Workshop on Case Study Definitions

Questionnaire - 1st Feedback

EDF, April 11, 2018

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1st Feedback from the Questionaire

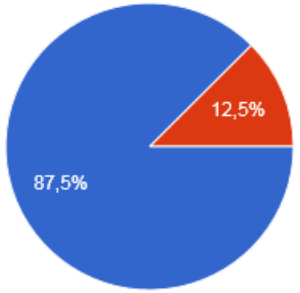
The questionnaire can be found here:

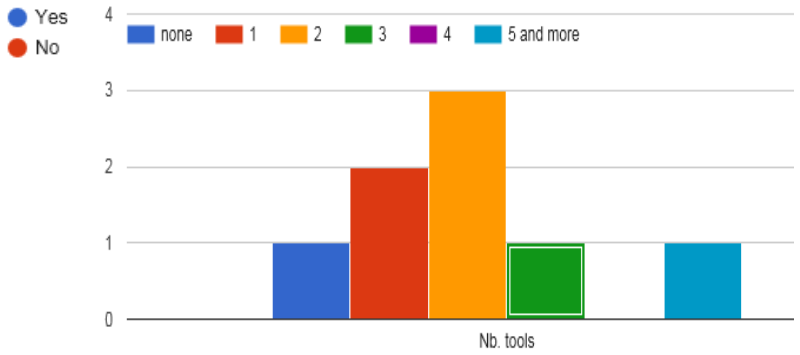
https://docs.google.com/forms/d/e/1FAIpQLSfr6z_rs26a7_ZiK3gQU7jXxJIruyKdtQCn-iEzDS-yKJRaDw/viewform

or via the plan4res website: www.plan4res.eu

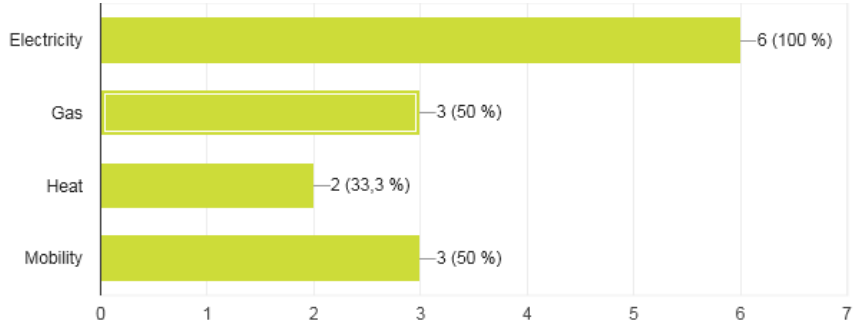
1st Feedback from the Questionnaire
Tools already used

Are you using planning/operational tools?





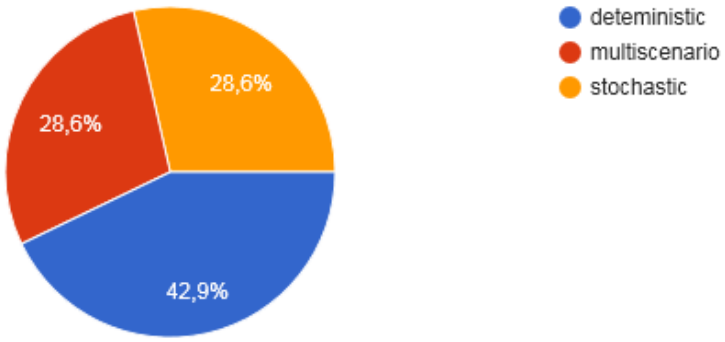
Energy Vectors?



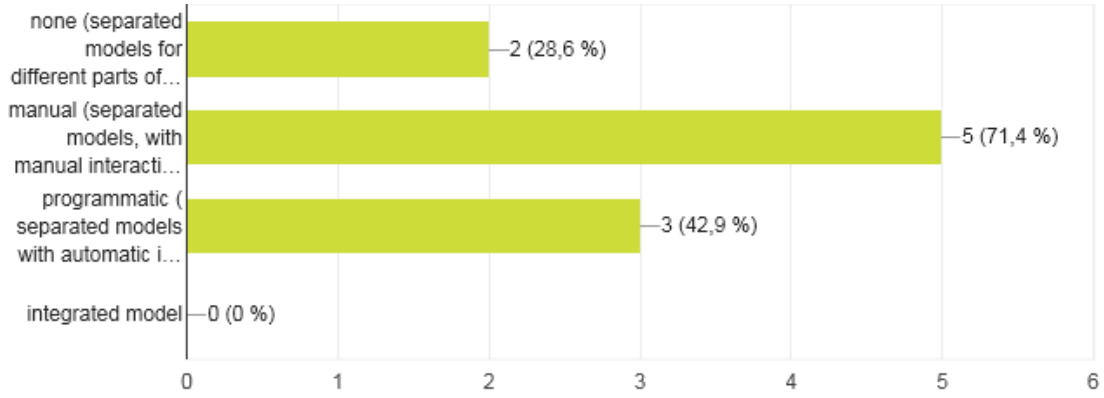
- https://energyexemplar.com/software/plexos-desktop-edition/
- www.dispaset.eu
- + other small non-public models
  (hydro-thermal coordination, prosumer self-consumption etc, demand modeling etc.)
- Mix of CPLEX, GAMS and own equation set for Energy System Modeling;
- PSS Sincal for transmission grid planning;

1st Feedback from the Questionnaire
Model Structure

Are these optimization methods already used?



What is the level of integration of your(s) model(s)?



What is missing in the tools you use?

- Structured modeling
- Multi objective and tools to check the robustness of the solutions with respect to data uncertainty
- Better grid understanding
- Multi-scale modeling (model aggregation and reduction methodologies),
  Proper representation of effects happening on lower spatial or temporal scales in system models.
- Clean datasets and calibrated scenarios
- Integrated tool framework of models and data which enables automated modeling and reuse of intermediate results along the 'line' from demand of 'useful energy' to generation dispatch to transmission of energy to investments decision; all w/ considering aspects of sub-country level modeling, sector coupling and uncertainty.

1st Feedback from the Questionnaire
Which topics have to be considered

What is your most pressing topic or open question if you consider the future European energy system?

- Energy transition
- Insertion of Renewables
- Future Energy Mix (worldwide) and impact of Sector Coupling in the new world of distributed energy systems with high shares of RES
- Integrating the Renewables sources especially in the balancing markets
- How will we deal with distributed resources and grid congestions
- High share of VRES
- Benefits/impact of sector coupling, water-energy nexus

Which part of your business may get changed if you consider modeling the future European energy system?

- Generation mix
- Power generation products and services for power plants and electric grids;
- Energy management products and services from building to large industrial micro-grids to TSO/DSO level;
- Opportunity for new products for e.g. eMobility, Power2Gas or Power2Heat
- Better grid analysis on congestions
- More targeted policy support by identifying bottlenecks and quantifying transitions
- Wholesale market approach

1st Feedback from the Questionnaire
What kind of study is necessary

Constraints which need to be taken into account for modeling?

- All
- Technical constraints (e.g. thermal power plants).
- Electricity demand constraint.
- CO2 emission constraint
- Local capacity limits due to political reasons or social acceptance and preferences; same holds for regional restrictions, e.g. due limited space;
- If not modeled on local level, validity of a copperplate assumption, e.g. for heat transport;
- As many technical constraints as possible
- Technical constraints for generation plants, NTC, thermal demand constraints
- Market fundamental and technical constraints

What kind of studies you think are necessary for future energy planning ?

- Integrated studies which take into account sector coupling as well as connect mutual dependencies from local to cross-national energy systems.
- Evolution of short term demand response behaviour and integration of RES in short term balancing markets
- Benchmark and support in energy market scenario evaluation

Thank you!