# Merit Order Simulation: Idea, Program, Results

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Source fig.: J. N. Mayer, Fraunhofer ISE, 29. PV-Symposium Bad Staffelstein, 2014





PPs sorted by marginal cost

Demand is covered beginning with cheapest PP

Dedicates electricity price (stock exchange)

Renewable energy privileged: marginal cost = 0



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#### Simulation procedures (simplified)





GemCast: simulation of the German electricity market - beta 0.1				
file run help				
reference scenario		simulation settings		
start: 01.01.2013 00:00:00 ?		complex mode ?		start simulation
end: 01.01.2014 00:00:00		interval:	30min 😐	
			24h	
accurate input			1h	
			30min	
powerplant list: d	lata\power_plants.csv	browse	15min lot(s):	
energy consumption: a	ta/energy_2013_v.csv	browse	electricity tariff	
renewable energies production: e	rgy_2013_isNull_v.csv	browse	electricity tariff (sho	w price setting powerplant)
CO_2 costs: K	::\1-Projekte\4-Vorlau	browse	turnovers per power	plant type ?
interests: K	::\1-Projekte\4-Vorlau	browse	profits per powerpla	nt type
fuel costs brown coal: K	:\1-Projekte\4-Vorlau	t browse	costs per powerplan	t type
natural gas: K	:\1-Projekte\4-Vorlau	t browse	costs turn on/off pe	r powerplant type
nuclear energy: K	:\1-Projekte\4-Vorlau	f browse	build plot(s)	
oil: K	::\1-Projekte\4-Vorlau	t browse		
stone coal: K	::\1-Projekte\4-Vorlau	t browse		
other: K	:\1-Projekte\4-Vorlau	browse		
plot(s) build!				



## Example (1) evaluation (GUI plot) Electricity tariff with price setting power plant





### **Example (2) evaluation**

Comparison production amount conventional energies [TWh]





#### Next steps

- Acquisition for project, planning of utilization (cooperation with university in Halle (MLU))
- Implementation import/export
- Validation
- Generating scenarios
  - Prediction for governmental plan till 2022
  - Impact of brown coal exit
  - Impact of faster or slower development of renewable energy
  - ....

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Presentation of the results

