

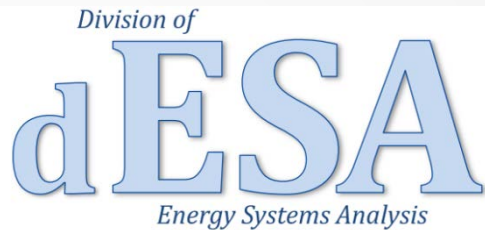


CURRENT AND PLANNED DEVELOPMENTS OF OSEMOSYS OPEN SOURCE ENERGY MODELLING SYSTEM

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STORAGE

Existing set of equations for modelling storage:

- Allows for different kinds of storage to be modelled (e.g. batteries, pumped-hydro, dams)
- Complies with daily limits even when time resolution is coarse

Developments:

- Application to hydro-cascade (ongoing)
- Application to rural energy planning (ongoing with Polimi)
- Better representation of physical limits (ongoing)
- Addition of losses proportional to time and stored energy (planned)



SYSTEM FLEXIBILITY

Existing add-ins for:

- Reserve capacity dispatch
- Costs of power plant flexible operation: cost of starts, efficiency nonlinear function of the load, endogenously computed retrofits
- Reserve capacity demand function of the penetration of renewables

Developments:

- Reserve capacity demand function of variability of renewables (started)



REDUCTION OF THE LP MATRIX

Existing formulation of OSeMOSYS:

- Solver (glpk) generates equations for all combinations of Technologies and Fuels, not only those for which user-specified connections
- Long generation times for LP matrix, large and sparse matrix

Developments:

- Launching 'challenge' to programming literates for re-writing code more efficiently (online in a few days, going to share link)



REFINING GAMS AND PYTHON VERSIONS

Published on GitHub:

<https://github.com/KTH-dESA/OSeMOSYS>



THANK YOU