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SUSTAINABLE ENERGY DEVELOPMENT IN SELECTED EU MEMBERS: FRAMEWORKS AND POLICIES

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Introduction

- UN SDGs & Paris agreement provide ambitious targets for future development
- Global transformation to "end poverty, protect the planet and ensure prosperity for all" by reaching 17 targets
- While combatting climate change is a central issue the SDGs have
  - a universal approach and
  - require the consideration of synergies and trade-offs between targets

A cross-country comparison of sustainable energy development

- The complexity calls for detailed indicators to evaluate progress and assess interdependencies
- Study on SDGs 7 (climate) and 13 (energy) using composite indices of sustainable energy development
  - 9 EU member states (2005 – 2015)
  - 3 dimensions of sustainability
  - total energy system & sectoral disaggregation
- Lack of (appropriate) data restricted the analysis – especially regarding social aspects
- Current developments and social issues require new data sets and indicators

CIEP Indicators for energy and climate

Sector

Dimension

Drivers/ Context

Energy services

	Residential	Transport		Industry	Services	Electricity and Heat Supply
		Passenger T.	Freight T.			
Economic	Energy efficiency by use category Energy cost share	Energy efficiency Energy cost share	Energy efficiency	Energy efficiency Energy cost share	Energy efficiency Energy cost share	Transformation efficiency Distribution efficiency
Environ-mental	Share of RES CO_2 Efficiency	Share of RES CO_2 Efficiency Share Rail in MS	Share of RES CO_2 Efficiency Share Rail in MS	Share of RES CO_2 Efficiency	Share of RES CO_2 Efficiency	Share of RES CO_2 Efficiency
Social	Affordability of washing machine Affordability to keep the house warm Affordability of internet connection Equipment rate of dishwashers Share of heating costs in HH income	Share of alternative drives in new registrations Accessibility of public transport Affordability of cars				Low wage earners Median hourly earnings Fatal incidents Gender pay gap Gender employment gap

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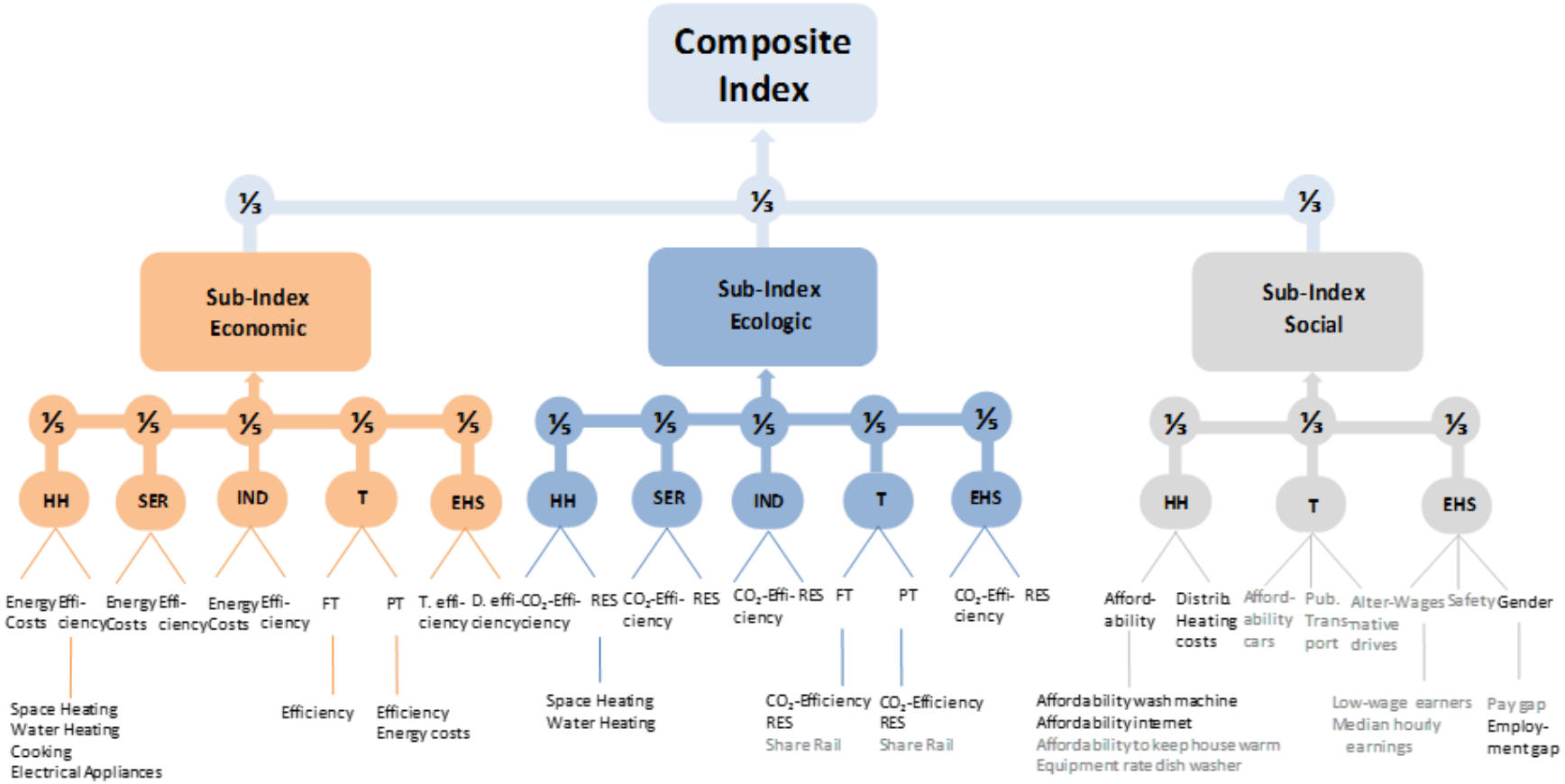
Composite Indices



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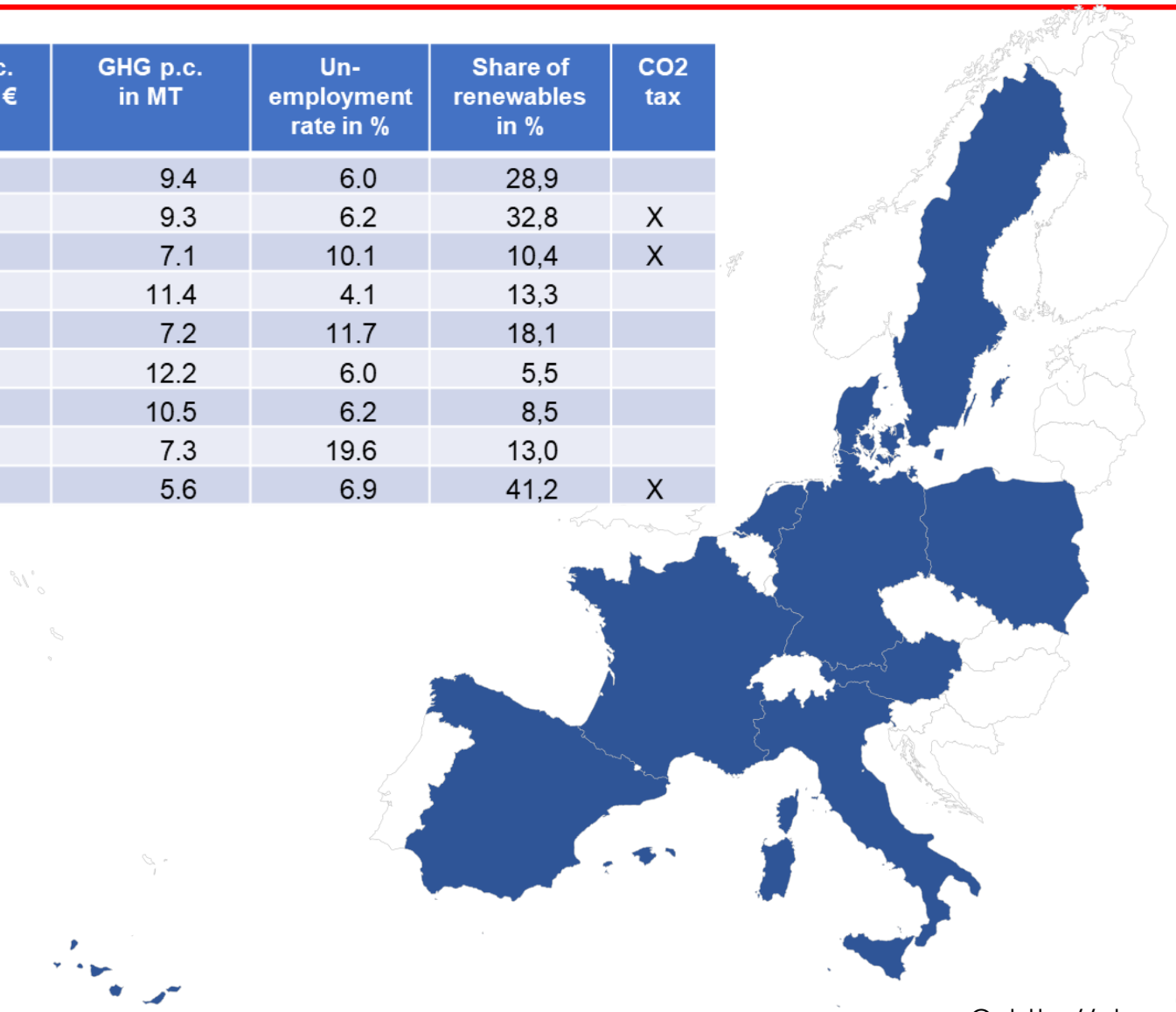
Context indicators for the selected countries

Country	GDP p.c. in 1.000 €	GHG p.c. in MT	Un-employment rate in %	Share of renewables in %	CO2 tax
Austria	37.2	9.4	6.0	28,9	
Denmark	36.1	9.3	6.2	32,8	X
France	30.4	7.1	10.1	10,4	X
Germany	36.0	11.4	4.1	13,3	
Italy	28.2	7.2	11.7	18,1	
Netherlands	37.2	12.2	6.0	5,5	
Poland	19.9	10.5	6.2	8,5	
Spain	26.7	7.3	19.6	13,0	
Sweden	36.0	5.6	6.9	41,2	X



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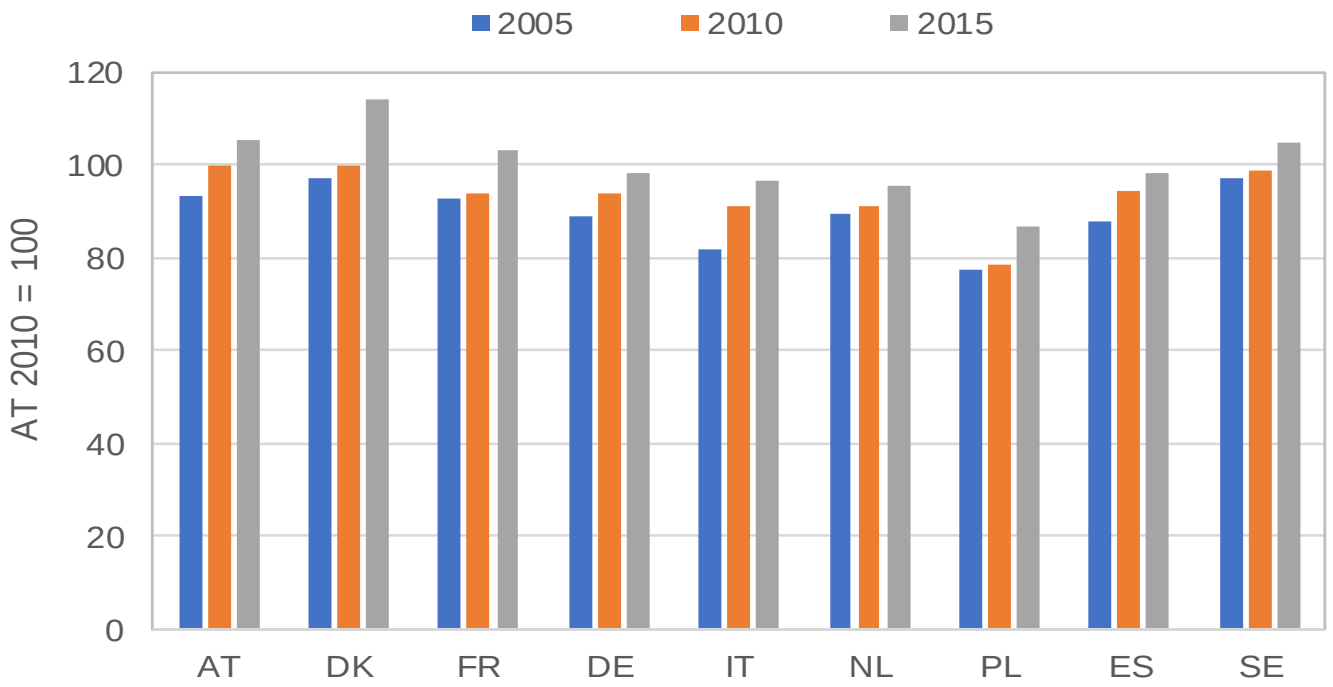
Country-specific conditions

- Relevant for sustainable energy development (in the context of the SDGs) are
  - The endowment with energy resources
  - Strategic choices in energy policy
  - Fiscal policy decisions, instruments (CO_2 taxes, subsidies, …) and accompanying policies (Industry, R&D, …)
  - Social structures/challenges
  - Commitment to climate policy, climate policy integration and the style of policy making

  ➢ Structural differences determine country specific challenges

(sustainable) energy development – international comparison (I)



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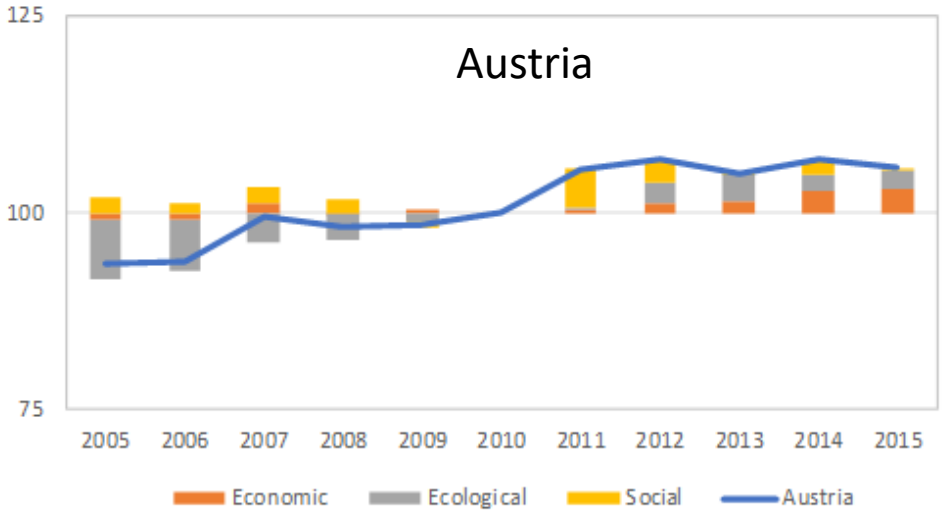
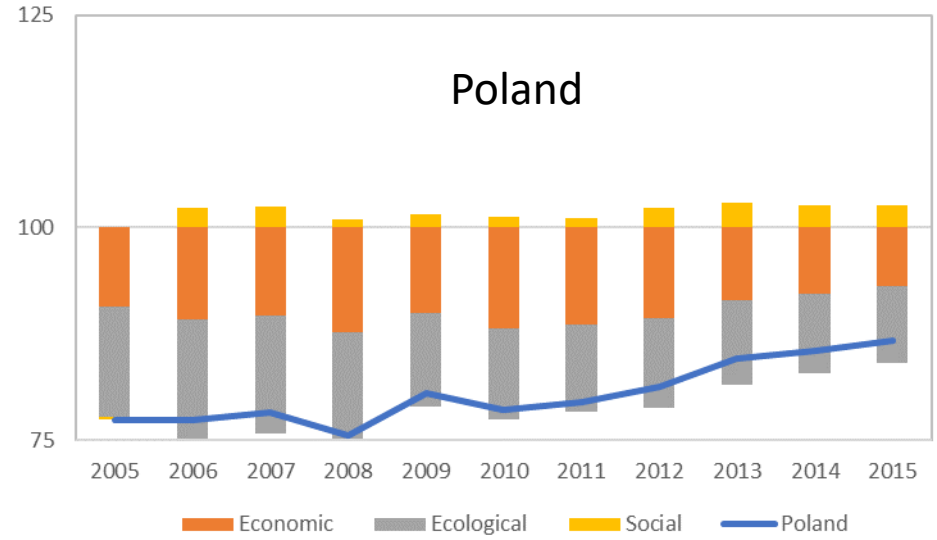
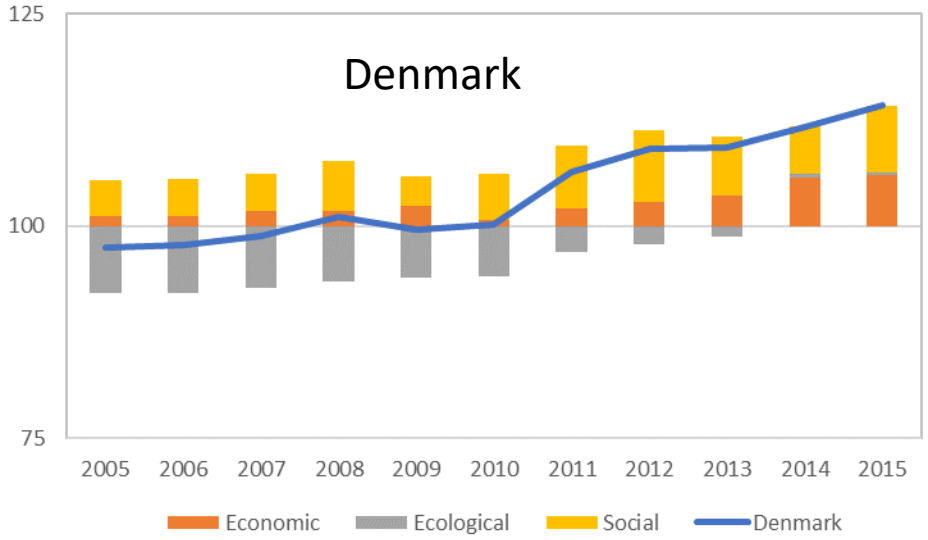
- Positive trends are mainly driven by the ecological dimension (CO_2 efficiencies, share of renewable energy)
- Economic and social dimensions show little changes (slight improvement of energy efficiencies & gender employment gap)

(sustainable) energy development – international comparison (II)







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How to assess interdependencies between targets?

CIEP	Indicators	Social							
		Population able to keep home adequately warm				New registrations of EL, AIT passenger cars			
		7 AFFORDABLE AND CLEAN ENERGY	5 GESCHLECHTER-GLEICHHEIT	13 CLIMATE ACTION	GHG reduc-tion	7 AFFORDABLE AND CLEAN ENERGY	5 GESCHLECHTER-GLEICHHEIT	13 CLIMATE ACTION	GHG reduc-tion
Social	Low-wage earners ↘	-2	-2	1	2	-1	-1	1	1
	Gender employment gap ↙	1	1	1/-1	-1	1	2	1/-1	1

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- Detailed, disaggregated data needed to assess trade-offs
- Assumptions about development paths affect outcomes
- Data gaps lead to neglect of certain (mainly social) aspects
- Comprehensive perspective and development of coherent policies required

➢ But: how are conflicts of targets solved in policy making?

Summary

- The analysis for 2005 – 2015 shows only moderate improvements in terms of sustainable energy development
- Energy transformation takes time and ambition – efforts have to be increased
- Specific energy systems and social structures require customised strategies for decarbonisation
- Costs of climate policies need to be made transparent & compensated for vulnerable groups

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Conclusions

- Countries with longstanding tradition in environmental policy and public welfare show better performance
- Success factors are stable conditions, an evidence based public discourse and ambitious policy interventions
- Interdependencies, conflicts of targets and social costs have to be addressed
- Pricing carbon is an indispensable component for climate policy, coherent policy making in other areas is also required

Thank you for your attention!

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