

## What-if analysis through simulation-optimization hybrids

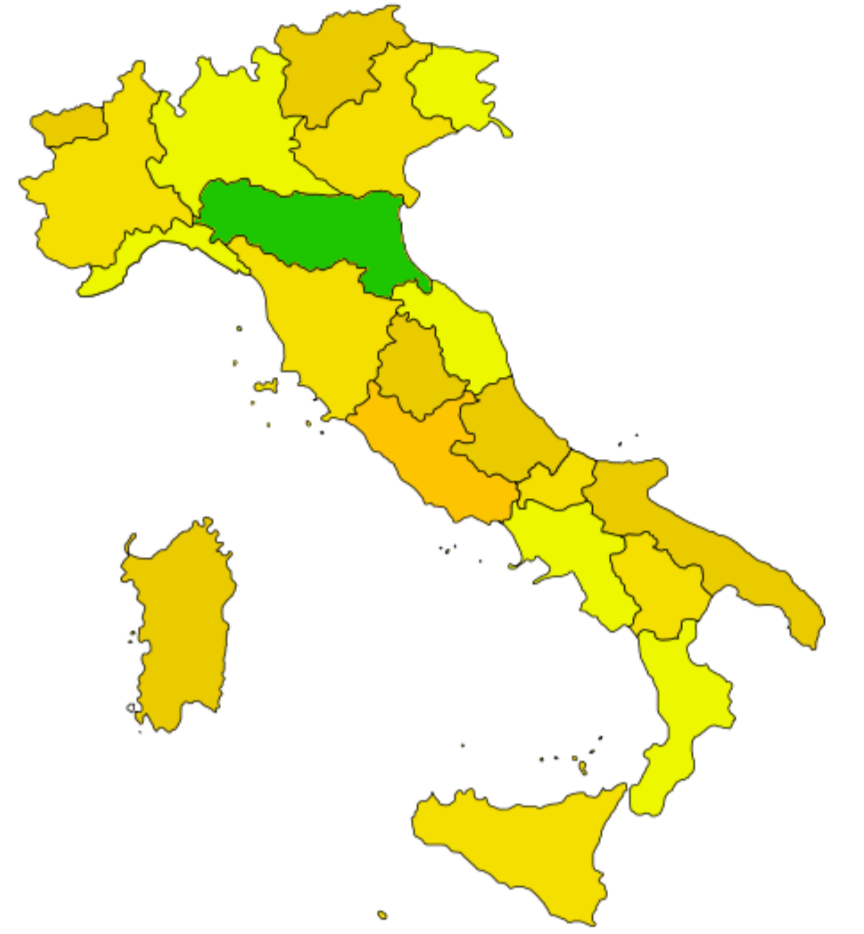
Marco Gavanelli, Fabrizio Riguzzi



Michela Milano



Alan Holland and Barry O'Sullivan

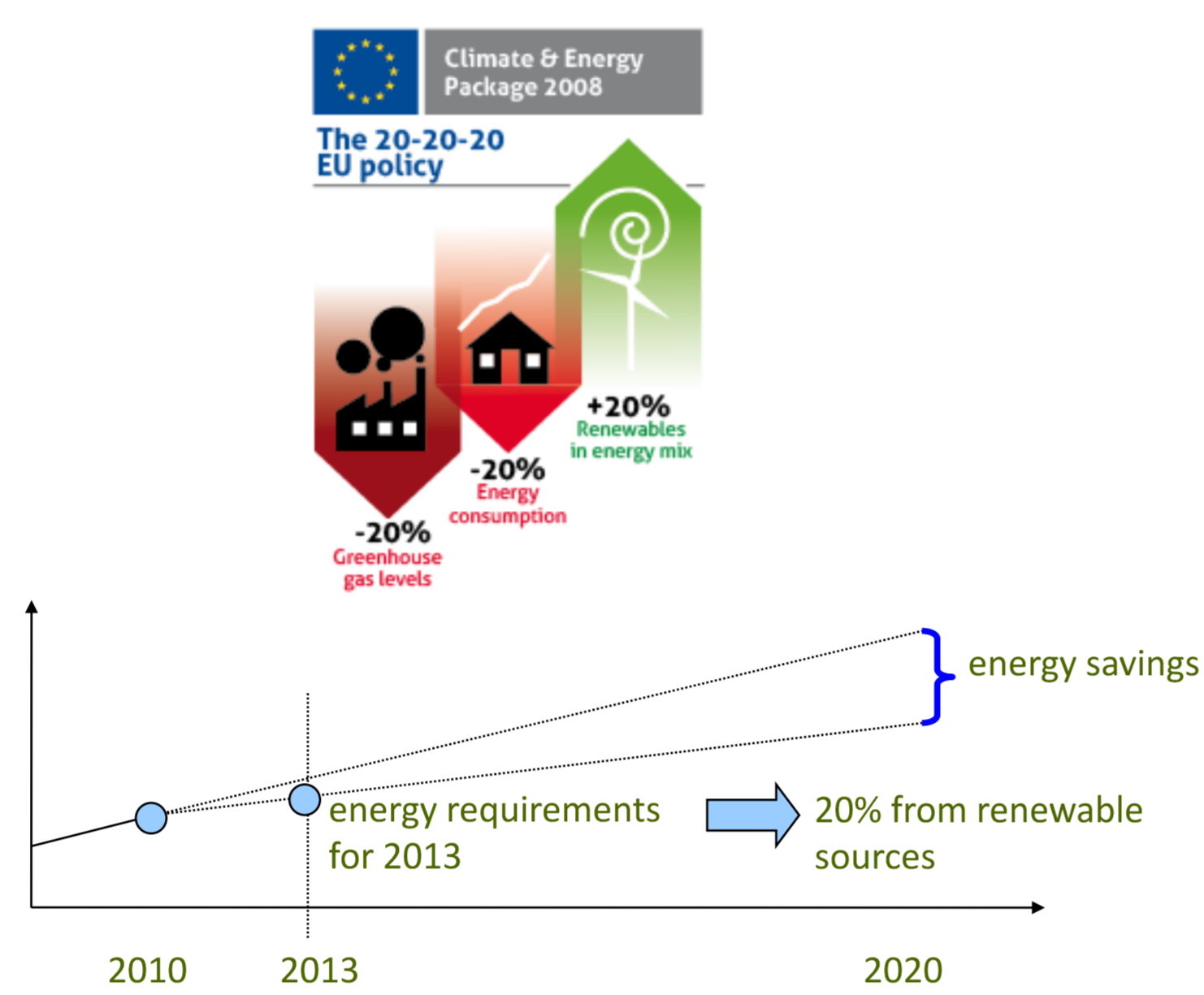


### Environmental assessment

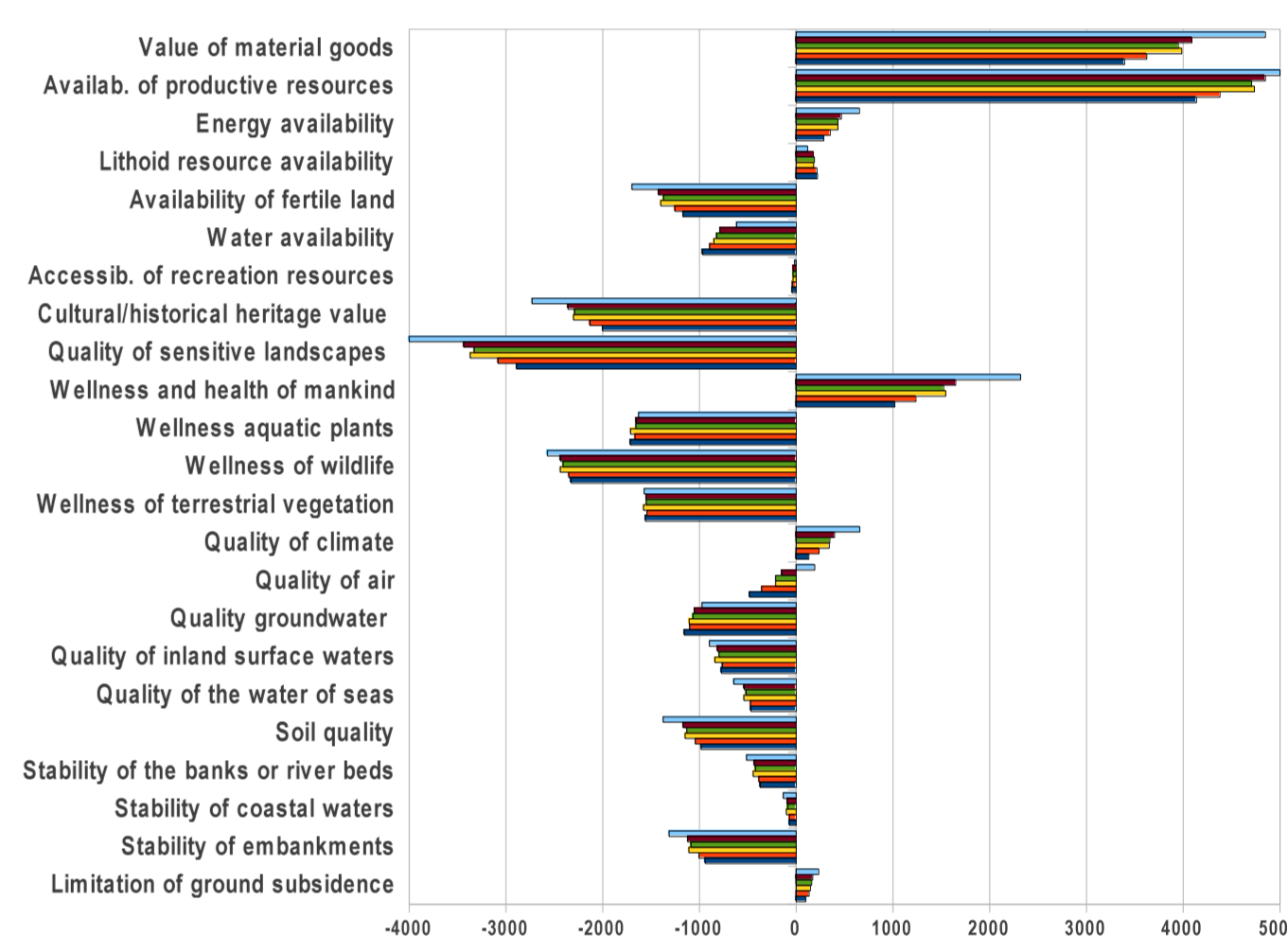
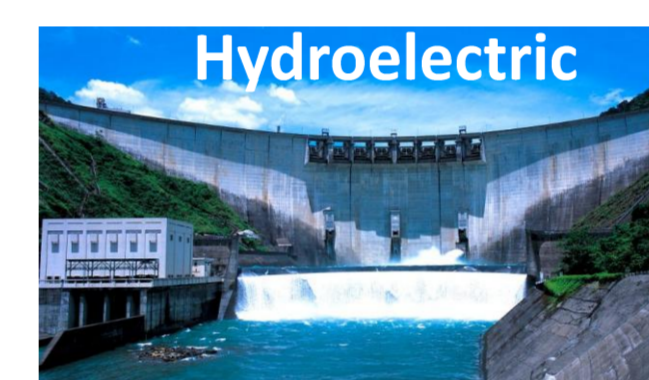
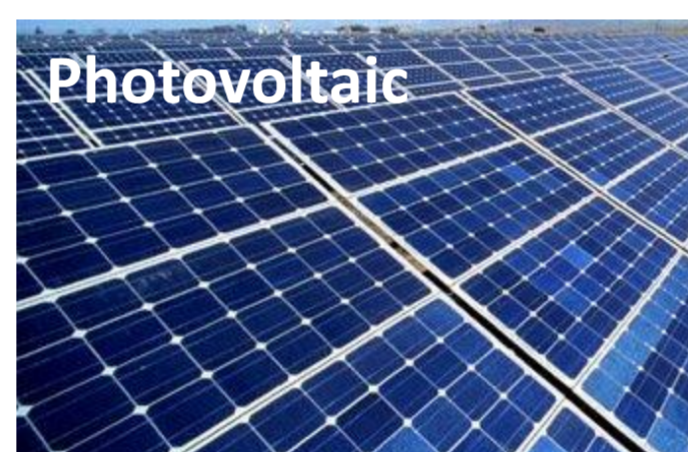
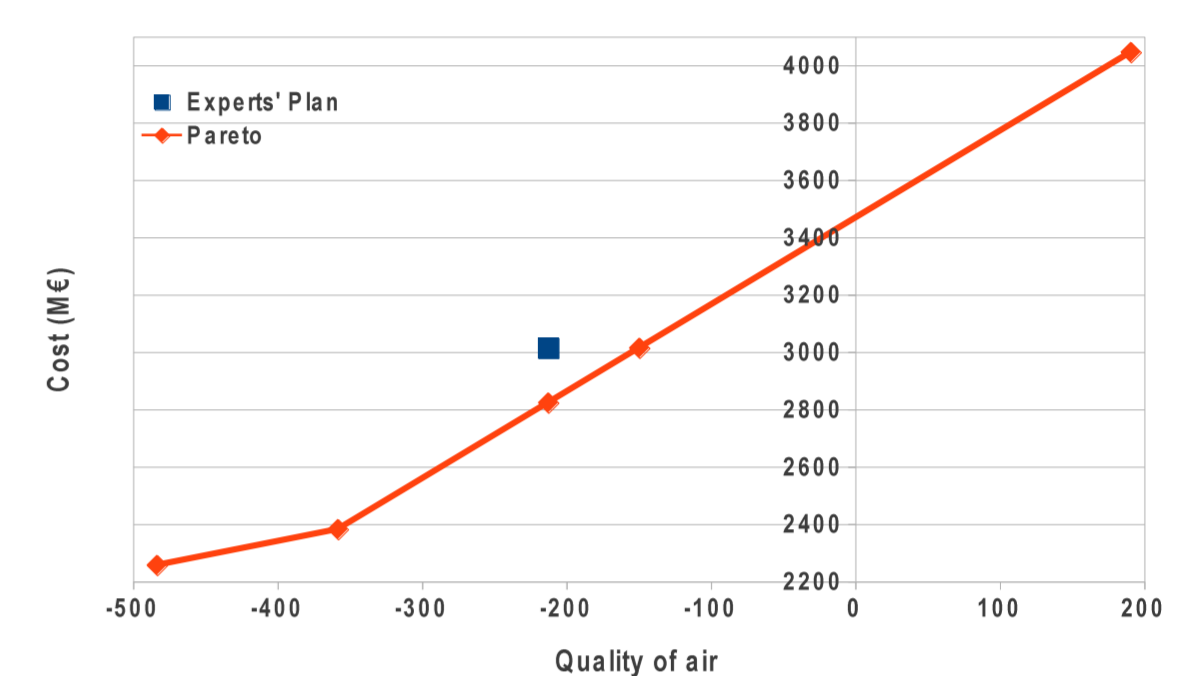
Category	R	B	A	M	B
Incinerators	R	B	A	M	B
Pylons	R	B	A	M	B
Overhead Power Lines	R	B	A	M	B
Underground Power Lines	R	B	A	M	B
Pipelines (oil, steam, gas...)	R	B	A	M	B
Houses	R	B	A	M	B
Streets, roads	R	B	A	M	B
Tunnels	R	B	A	M	B
Railways	R	B	A	M	B
Airports	R	B	A	M	B
Caves & mines	R	B	A	M	B
Photovoltaic plants	R	B	A	M	B
Thermal solar panels	R	B	A	M	B
Thermodynamic solar plants	R	B	A	M	B
Wind generators	R	B	A	M	B
Hydroelectric plants	R	B	A	M	B
Biomasses thermoelectric plants	R	B	A	M	B
Sea electric power plants	R	B	A	M	B
Oil electric power plants	R	B	A	M	B
Coal electric power plants	R	B	A	M	B
Nuclear plants	R	B	A	M	B

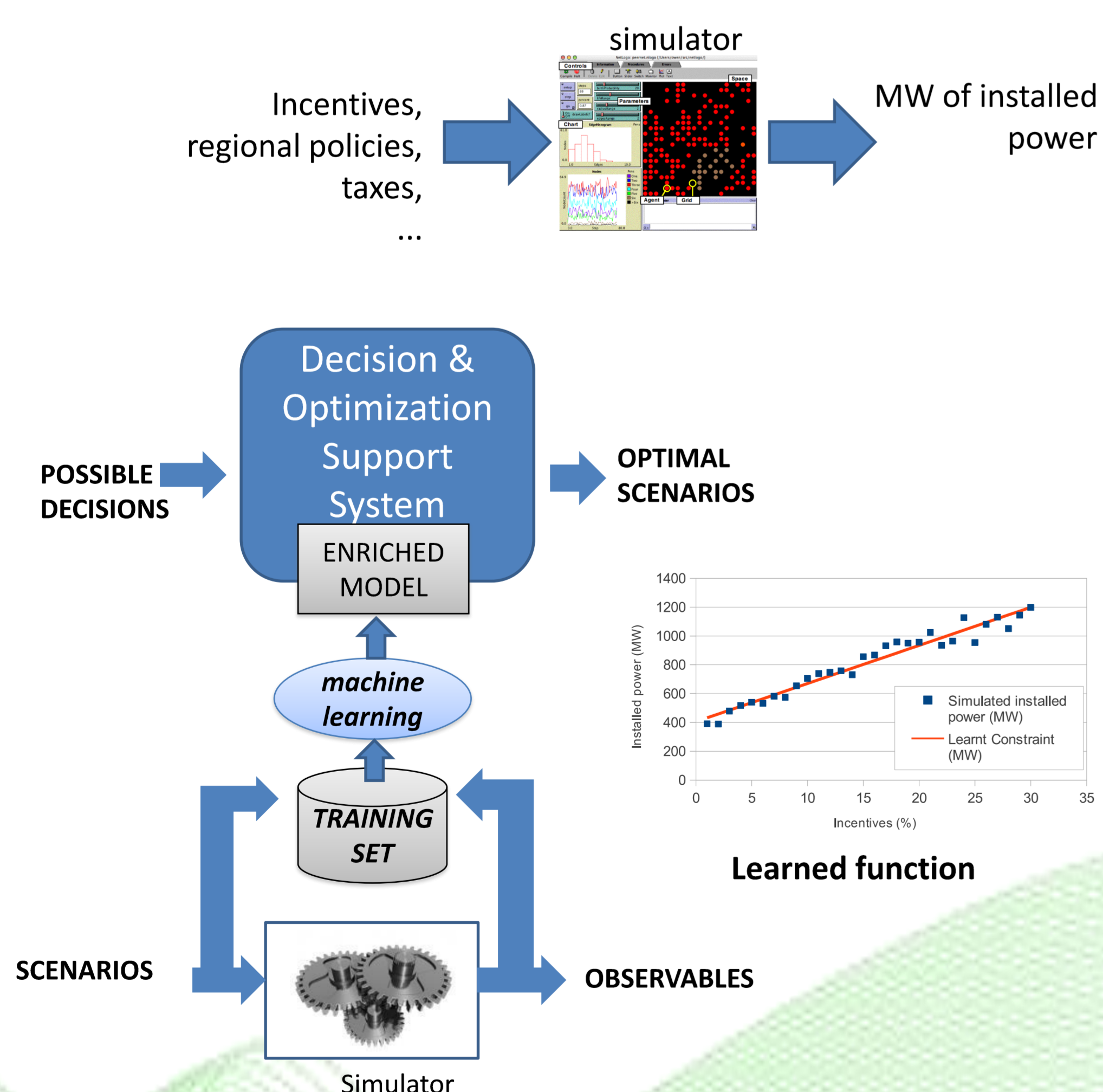
ENVIRONMENTAL RECEPTORS	R	B	A	M	B
Quality of sea water	R	B	A	M	B
Quality of inland surface waters	R	B	A	M	B
Groundwater quality	R	B	A	M	B
Air quality	R	B	A	M	B
Quality of climate	R	B	A	M	B
Wellness of terrestrial vegetation	R	B	A	M	B
Wellness of wildlife	R	B	A	M	B
Wellness of aquatic plants	R	B	A	M	B
Wellness and health of mankind	R	B	A	M	B
Quality of sensitive landscapes	R	B	A	M	B
Cultural/historical heritage value	R	B	A	M	B
Recreation resources accessibility	R	B	A	M	B
Energy availability	R	B	A	M	B
Availability of productive resources	R	B	A	M	B
Value of material goods	R	B	A	M	B



Decision & Optimization Support System



### Simulation-Optimization integration through Machine Learning



### Mechanism Design

