# Maximising the synergies between carbon pricing and Article 7 of the Energy Efficiency Directive (EED)

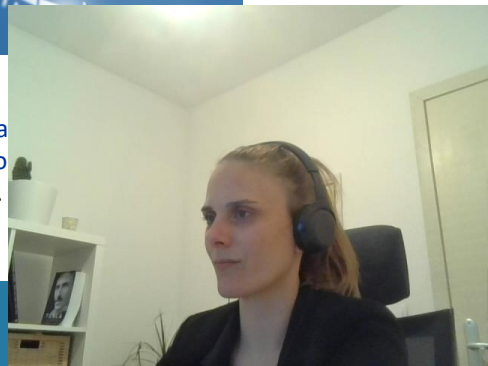
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07/06/2021

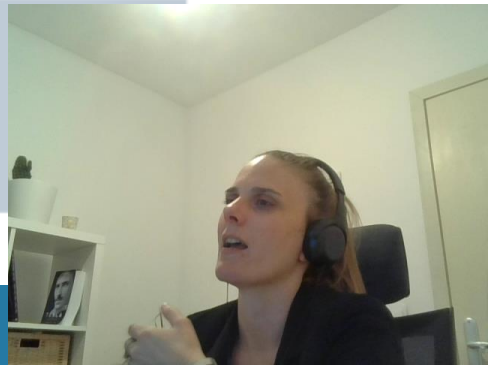



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TOWARDS BETTER ENERGY EFFICIENCY POLICIES

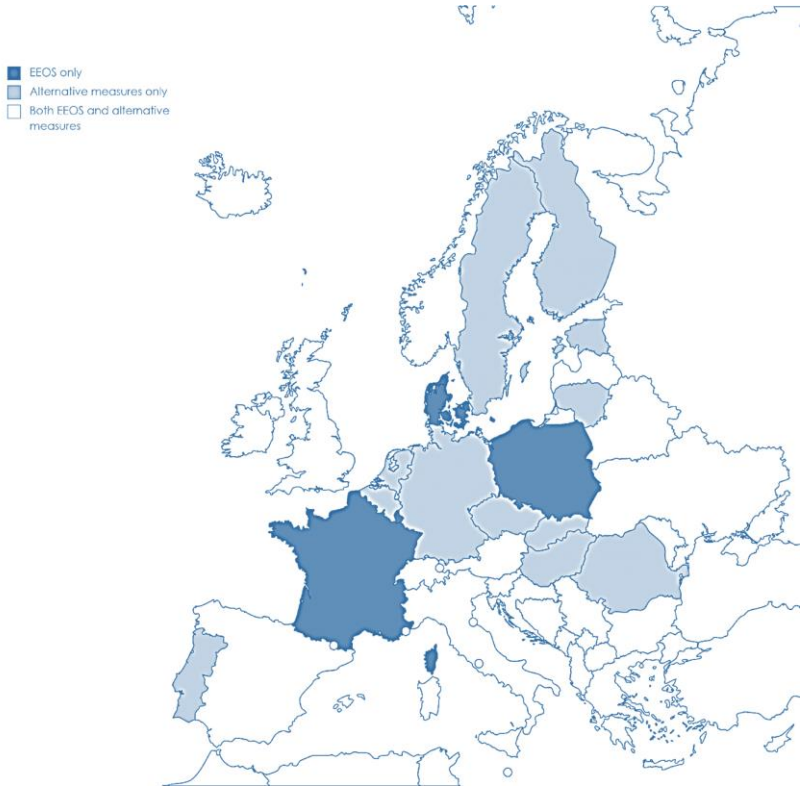
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| 02 | HOW ARTICLE 7 TAXATION MEASURES ARE CURRENTLY IMPLEMENTED | Differences between taxation measures, price elasticities and use of revenues among countries |
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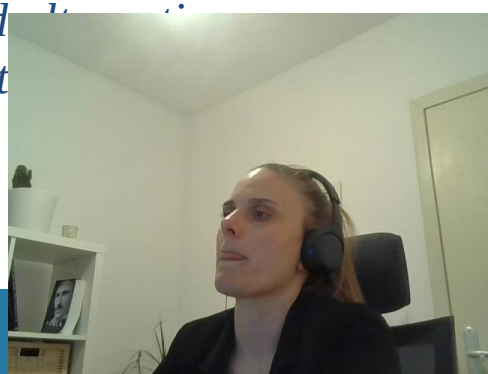
# Introduction

The Energy Efficiency Directive (EED):

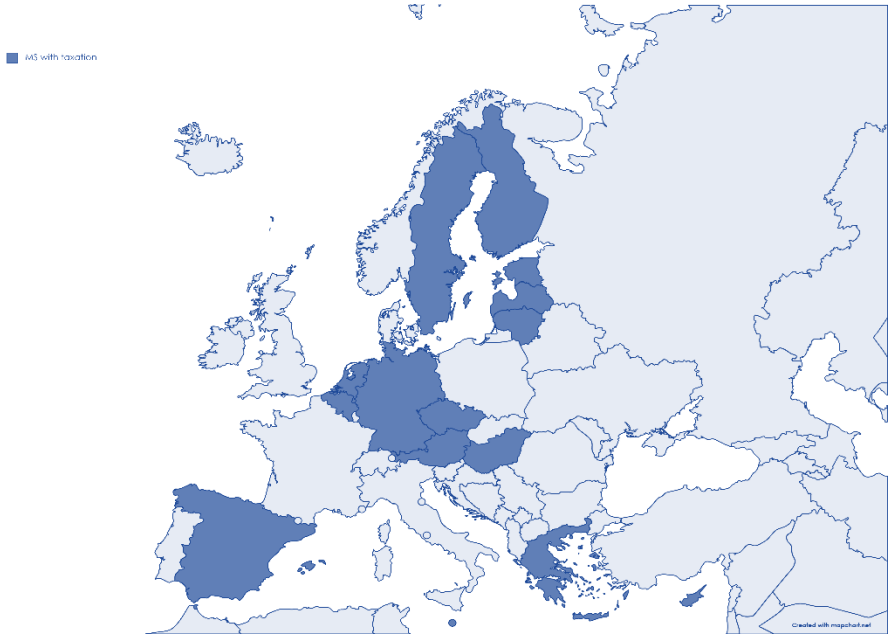
- 32.5% energy consumption reduction,
- most effective tool - Article 7 EED,
- energy savings of 0.8% of baseline energy consumption each year,
- energy efficiency obligation scheme (EEOS), alternative measures or both,
- alternative policies:
  - energy or CO2 taxes;
  - financial incentives that lead to increased use of energy-efficient technology;
  - regulations or voluntary agreements that lead to the increased use of energy efficient technology;
  - energy labelling schemes;
  - and training and education, including energy advisory programmes.




*Map of EEOS and*
*in t*



# MS with taxation under the 2014-2020 period




Types of taxation

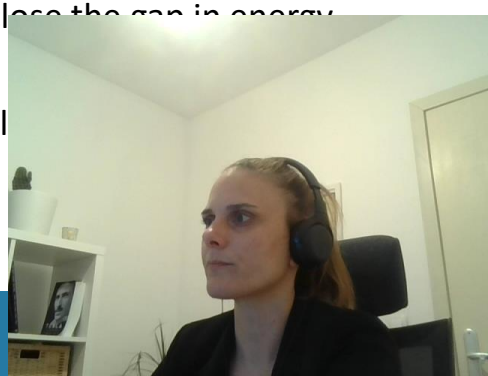
✓ General energy taxation covering all sectors

A, BE, CY, CZ, DE, EE, GR, ES, H, LV, NL, SE, (UK)

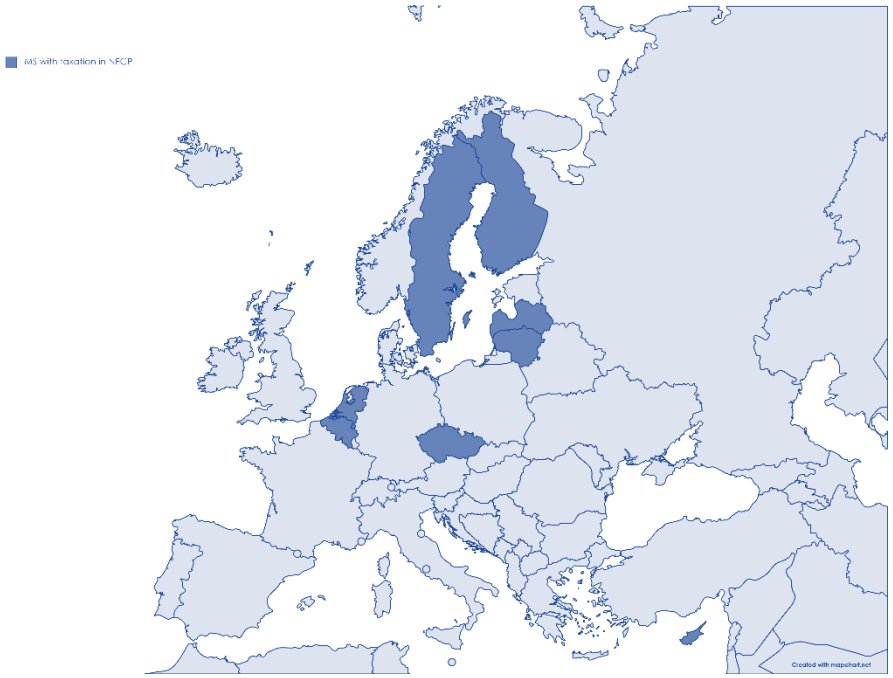
✓ Taxation on transport fuels

FI, LT, MT

- Contribution of taxation measures differs substantially from 75% in cumulative savings (CY, ES, SE) to <20% in most MS
- Energy taxes were reported in their majority early enough as taxes with clear objectives (energy/energy efficiency) with only few exceptions
- Energy and $CO_2$ taxes in some cases introduced recently as an alternative measure to close the gap in energy savings from incumbent measures
- Interactions with other policies under Art7 exist, mainly with grants and subsidies in rel fewer with Energy Efficiency Obligations (EEOs)

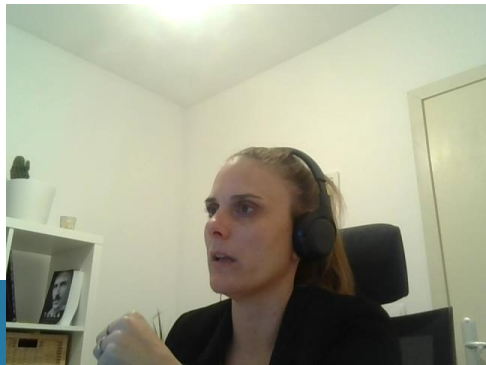


# MS with taxation measures in their NECP (2021-2030)




| Member State |
| --- |
| Belgium |
| Cyprus |
| Czech Republic |
| Finland |
| Lithuania |
| Latvia |
| Netherlands |
| Sweden |

- Fewer MS make use of taxation measures (up to now)
- The longer term horizon of the target allows more possibilities for using more measures or for strengthening the existing ones



# How are savings from taxation calculated?

## Elasticities

### Direct estimation:

- study for short (1-2 years) and long term (15-20 years) estimates
- modelling scenarios
- national verified databases
- inclusion of parameters (income, prices, other measures, seasonal effects, autonomous efficiency improvements, etc)

### Indirect estimation:

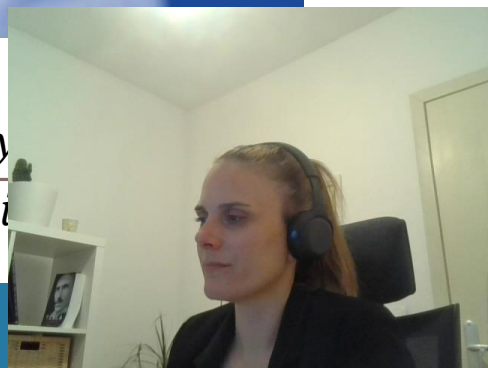
- regressions from academic literature
- particular sector in another country

## Calculation of energy savings

a) Bottom-up
b) Extrapolation of trends
c) Comparison with similar




$$Price\ elasticity\ of\ demand\ (PED) = \frac{\%\ change\ in\ the\ quantity}{\%\ change\ in\ pri}$$



# Elasticities (indicative)

| Member State | Short run elasticities | Long run elasticities |
|---|---|---|
| Austria | X (WIFO-DYNC model) | - |
| Belgium | 0.18 (cost of km travelled and distance – no price) | - |
| Cyprus | -0.1 (cement), -0.1 (rest of industry), -0.1 (residential), -0.05 (services) | N/A |
| Czech Republic | - | Time series 2001–2017 |
| Germany | -0.2 (gas), -0.2 (electricity), -0.2 (heating oil), -0.25 (diesel and gasoline) | N/A |
| Estonia | -0.26 (gas), -0.18 (electricity), -0.2 (district heating), -0.26 (petrol), -0.26 (diesel) | - |
| Greece | -0.51 (heating oil), -0.31 (diesel), -0.41 (gasoline), -0.31 (LPG) | - |
| Spain | -0.236 (res electricity), -0.055 (services electricity), -0.073 (industrial electricity), -0.2 (residential gas), -0.203 (services gas and industrial gas) | |
| Finland | -0.12 (petrol), -0.11 (diesel) | - |
| Hungary | Not available | |
| Lithuania | -0.58 (petrol), -0.26 (LPG) – source provides other values | - |
| Latvia | Not available | |
| Malta | -0.16 (petrol transport), -0.21 (diesel transport), -0.2 (gasoil heating), -0.44 (LPG heating) | (unclear if only short-term elasticities would be used) |
| Netherlands | -0.15 (Residential electricity), -0.1 (gas) | - |
| Sweden | -0.58 (Gasoline), -0.17 (diesel), -0.07 (electricity) | -1.09 (gasoline (diesel), -0.5 (elec |
| United Kingdom | -0.2 (industry) | -0.47 (industry (services) |



# Case studies from the Member States (extract) -Sweden

- Energy tax: fuel excise, applied to all fossil fuels

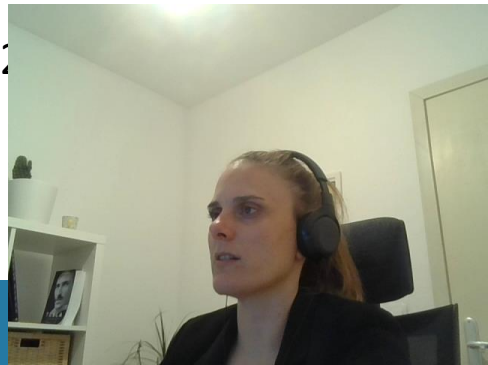
- CO2 tax: explicit carbon tax applied also to fossil fuels, with rate defined per tonne CO2;

- Electricity excise tax: applied by kWh, to all sectors, but more to households and commercial sectors than, for example, to agriculture;

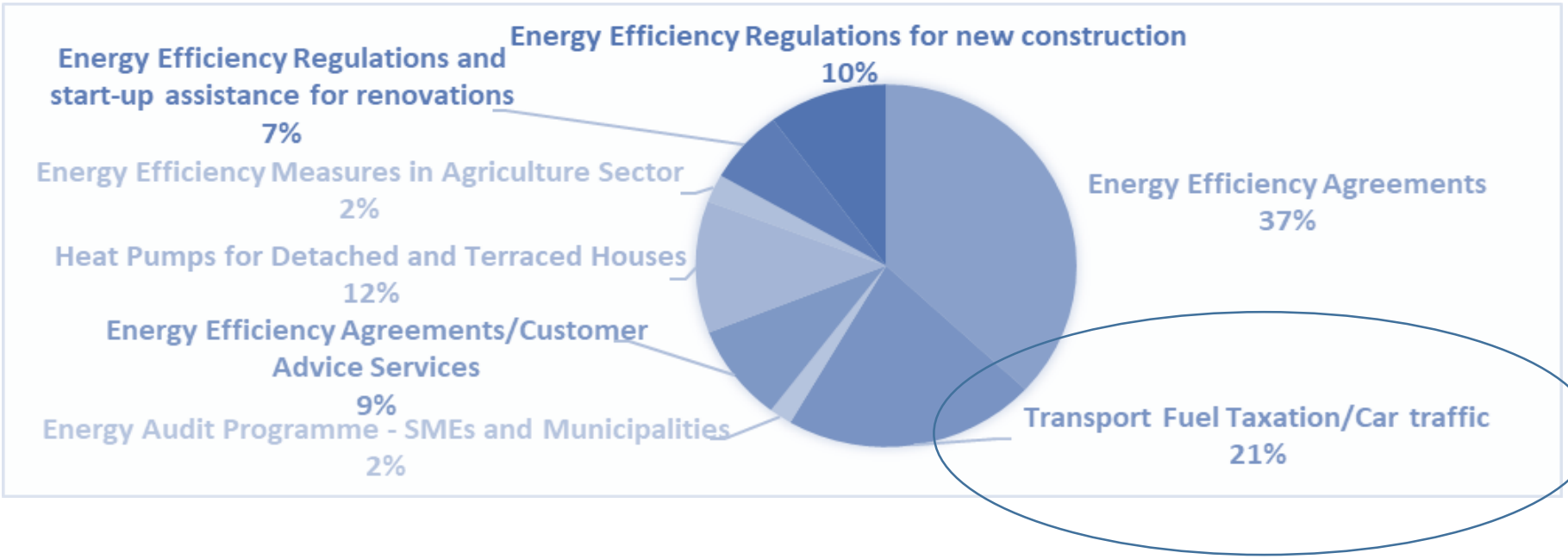
$$Energy\ savings = price\ elasticity \times (Swedish\ tax\ level - EU\ minimal\ tax\ level) \times final\ energy\ consumption$$

Short term (dynamic) elasticity model measures direct effects of tax on prices. After a certain period, the price signals reach steady state, and are calculated via long term models.

Price elasticities for the household sector and transport sector for 1
long- term data from 1975.



# Finland




Finland calculates the impact of taxes only in passenger car transport since other transport sectors are covered by policies and measures other than taxation,
There is no concern of double – counting,
Short-term elasticities are calculated as in Sweden
decision is based on similarities between the countries in economic



# Article 7 EED and EU Emission trading system (ETS) – synergies

- The EU ETS is a cap-and-trade mechanism
- Allowance (EUA) prices are passed through to end consumers in much the same way as a carbon tax

**The EU Commission will extend the EU ETS or set up a separate ETS for the buildings and transport sectors:**

- It is important to evaluate benefits and adverse effects (for example energy poverty) but
- would make EE more profitable (carbon pricing can support the policy measures that drive the take-up of energy efficient actions and technologies)

- The revenues raised by carbon pricing can be used to fund investment support measures and bill support programmes for the energy poor households
- Electricity and some district heating installations are subject to a c through the ETS.



# How Article 7 EED and possible extension of emissions trading fit in?

- The extension would have implications for the operation of Article 7 EED and potentially give rise to a revaluation of its role within the EU climate and energy policy framework.
- Member States exempting these sectors from current carbon pricing measures reducing the energy savings available for reporting under Article 7 EED.
- The carbon price would support the cost-effectiveness of EU standards and make the reform of other policy instruments more politically acceptable
- With carbon pricing mandated through the ETS Directive, there would be a case for using the rest of the EU framework to address other market failures and barriers beyond the internalisation of the external cost of carbon.



# Conclusion:

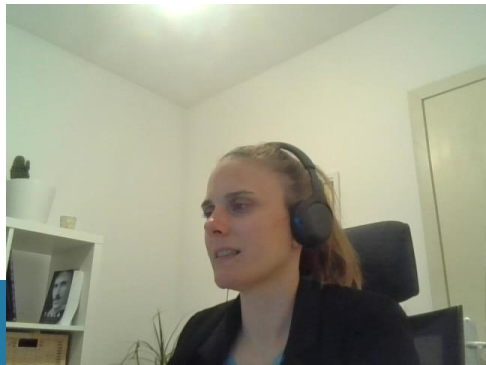
The introduction of emissions trading to the buildings and transport sectors, or increases in the minimum levels of energy taxation, would reduce the scope for national taxation measures to make energy savings eligible for Art7 EED;

Higher minimum levels of energy taxation would directly lead to reductions in Art7 EED savings without equivalent increases in national taxation rates;

With all emissions capped, the additionality of emissions savings from Art7 EED energy efficiency measures could be questioned – without them, the allowance prices would simply rise.

The ETS would internalise the external cost of carbon

Art7 EED would tackle the market failures stopping otherwise cost-effective carbon abatement actions from happening.



# Acknowledgements




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