

# Find your way around the various flexibility mechanisms under the European burden-sharing

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# Aims of this paper

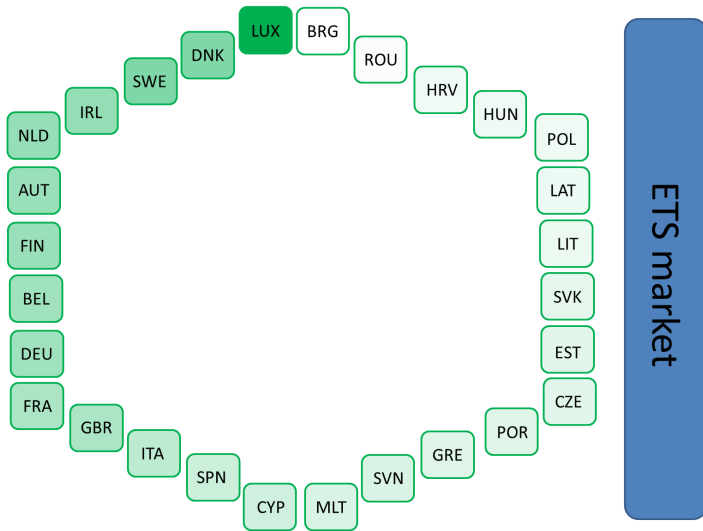
- Evaluate the new 2030 EU burden sharing
- Analyse the economic impacts of various flexibility mechanisms
- Overall GHG emissions target in 2030: -40% with respect to 1990 levels
  - ETS emissions: -43% with respect to 2005 levels
  - ESD emissions: -30% with respect to 2005 levels

Table: Effort Sharing Decision based on GDP per capita in % of 2005 levels

Bulgaria	0%	Cyprus	-24%
Roumania	-2%	Spain	-26%
Croatia	-7%	Italy	-33%
Hungary	-7%	United Kingdom	-36%
Poland	-7%	France	-36%
Latvia	-6%	Germany	-37%
Lithuania	-9%	Belgium	-38%
Slovakia	-12%	Finland	-39%
Estonia	-13%	Austria	-39%
Czech Republic	-14%	Netherlands	-39%
Portugal	-17%	Ireland	-39%
Greece	-16%	Sweedeen	-40%
Slovenia	-15%	Denmark	-40%
Malta	-19%	Luxembourg	-40%

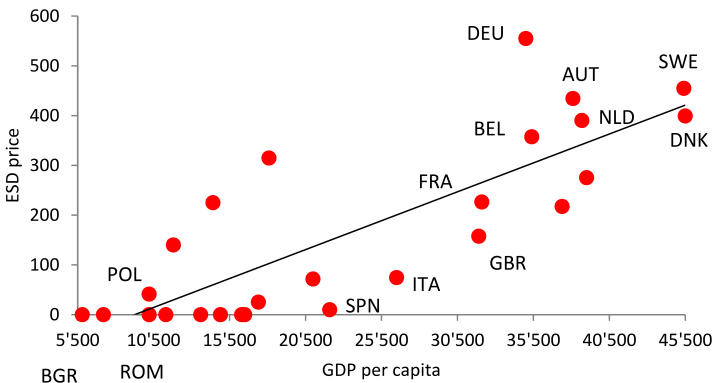
- Standard computable general equilibrium model
- EU version: 28 European countries + China + Rest of the World
- 11 goods/sectors:
  - 3 ETS sectors: Refineries, electricity generation, energy intensive sectors
  - ESD sectors: agriculture, transport, other goods and services + households
- Database: GTAP 9
- Consider CO<sub>2</sub> emissions from energy combustion
- Reference scenario 2011-2030 calibrated from “EU reference scenario 2016” done with PRIMES

# EU Architecture scenario → 29 markets, 29 CO<sub>2</sub> prices



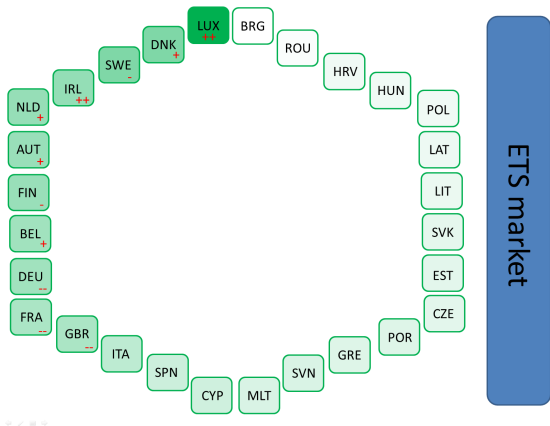
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# EU architecture scenario: ESD CO<sub>2</sub> prices in € - Year 2030



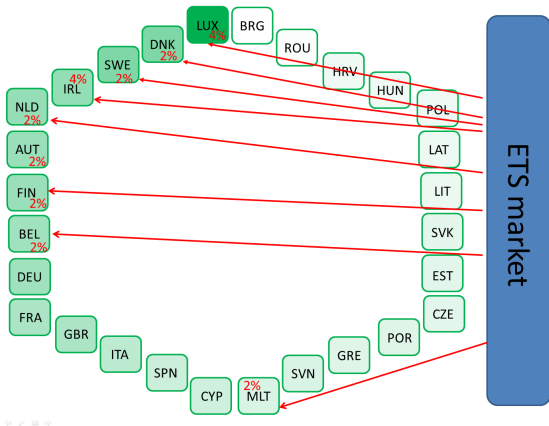
- ESD CO<sub>2</sub> average price = 209 €
- 9 ESD CO<sub>2</sub> prices = 0 → Hot Air  $\simeq$  30 Mt CO<sub>2</sub> in 2030
- ETS CO<sub>2</sub> price = 45 €

# Target adjustment: Option T3



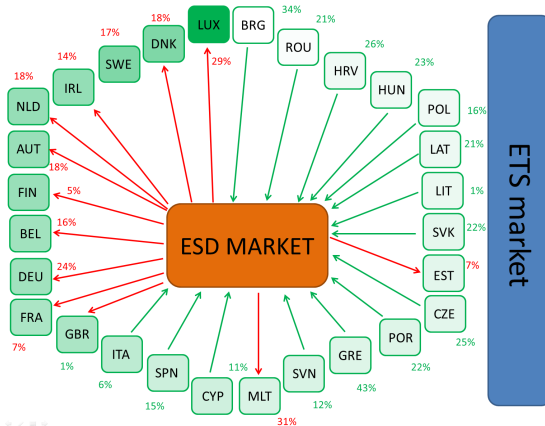
- Only high income Member States: AUT, BEL, DEU, DNK, FIN, FRA, IRL, LUX, NLD, SWE
- $-2\% \leq \text{target adjustment} \leq +13\%$

# One-off flexibility between ETS and non-ETS: Option O2



- Only high income Member State: AUT, BEL, DEU, DNK, FIN, FRA, IRL, LUX, NLD, MLT, SWE
- $2\% \leq \text{access limit} \leq +8\%$

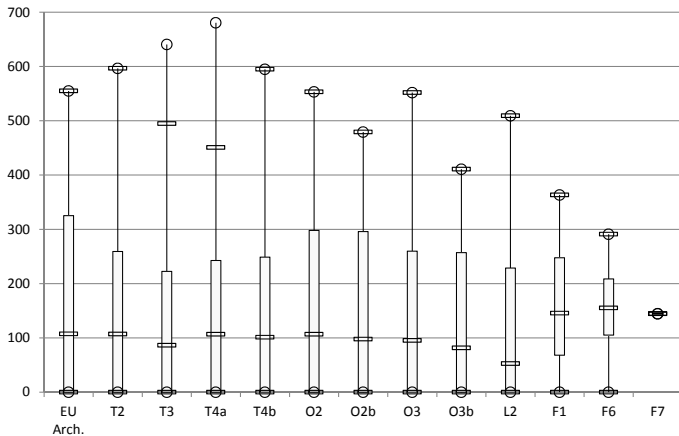
# Inter-Member State flexibility: Option F7



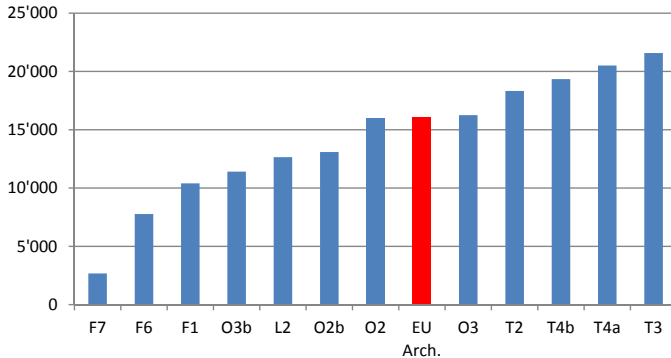
- F1=5% trade limit, F6=10% and F7=no limit



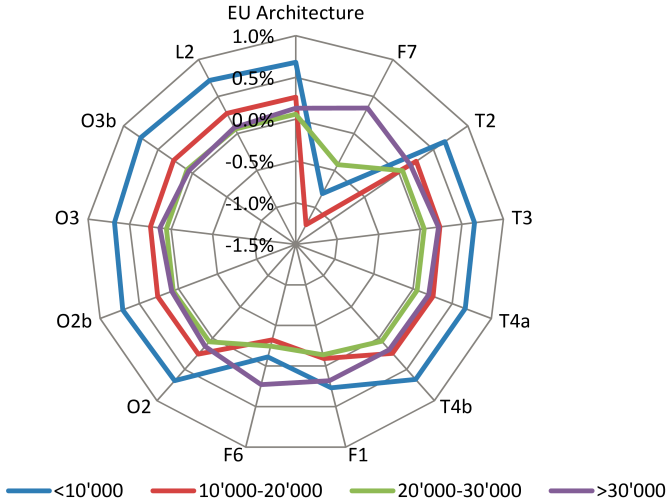
# Flexibility options and ESD CO<sub>2</sub> prices in € - Year 2030



# Flexibility options and EU Welfare cost in billion €



# Flexibility options and EU Welfare cost in % of household consumption per Member State income levels (GDP per capita)



- The new EU burden sharing is highly questionable with respect to
  - Environmental effectiveness ← “Hot air”
  - Cost-efficiency
- The EU partly acknowledges these points by proposing several flexibility mechanisms
- Target adjustment options fail to reintroduce flexibility
- One-off flexibility options between ETS and non-ETS are too limited
- Only inter-Member state flexibility options is the most attractive:
  - It tend to equalizing ESD prices → reduce overall EU welfare cost
  - Increase the welfare of low-income Member States through selling of quotas
  - But must be extended in term of % of allocations that are allowed to be traded
- The forthcoming EU burden sharing should consider additional criteria: existing situation (grandfathering) and cost-efficiency