32.40	25.16	+347%
Permit Price in EU ETS (in EUR per tonne of CO ₂)	7.24	7.6	0.36	+5%
Carbon Price Support (CPS) (per tonne of CO ₂)	0	GBP 18 (EUR 24.80)	GBP 18 (EUR 24.80)	
CO₂ emissions in Mt	158	66	-92	-58%
Coal use in Mt	54	12	-42	-78%

United Kingdom emissions declined by 25% from 2012 to 2016;
19 percentage points are due to cleaner electricity generation



Australia's CO₂ emissions fell sharply with the introduction of the carbon tax



Source: Nadel (2016)

Australia introduced a carbon tax in June 2012 and removed it in July 2014. It applied to electricity generation but not to petroleum.

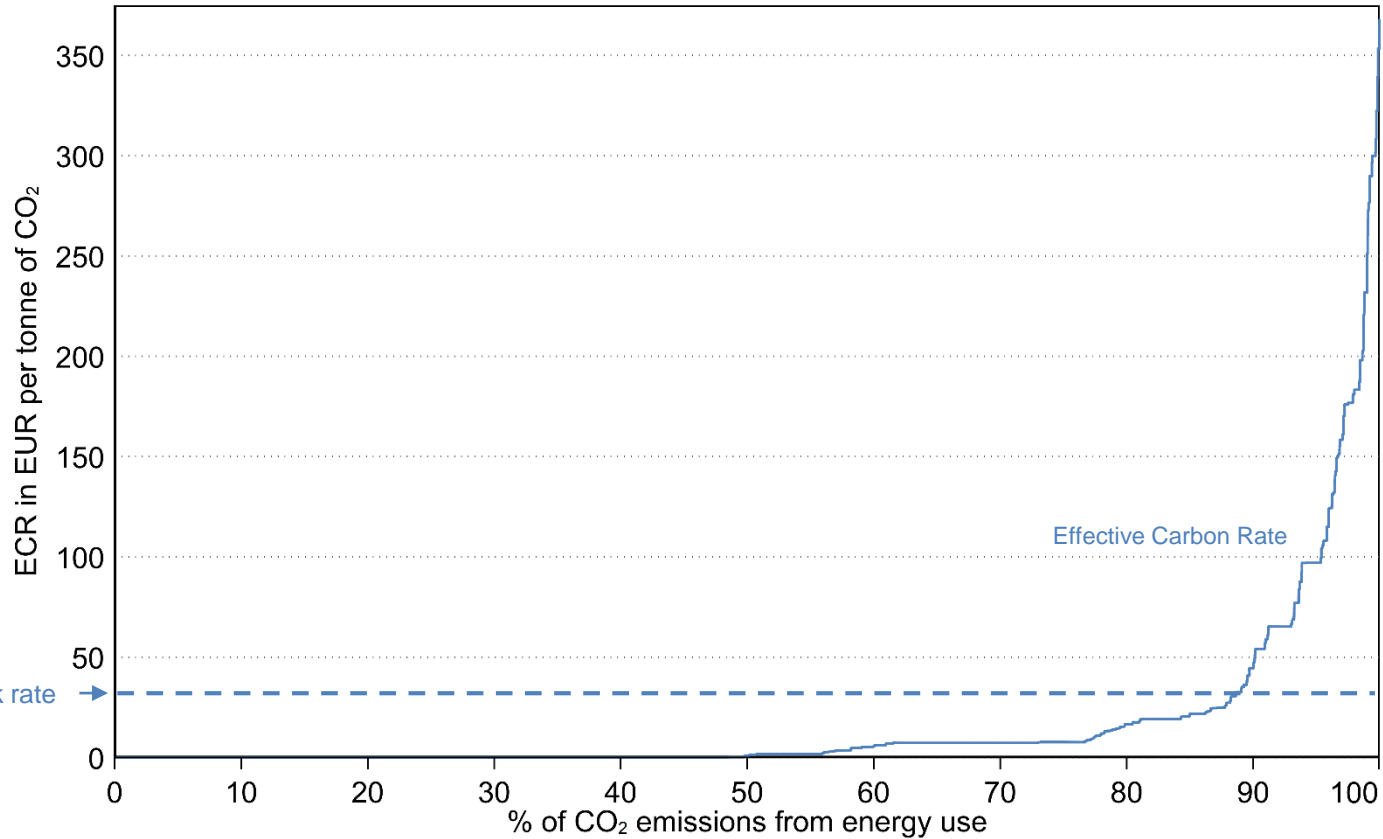


Main results – the carbon pricing gap...

- ... shows the extent to which prices are in line, or not, with the levels to decarbonise smoothly, and...
- ... summarises the state of carbon pricing and the change over time for the 42 OECD and G20 countries as a group
- Two benchmark values
 - EUR 30 per tCO₂ (low-end estimate of carbon costs today)
 - EUR 60 per tCO₂ (mid-point estimate of carbon costs in 2020, & low-end estimate of carbon costs in 2030 according to the High-Level Commission on Carbon Prices)

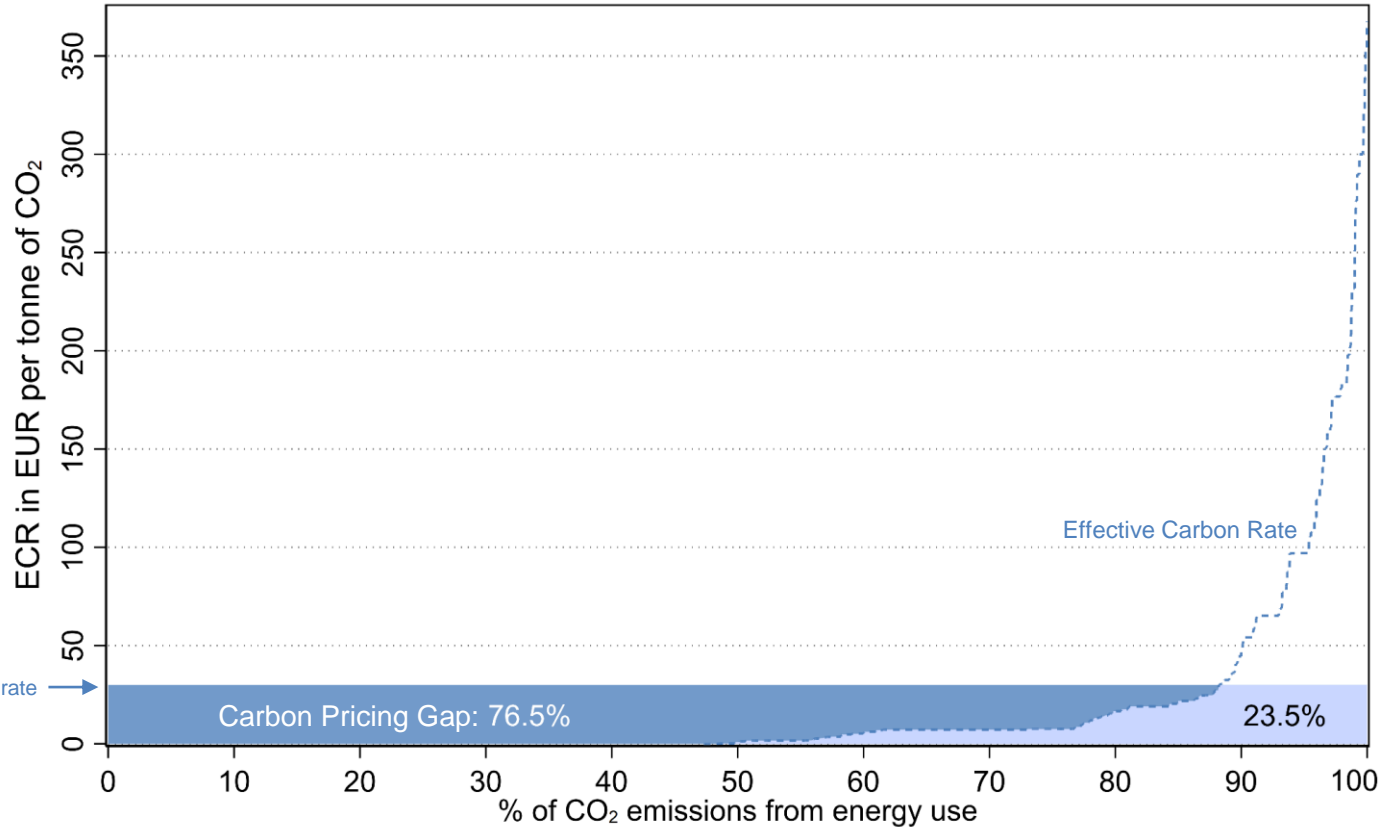


The carbon pricing gap





The carbon pricing gap in 2018 is 76.5%





The carbon pricing gap declines, but slowly

Against the EUR 30/tCO₂ benchmark, the gap declined by about one percentage point per year:



... at this speed the gap would close by 2095



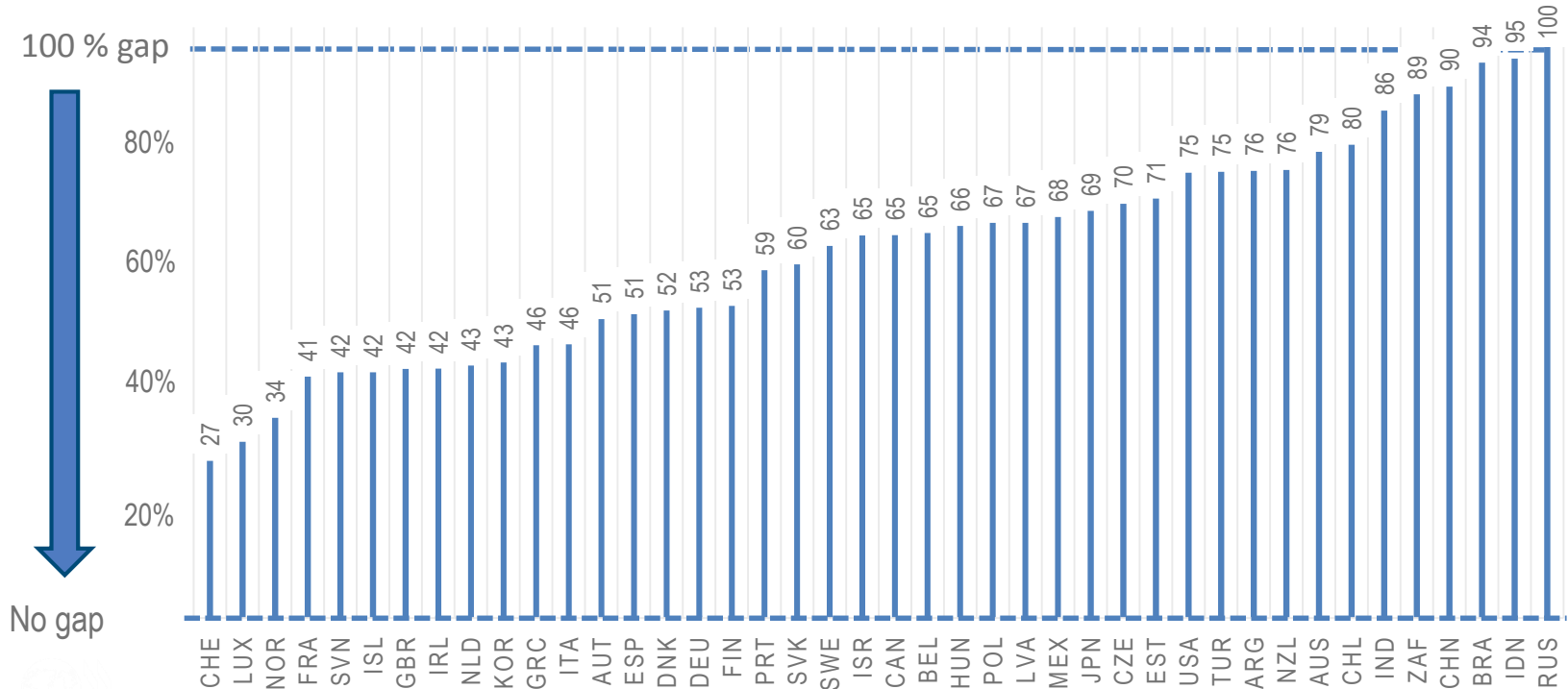
The carbon pricing gap at the country level

- At the **country level**, the carbon pricing gap is also an **indicator of long-run competitiveness**
 - A zero gap indicates that a country decarbonises at lowest costs and companies are incentivised to compete and thrive in a low-carbon economy
 - A high gap indicates that decarbonisation efforts remain limited or likely are overly costly
 - A high gap may increase sovereign risk
 - → **without broad carbon pricing countries risk economic hardship and crisis** when the demand for fossil fuels (suddenly) drops, be the demand shock technology, consumer, litigation or policy driven



The carbon pricing gap differs across countries

Gap in 2015 in %





The carbon pricing gap differs by sector

Sector	Carbon Pricing Gap at EUR 30/tCO ₂	Carbon Pricing Gap at EUR 60/tCO ₂
Agriculture & fisheries	64%	78%
Electricity	84%	92%
Industry	91%	96%
Offroad transport	56%	75%
Residential & commercial	87%	93%
Road transport	21%	58%



Taxes dominate ECRs except in electricity

Sector	Share of tax component in total ECR
Agriculture & fisheries	98%
Electricity	19%
Industry	62%
Offroad transport	96%
Residential & commercial	93%
Road transport	99%



Measuring momentum - I

Progress with carbon pricing is slow.

Levels often remain low, heterogeneity remains large.

Signs of increasing momentum

- A national ETS, or carbon tax, in China has the potential to change the global carbon pricing landscape
- 2018+ estimate includes national ETS for electricity (at EUR 7.25)
- Inclusion of industry & higher permit prices (RMB 250, ~ EUR 32) would
 - Shrink the gap for the 42 countries to 42%, and
 - The Chinese gap would drop from 83% to 43%.



Measuring momentum - II

Canadian backstop

- Federal backstop at CAD 20 from by mid 2019 in Manitoba, Ontario, New Brunswick, Saskatchewan, Nunavut and Yukon
- Expected to decrease **Canadian gap to about 40%**
- More than 20 percentage points lower than in 2015
- **By 2022 minimum carbon price increases to CAD 50 (about EUR 32.5)**
→ gap continues to close



Measuring momentum - III

EU ETS

- Full impact of new MSR still to be seen
- Reforms allows to tighten cap more strongly post 2024
- If permit prices increased to EUR 30
 - Gap for 22 EU ETS countries would drop from 52% to 18%
 - Overall gap would decline by 3 percentage points



Effective Carbon Rates 2018 – Highlights I

- **While the carbon pricing gap declines at a snail's pace...**
 - The carbon pricing gap has declined by about one percentage point a year since 2012, but is still at 76.5% in 2018
- **... there are reasons to be cheerful**
 - National ETS in China can strongly change the overall carbon pricing landscape
 - Several countries show how closing the carbon pricing gap is possible
 - Canada, Korea (nationwide ETS), United Kingdom (electricity generation), Mexico (road transport), France and Switzerland (non-ETS emissions)



Effective Carbon Rates 2018 – Highlights II

- **The carbon pricing gap differs strongly, across countries and across sectors within countries**
 - Gap in 2015 ranges between 27% and 100% across countries
 - Gap exceeds 80% in electricity generation, industry and the residential and commercial sector, lowest in road transport at 21%
- **Effective carbon rates consist mostly of excise taxes on fuels, emissions trading is important for electricity**
- **A smooth transition to a low-carbon economy requires**
 - **more emissions to be priced** (46% of emissions are still unpriced in 2018)
 - **& increasing rates** for already priced emissions (only 9% of emissions are priced above EUR 60 per tCO₂ in 2018)

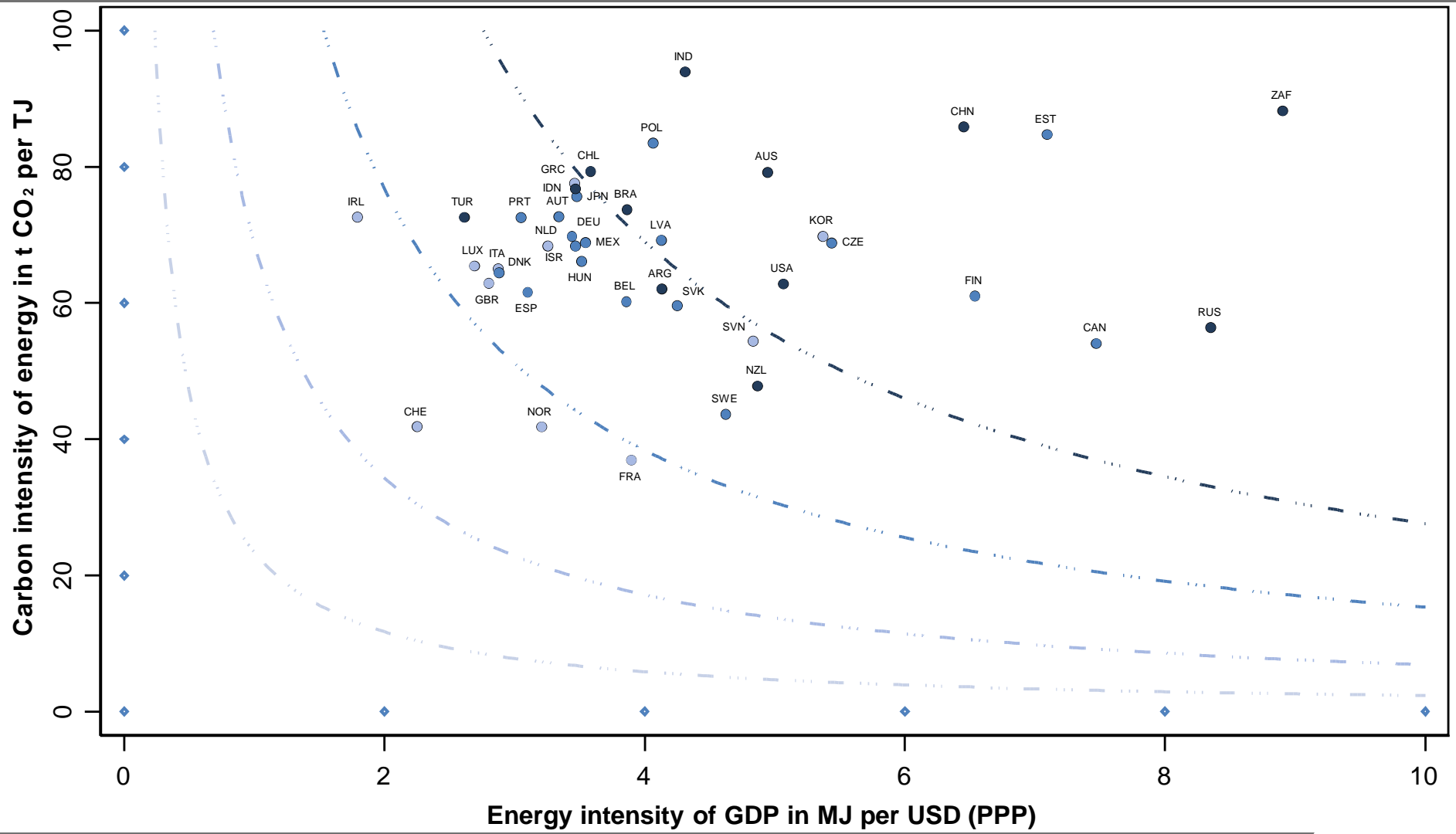


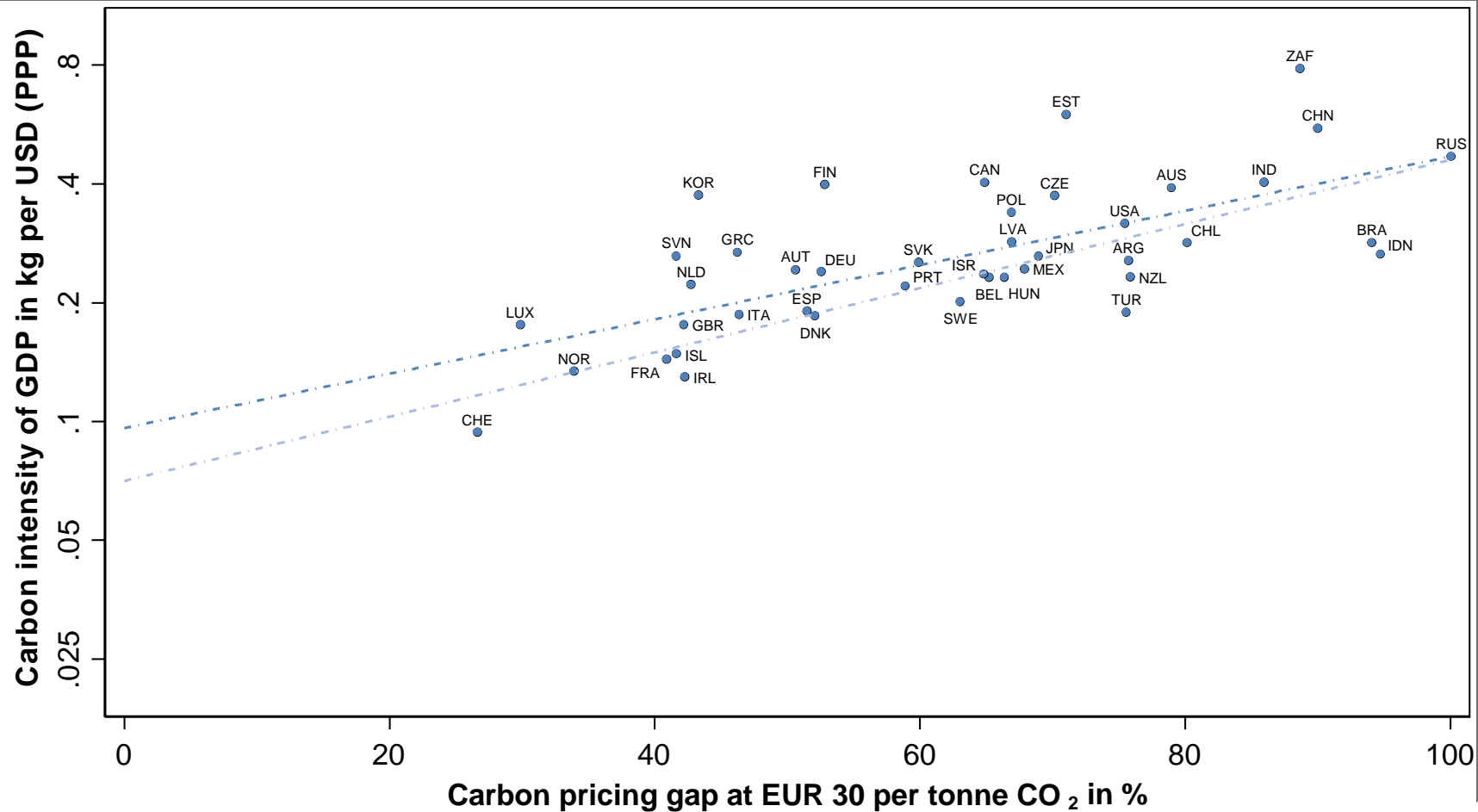
Additional information

<http://oe.cd/ECR2018>

1. **Highlights:** Brochures in English and French
2. **Video:** Carbon Pricing Trends
3. **Full Report:** Effective Carbon Rates 2018
4. **Country notes:** for all 42 countries
5. **Presentation:** of main results







- - - - - Predicted carbon intensity for gap at EUR 30
 - · - · - Predicted carbon intensity for gap at EUR 60