CARBON TAXATION:

A STEP-BY-STEP GUIDE

Webinar on Carbon Pricing and Fossil Fuel Subsidies Reduction, Asian Development Bank, Manila

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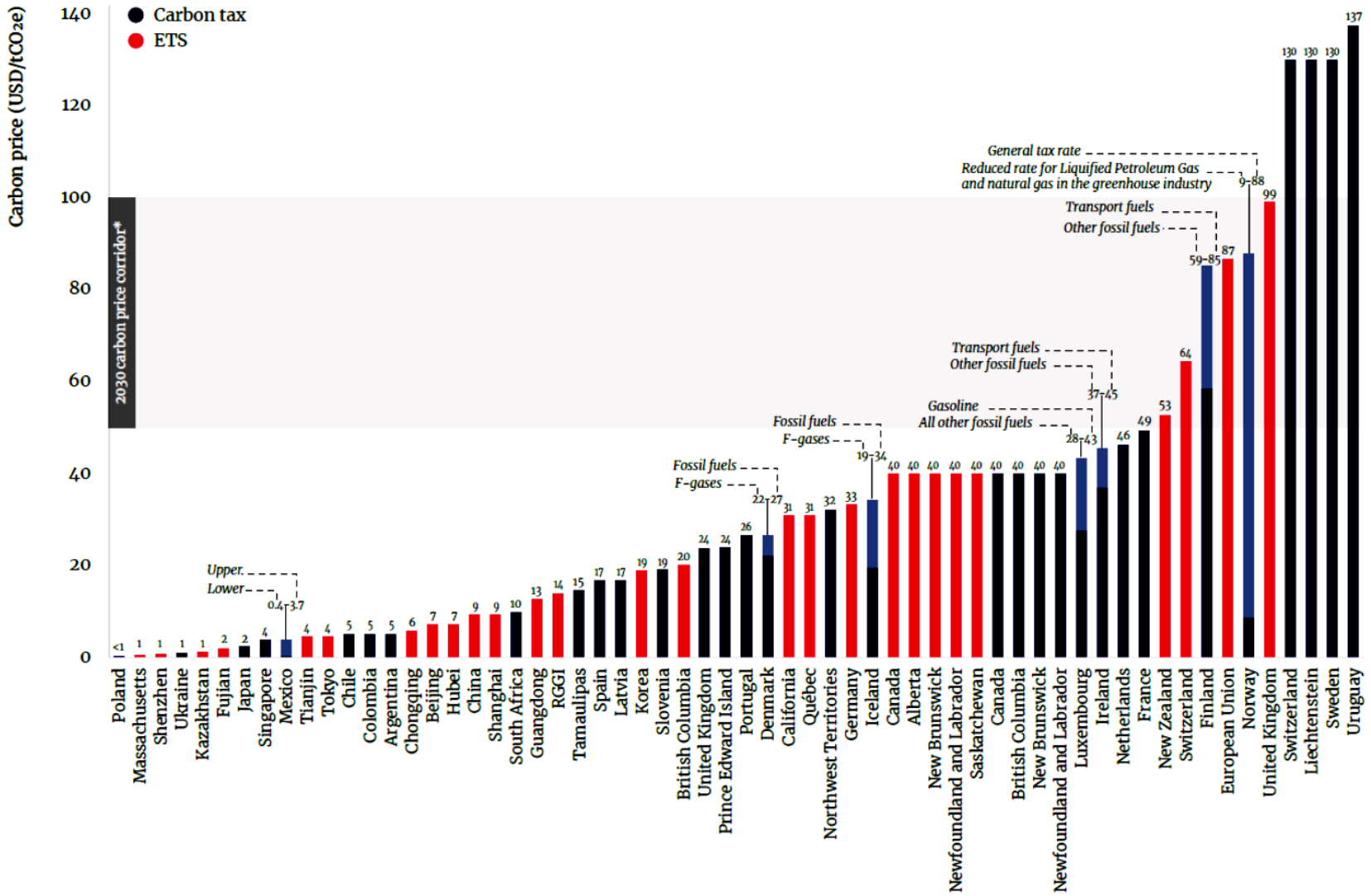
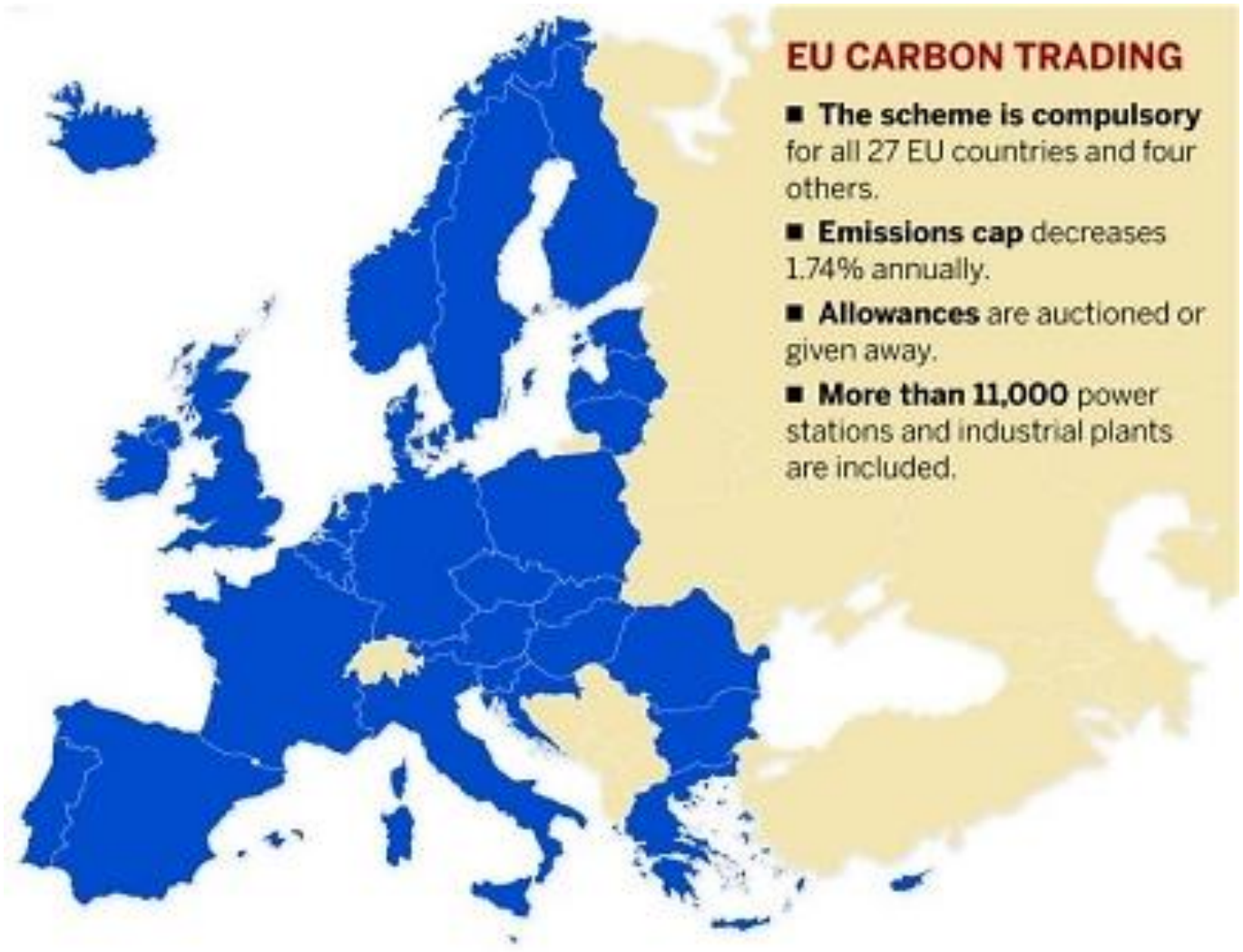
Carbon pricing rates 2022

Carbon prices as of April 1, 2022



Interface carbon taxes to emissions trading



Emissions Trading System

- Power plants & refineries
- Large manufacturing installations
  - steel/iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals
- 11,000 installations; 55% of EU GHG

Carbon taxation:

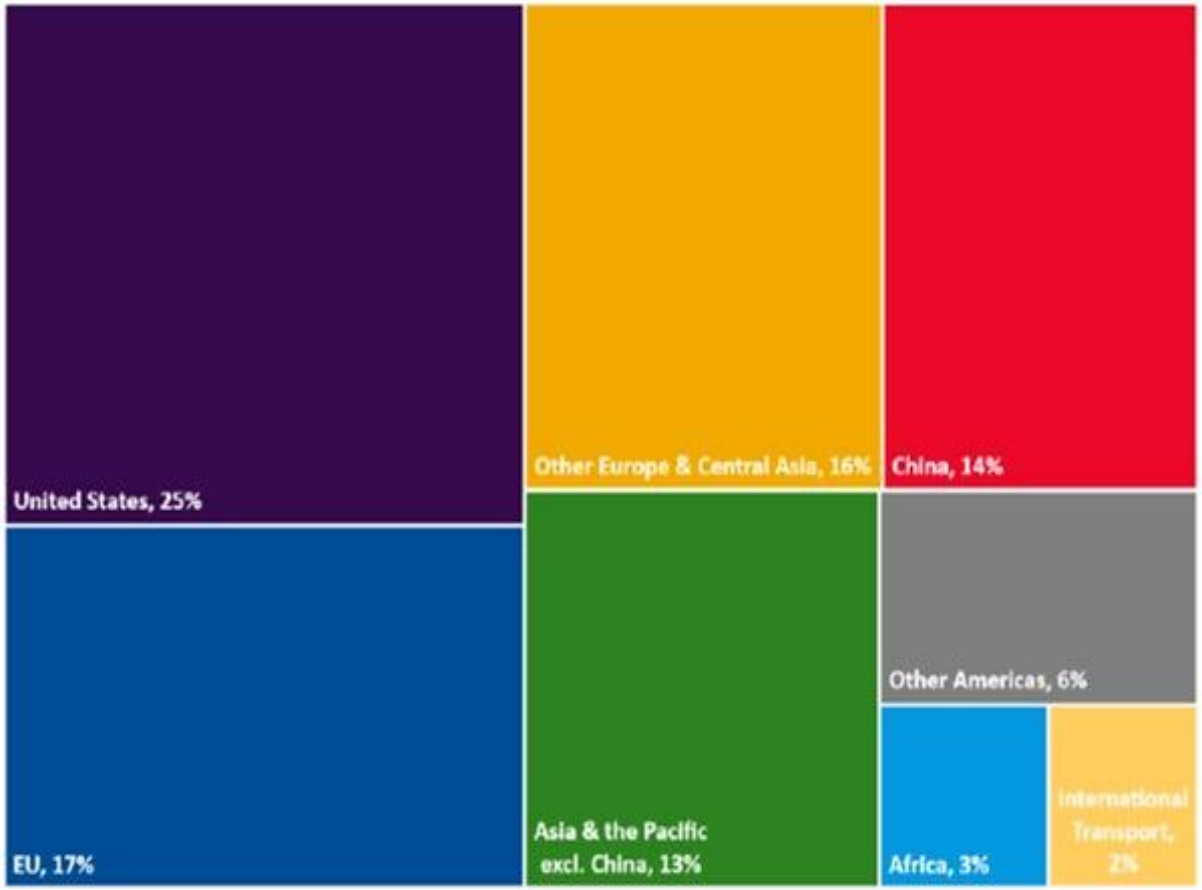
- Motor fuels
- Heating
- Small business

Carbon tax complements excise taxes

	Portugal	France	Sweden	Denmark
Energy tax:				
Motor fuels	√	√	√	√
Domestic	√	√	√	√
Business	√	√	√	√
Carbon tax:				
Motor fuels	√	√	√	√
Domestic	√	√	√	√
Business	√	√	√	√
Air pollution tax				
Motor fuels				√
Domestic		√	√	√
Business		√	√	√
Electricity tax				
Domestic	√	√	√	√
Business	√	√	√	√
ETS - carbon	√	√	√	√

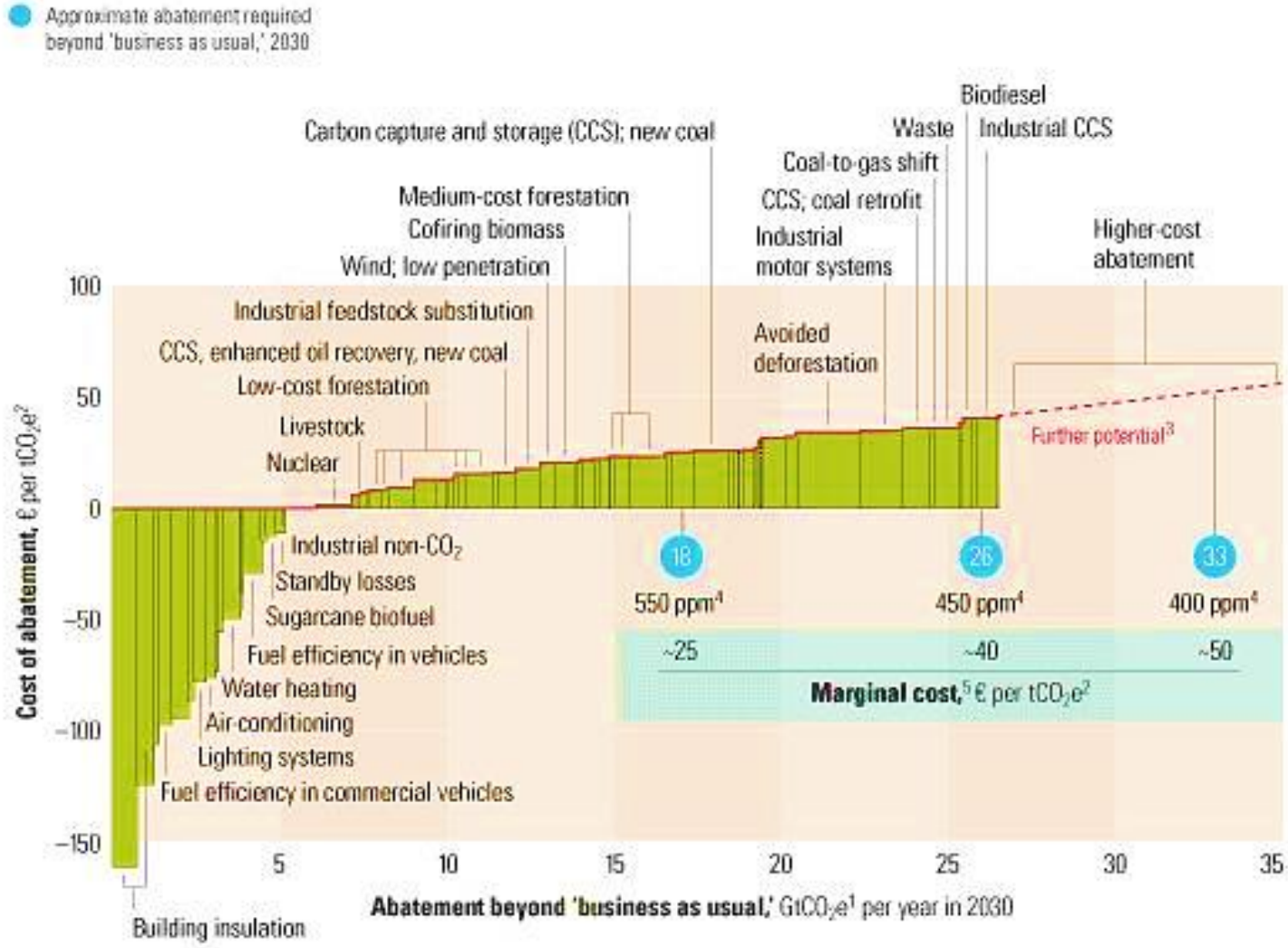
How to introduce a carbon tax ?

Identify mitigation gap and priority sectors 1



- Cumulative emissions of Asia-Pacific (incl. China) are now **comparable to USA**
- Glasgow climate pact calls on countries to **strengthen their NDC targets**
- **Low-carbon green technologies** are available to substitute fossil fuels in many sectors

Global cost curve for greenhouse gas abatement measures beyond 'business as usual'; greenhouse gases measured in $GtCO_2e$[1]



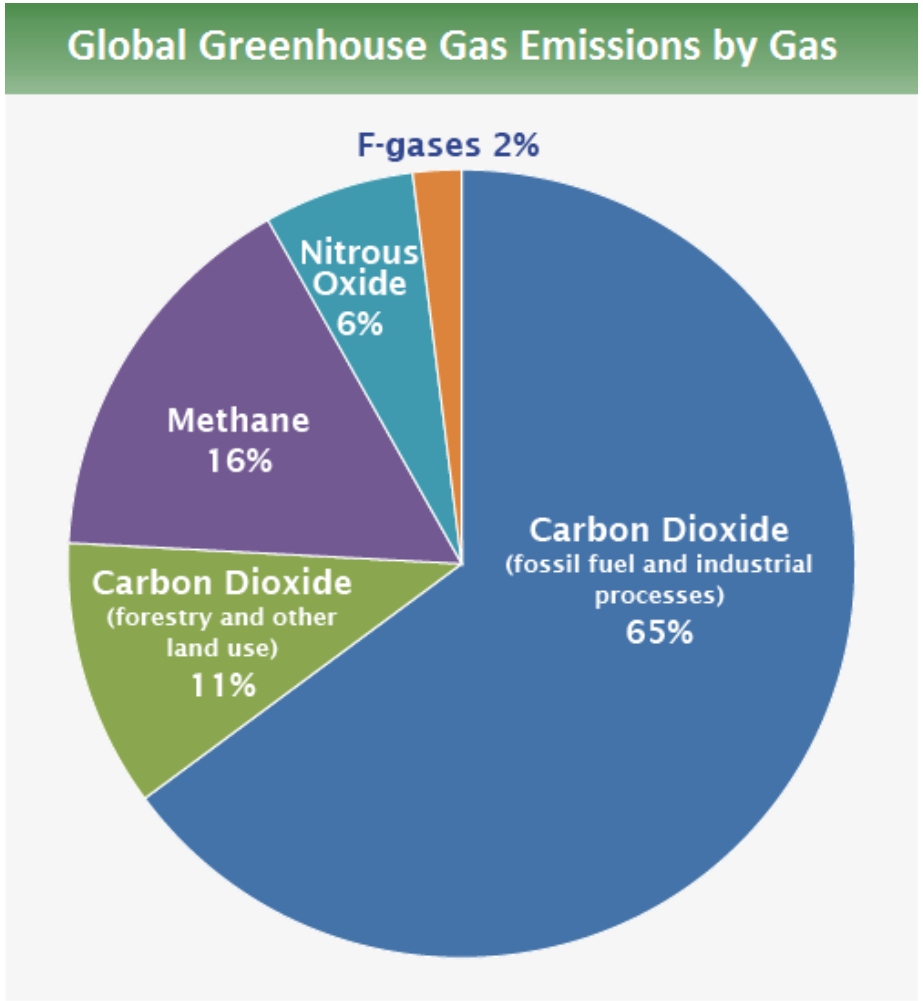
[1] $GtCO_2e$ = gigaton of carbon dioxide equivalent; "business as usual" based on emissions growth driven mainly by increasing demand for energy and transport around the world and by tropical deforestation.
[2] tCO_2e = ton of carbon dioxide equivalent.
[3] Measures costing more than €40 a ton were not the focus of this study.
[4] Atmospheric concentration of all greenhouse gases recalculated into CO_2 equivalents; ppm = parts per million.
[5] Marginal cost of avoiding emissions of 1 ton of CO_2 equivalents in each abatement demand scenario.

Source: McKinsey

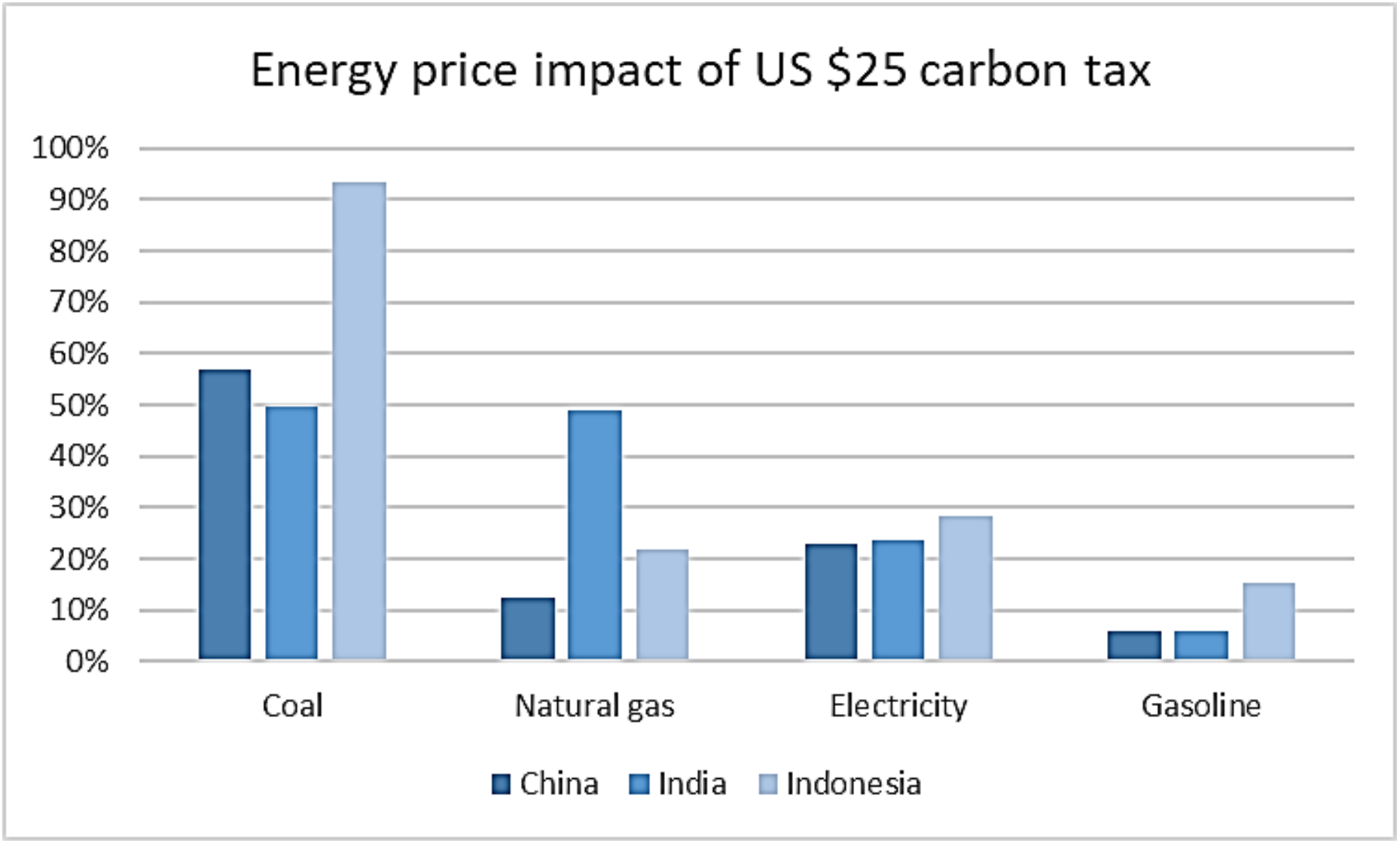
Identify greenhouse gases for tax base 2

Fuel approach vs Direct emissions approach

Greenhouse Gas	Formula	100-year GWP
Carbon dioxide	CO_2	1
Methane	CH_4	25
Nitrous oxide	N_2O	298
Sulphur hexafluoride	SF_6	22,800
Hydrofluorocarbon-23	CHF_3	14,800
Hydrofluorocarbon-32	CH_2F_2	675
Perfluoromethane	CF_4	7,390
Perfluoroethane	C_2F_6	12,200
Perfluoropropane	C_3F_8	8,830
Perfluorobutane	C_4F_{10}	8,860
Perfluorocyclobutane	c-C_4F_8	10,300
Perfluoropentane	C_5F_{12}	13,300
Perfluorohexane	C_6F_{14}	9,300

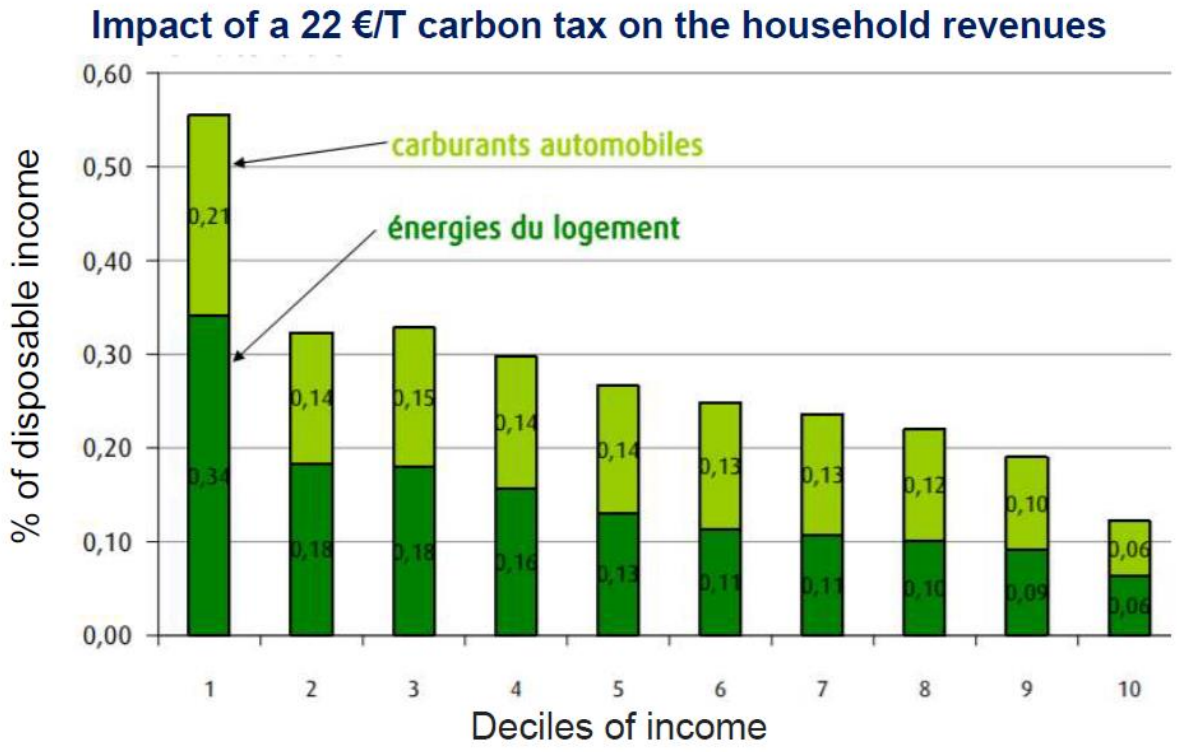


Assess implications and risks of leakage 3



Assess distributional impacts 4

Without compensation, carbon tax has regressive effects



Source : Mathilde Clement, CGDD-INSEE, using households surveys (2016)

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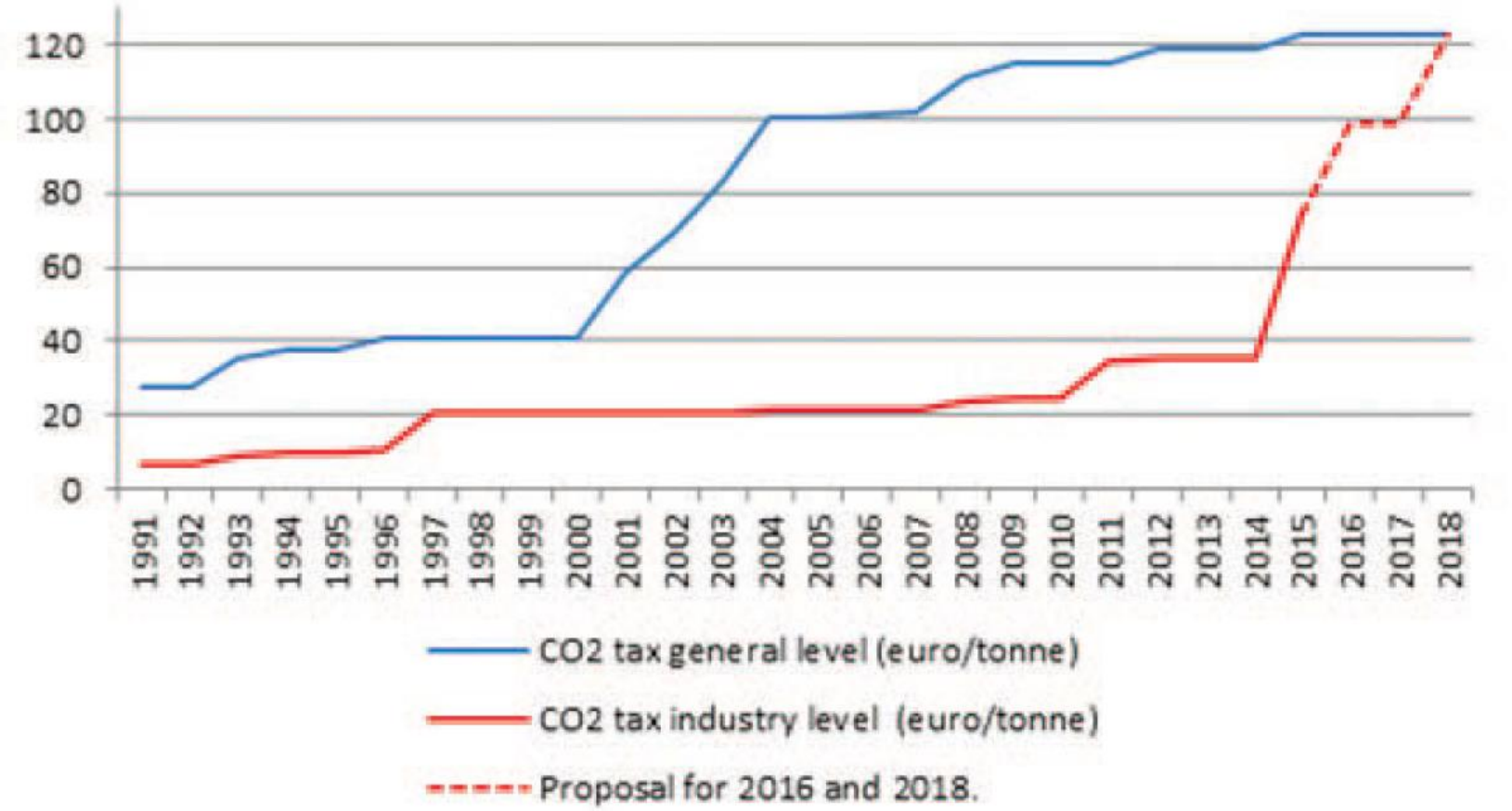
Calibrate carbon tax rate 5

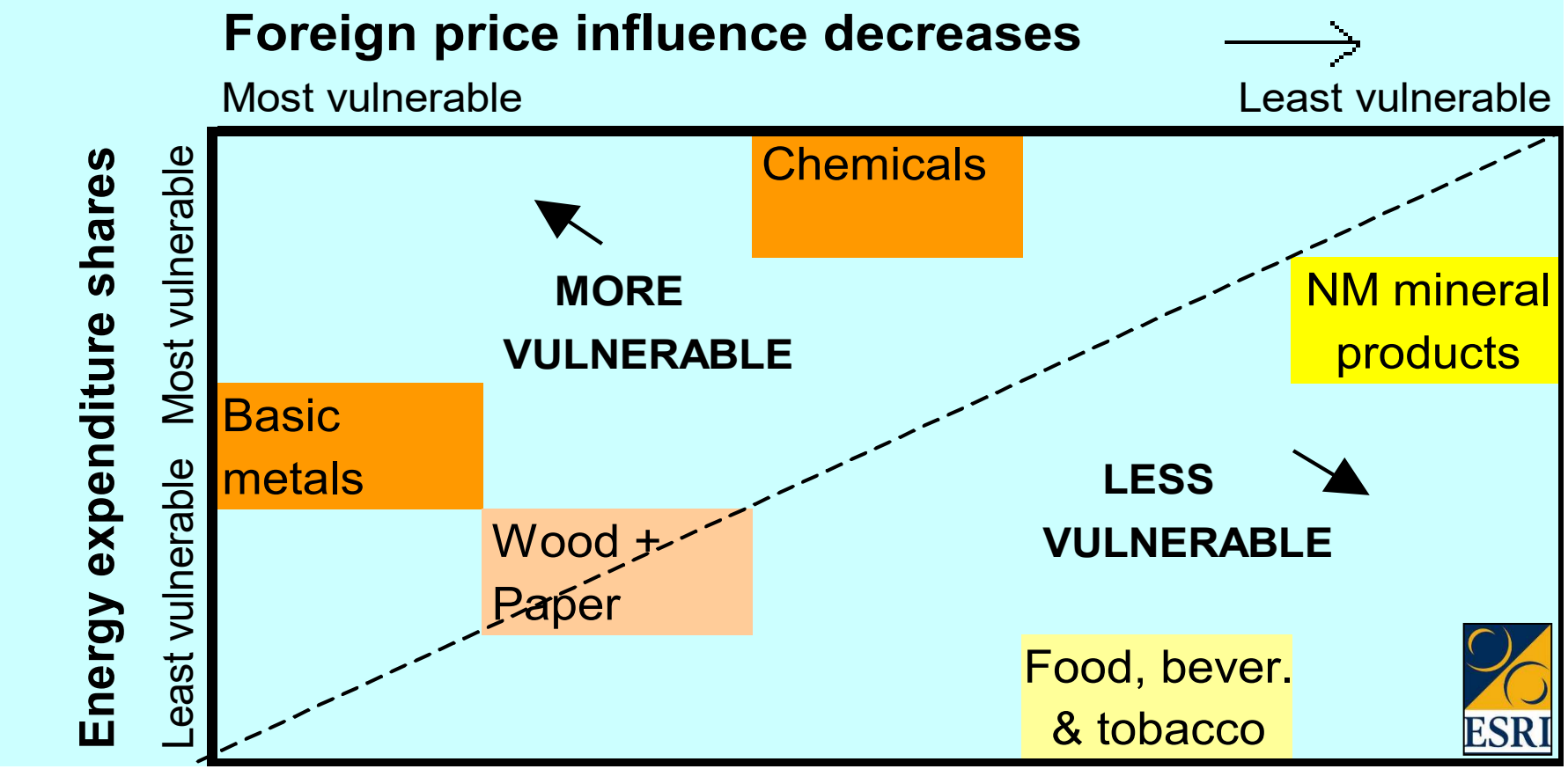
FIGURE 2: Development of Swedish carbon tax rate over time



Source: Swedish Ministry of Finance (NOTE: from 2008 industry outside EU Emissions Trading Scheme (EU ETS)).

Determine scope for reductions or exemptions 6

Energy-intensive AND trade-intensive sectors – who are they?



Support for low-income households 7

Mitigation

- An ex-ante measure to reduce effective tax rates and alleviate tax burden for specific groups
- e.g. zero or reduced tax rate for ‘basic’ consumption (consumption floor)

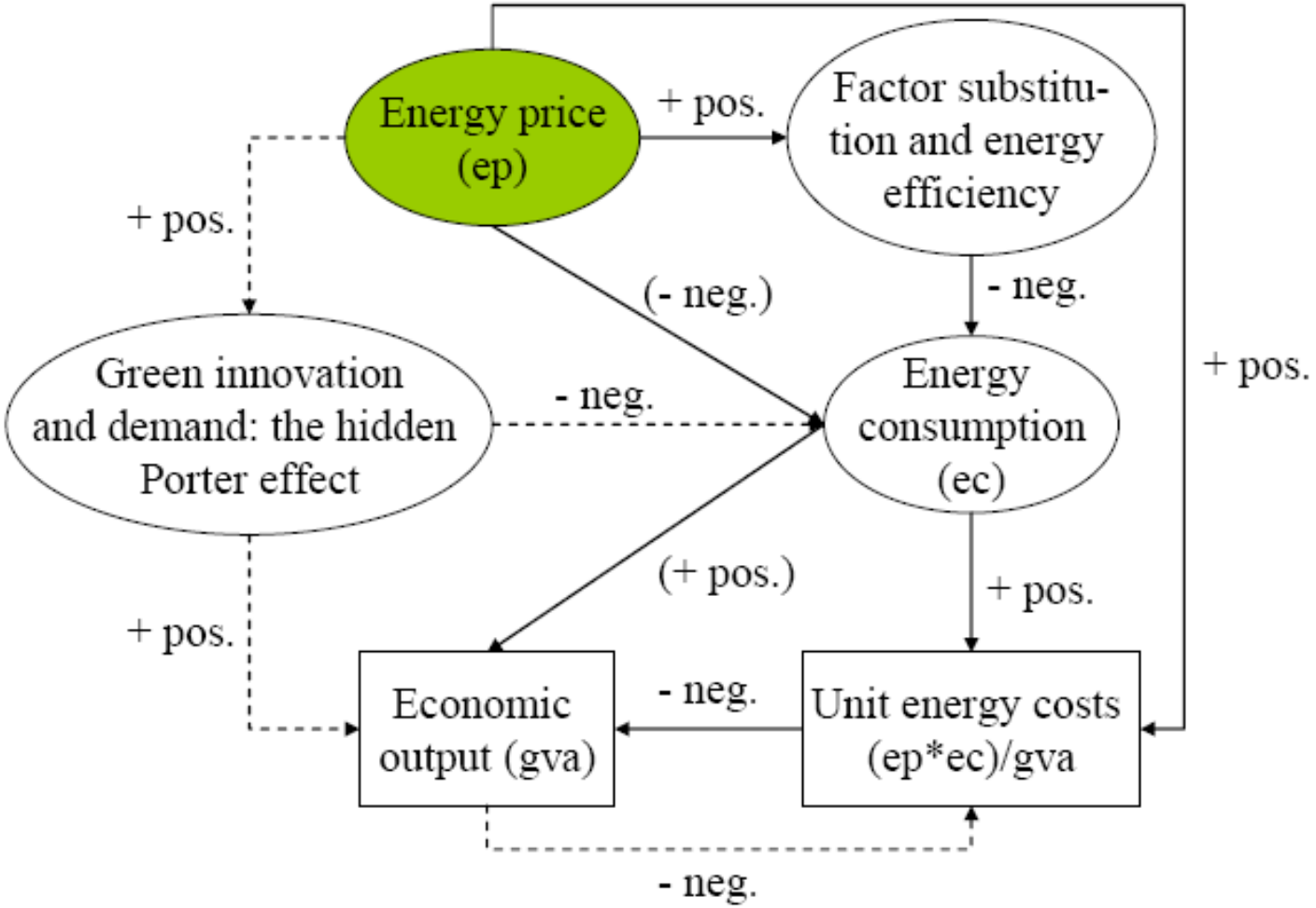
Compensation

- An ex-post measure (transfer payment) outside the realm of taxation as such, not affecting tax base or rate structure,
- e.g. ‘green bonus’ to low-income households

OECD advises to use compensation

ADB Photo
Shantang’s residents still use coal-burning stoves for cooking.

Assess macro-economic impacts 8



Determine institutional oversight 9

Establish monitoring for ex-post evaluation

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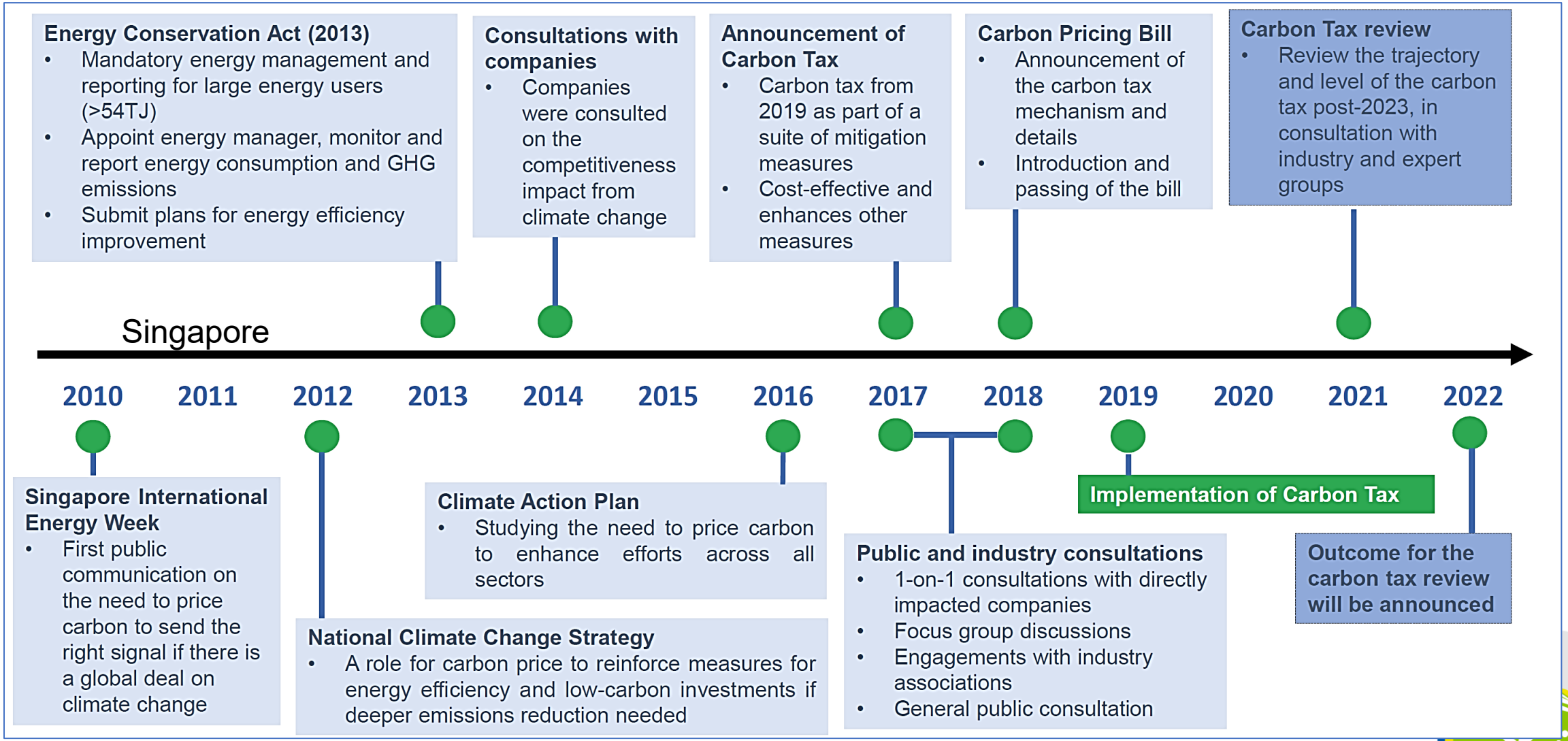
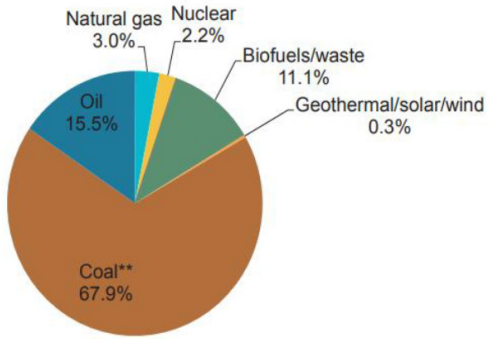
Consult stakeholders



South Africa's energy context

- Energy supply dominated by coal
- SA accounts > ⅓ of CO_2 emissions in Africa
- Among the top 20 CO_2 emitters globally
- Peak, plateau and decline trajectory
- Paris Agreement commitments



South Africa's new carbon tax

- Implemented on 1 June 2019
- A phased implementation approach
- Manufacturing, construction, mining and transport sectors will be affected.

- Requires accurate system for monitoring, reporting and verifying emissions
- South African Revenue Service (SARS): tax liability assessment
- Department of Environmental Affairs: assist SARS in audits

- Tax rate
  - Headline carbon tax is R120 *(Euro 7.30)* per ton of CO_2 emissions
  - Taking into account tax-free thresholds = R6 to R48 per ton of CO_2 emissions *(or Euro 0.36 to Euro 2.92)*
- Tax base
  - total quantity of GHG emissions from combustion, fugitive and industrial processes
  - Proportionately reduced by tax-free allowances

- Tax liability = tax base ✕ carbon tax rate

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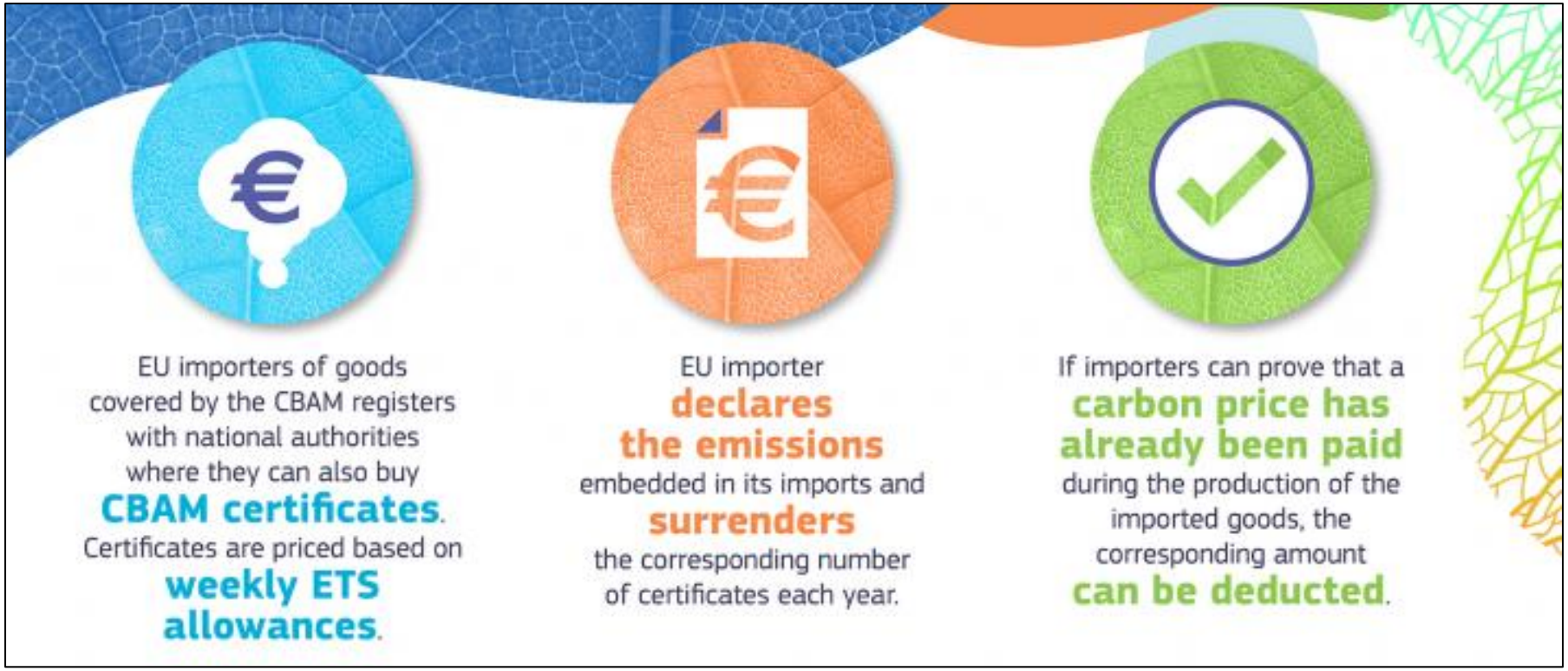
EU's carbon toll will reward carbon pricing

Carbon Border Adjustment Mechanism (CBAM)

- Energy intensive goods imported from countries with no CO2-price will be imposed CO2-toll



- Implementation in 2026; reporting to begin 2023

Thank you for your attention!

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