Karlsruher Institut für Technologie

Energy scenario modelling and media coverage in the light of German nuclear policy:

Reflecting evidenced-based or value-based policy approaches?

Dirk Scheer

Institute for Technology Assessment and System Analysis (ITAS)

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ITAS Institut für Technikfolgenabschätzung und Systemanalyse

Introduction

- Energy scenario modelling (ESM) fundamental scientific tool and school at the science-policy interface

- Policy- and decision-makers rely on ESM to sketch out future economic, environmental and social consequences of energy transition pathways, policies and mixes.

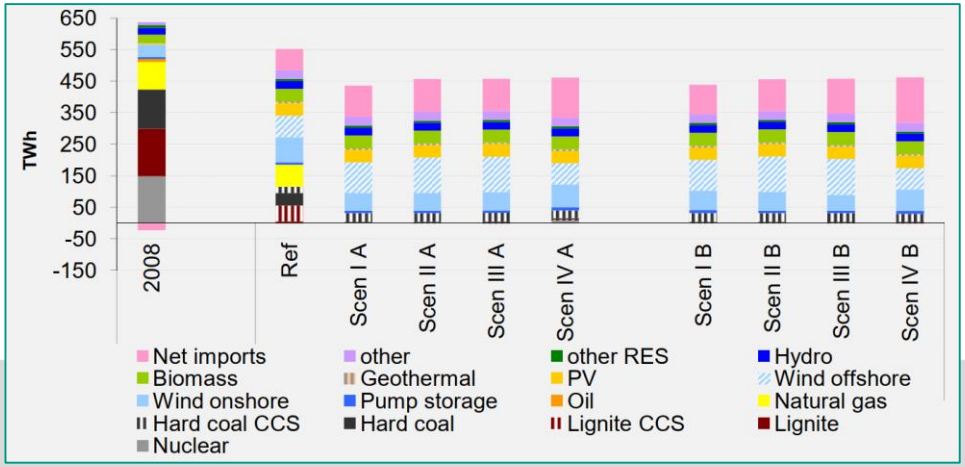
- While energy scenario studies are most relevant in designing and advising policy options:

Are they likewise a matter of public debate?

What are ESMs?

- **Definition „scenario“**
  - IPCC: “a coherent, internally consistent and plausible description of a possible future state of the world”
  - scenario studies are forward-looking tools providing images of how the future may unfold.
- **Definition „ESM“**
  - IRGC: “aim at providing a comprehensive view of the impact of different developmental trends on the likely evolution of the energy system and potential outcome of energy systems’ variables and performance indicators
- **Types of ESM**
  - Forecast
  - Exploratory
  - Normative

Figure: Electricity generation by fuels in TWh in 2050 (Source: EWI et al. 2010):



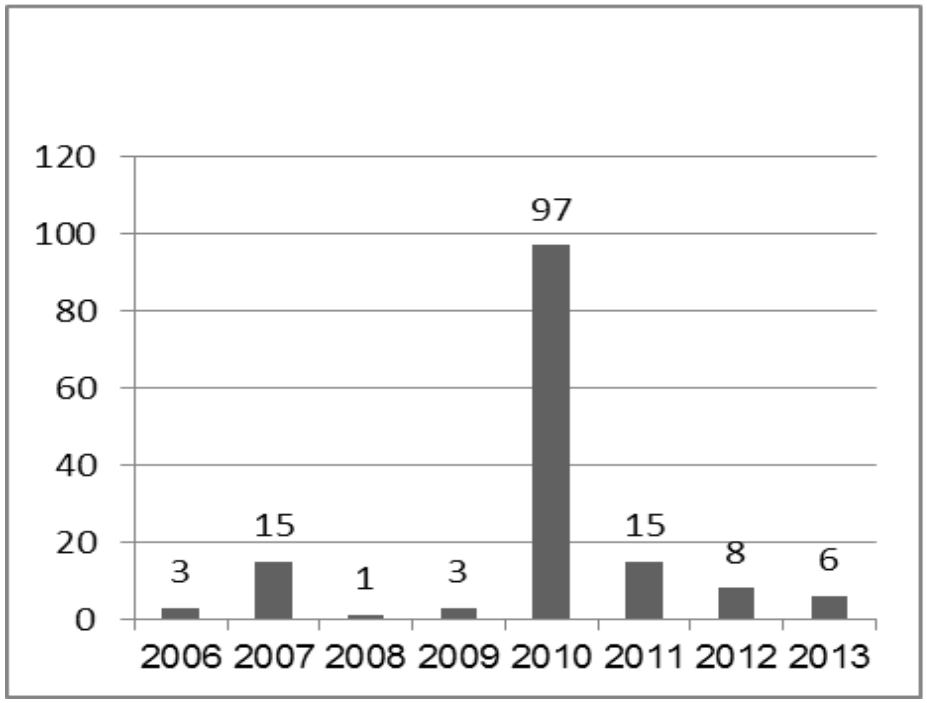
Method: sample & questionnaire

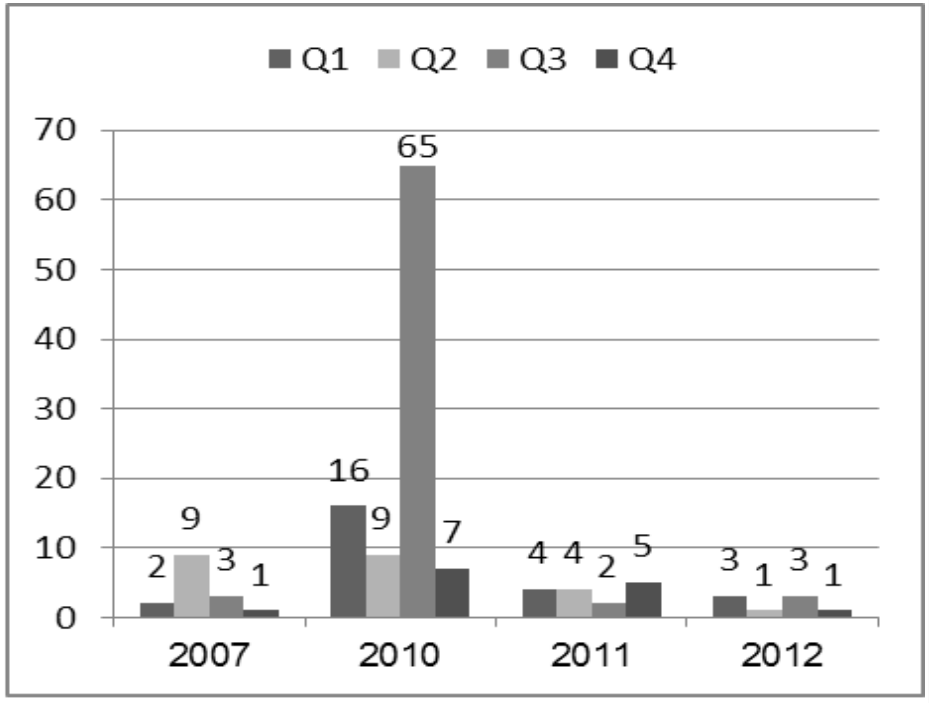
- Media coverage reflects and mirrors what is at stake on the political, business or societal agenda.
- media search engines GENIOS & NEXIS used for "Energieszenarien" (= energy scenarios)
- Sample base: **155 between 1992 and 2013**

Analysis by structure	
Category	**Variable**
• Date of publication	year, quartal
• Publication territory	regional, federal
• Headline	(not) mentioning "energy scenarios"
• Source	press agency, journalist, guest contributor
• Type of text body	news, report, comment, interview, letter to editor
Analysis by content I: ESM generics	
• Localization of topic	country name, European, global, DE state level
• Main topic	science, policy, business & industry
Analysis by content II: ESM specifics	
• Term "ESM"	numerical
• Main topic "ESM"	marginal, dominant
• Type of "ESM"	quantitative scenario, qualitative scenario
• Components	assumptions, data, parameter, causality, model
• Scenario	(un-)defined scenario
• Results	quantified results, qualitative results
• Evaluation	(detailed) positive, neutral, (detailed) negative

Structural Results: time frequency

Annual frequency (2006-2013) & quarterly break-down (2007, 2010-2012)





- 2006-2013: **96% of sample**
- 2007; 2010, 2011, 2012: **87% of sample**
- ¾ 2010: **42% of sample**

Content Results: topics addressed

Topic “Energy economics” (n=6)	∑		∑
– EU energy market development	1	– global potentials of renewables	1
– German oil market development	1	– rebound effect	1
– global energy market development	1	– report on security of energy	1
Topic: “Climate change” (n=6)			
– business sustainability initiatives	1	– climate change & energy	3
– business sustainability monitoring	1	– climate change & nuclear energy	1
Topic: “Energy actors” (n=7)			
– actor portrait	2	– power relation supplier and politics	2
– independency & trust in science	2	– science exchange	1
Topics “Energy technologies” (n=8)			
– carbon capture and storage	1	– infrastructure hydrogen filling station	1
– fuel cells	1	– technology support: renewables, nuclear, lightweight	3
– impact assessment fracking	2		
Topic “Energy scenarios” (n=10)			
– provision energy scenario study 2010	2	– interactive energy scenario platform	1
– review energy scenario study 2010	4	– IEA energy scenario study	1
– energy efficiency impact on calculations	2		
Topic “Energy policy” (n=118)			
– German energy transition	109	– Regional energy transition	2
– coal (incl. CCS)	3	– Russian nuclear policy	1
– international climate policy	2	– French nuclear policy	1

Content Results: special topic & spatial

Special topic “German Energy transition”

Main-topic “Energy policy” >> Sub-topic “German energy transition” (∑)			
– nuclear plant lifetime	27	– Norwegian energy storage	1
– nuclear plant lifetime & energy scenarios 2007	9	– Power grid	3
– nuclear plant lifetime & energy scenarios 2010	51	– Solar & wind	6
– nuclear plant lifetime & Fukushima	2	– coal & gas	3
– Interplay of technologies	5	– energy efficiency	2

Spatial scope

- 137 on Germany; 15 on Germany + global, Europe etc.; 3 on other countries (France, Russia, Norway)
- 18 on DE-regional (NRW: 8; Hesse: 3)

Content Results: energy scenario specifics

Specific studies in media coverage (n=155)

National (∑)	
• Government energy scenarios 2010 (95)	• German Institute for Economic Research (1)
• Government energy scenarios 2007 (11)	• IER, ZEW, RWI scenarios 2030 (1)
• Federal Network Agency (1)	• Advisory Council on the Environment (1)
• Environmental Protection Agency (2)	• France: Negawatt (1)

Regional (∑)	Supranational (∑)	Other (∑)
• Bayern 2050 (1)	• IPCC (2)	• Shell (2)
• Burgenlandkreis (1)	• EU DG Research (1)	• Siemens (1)
• Russia: Murmansk (1)	• International Energy Agency (2)	• Environmental NGOs (1)

What happened in 2007 and 2010?

- **2007:** “energy summit” & “Meseberg Programm”:

  The 2007 energy summit consisted of three summits in the period of April 2006 to July 2007 between Federal government representatives led by Chancellor Merkel and leading representatives of the German energy industry. Outcome was the so-called “Meseberg Program”. In addition, the energy mix in Germany up to 2020 was specified based on an energy scenario study elaborated by Prognos and Köln University.

- **2010:** “energy concept 2050″ & “nuclear life time extension”

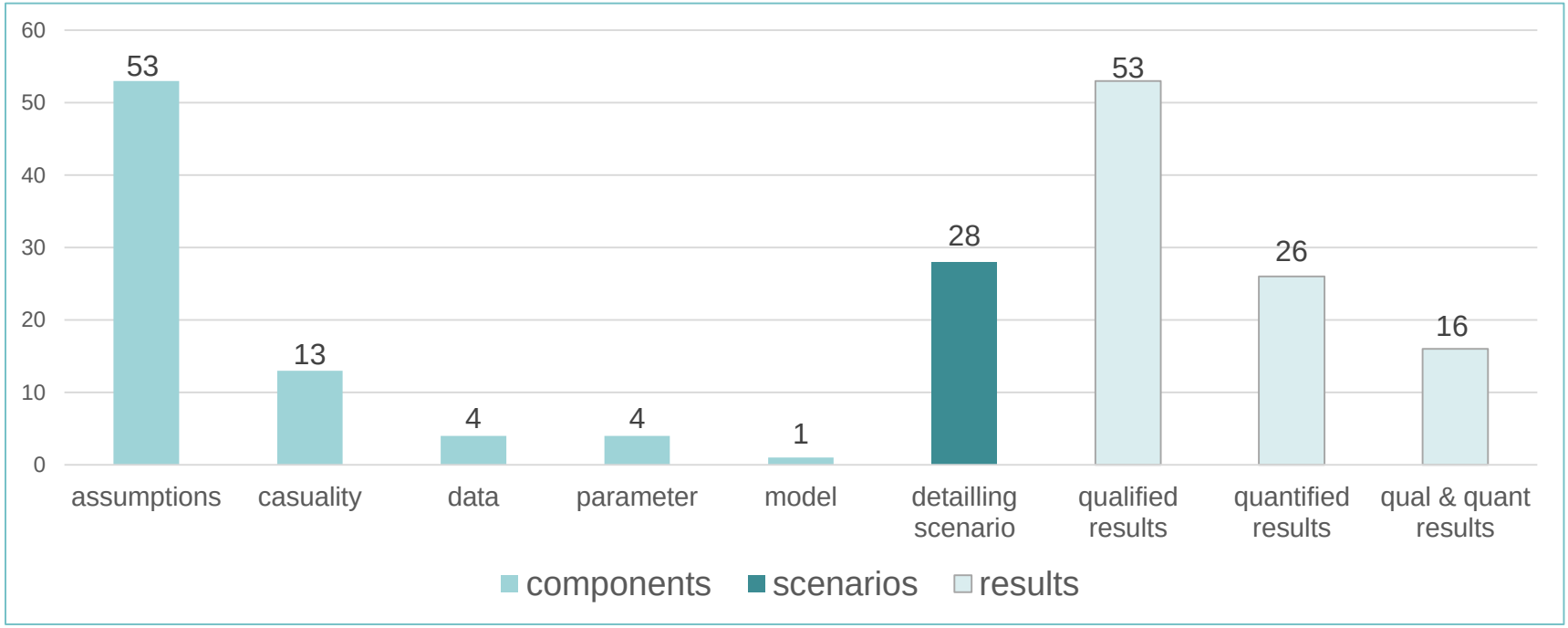
  In late January 2010, Federal environmental minister Röttgen and Federal economic affairs minister Brüderle – as agreed in the coalition agreement – announced that the decision on nuclear lifetime extension would be based on a study calculating three different energy scenarios. They claimed to take a final decision on nuclear lifetime extension based on scientific, objective and evidence-based knowledge.

“We do not need more nuclear power, but we most probably do need nuclear power for a longer time period then the arbitrary decision made by the red-green coalition”.

>> Policy-makers themselves put energy scenarios center stage in the policy-making process and the public debate <<

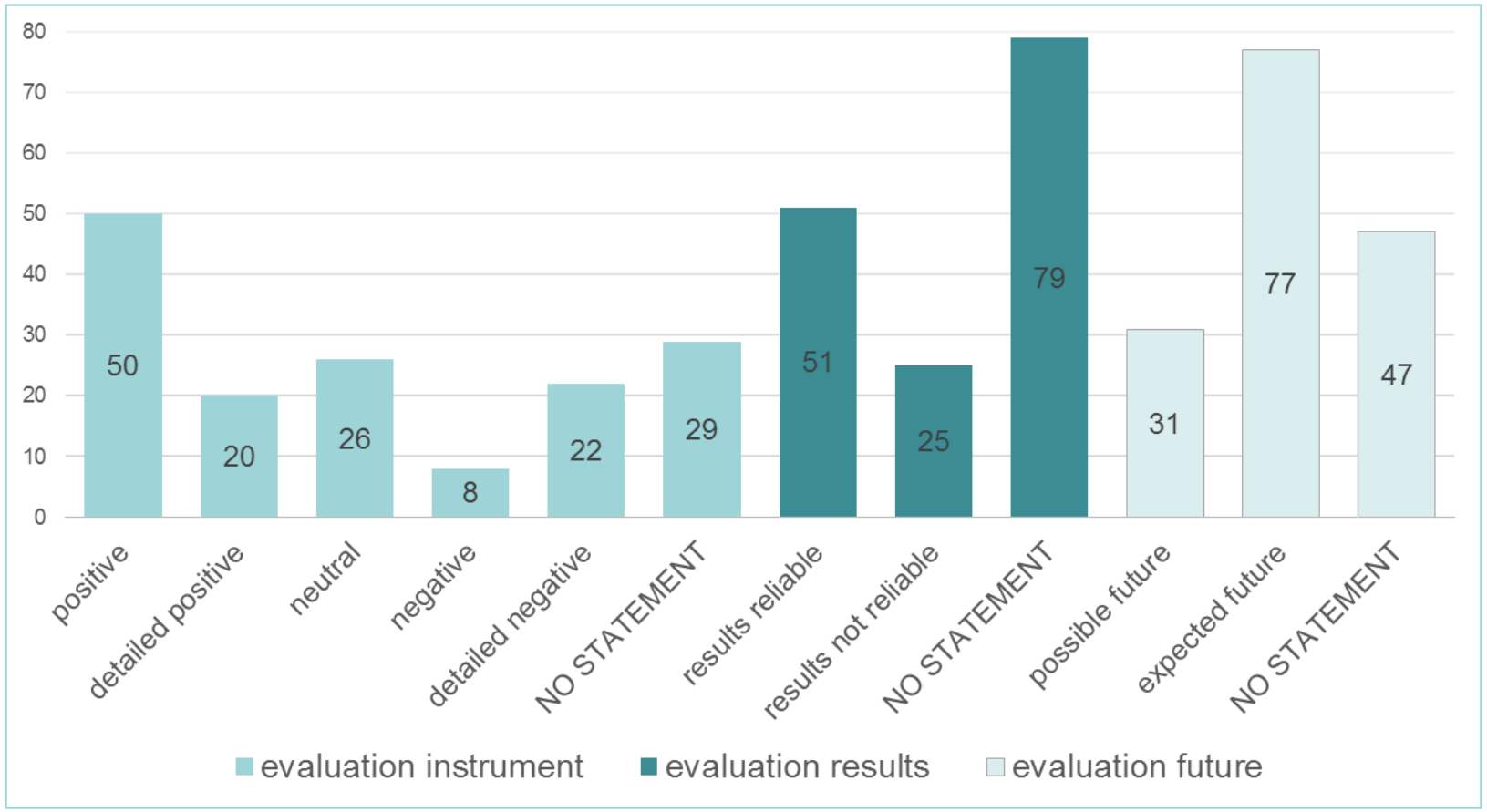
Content Results: components & results

Specific studies in media coverage (n=155)



Content Results: evaluation & framing

Evaluation instrument, results and future forecasting (n=155)



Conclusions: *absence* & *presence* of ESM

- **Striking absence of ESM in media**
  - 155 articles over 20 years rather low
  - Modest press reporting contrasts with the extensive ESM production
  - Apparently, ESM not appropriate for communication towards public

- **Striking presence of ESM in media**
  - present in media when pulled on stage by policy-makers themselves
  - 2007 / 2010 coverage: ESM fit for media purposes in case policy-makers addressed them for evidence-based policy legitimacy

Conclusions: 3 types of ESM patterns

- **“generic factual knowledge claim”**
  - evidence-based policy concept seeking scientific objectivity and legitimacy in order to avoid policy ambiguity
  - The policy turn-around with reducing nuclear lifetime in response to the Fukushima event in 2011 completely waived references to energy scenarios indicating a shift from **evidenced-based policy** towards a **value-based policy** approach.
- **“selective (in)consistency claim”**
  - emphasis is on selectively picking out ESM input/output components for deeper discussion and critical review & balancing with real world target system
  - approach to strengthen and/or weaken the credibility of the scientific tool itself and the knowledge claim status of science in general
- **“science communication claim”**
  - Small “window of opportunity” at the peak of media coverage in fall 2010
  - journalist “educated” their readers on ESM transparently and value-free

Thank you!

dirk.scheer@kit.edu ; el: ++49 (0)721 608-22994

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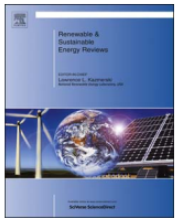

Communicating energy system modelling to the wider public: An analysis of German media coverage

Dirk Scheer

ITAS, Karlsruhe Institute of Technology, Karlstrasse 11, 76133 Karlsruhe, Germany

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