




# Pricing Carbon

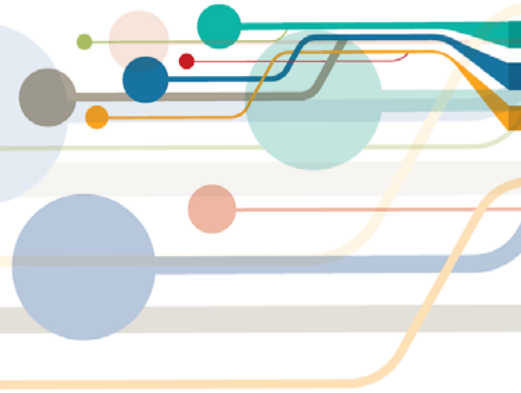
## Effective carbon rates and beyond





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National Debate on Carbon Pricing  
25 January 2017, Brussels





 **Aligning Policies  
for a Low-carbon Economy**



 **Effective Carbon Rates**  
PRICING CO<sub>2</sub> THROUGH TAXES AND EMISSIONS  
TRADING SYSTEMS







## Carbon pricing is a key component of climate policy

- » **Climate policy to become more ambitious if global temperature increases are to be limited to well below 2°C**
- » **Carbon pricing is a key policy for the low-carbon transition**
  - It effectively reduces emissions at least cost
  - It helps to steer investment and innovation in low-carbon technology
  - It can provide co-benefits (encourage broader tax reform, foster long-term competitiveness)
  - Particularly if embedded in a set of well-aligned policies

**→ What use is currently being made of carbon pricing?**

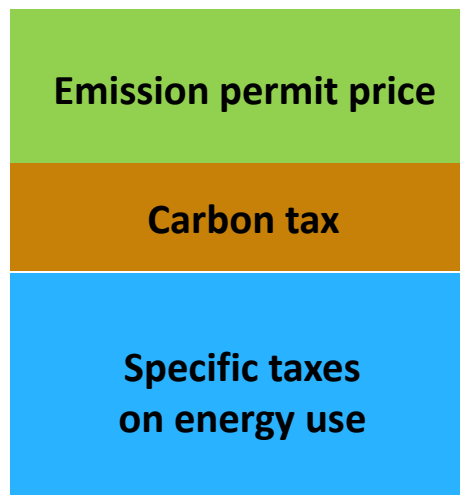




## Looking at “Effective carbon rates”

- » Effective carbon rates (ECRs) are **the total price** of CO<sub>2</sub> emissions from energy use as a result of market-based policy instruments
- » Estimated for **six** economic sectors in **41** OECD and G20 countries, representing **80%** of global carbon emissions from energy use

### Effective Carbon Rate (EUR per tonne of CO<sub>2</sub>)





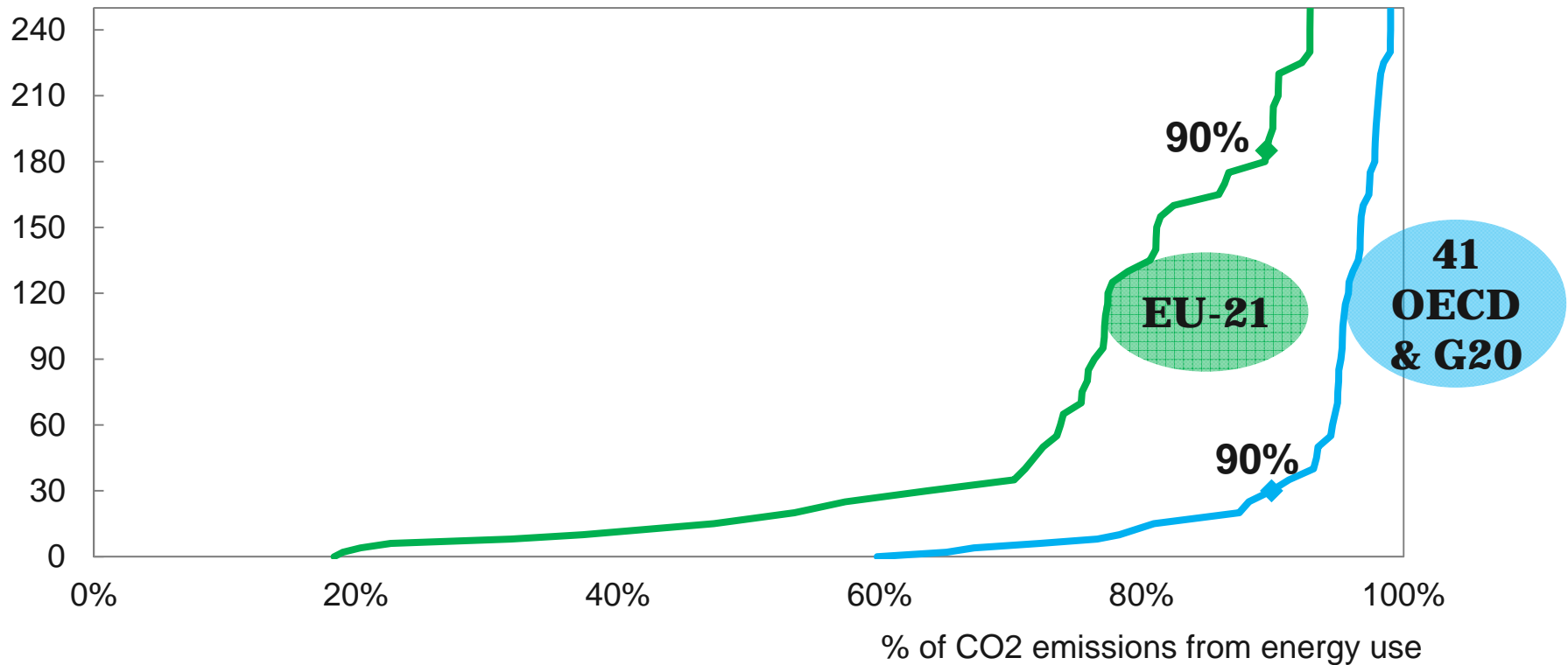
# Effective Carbon Rates

Aggregate results for 41 countries (incl. Belgium)



## 60% of zero ECRs, 10% at EUR 30 or more (aggregate results for 41 OECD & G20, and for EU-21)

ECR in EUR per tonne CO<sub>2</sub>



**Conservative estimate of social cost of carbon: EUR 30 per tonne**

Source: OECD (2016), *Effective Carbon Rates: Pricing CO2 through Taxes and Emissions Trading Systems*.

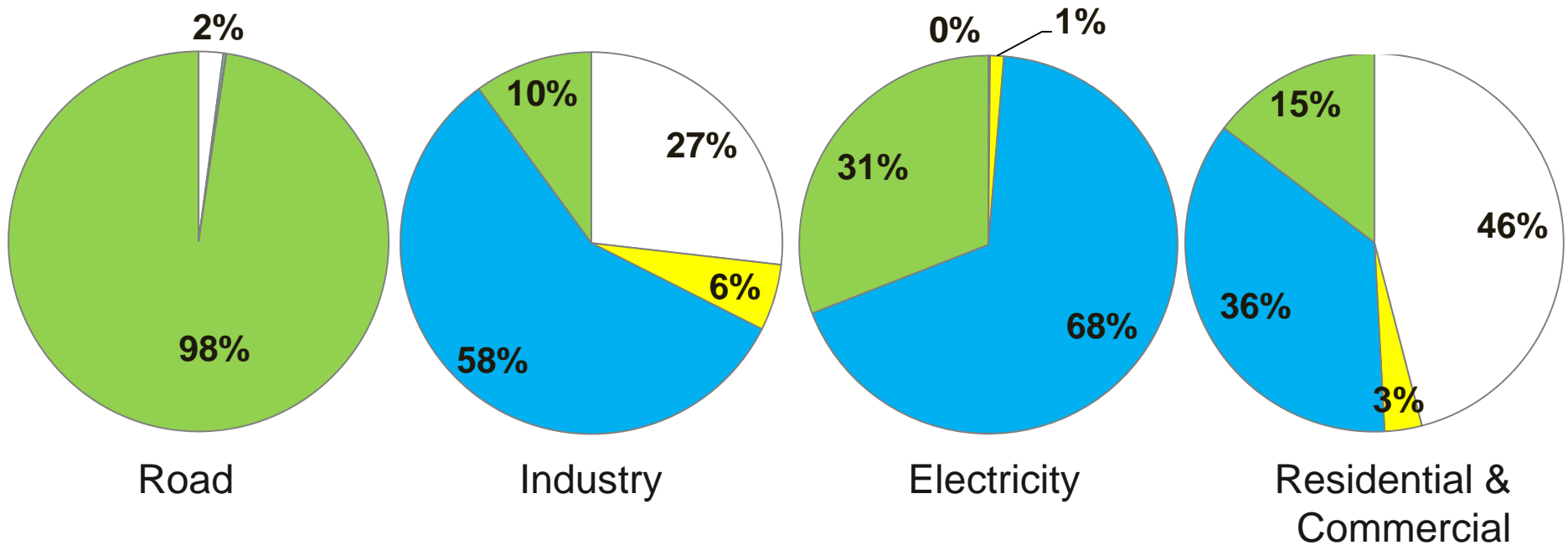




## Looking at sectors: higher rates in road transport (aggregate results for EU-21)

### Proportion of CO<sub>2</sub> emissions priced at different levels

□ EUR 0   ■ EUR 0-5   ■ EUR 5-30   ■ EUR >30 per tonne of CO<sub>2</sub>



Note that EUR 30 per tCO<sub>2</sub> is equivalent to:

- EUR 7 cents per litre of gasoline
- EUR 8 cents per litre of diesel

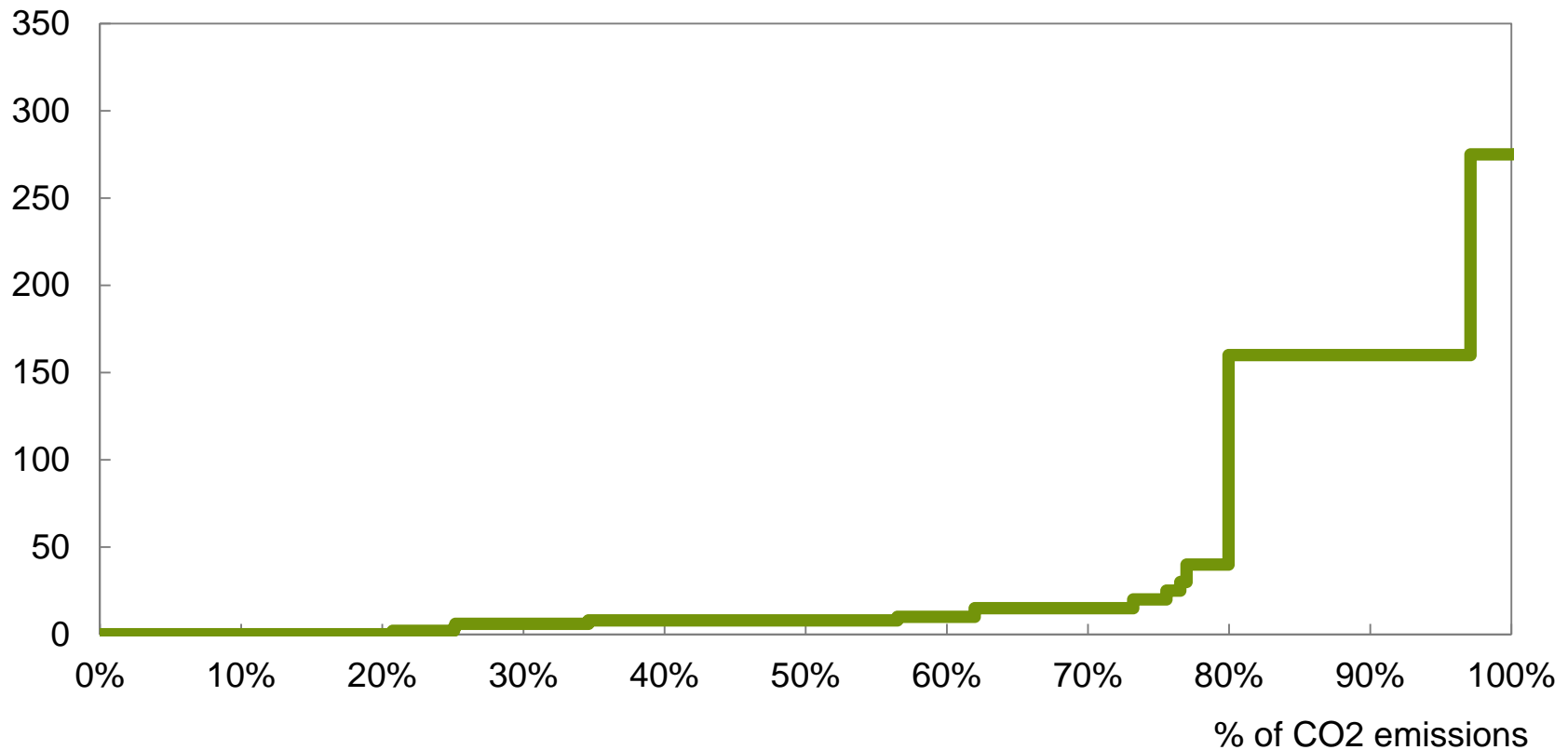
Source: OECD (2016), *Effective Carbon Rates: Pricing CO<sub>2</sub> through Taxes and Emissions Trading Systems*.





# Proportion of Belgium's emissions from energy use subject to different levels of effective carbon rates (2012)

ECR Level  
(in EUR/ t CO<sub>2</sub>)



Source: OECD (2016), *Effective Carbon Rates: Pricing CO<sub>2</sub> through Taxes and Emissions Trading Systems*.

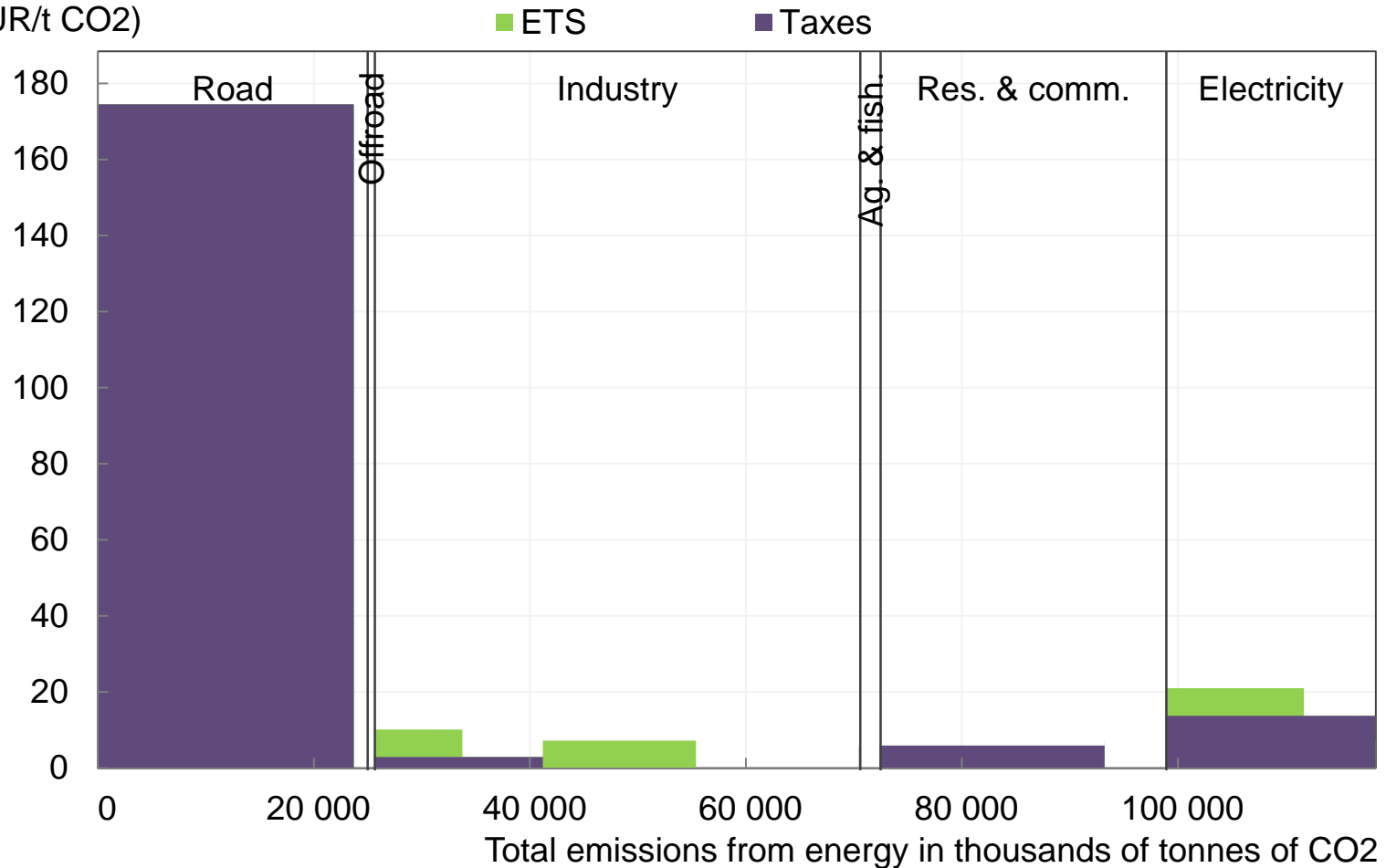




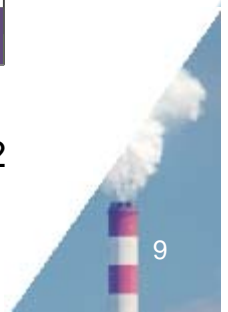


# Average effective carbon rates in Belgium by sector and component (2012)

ECR  
(in EUR/t CO<sub>2</sub>)

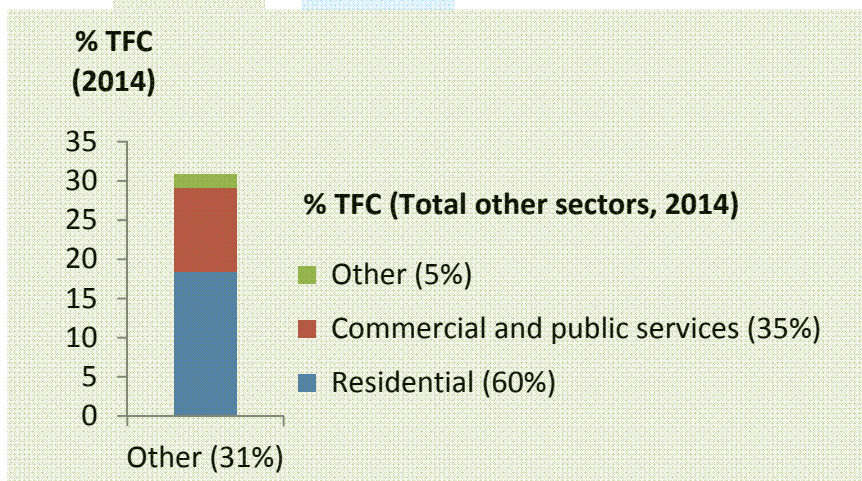
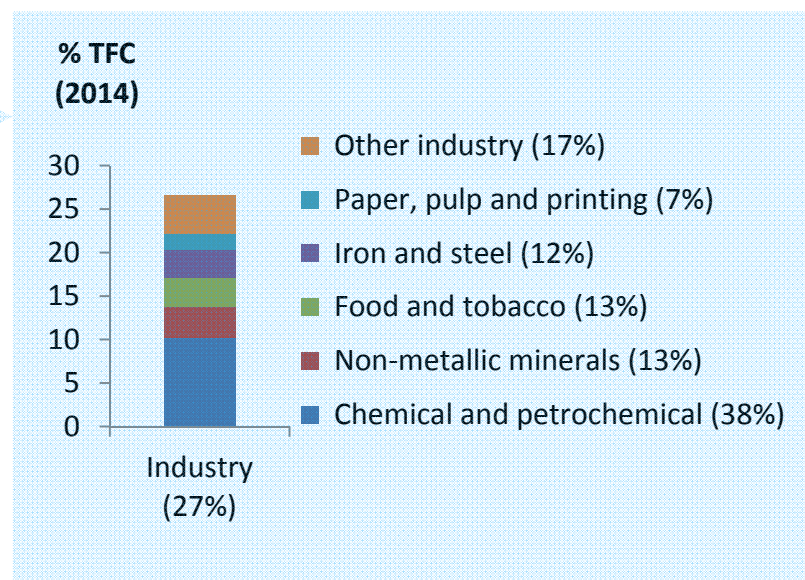
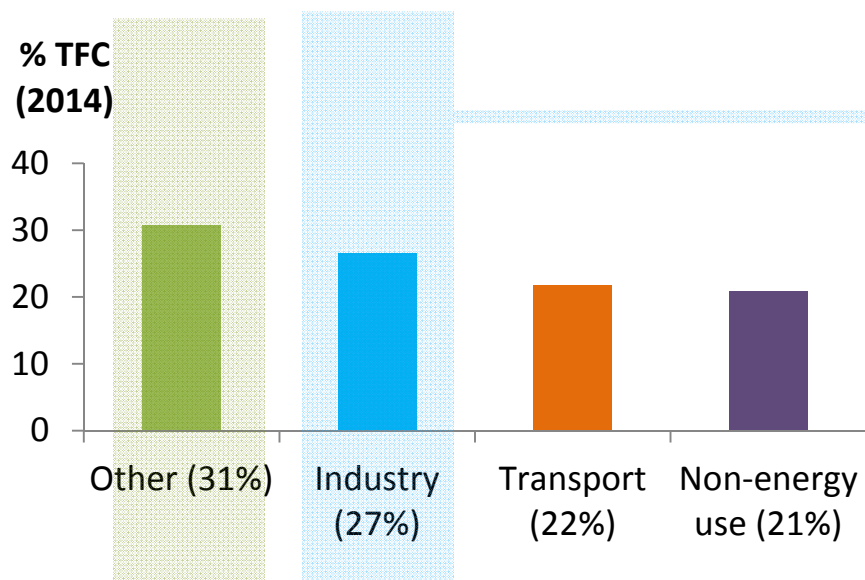


Source: OECD (2016), *Effective Carbon Rates: Pricing CO<sub>2</sub> through Taxes and Emissions Trading Systems*.





# Breakdown by total final consumption in Belgium



Source: IEA (2016), *Energy Policies for IEA Countries: Belgium Overview*.





## Breakdown by CO<sub>2</sub> emissions in Belgium

As % of total CO<sub>2</sub> emissions in 2013:

- **Power generation: 20%** (down by 30% since 1990)
- **Manufacturing, industries and construction: 15%** (down by 51% since 1990)

### Outside the EU ETS? Emissions increased!

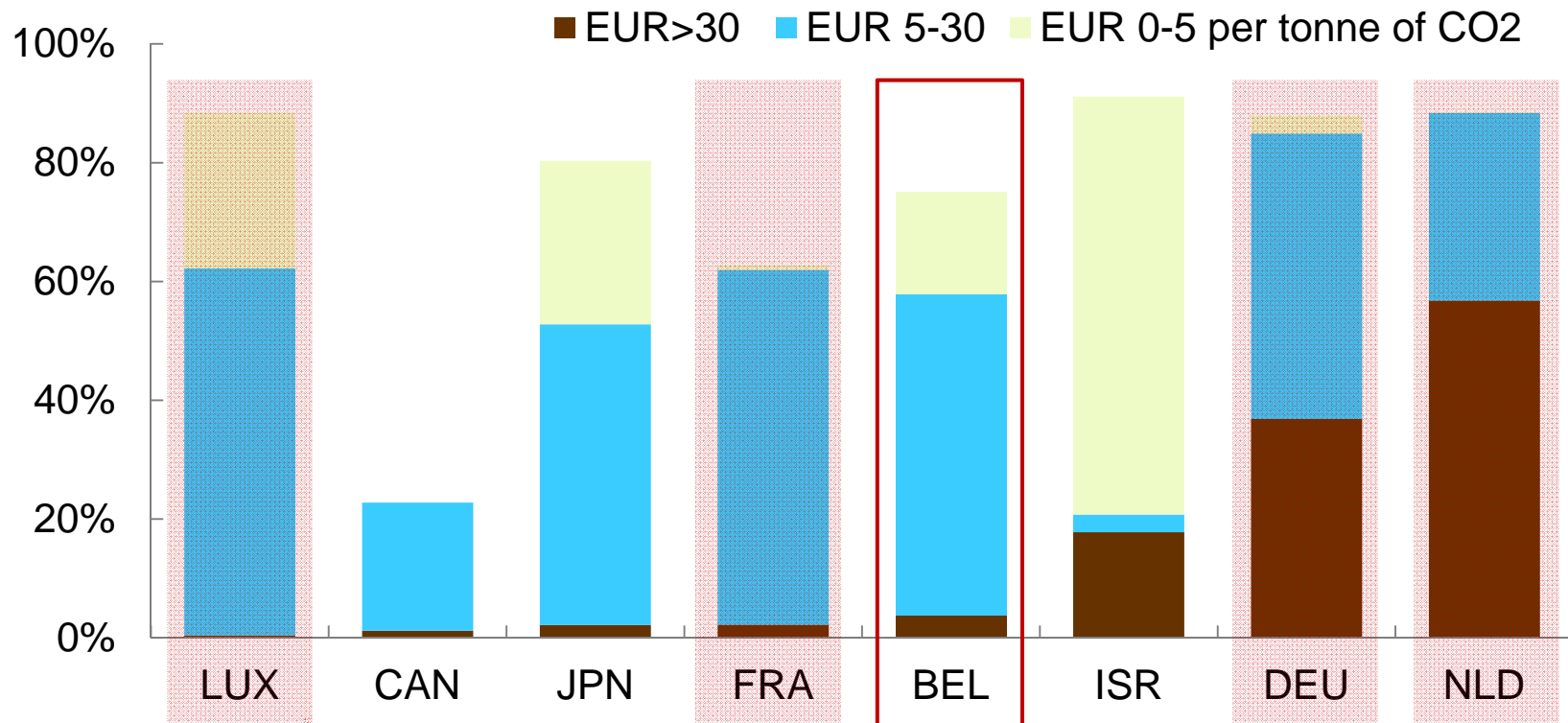
- **Transport: 27%** (up by 20% since 1990)
- **Residential: 17%** (up by 8% since 1990)
- **Commercial: 7%** (up by 24% since 1990)





## Effective carbon rates by country, excluding road transport – strong inter-country variation

% of sector emissions with ECR



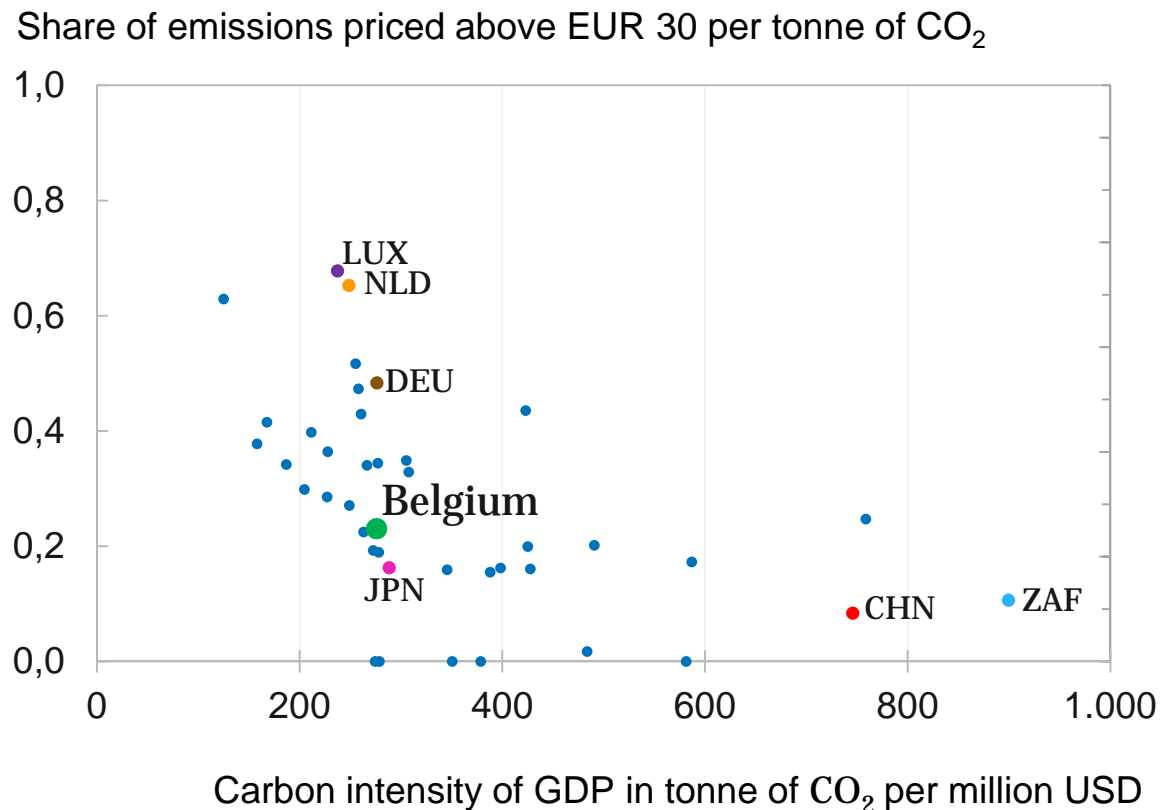
Source: OECD (2016), *Effective Carbon Rates: Pricing CO2 through Taxes and Emissions Trading Systems*.





## Countries with higher ECRs tend to have a lower carbon-intensity of GDP

**Proportion of CO<sub>2</sub> emissions priced above EUR 30 per tonne of CO<sub>2</sub> relative to the carbon intensity of GDP**



Source: OECD (2016), *Effective Carbon Rates: Pricing CO<sub>2</sub> through Taxes and Emissions Trading Systems*.





# Barriers to use of carbon pricing



## The political economy of carbon pricing

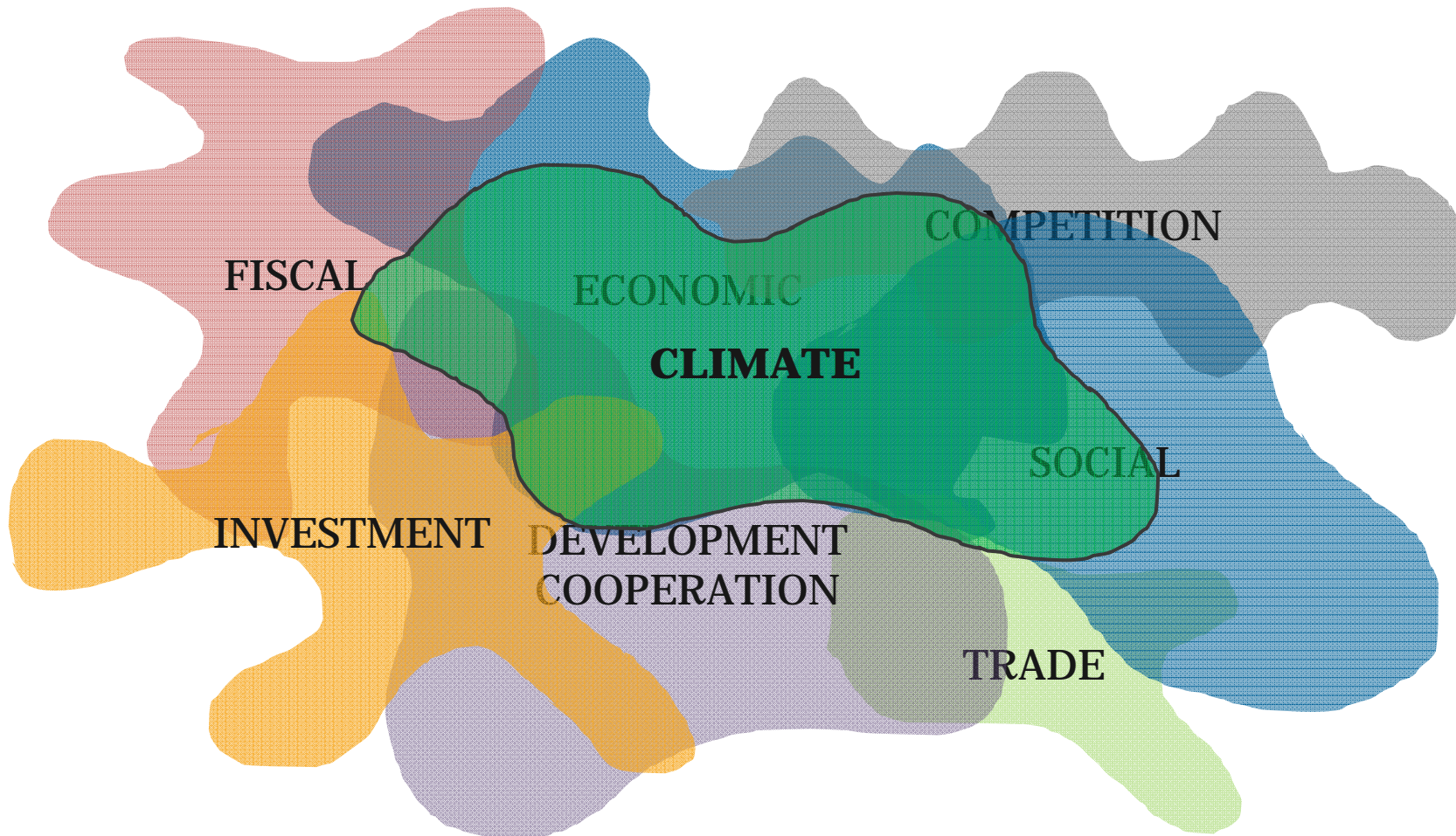
- » **How would the carbon tax affect different segments of society?**
  - Can negative distributive effects be mitigated through tax recycling?
  - Redistributing a portion of carbon tax revenues can offset income effects on poorer citizens
- » **Competitiveness impacts: an EU emissions trading system issue only?**
  - Domestic actions in non-ETS sectors (infrastructure, transport, buildings) can pull industrial innovation towards low-carbon







# Policy misalignments harm the effectiveness of low-carbon policy instruments (1)







## Policy misalignments harm the effectiveness of low-carbon policy instruments (2): Illustrations

### » **The personal tax code treatment of company cars and commuting expenses largely encourages higher CO<sub>2</sub> emissions**

- Tax expenditures amounting to an estimated EUR 27 billion (OECD+ countries)
- 20% of total car fleet. More consuming cars, driven more than average

### » **Wholesale electricity markets pricing favour low-capital-cost generation technologies**

- Marginal cost pricing designed to optimise electricity systems in the near term
- High-capital cost low-carbon solutions require certainty over electricity market revenues to lower capital cost





# Thank you

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