



Climate Change

Copernicus Climate Change Service (C3S)

Energy Seminar

C3S Enhanced Operational Global Service for the Energy Sector –Global



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Climate Change

Global Electricity Demand Indicators

Sandra CLAUDEL EDF/R&D



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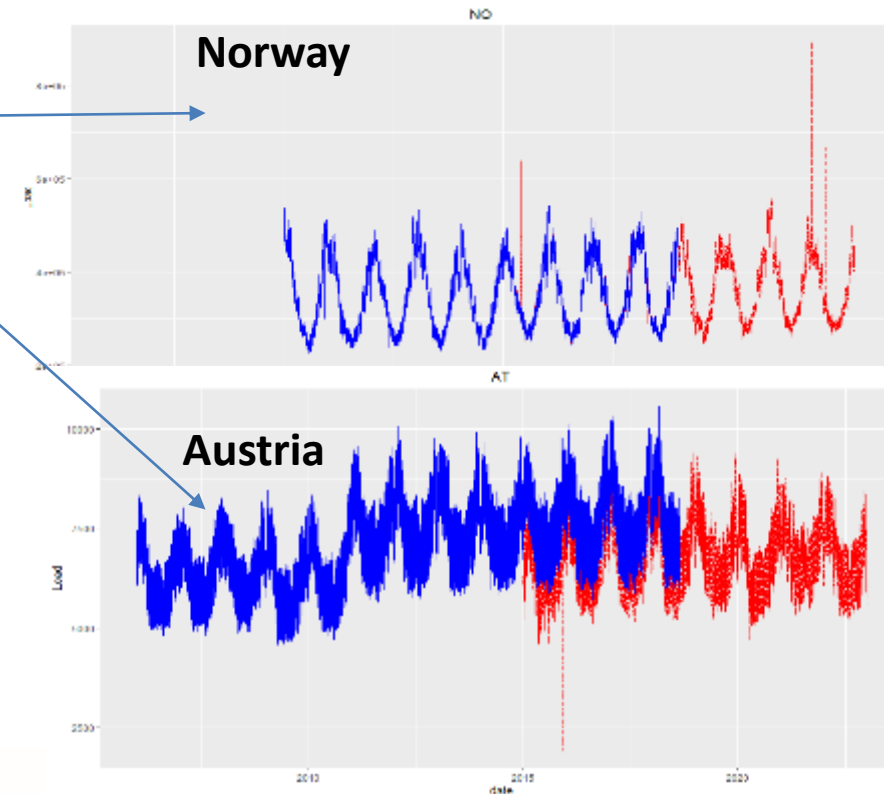
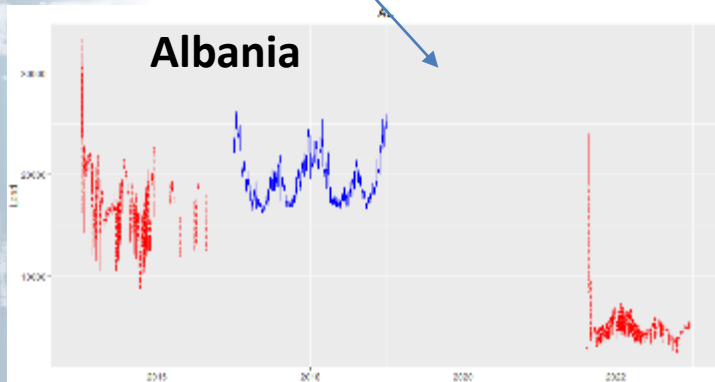


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Demand data

Hourly demand data for 39 countries

- 21 are quite correct
- 11 are very different and it will be difficult to use the oldest models
- 7 are unusable



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Models developed when data are usable



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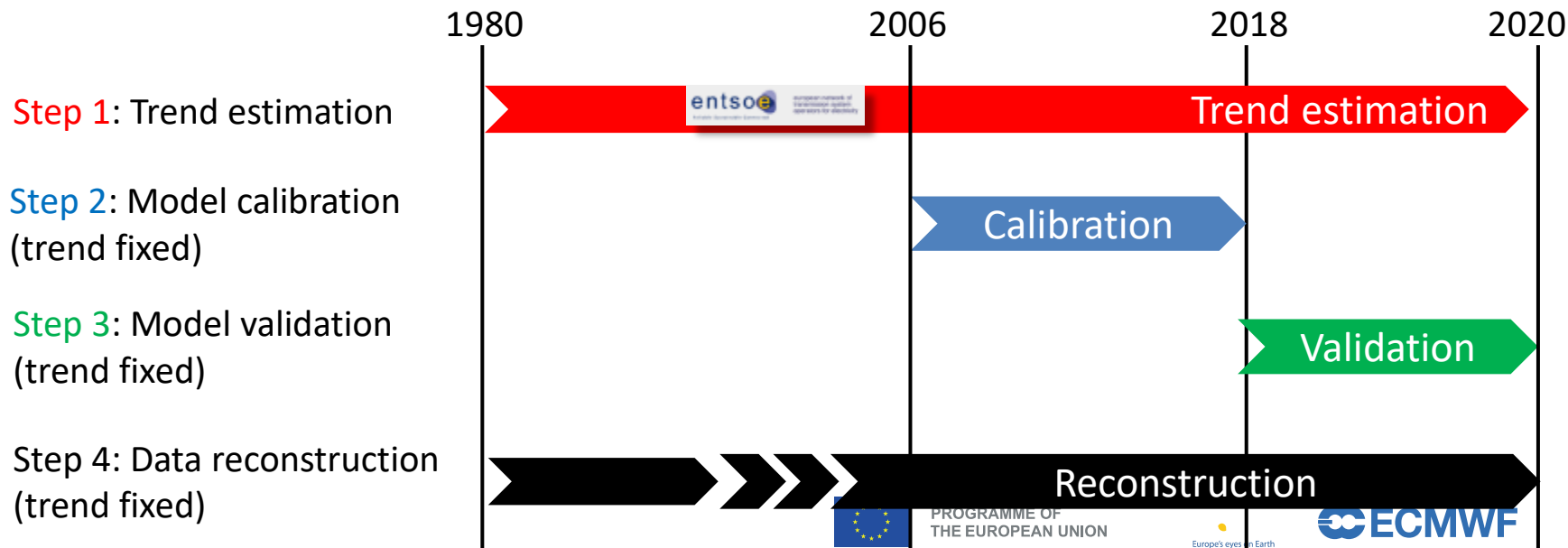




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Same models as in the previous contract

- Methodology: Generalized Additive Models
- Input Variables: T2m, GHI, WS, Calendar data





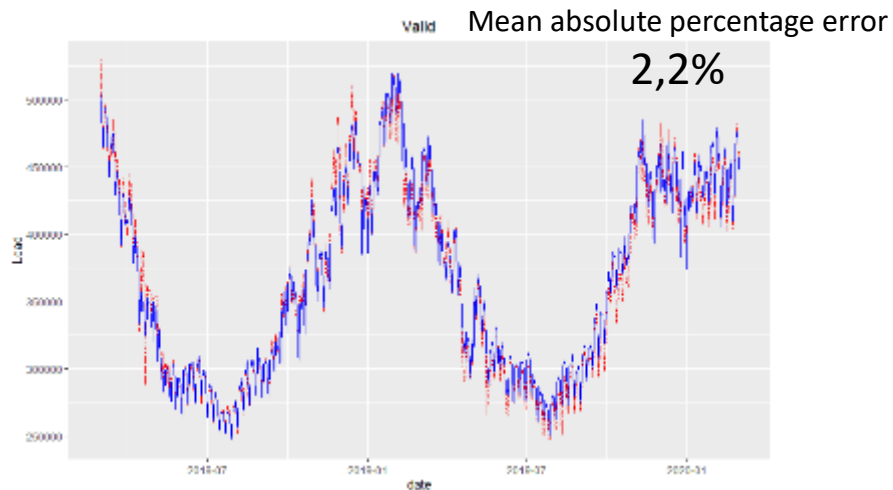
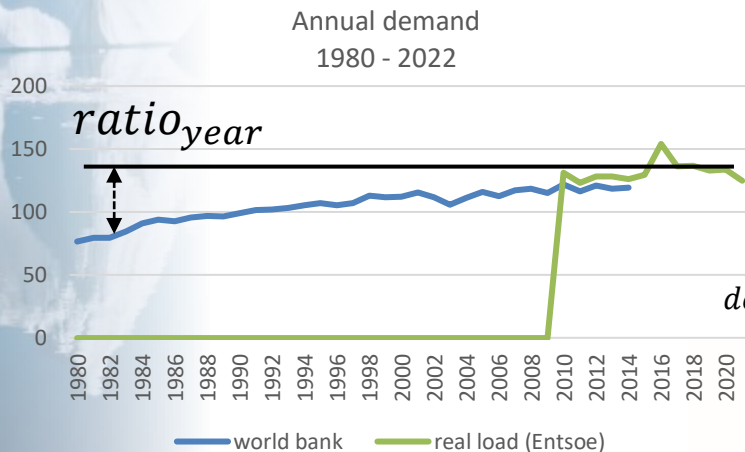
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Method for Norway (example)

Same model as in 2019 ($Model_{NO}$):

Training : 03/2010 to 02/2018

Validation : 03/2018 to 02/2020



Problem : How to reproduce the trend in the past ?

$$demand_{past} = (Model_{NO}(climate_{past}, etc..) - trend_component) \times ratio$$



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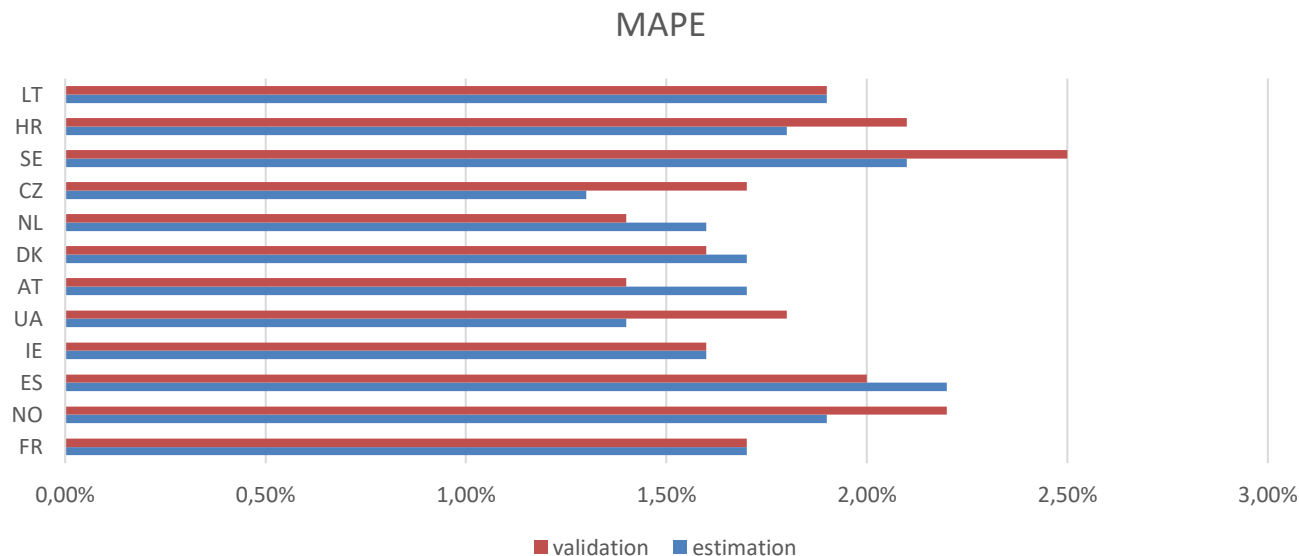




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FIRST RESULTS BY COUNTRY

The training period is generally between 2006 and 2017 (depending on each country and on the quality of the data). The validation period is on 2018-2019 except for UA (we have only around 4 years of data including covid's period)



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Work in progress

- > 12 countries handled
- For the countries with usable data: work in progress, should be completed soon (21 in total)
- A strategy will be defined for the countries showing different data according to the previous contract (11)
- Retrieval of data for other countries besides the 39 considered so far?
- To be decided together:
 - How do we handle the countries with unusable data?
 - What do we do for countries without demand data?
 - We may be running out of time to handle all countries, because of the data problems which had been underestimated



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THANKS



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