EIFER

EUROPÄISCHES INSTITUT FÜR ENERGIEFORSCHUNG
INSTITUT EUROPEEN DE RECHERCHE SUR L'ENERGIE
EUROPEAN INSTITUTE FOR ENERGY RESEARCH

Modeling of the PREMIO platform using ABM

Pablo Viejo Garcia, EIFER - Group manager
Enrique Kremers, EIFER – Project responsible

Geosimulation for Energy Research Group

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AGENDA

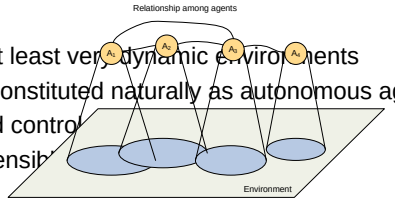
1. Agent based modeling
2. PREMIO Platform models
3. Live Simulation

Agent Based Models (ABM)

- consist of relatively simple, reproducible entities that are autonomous in their decision making
- reproduce complex systems and their behavior
- can lead to phenomena like emergence
- provide decentralized solutions
- create a wide solution space
- allow the appearance of distributed intelligence

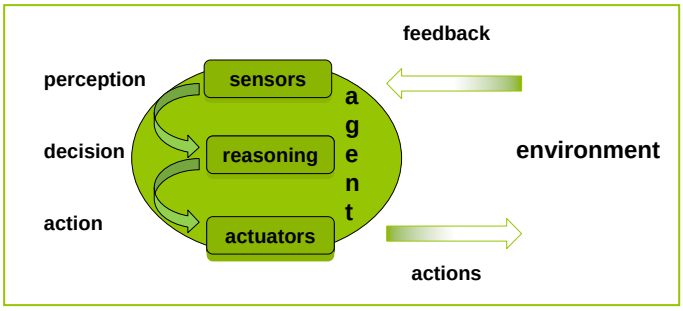
Applications

- Open or at least very dynamic environments
- Systems constituted naturally as autonomous agents
- Distributed control
- Easily extensible

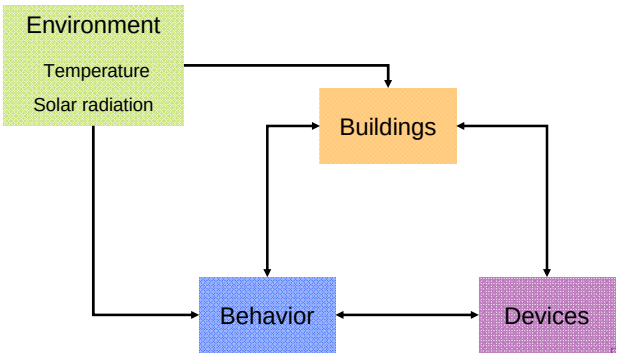


Multi agent model

Agent structure



Components of the energy demand on households



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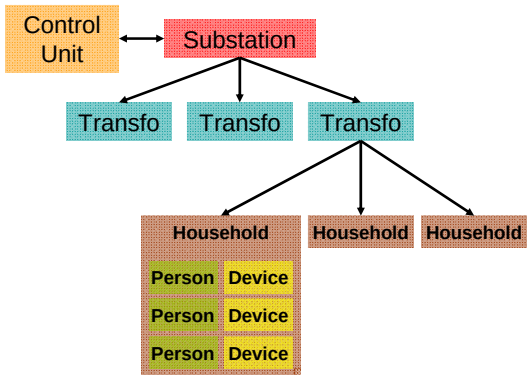
Multiscale Agent Based Model

- Different agent classes



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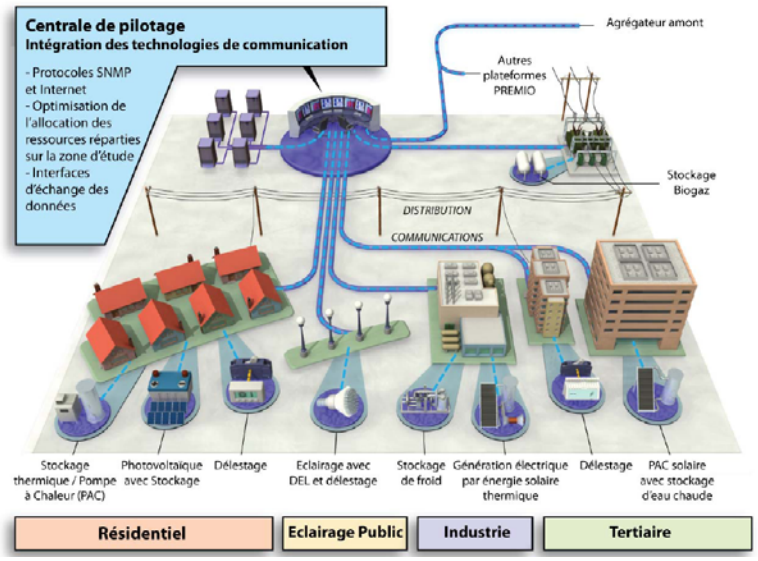
PREMIO Platform



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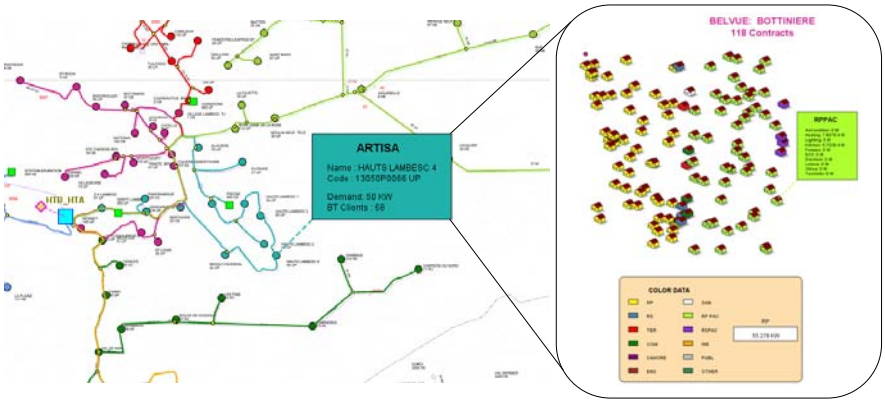
Modeling of the PREMIO platform / Lambesc



-Modeling and simulation of the whole village of Lambesc (10000 clients) with ABM

-Modeling of smart grid platform (Optilesteur, Central Pilotage, Smart Meters, PV, Storage)

-Scenarios of masive implementation (diffusion) of technologies. Extrapolation to other cases

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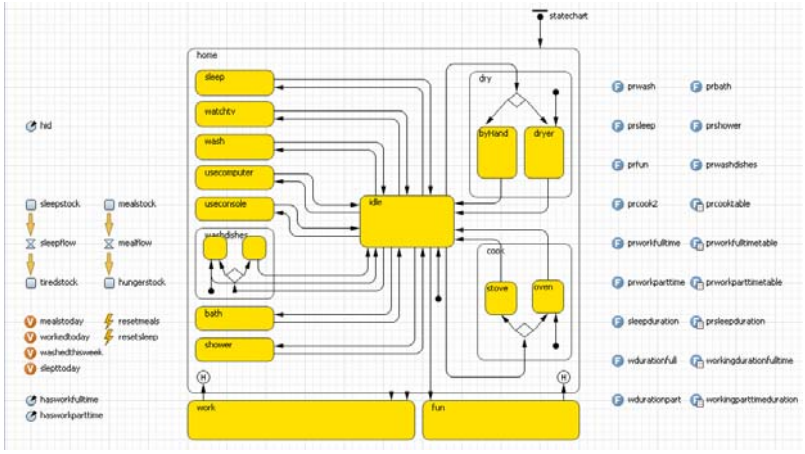
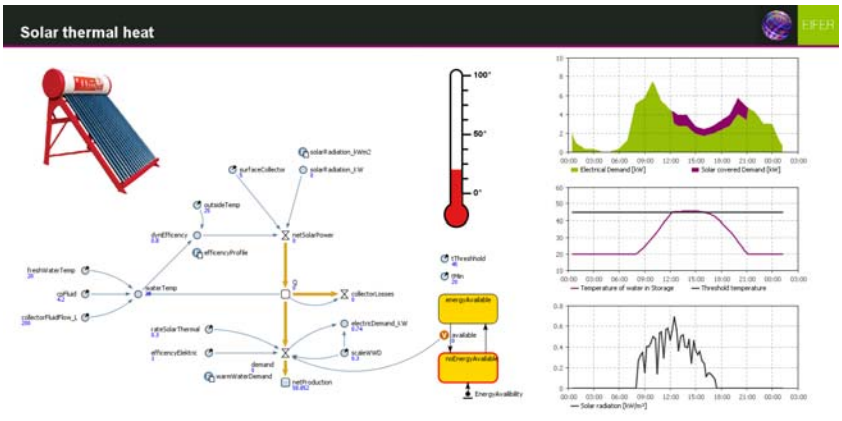
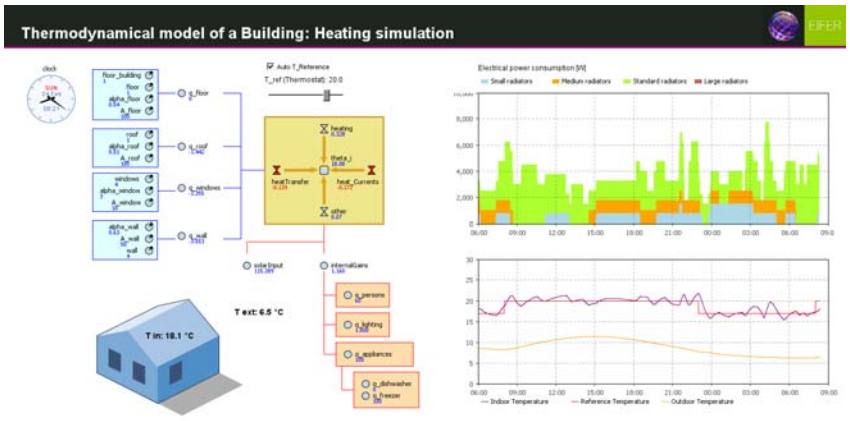
Sociological model of consumer behavior



Distributed Generation



Electrical Heating Model



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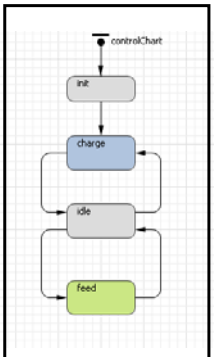
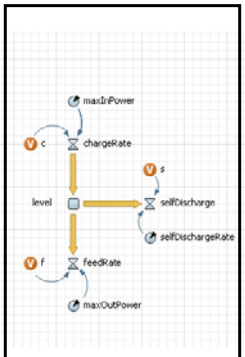
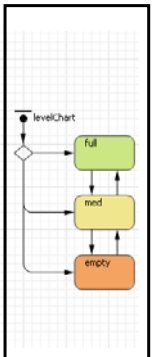
Storage model: Microscope



Control



Charge model



Level

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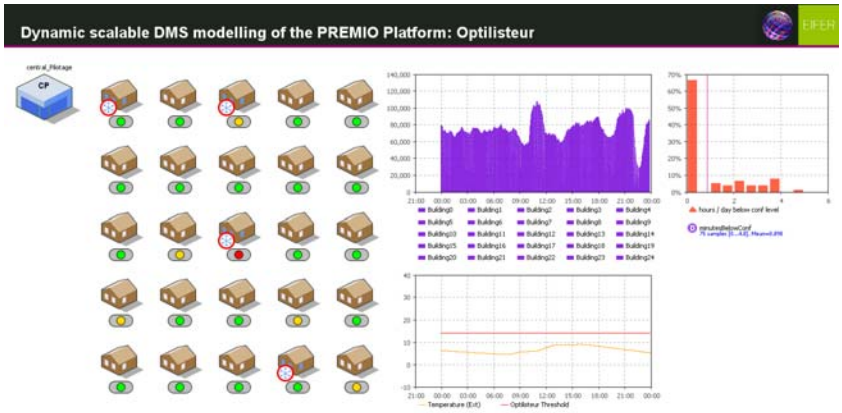
Demand Side Management: Optilesteur



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LIVE PRESENTATION

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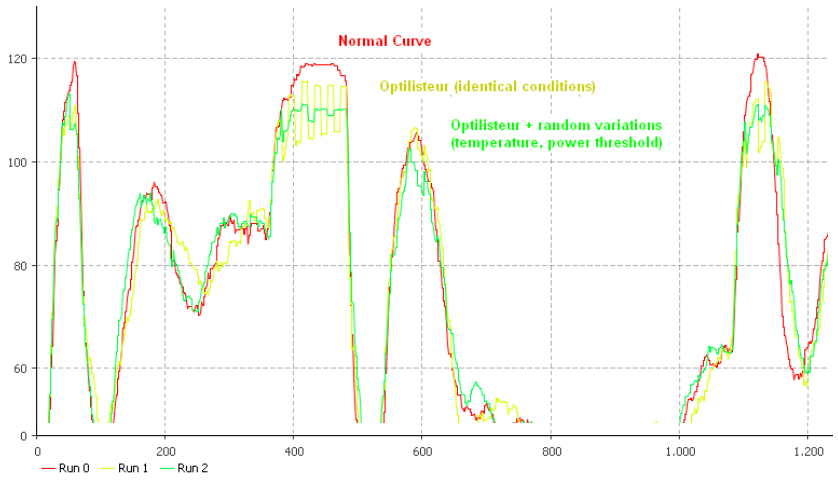
Optilesteur simulation runs comparison



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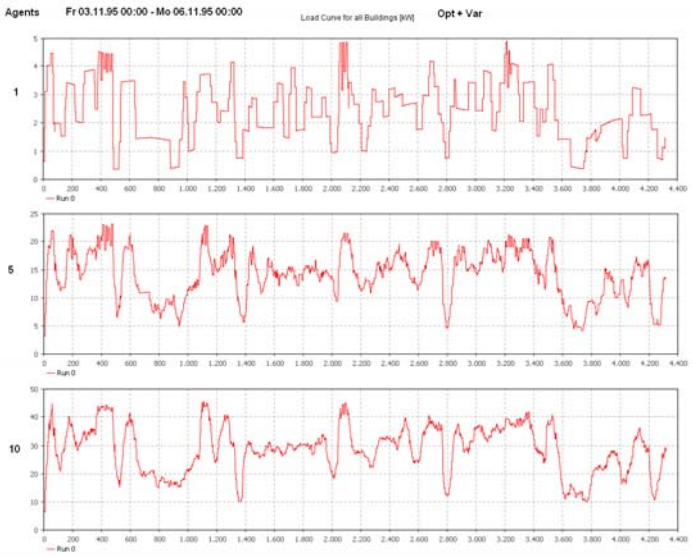
Agent scaling effect



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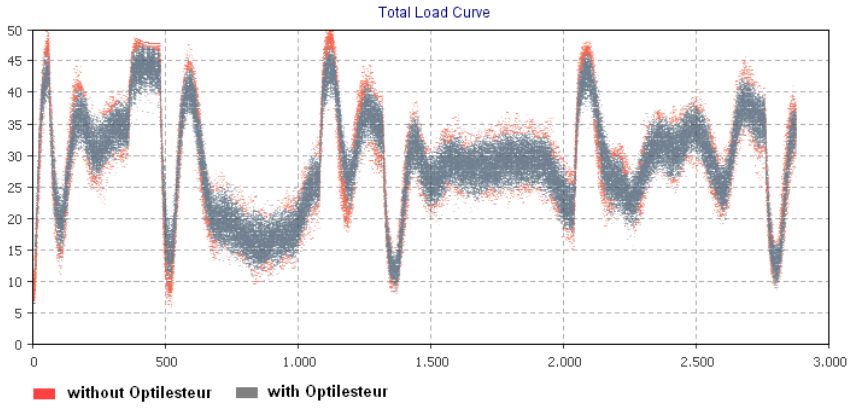
Montecarlo simulation 100 runs



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Thank you for your attention!

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