MILESECURE-2050

Multidimensional Impact of the Low-carbon European Strategy on Energy Security, and Socio-Economic Dimension up to 2050 perspective

Bringing together top-down and bottom-up approaches

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How do we get there - barriers and drivers in Society

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Background problems

- Most energy security assessments fail to meet acceptable standards of academic rigor" (Valentine 2011)
- Energy security is "frequently used to justify various policies or actions at the same time (Loschel et al. 2009), with far reaching interventions in the market often without any economically rational justification (Schmitt, 2009)
- "There is an urgent need for an energy security framework that can analyse the impact of specific security events, the level of risk attached to such events and the cost of measures which would provide insurance against them." Jonathan Stern (2004)

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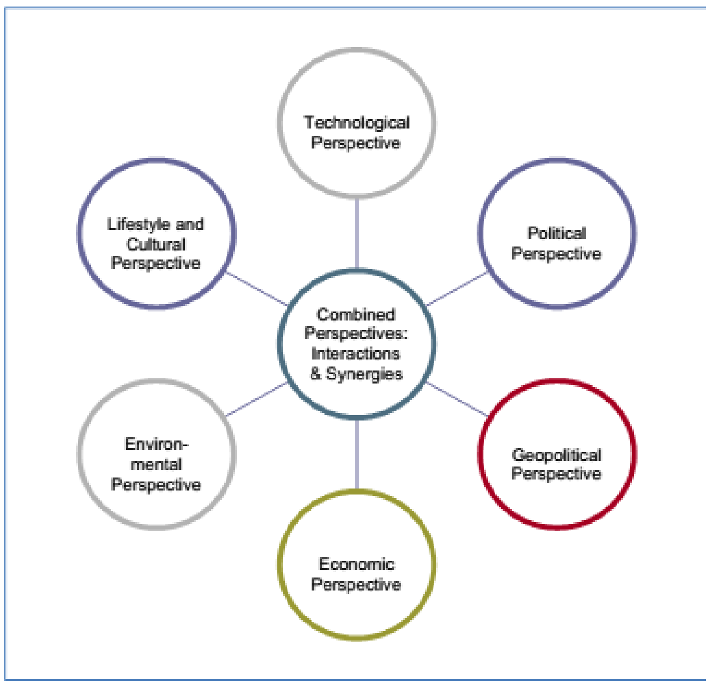
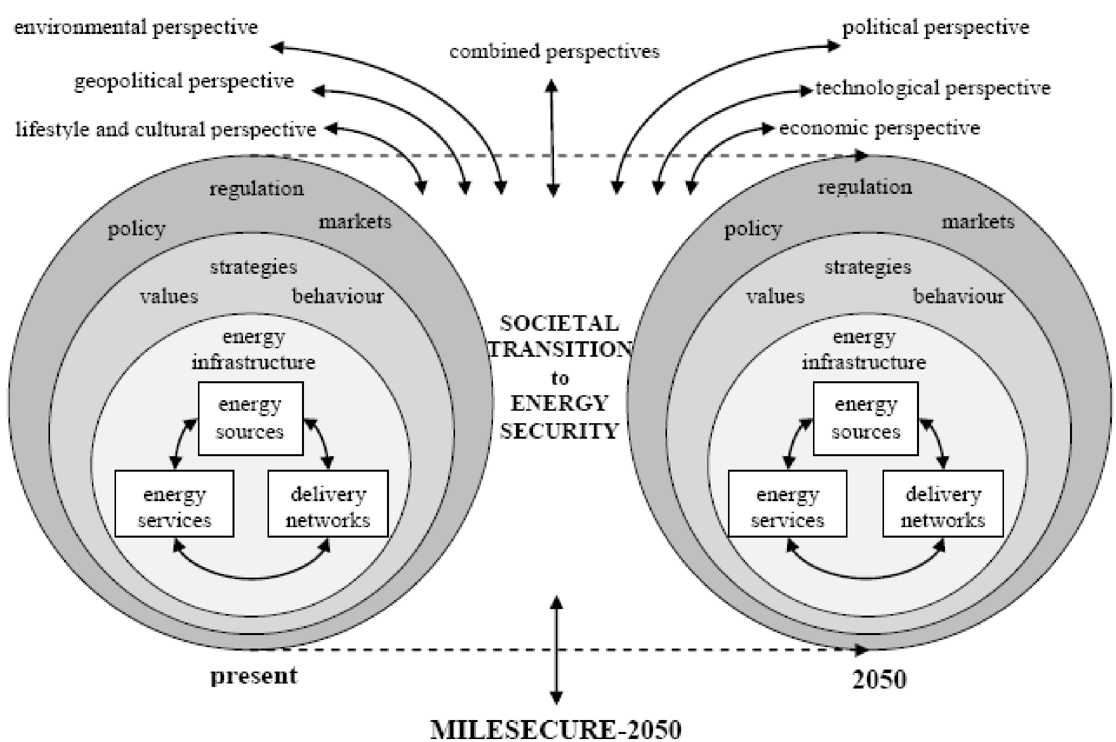
Operative definition and systemic approach

- *A Energy secure system is one "evolving over time with an adequate capacity to absorb adverse uncertain events, so that it is able to continue satisfying the energy service needs of its intended users with 'acceptable' changes in their amount and prices"* (Gracceva and Zeniewski, 2012)



Source: MILESECURE-2050. Description of work, 2012



Issues in current energy trends and policies

1 Dependency

- From import
- From less sustainable energy sources
- Unevenly spread across the union

2 Consumption

- Exacerbate dependency
- Economic sectors depend on one or few energy sources
- Lifestyles and societal changes

3 Integration

- Harmonization of national policies
- Need for a real single energy market in the EU
- Need for a greener energy mix

Potential impacts of low-carbon transition on energy security

	Impact of low-carbon transition
Stability *(capacity to maintain operation)*	× De-centralised generation imposes control risks × Electrification, including inter-regional electricity transfers, amplify probability/impact of disruption
Flexibility *(capacity to cope with short term uncertainty)*	× Intermittent RES increase variability of system variables
Resilience *(capacity to source alternative modes of prod or cons in response to shocks)*	✓ More RES increase fuel mix diversity × Lower fossil fuel use decreases import diversity × Decreased demand diversity as a result of electrification
Adequacy *(the system is able to meet the demand)*	× Investment uncertainty × Tighter energy market and heightened sensitivity to demand
Robustness *(freedom of the actors to choose from primary energy sources)*	✓ Minimised impact of climate change on energy system ✓ Less resource depletion ✓ Less resource nationalism ✓ Greater adaptability to fossil fuel availability × Less freedom to choose PES at cost-oriented prices (including technology constraints) × Greater sensitivity to technological constraints (e.g. on Nuclear / CCS)

(MILESECURE-2050, WP1, D1.4)

Thank You!

- For further information:

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