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How can supply security be measured and integrated in related policy areas?

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- Conclusions

Note: This presentation is *à titre personnel*

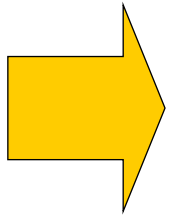
Security of Energy Services Supply

- What's at stake is: **Security of Energy Services Supply (in brief: Supply Security = SS)**
- **The key concern is the sustained and uninterrupted ability of consumers to meet desired (at least) essential *end-use* energy services at short notice and at affordable costs**
- **'essential', 'short notice', 'affordable' context-dependent**
- **End-user concerns to be put central in problem analysis**

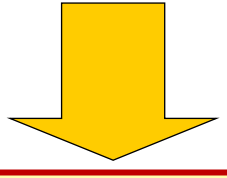
➔**Both supply-side *and demand-side* factors can mitigate risks**

Supply vulnerabilities, resilience and impact

Resource unavailability, price hikes (fuels, minerals)
Interventions export/transit countries
Inadequate upstream investments
Inadequate midstream infra (transport, conversion, distribution)
Technical failures and accidents
Terrorism/war damage/internal unrest
Natural disasters
Climate change impacts



Resilience of the energy services supply/demand system



IMPACT

SS indicators

- **Should be able to provide good insight into the ex post and projected ex ante status and evolution of SS aspects**

- **Could cover** a specific **vector** of energy services (e.g. the oil supply chain for oil based services), **or the whole energy system**

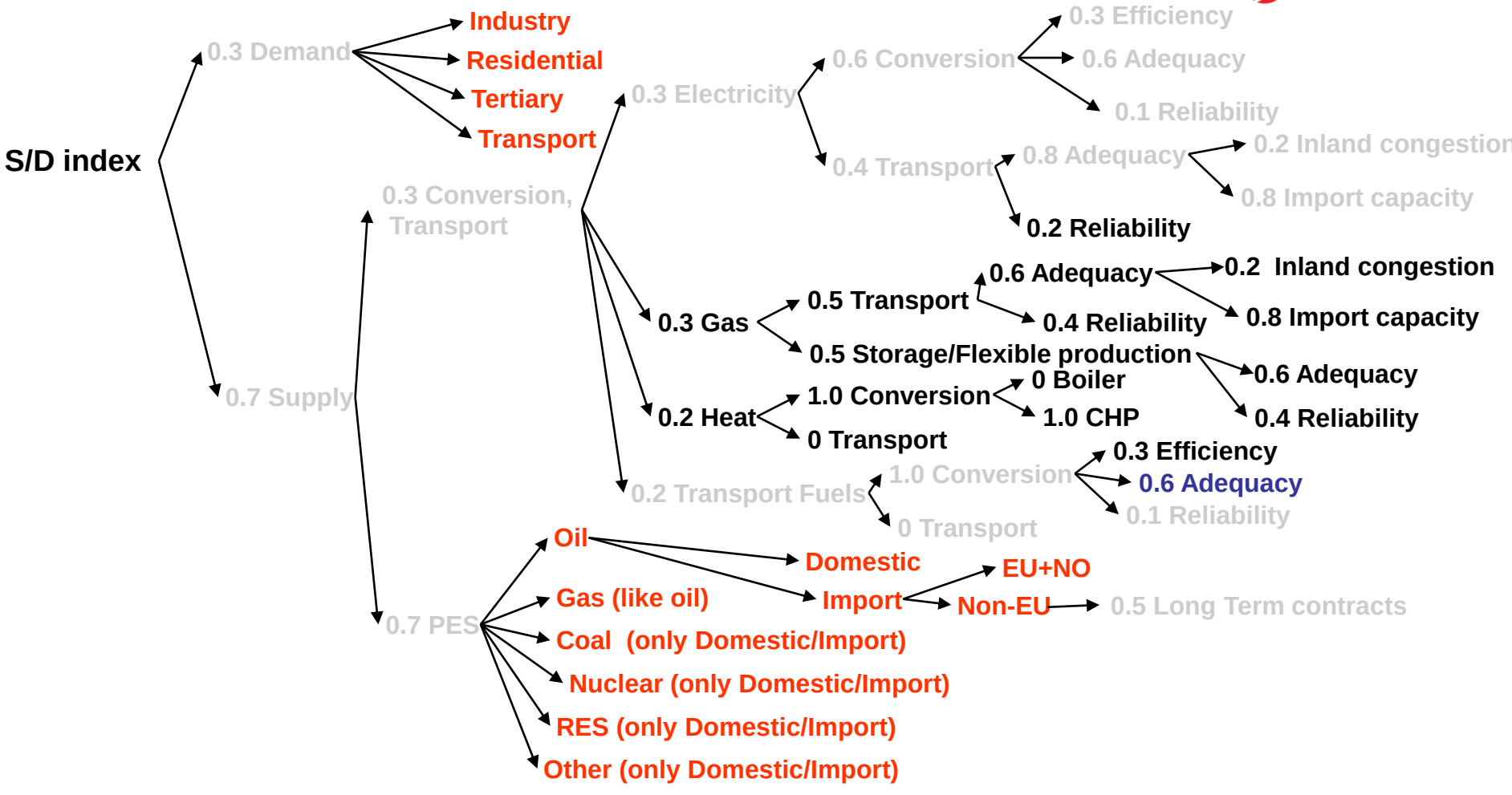
- Ideally SS indices are:
  - **Adequate summary metrics** of the complex SS world
  - **Transparent**
  - **Readily interpretable** by key stakeholders, e.g. on a [0,1] or [0%, 100%] scale
  - SS level (changes) **readily decomposable** in contributing factors
  - **Usable for various applications** (data issues manageable)

- **However, additional qualitative analysis remains necessary**

S/D (Supply/Demand) Index

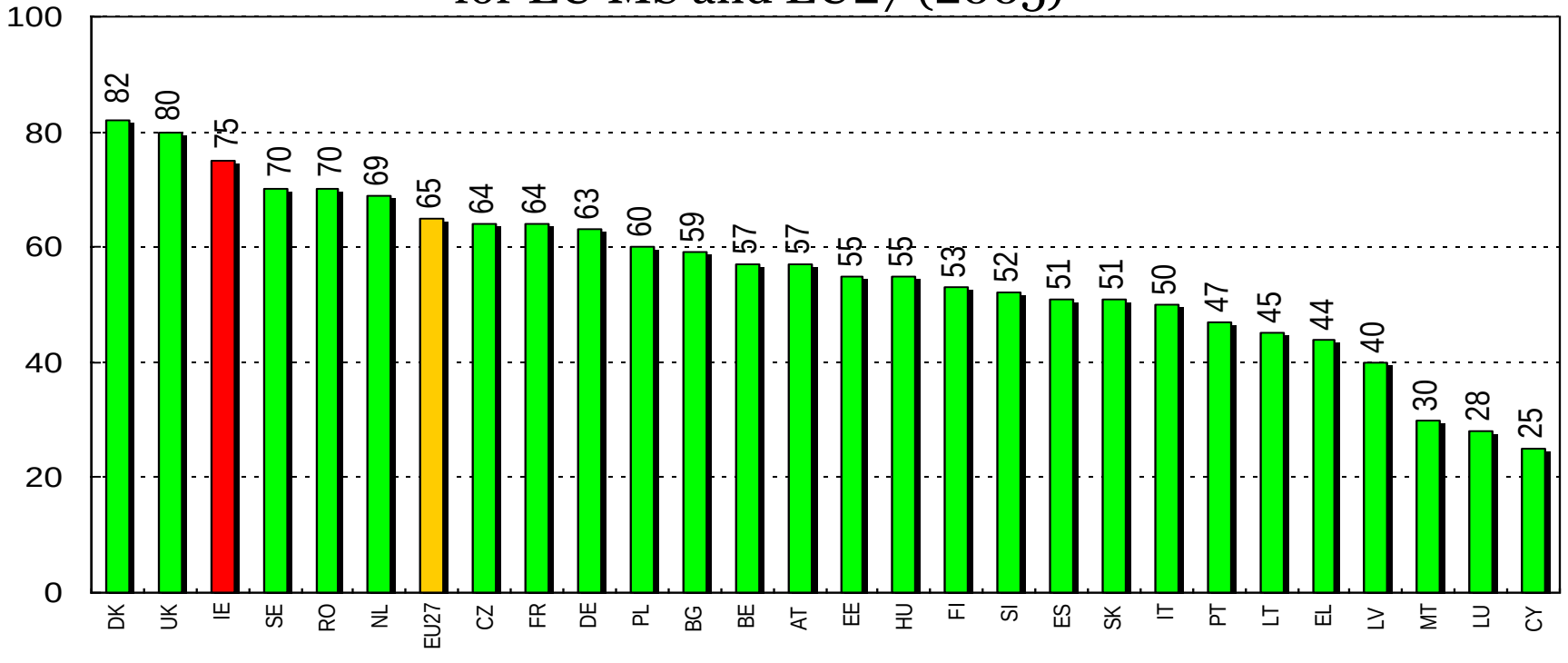
- Designed by ECN and CIEP
- Covers all key elements of the supply *and demand* structure
- Linkages to major risk reduction policy options
- Suitable for supporting valuable applications (e.g. benchmarking of countries; ex post and ex ante analysis of SS evolution)
- Use i.a. for SS analysis on EU MS; detailed analysis on IE, NL
- Simplified S/D Index applied by NEA/OECD (2010)

S/D Index Model



S/D Index as benchmarking tool

for EU MS and EU27 (2005)



Are supply security and interacting policy domains being integrated adequately?

- Mandatory RES targets: e.g. 20% in 2020, 45% in 2030 (EREC)
  - Impact on competing biomass use and land use?
  - Availability of low hanging fruits (high-quality RES)?
  - Availability of materials/equipment/land, also for required infra? (e.g. rare earths; public acceptance)
  - Operational implications for electricity/gas/hydrogen networks feasible?

- Top priority for CCS in the EU?
  - Lock-in of fossil fuel use ➔ fuel price hikes/volatility; escalating Giga EU fossil fuel import bill ➔ dampens EU economic recovery; higher geopolitical risks
  - Amplified by high energy penalties (LCA: cumulative energy demand rates)
  - Crowding-out public funding for development/take-up of new EE/RE technology

- Extract all remaining fossil fuels if not overly expensive (shale oil/gas)?
  - Would be a recipe for catastrophic climate change

Mutual integration of interacting climate and energy policies in for improvement

- For aggregate supply security as such the policy attention is very fluid
- Moreover, supply security just an obligatory tick in **Impact Assessments** of related policy measures
- Conversely supply security measures do insufficiently allow for other policy concerns

➔ Less policy coherence and effectiveness

∴ **Improved policy integration procedures needed !**

What is needed for improved policy integration?

- List the main European environment (climate) and energy policy concerns
- Identify representative indicators for each of these concerns
- Organise a highly consultative process with reps from MS and European civil society to yield a suitable composite index
- This process to deliver broad-based acceptance for the index, underlying indicators and inter-subjective weights
- Great challenge: to find agreement on inter-subjective weights
- Great advantage of index use as one of the tools in Impact Assessment procedures: reduced vulnerability to ad hoc special interest advocacy

Resource-Efficient Europe an opportunity?

- REE is one of the seven flagship initiatives under the Europe 2020 Strategy
- One of its main components is ***developing indicators and potential targets***
- European Commission proposes broad definition of natural resources
- Not only input resources (e.g. metals, minerals, fuels, water, soils)
- Also eco-system services (clean air, biodiversity)
- Broad definition enables use of suitable REE indicators for impact assessments

REE indicators

- Commission proposes:
  - ‘Resource productivity’ (GDP/DMC) as provisional lead indicator
  - Second-tier: a few dashboard indicators on land, water and carbon
  - Third-tier indicators: theme specific indicators

- Consultative process to yield final selection of indicators including the final lead indicator

- A composite REE index as final lead indicator *might be* one of the results

- REE consultation procedure ongoing: composite index as lead indicator as against using single indicators for each REE aspect debated

Uses of a possible REE Index

- Use of a possible REE Index *among others:*

Ex post analysis (backward-looking)

- Impact Evaluations
- benchmarking MS resource-efficiency performance
- Monitoring EU/MS resource-efficiency performance

Ex ante analysis (forward-looking)

- Impact Assessments
- Scenario analyses

- Esp. its use in the procedure for Impact Assessments of policies and measures along with e.g. CBA will foster better policy integration

- Supply Security indicators to be part of a REE Index

Main conclusions

- Periodic monitoring the supply security at MS and EU levels and benchmarking MS supply security performance is valuable
- Improved mutual integration of supply security and related policy domains highly desirable to enhance policy effectiveness
- Development and subsequent use of a proper broad composite resource efficiency index proposed for serious consideration as its sue can help improve policy integration

Thank you !

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