

Energy efficiency in low-carbon and energy roadmaps

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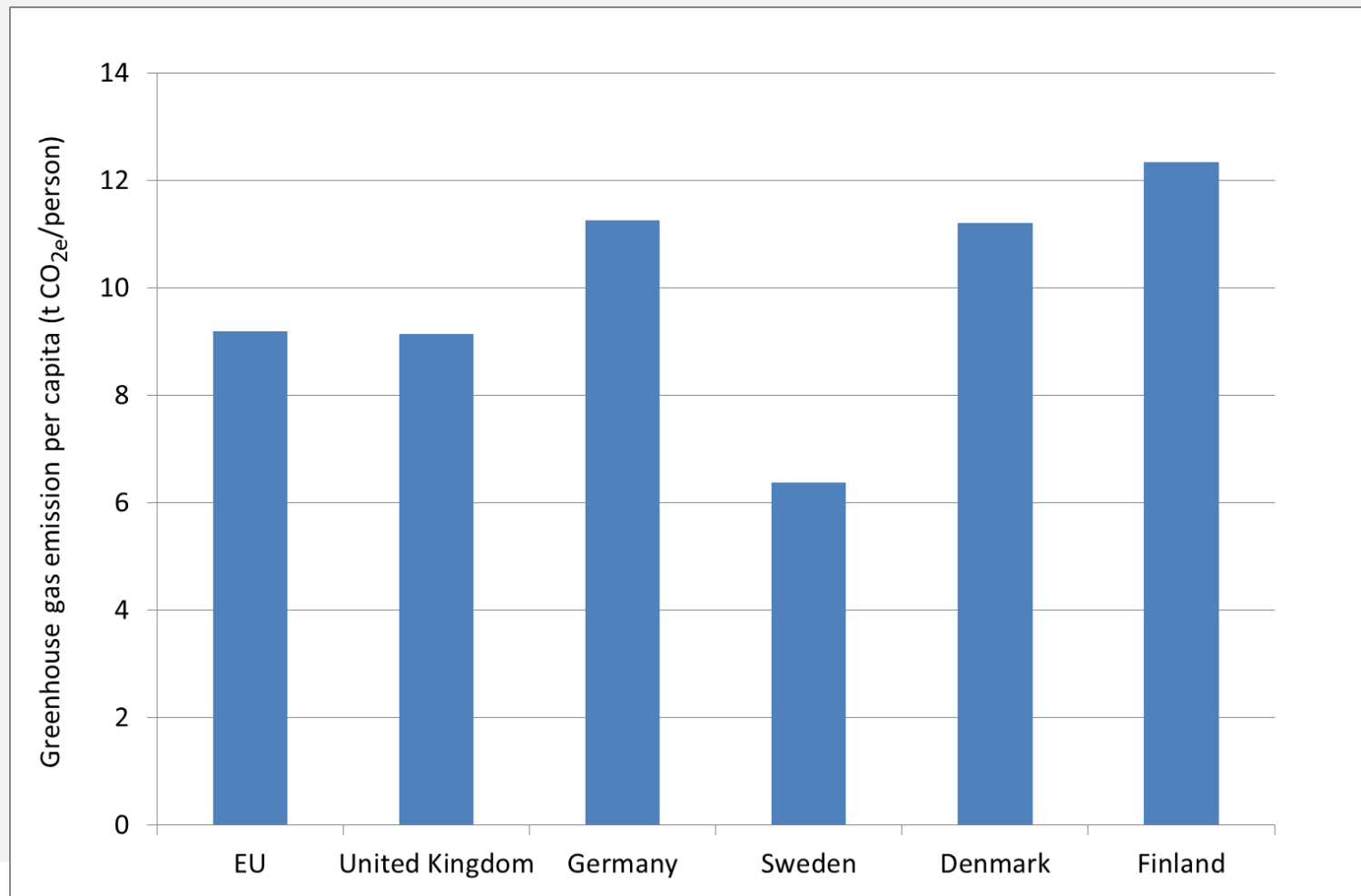
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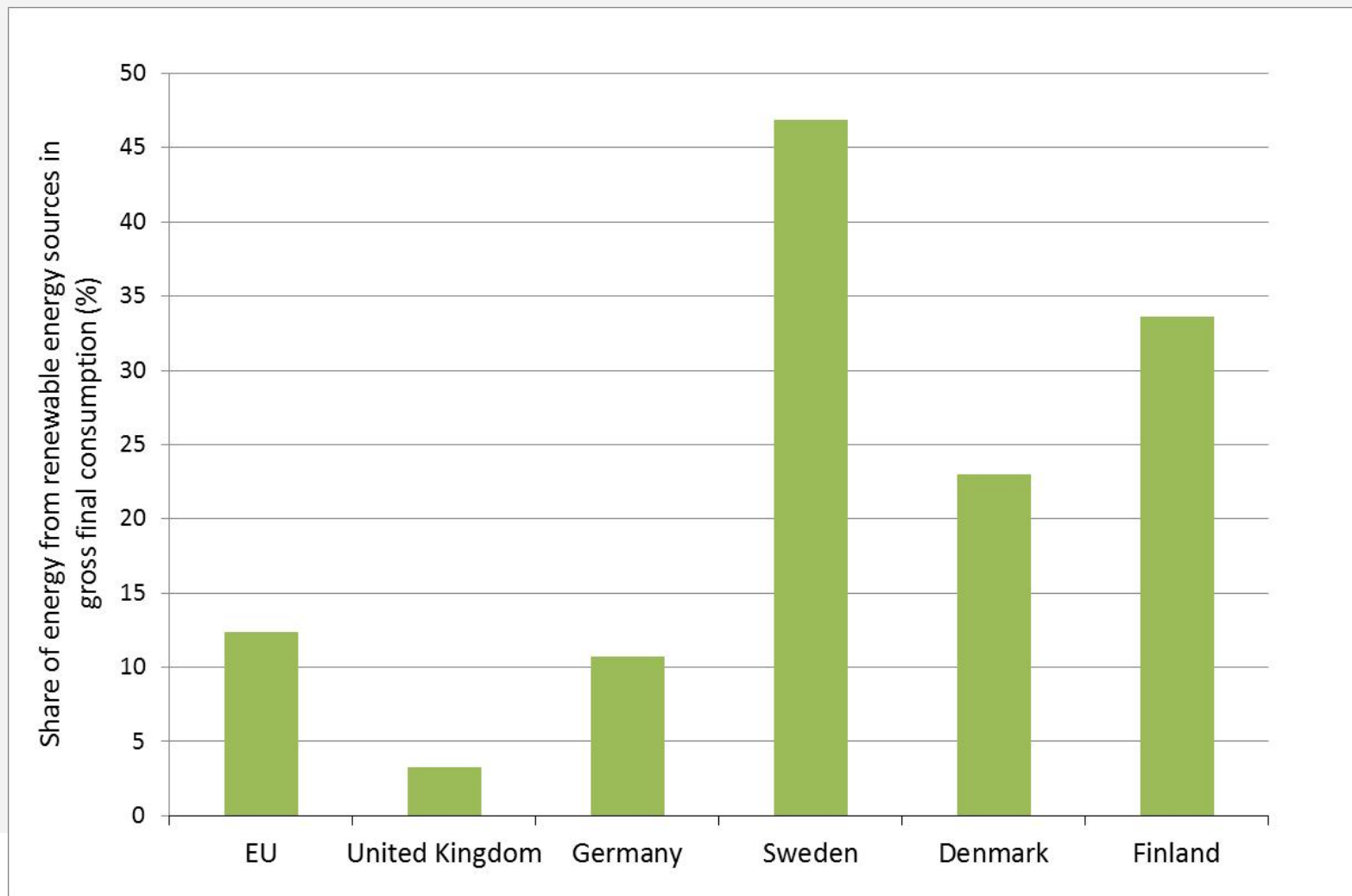
About the studied "roadmaps"

- EU, UK, DE, S, DK, FI
- What is qualified as a "roadmap"?
- Long-term perspective
- Major emission reductions or fossil-free systems—similar ambitions
- Varying political status
- Similar ambitions (based on 80-95% reduction for EU countries)

Different starting points –GHG emissions



Different starting points - renewable energy



Building stones of low carbon systems

- Energy efficiency
- Electrification (incl. electric vehicles)
- Renewable energy
- CCS
- Nuclear energy (in some studies)

Framing of EE as policy measure

- GHG mitigation
- Cost reduction
- Energy security
- Supportive for managing several environmental problems

Differs among countries and over time

Approaches for estimating future energy use

- All countries use model-based scenarios (usually based on cost-optimisation models)
- Both exogenous assumptions and endogenous estimates of energy efficiency
- Normative – preserving approach
- A few examples complement with more transforming approaches
 - UK: Carbon emission calculator
 - Finland: Four storylines

Targets for energy efficiency

- Short-term targets for many countries
- Germany: 50% primary energy reduction 2008-2050 – specific targets for transport energy and electricity
- Finland: Final energy should 2050 be 2/3 of 2005 level

Policy instruments

- Carbon pricing
- Strengthened energy standards
 - buildings,
 - appliances,
 - private cars
- VA for industry and municipalities
- New financing models
- Urban planning measures

Conclusion

- EE central in all roadmaps
- Motivation differs (GHG mitigation, cost reduction, reduction of potential conflicts)
- Most concentrate on technical measures – some also include eg. spatial planning
- Carbon pricing central, but complementing instruments necessary
- Roadmaps long-term, but suggested policy instruments short-term.