Myopic windows: Temporal trade-offs in decarbonisation pathways

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Decision-Timing Uncertainty

• Timing of decisions is a key uncertainty in energy policy

• TIMES model environment has an abstract representation of decision making:
  • One set of information, one set of decisions vs.
  • Multiple sequential decisions, new information received constantly

• Perfect foresight model formulations difficult for exploring
  o Interim target setting (e.g. 2030, then 2050)
  o Lock-in and path dependencies (high capital costs, long lifetimes)
  o Sudden changes to policy environment (e.g. price shocks)

• Options for exploring timing uncertainty
  o Multiple scenarios
  o Stochastic modelling with branching points
  o Myopic model formulation
Myopic Energy Systems Optimization Modelling: Last ~10 years

- **SAGE**
  (EIA, 2003, Loulou et al., 2004

- **IKARUS**
  (Martinsen et al., 2006
  [doi:10.15173/esr.v14i1.480](http://doi.org/10.15173/esr.v14i1.480))

- **Myopic TIMES**
  (Remme and Blesl, 2006,
  [ETSAP Workshop, Stuttgart](http://etsap.org/))

- **GET-LFL**
  (Nyqvist 2005, Hedenus et al., 2006

- **MESSAGE**
  (Keppo and Strubegger, 2010
  [doi:10.1016/j.energy.2010.01.019](http://doi.org/10.1016/j.energy.2010.01.019))

- **Myopic scenarios with FACETS TIMES**

- **Myopic approach in IRISH TIMES**
  (Chiodi, Deane, Gargiulo, Ó Gallachóir, 2012,
  [ETSAP Workshop, Lisbon](http://etsap.org/))

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Approaches to Myopic Foresight

Proposal

• **Workshop:** Spring 2016, Central London (2 days)
  
  o All teams present and compare a (small) set of broadly consistent scenarios using the myopic version (with alternate windows of myopic foresight)

  o Cover various regional, national and international TIMES and other ESOM models

  o Focus is on understanding how the myopic feature works and how the insights drawn are useful for informing policy

• **Output:** Review paper for journal submission Fall 2016 i.e. “*State-of-art progress in considering myopic trade-offs in long-term energy pathways*”

• **Annex XII Relevance:** Research and Development, Capacity Building
Proposal

- Joint funding: ETSAP (€10k) and UK Whole Systems Energy Modelling Consortium (€12k)

- Expressions of interest received from 14 groups:
Questions?