

# The model toolbox of the NEP project

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**Electricity-market models** : focusing on the electricity markets

- ECON-Classic (covering Europe)
- PoMo/DoS (covering the Nordic countries)
- VTT-EMM (covering the Nordic countries)

**Energy-system models** : focusing on a large part of the energy system and over a long time perspective

- Balmorel (covering the Baltic Sea area)
- MARKAL-NORDIC (covering the Nordic countries)
- TIMES-Global (covering the world)

**General equilibrium models** : focusing on the entire macro economy in which the energy system is an essential part

- GTAP (covering the world economy)



# Synchronizing the NEP models

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**Why?** To give a coordinated and broader picture

- ✓ Selected input data has been harmonized, e.g. fuel and CO<sub>2</sub> prices, discount rate, (*demand*), policy issues, near-time capacity investments,..
  - ✓ Output from some models is used as input into others  
Ex: GDP from GTAP into TIMES-GLOBAL, DH from M-N into PoMo, ind elec demand from DoS into M-N, ECON-C, Continental elec. prices from ECON-C,...
- ⇒ Model results show similar results concerning general and overall trends, but significant differences may remain when it comes to detailed results...



# Model-related differences remain

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- ✓ Models will (and should!) still have significant differences
  - Developed for different reasons and with different purposes
- ✓ Different system boundaries (energy system, geography and time horizon)
- ✓ Model configuration differ (e.g. electr.-price calculations)
- ✓ All input data may not be synchronized
  - lack of resources
  - “cultural” and national differences in the model managing and the view of our energy systems/markets
  - human errors (control and model comparisons may reduce this)