
EXPERIENCES WITH GDP PROJECTIONS AND IMPACTS FROM FORMER ECONOMIC CRISIS

Wolfgang Eichhammer

Fraunhofer Institute for Systems and Innovation
Research ISI (Germany)
and
Utrecht University (Netherlands)

6th Regional Exchange on Modelling for NECP
Development

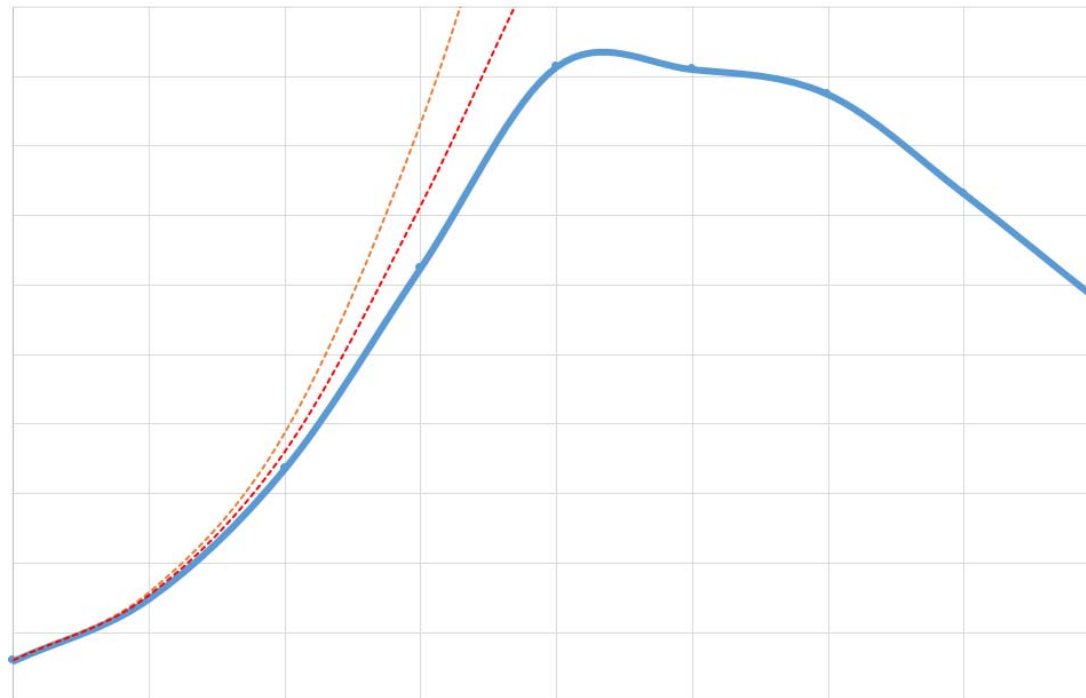
Seven Chapters in the Dialogue Between Science and Policy on Energy Systems

- Chapter I: The Believe in Endless Growth
- Chapter II: Miss-Guidance by Present Day Frame Conditions
- Chapter III: The Lack in Understanding Structural Change
- ~~■ Chapter IV: The Art of Setting High Targets Easily to be Reached~~
- ~~■ Chapter V: Make Energy Savings, Exceeding Business as Usual, Expensive~~
- Chapter VI: Underestimate Innovation and the Impacts of Dedicated Policy
- Chapter VII: The Eternal Policy Gap

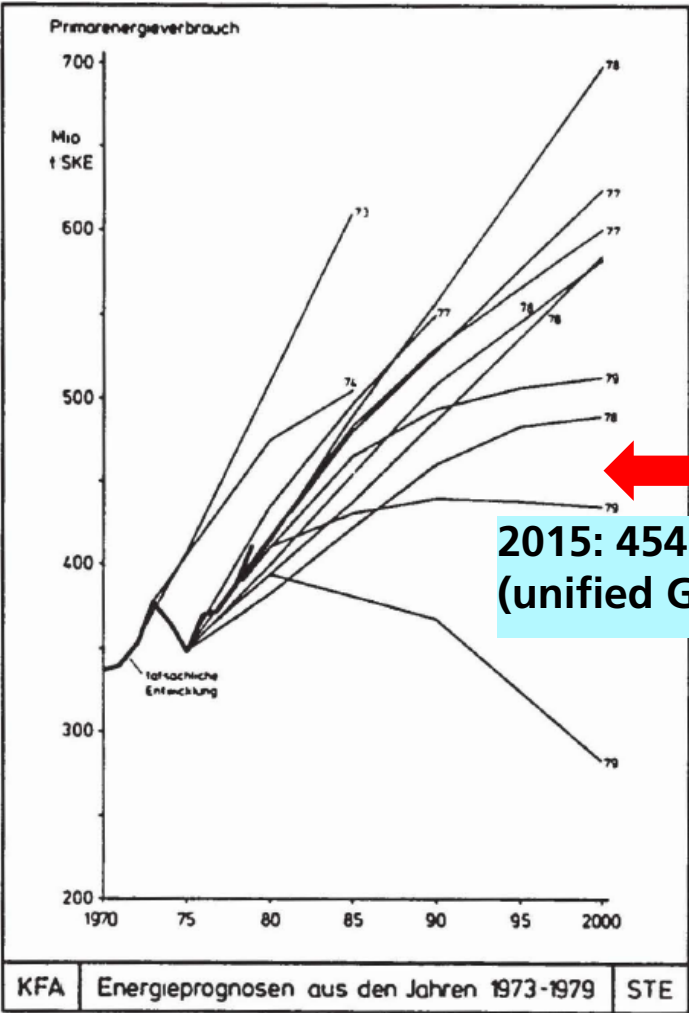
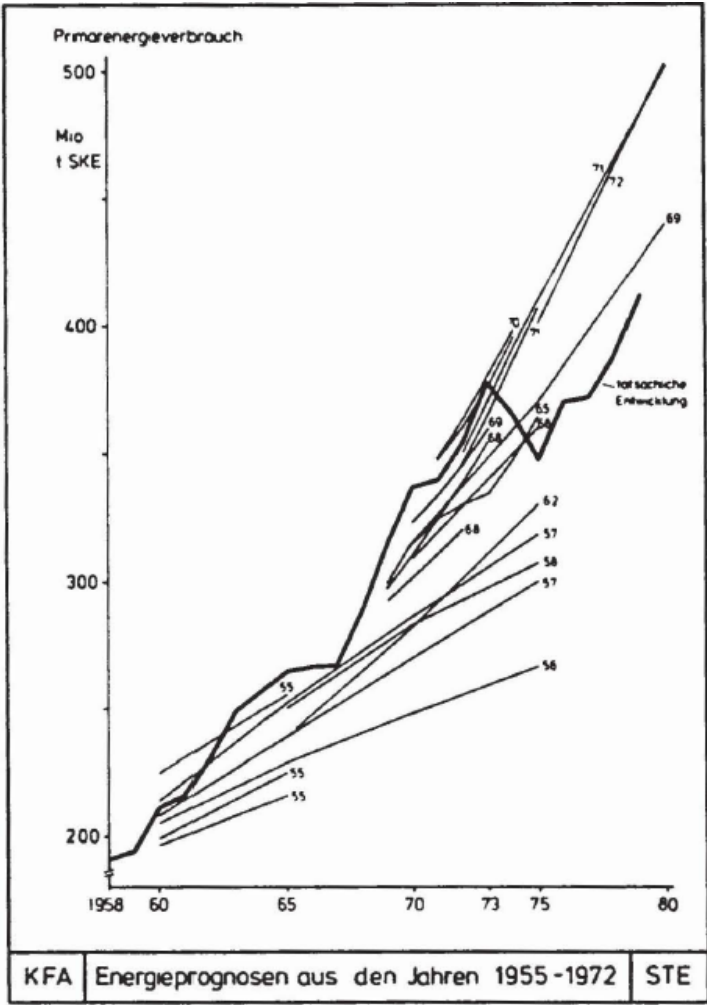
- Conclusion



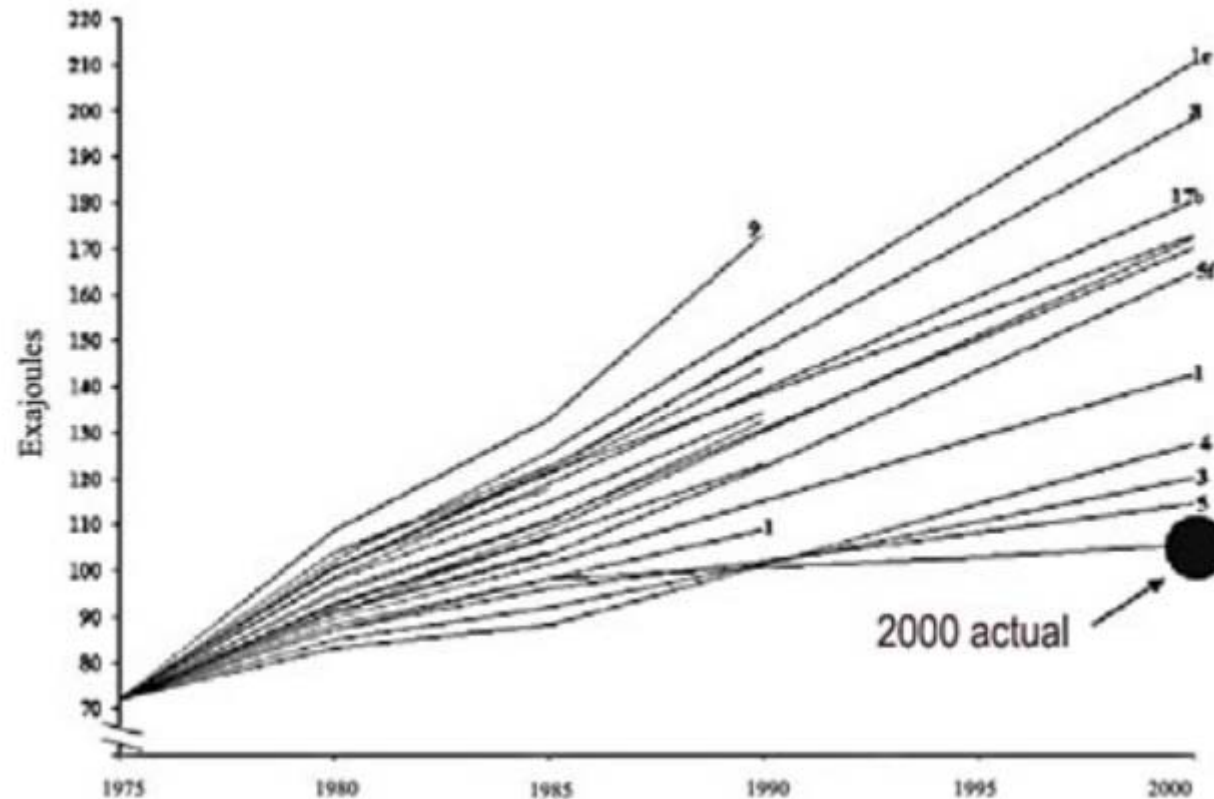
Chapter I: The Believe in Endless Growth



The Art of Projections: How Energy Demand has been over/underestimated in Germany...

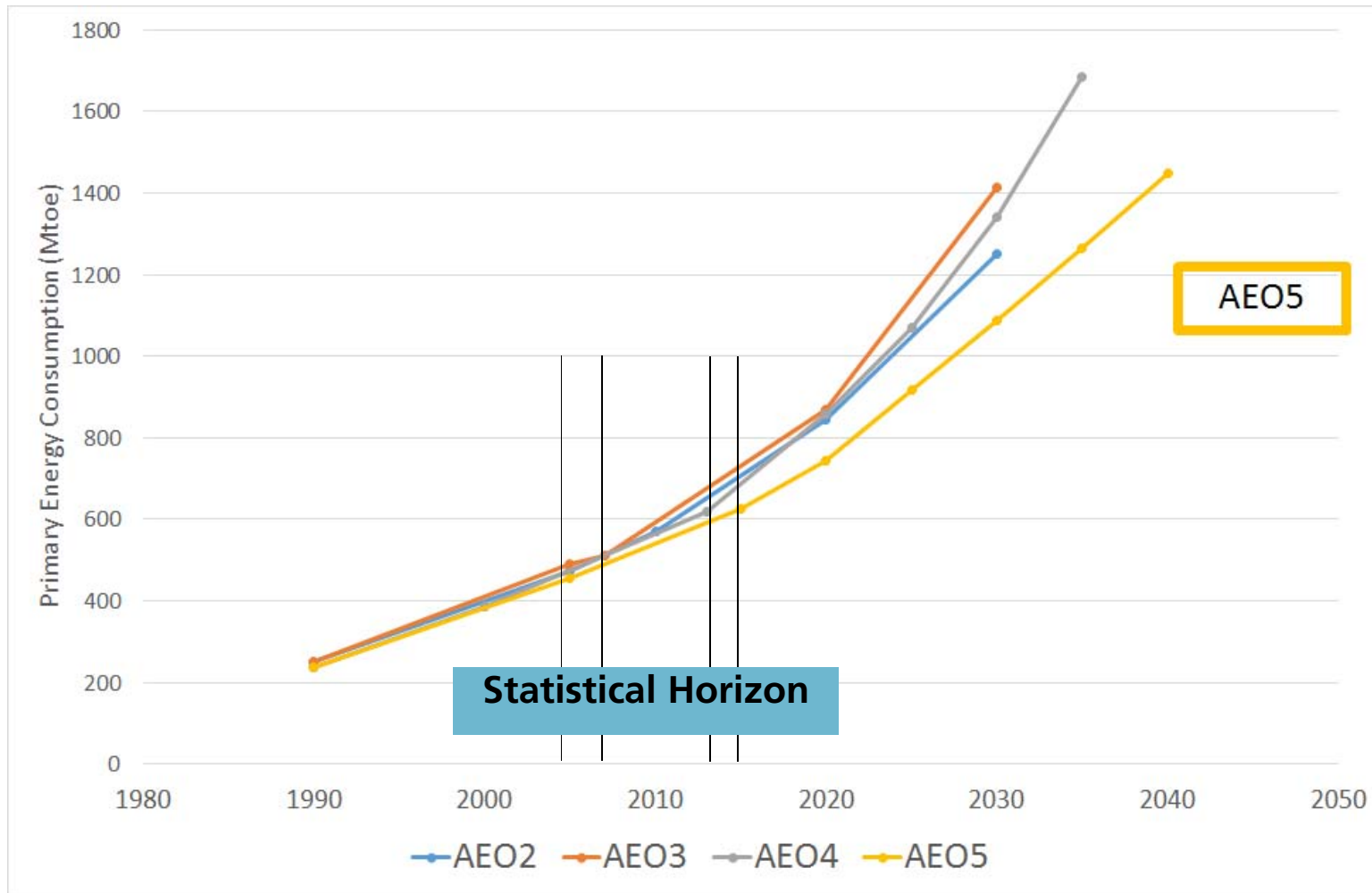


The Art of Projections: How Energy Demand has been overestimated in the US...

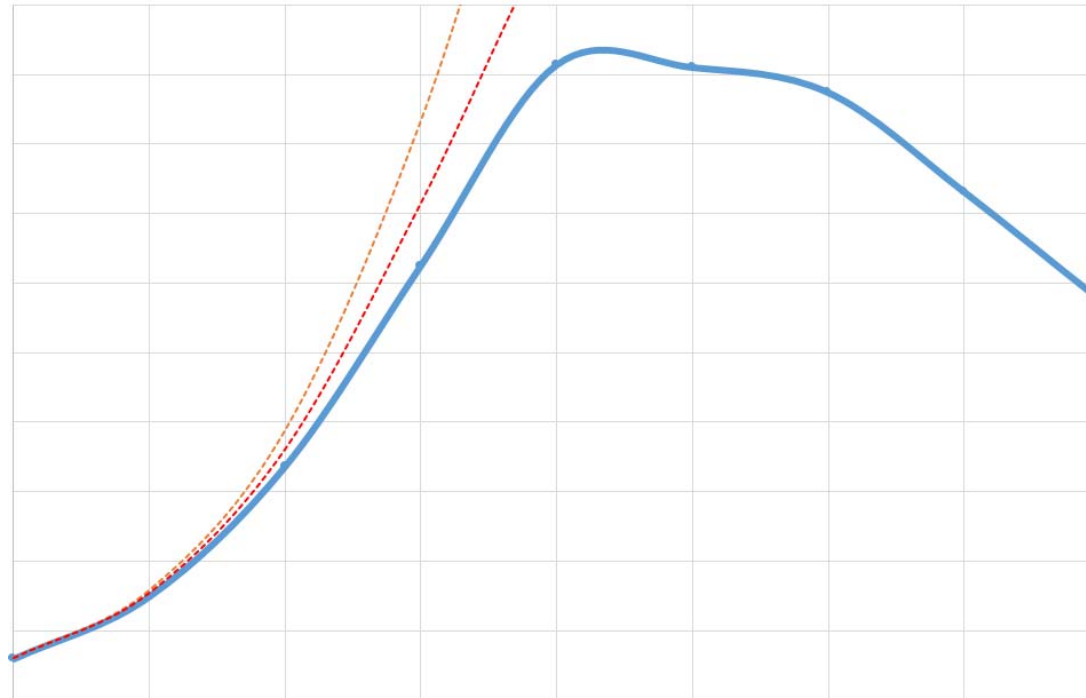


Projections of total U.S. primary energy use, made in the 1970s. The figure is redrawn from a 1979 DOE report and simplified from a summary of dozens of forecasts. When these are compared to actual use at the end of the century, it is clear that forecasters didn't anticipate the ability of the economy to limit the growth of energy use.

ASEAN Energy Outlooks: How to educate policy makers on projections...



Chapter II: Miss-Guidance by Present Day Frame Conditions



Oil price, policy makers and energy modellers

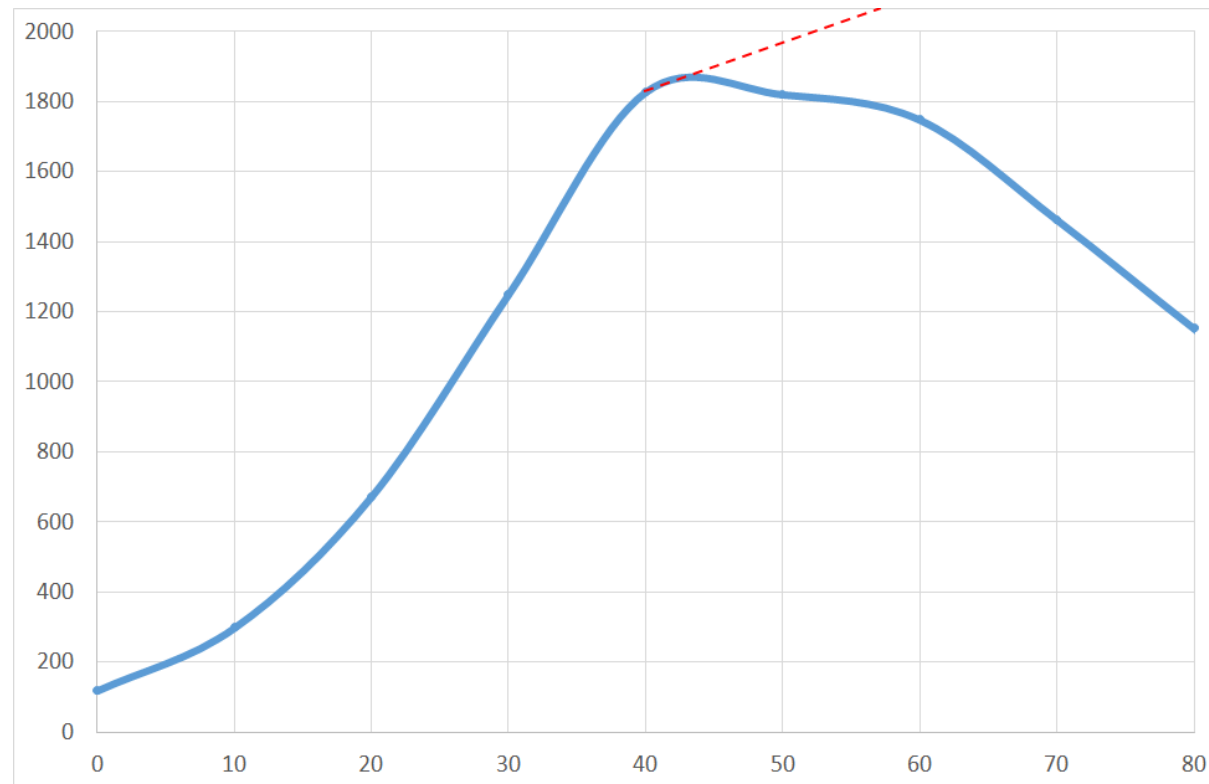
Need to investigate oil price at 600-900 USD/Barrel oil



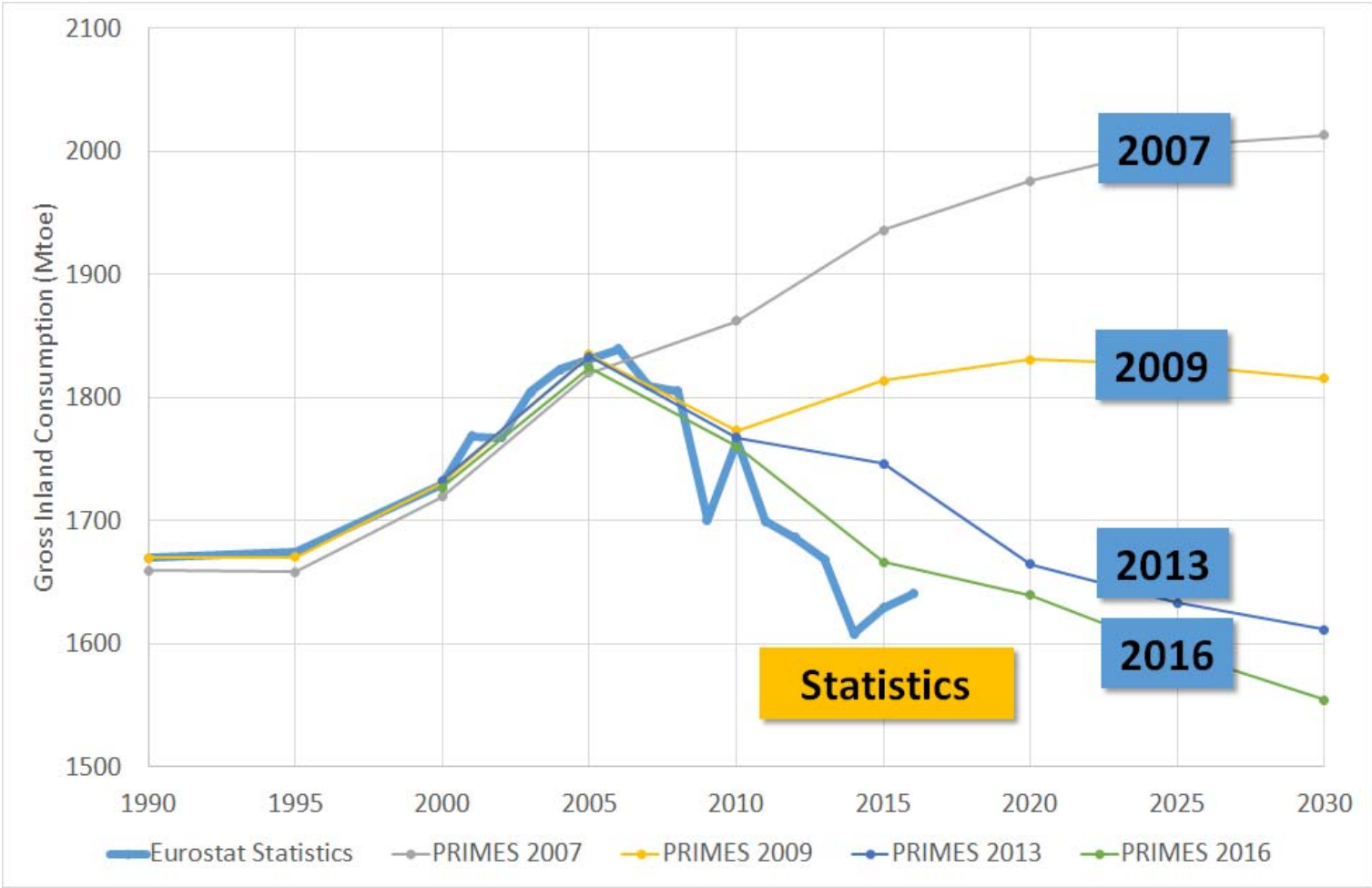
DG ENER to the POLES modellers: How can you think about an oil price of 28 USD/Barrel, when now it is at 11, tomorrow at 5 USD/Barrel?

Sources:
<http://www.macrotrends.net/1369/crude-oil-price-history-chart>
<http://www.astra-model.eu/doc/HOP!-D3.pdf>

Chapter III: The Lack in Understanding Structural Change

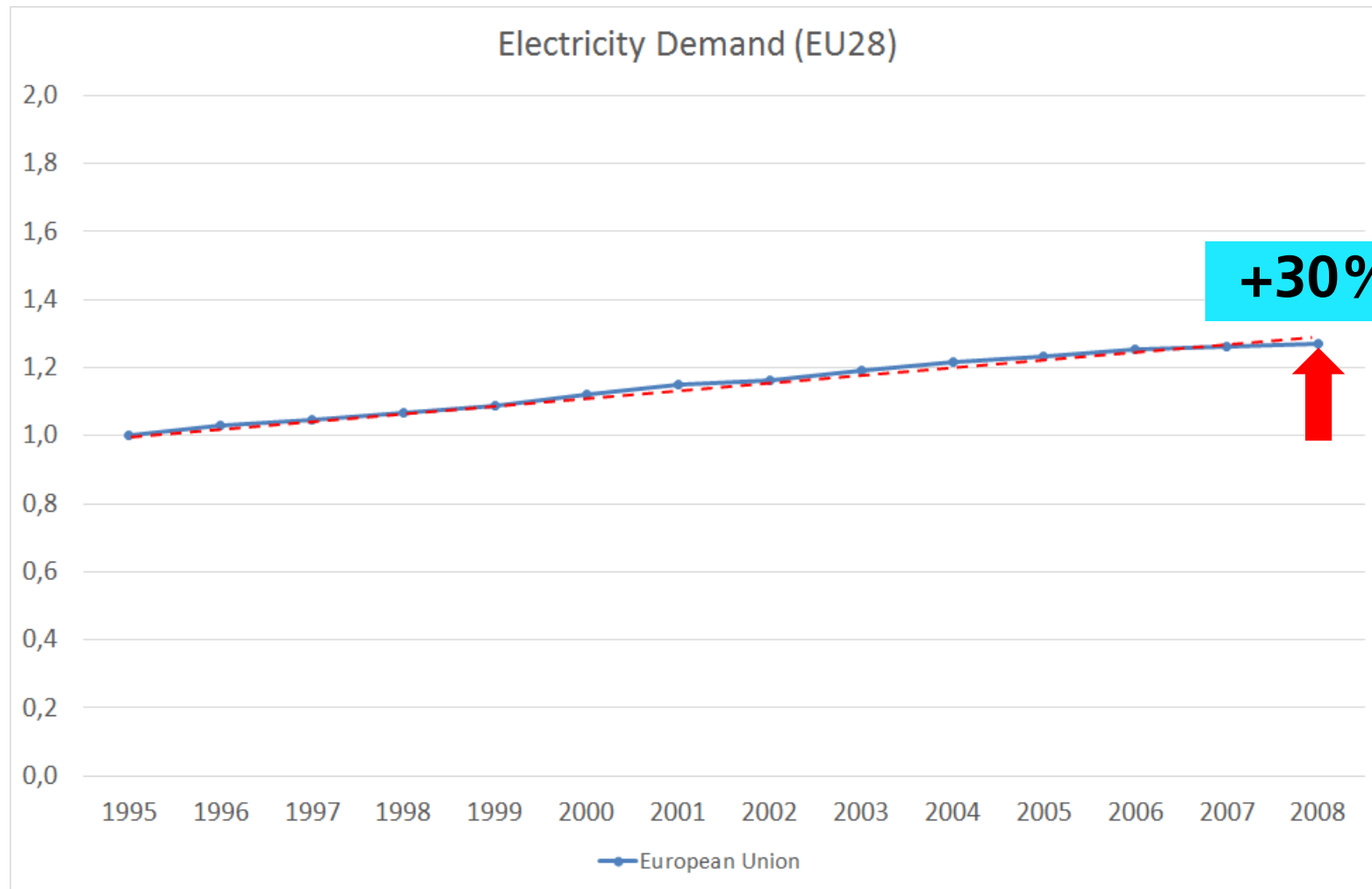


European Union projections (EU28) compared to statistics

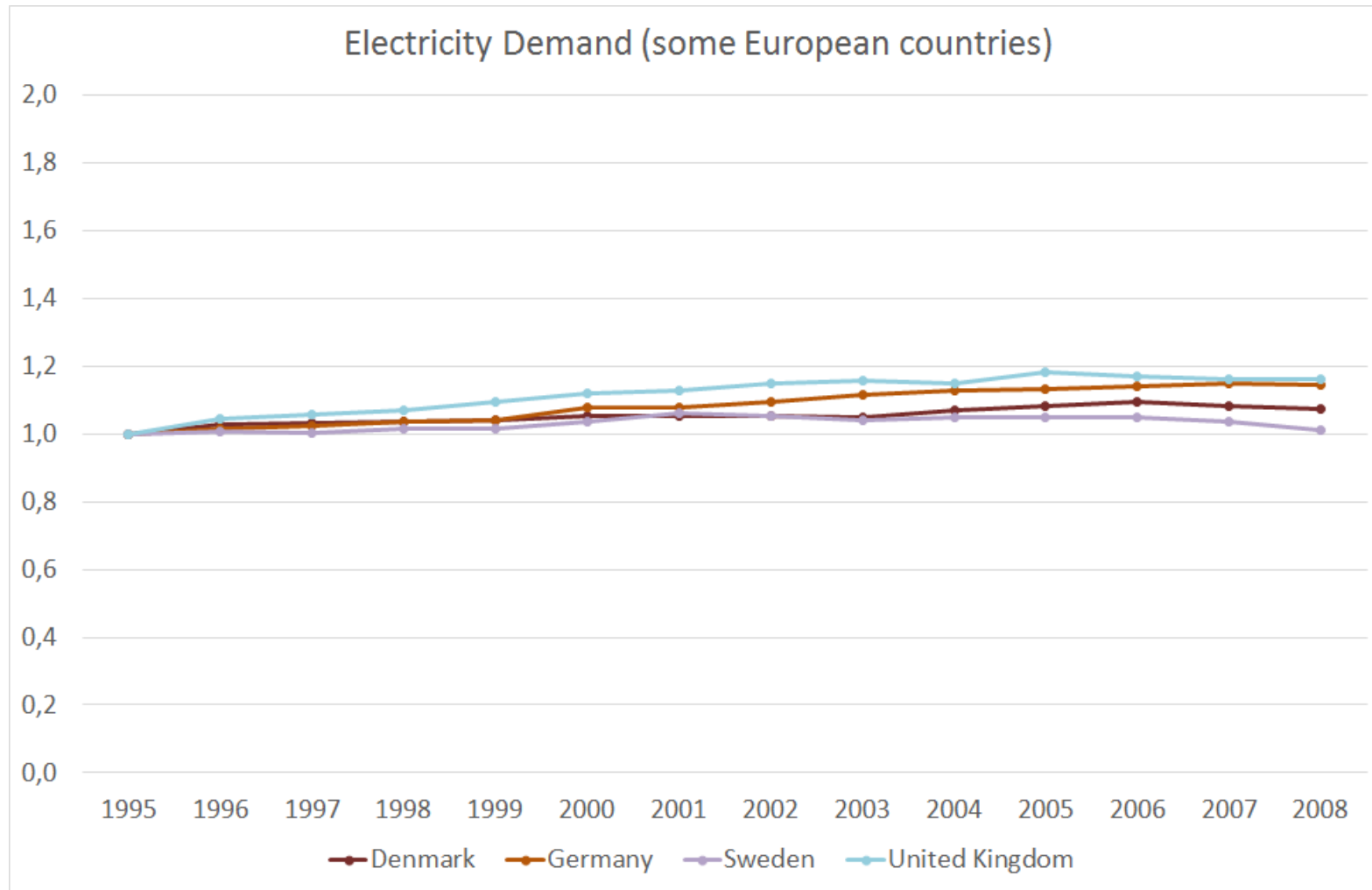


Sources:
Various projections with the PRIMEs Model

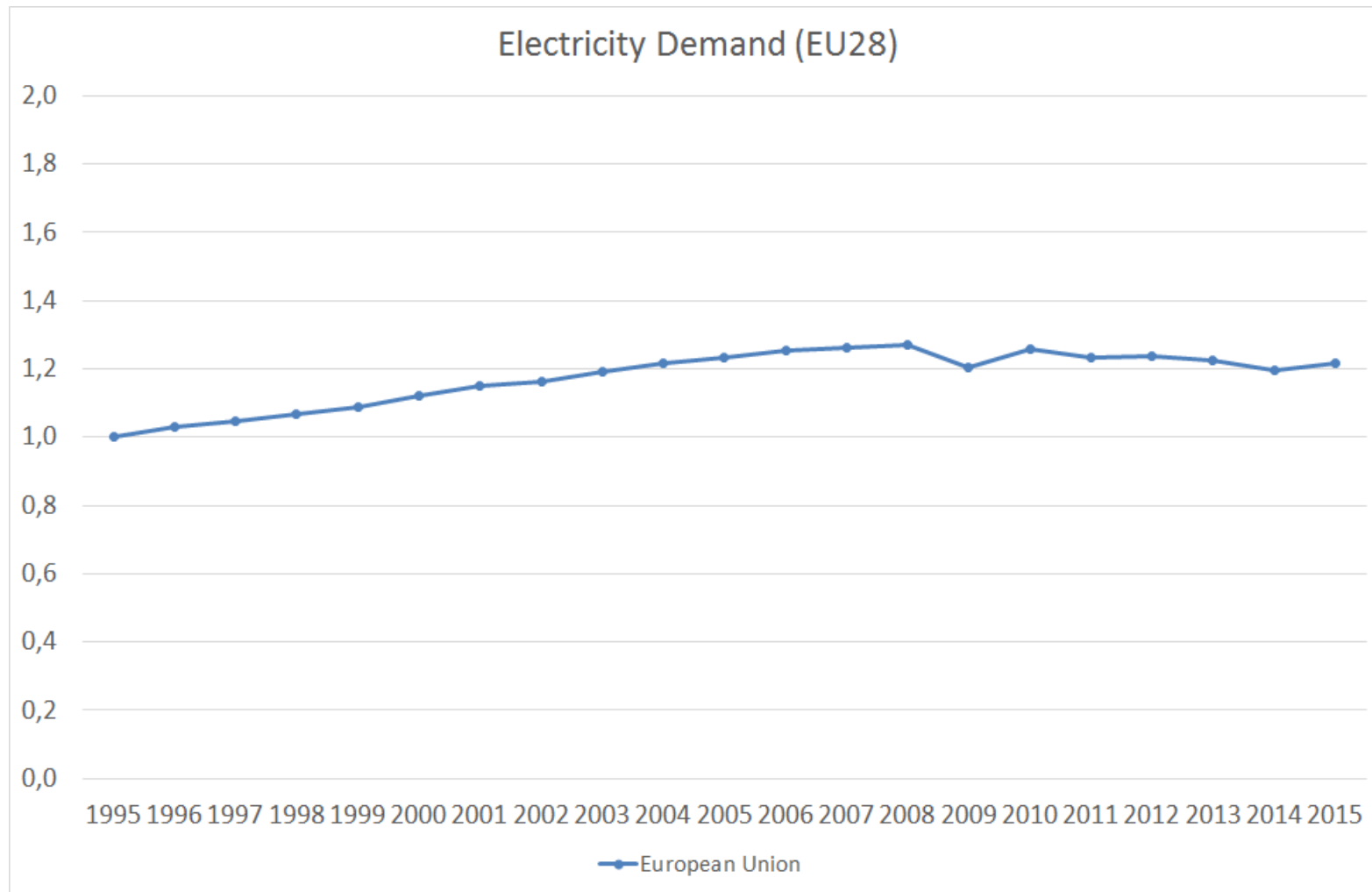
Historic data: from a modeller perspective only look in 5-years steps...



Historic data: a closer look may reveal important structural changes...

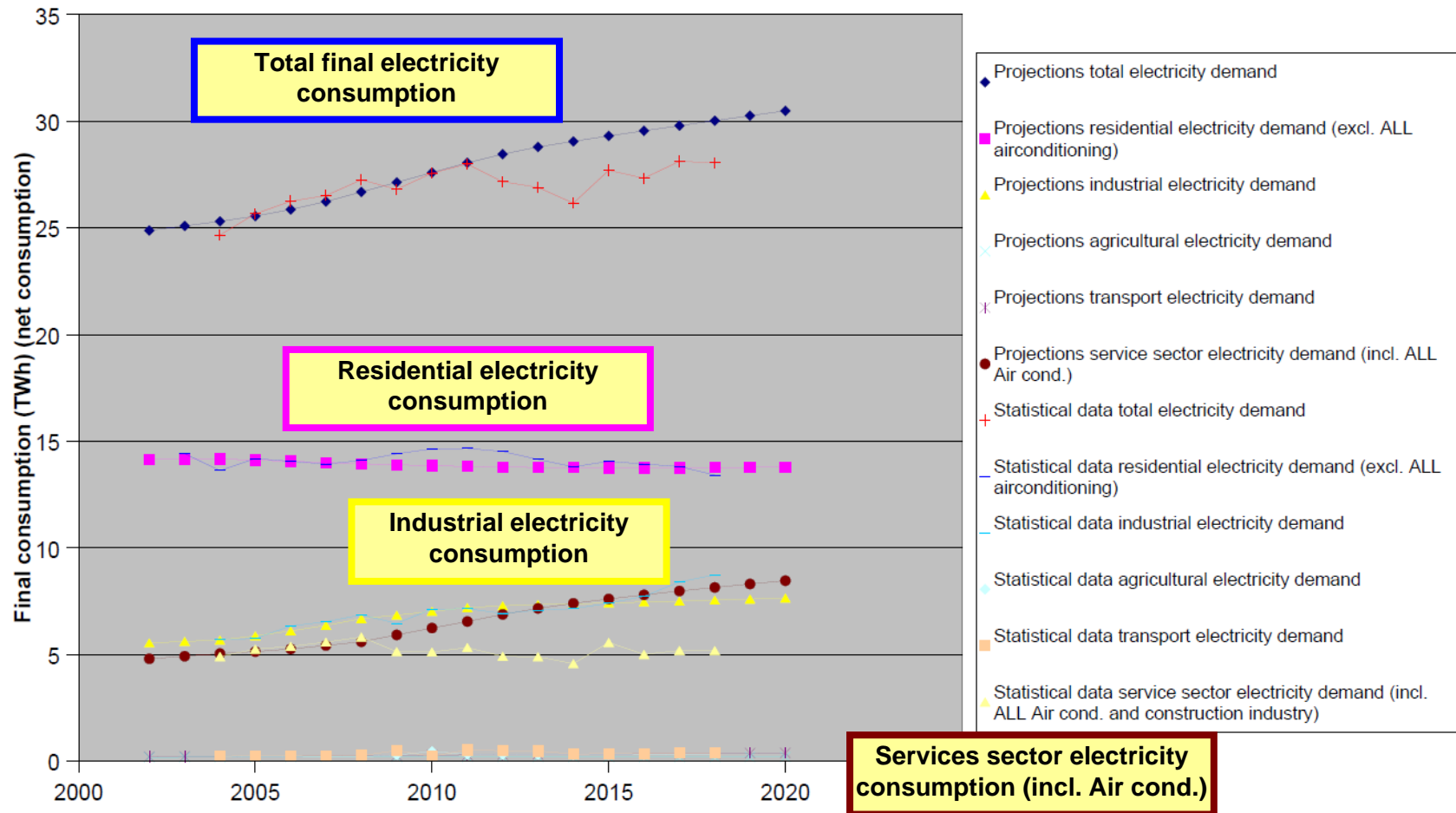


Historic data: ...and the modeller may be able to understand why the projection was off...

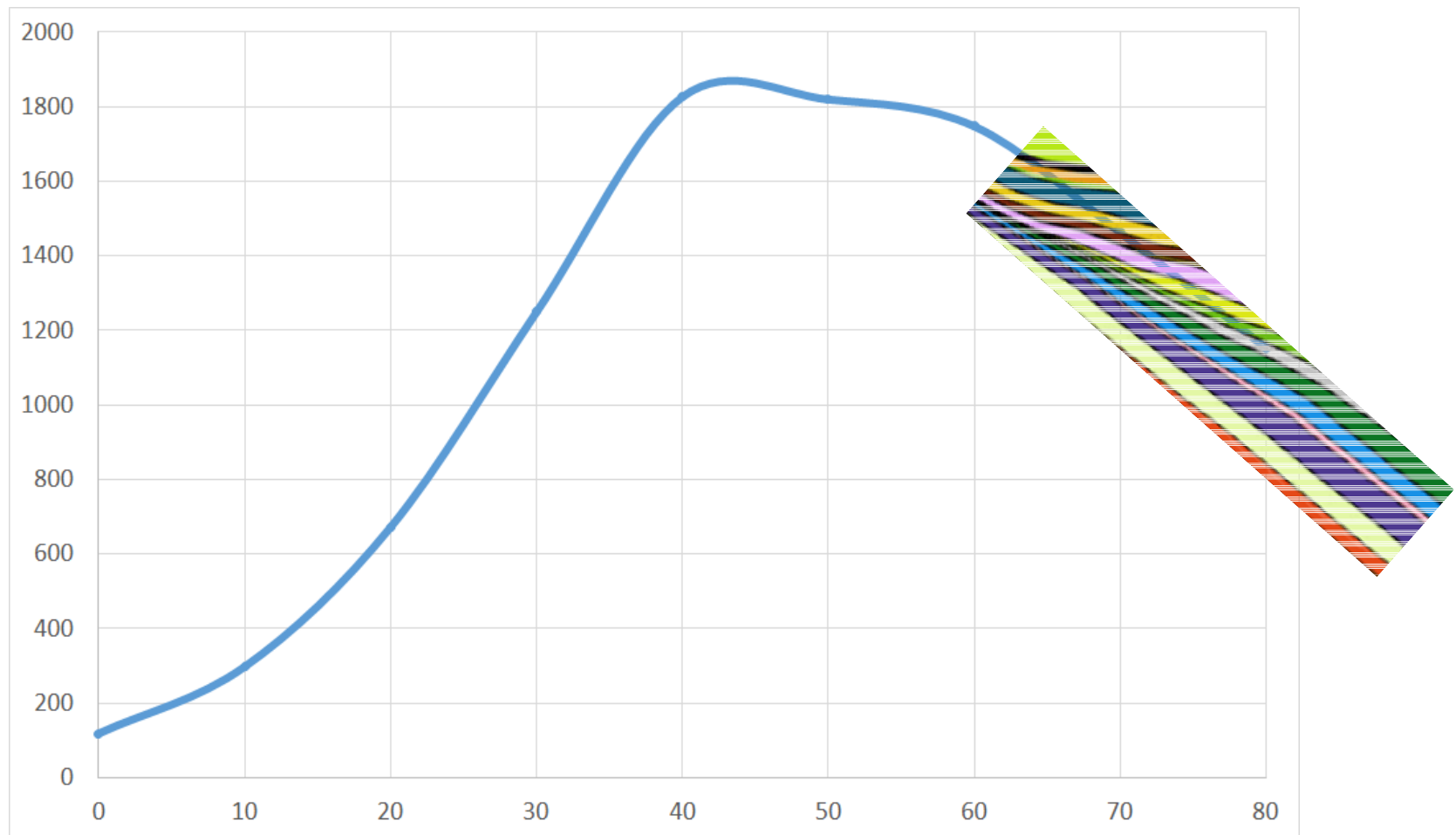


Electricity demand: Structural change in Serbia

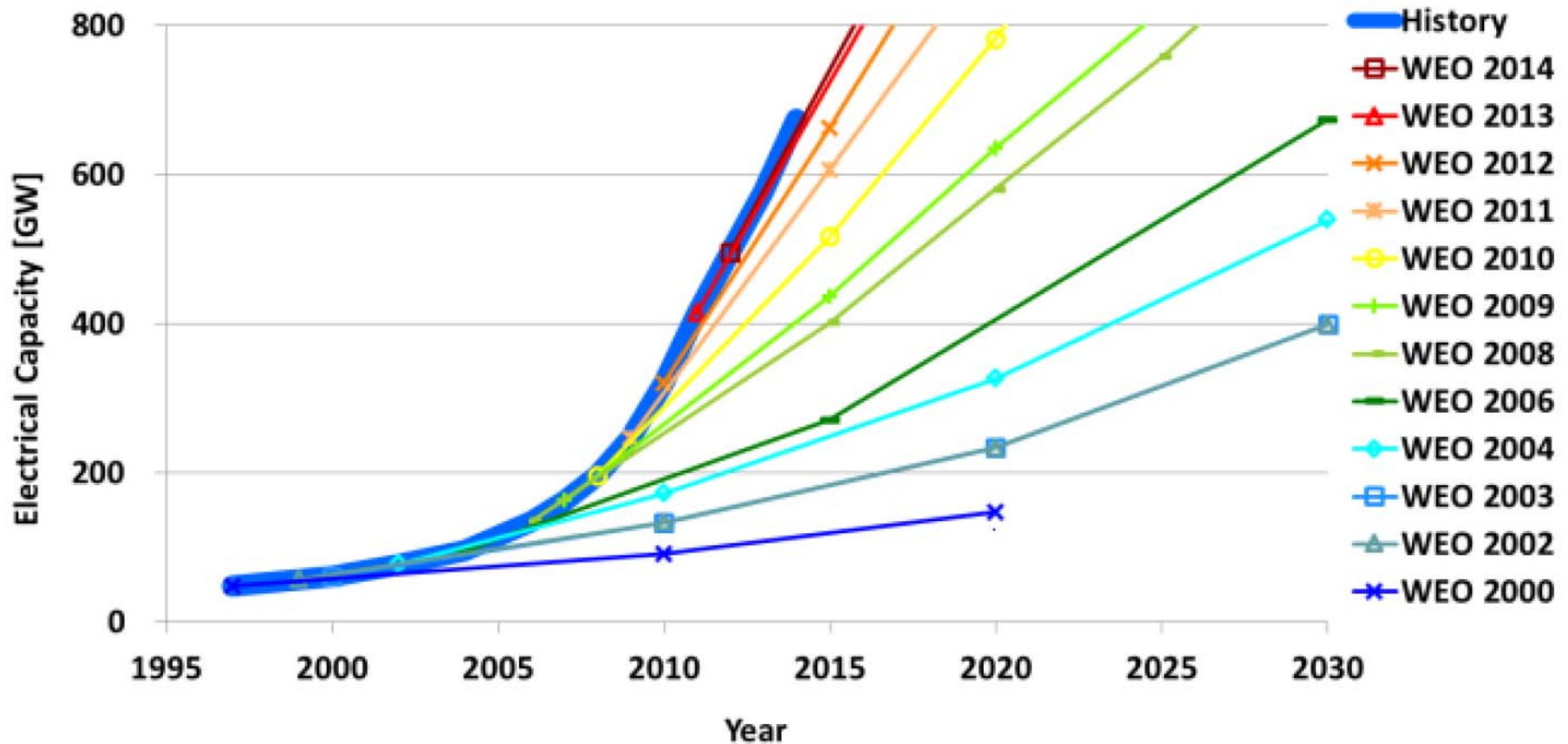
Comparison LCIP projections (from 2004; base year 2002)
with statistical data (yearbook statistical office)



Chapter VI: Underestimate Innovation and the Impacts of Dedicated Policy...

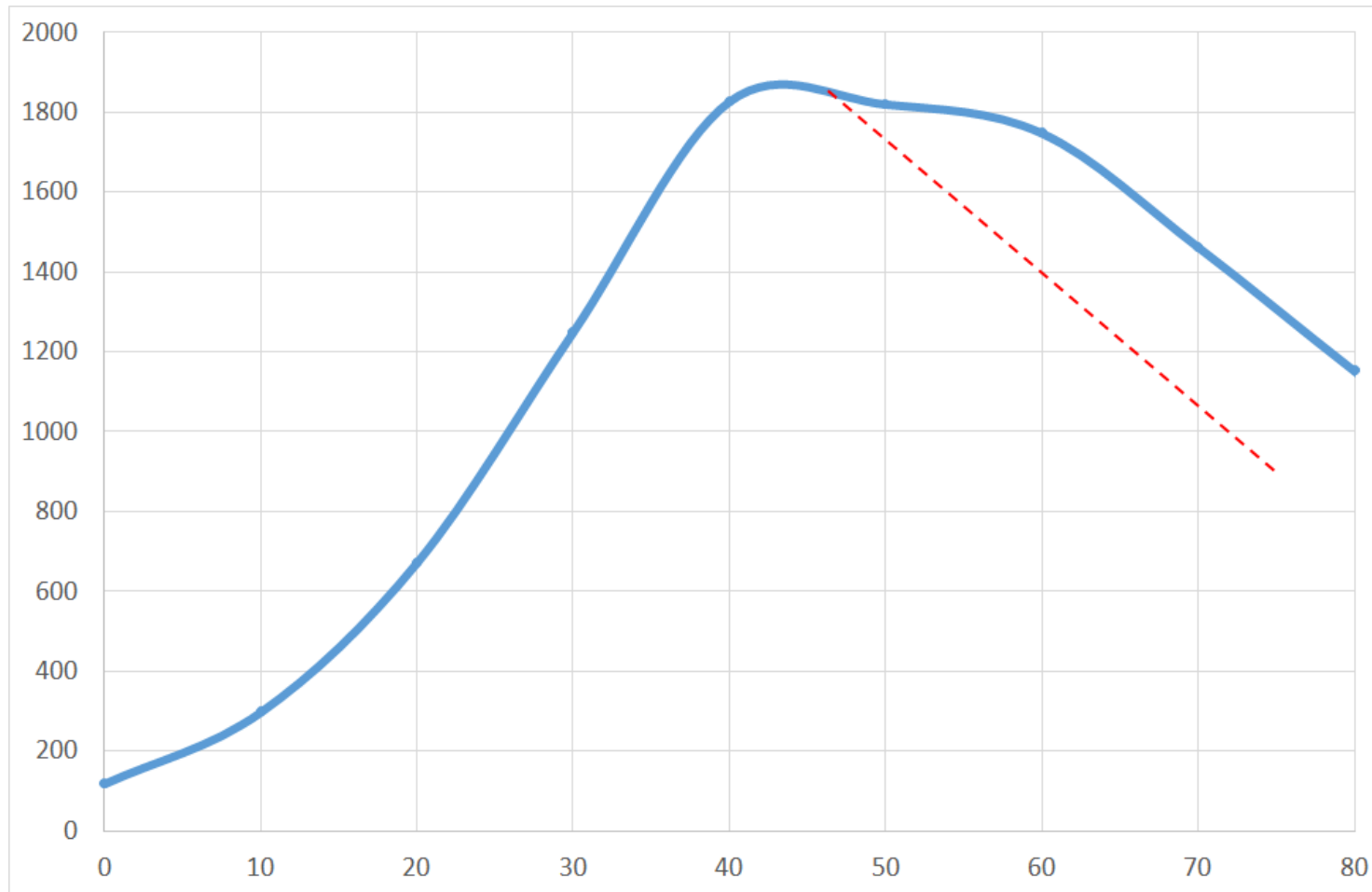


The Art of Projections: How Renewables have been underestimated by IEA...

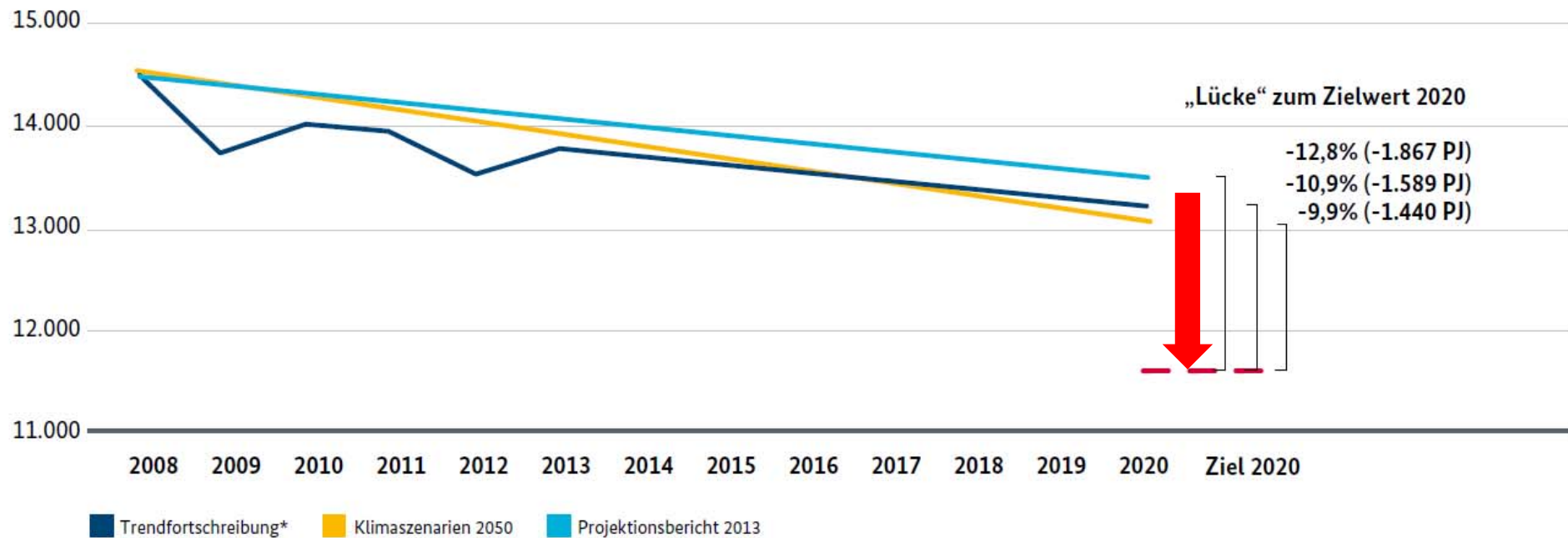


Sources: Metayer et al., 2015
<https://steinbuch.wordpress.com/2017/06/12/photovoltaic-growth-reality-versus-projections-of-the-international-energy-agency/>
<https://www.lut.fi/documents/10633/70751/The-projections-for-the-future-and-quality-in-the-past-of-the-World-Energy-Outlook-for-solar-PV-and-other-renewable-energy-technologies-EWG-WEO-Study-2015.pdf>

Chapter VII: The Eternal Policy Gap....



If you have proposed ambitious targets, state the gap, propose measures, state the gap, propose measures, state the gap, propose...



* basierend auf Statistik 2008–2013 (Stand 2014)

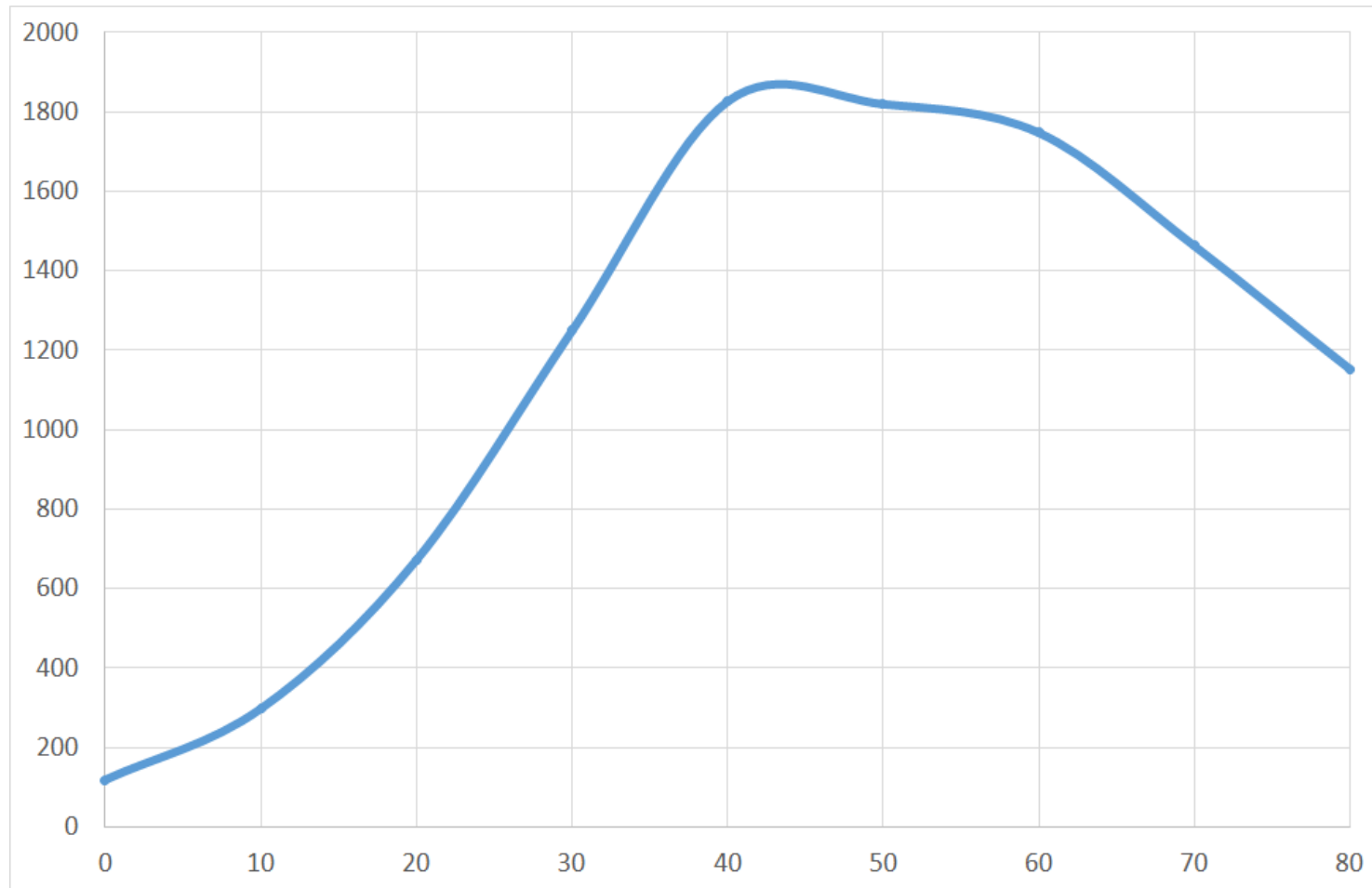
Quellen: Fraunhofer ISI/IFAM, Prognos, Ifeu, Ringel, Ziesing, 2014.

Martin Weiß, German Ministry of Environment – Interview „Die Zeit“ 2. November 2017: „The basis of each sound organisation is a large waste paper bin...“

Source: <https://www.bmwi.de/Redaktion/DE/Downloads/M-O/nationaler-aktionsplan-energieeffizienz-nape.pdf>

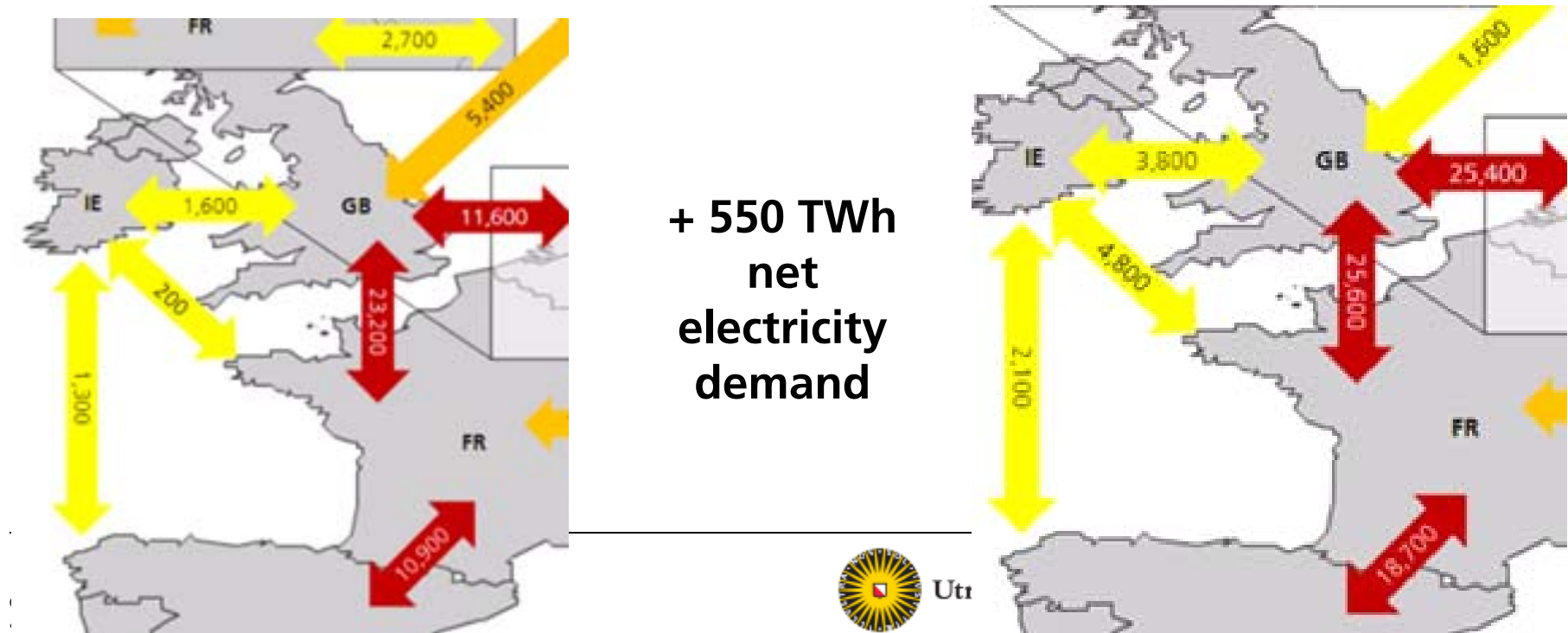


Conclusions



Miss-guided investments?

- ❖ 95% Renewables in 2050
- ❖ EU28: 3000 TWh left, 3500 TWh right
- ❖ Required interconnector capacities doubles in a number of places...



Many thanks for listening!

Wolfgang EICHHAMMER

Head Competence Centre Energy Policy and Energy Markets
Fraunhofer Institute for Systems and Innovation Research ISI
Breslauer Strasse 48 | 76139 Karlsruhe | Germany

and

Utrecht University, Copernicus Institute
Heidelberglaan 2, 3584 CS Utrecht, The Netherlands

Phone +49 721 6809-158 | Fax +49 721 6809-272
mailto: wolfgang.eichhammer@isi.fraunhofer.de
<http://www.isi.fraunhofer.de>

