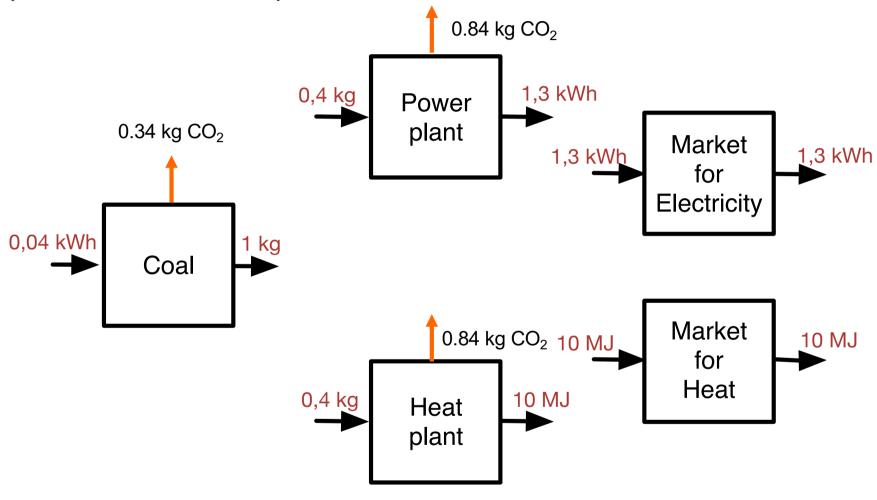
Exercise

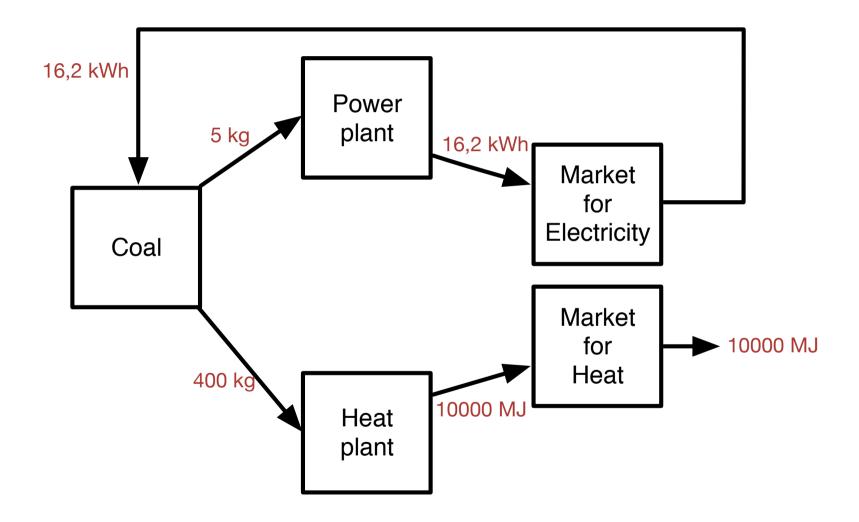
Link the below activities and calculate the flows between them necessary to produce a market output of 10000 MJ heat







Solution:







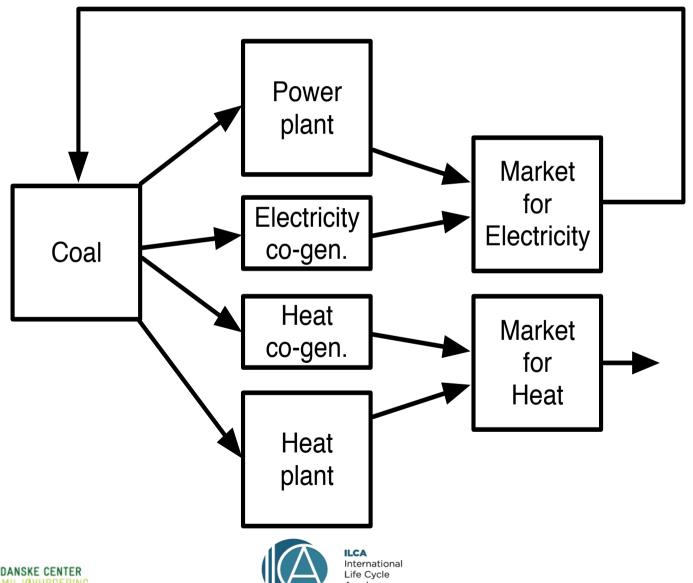
Expanded exercise: Now add 1) co-generation and 2) the information that the heat plant is constrained in its ability to supply additional output. Model the consequential and attributional systems to provide a market output of 10000 MJ heat. Market shares of power plants as shown by

outputs in below figure. 0.84 kg CO₂ 1,3 kWh 0,4 kg Power plant 0.34 kg CO₂ Market 2,6 kWk 2,6 kWh for 0.84 kg CO₂ **Electricity** 1,3 kWh 0.04 kWh 1 kg 0,4 kg Heat Coal 5 MJ co-gen. Market 15 MJ 15 MJ 0.84 kg CO₂ for Heat 0,4 kg 10 MJ Heat plant

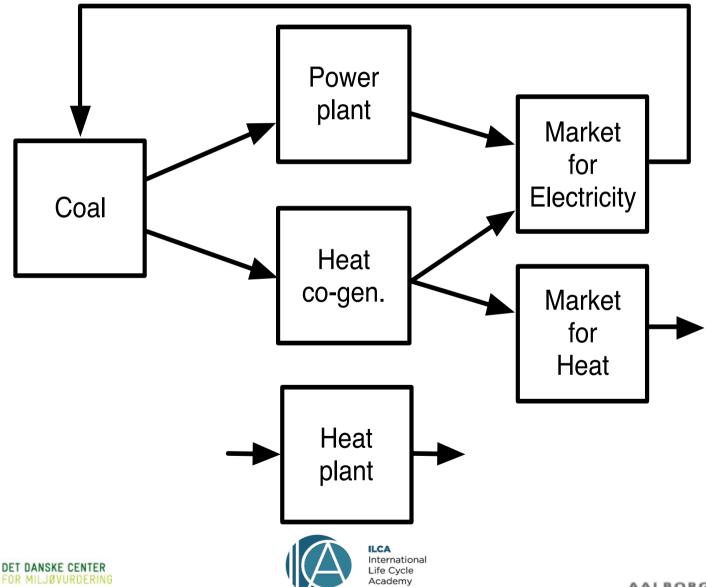




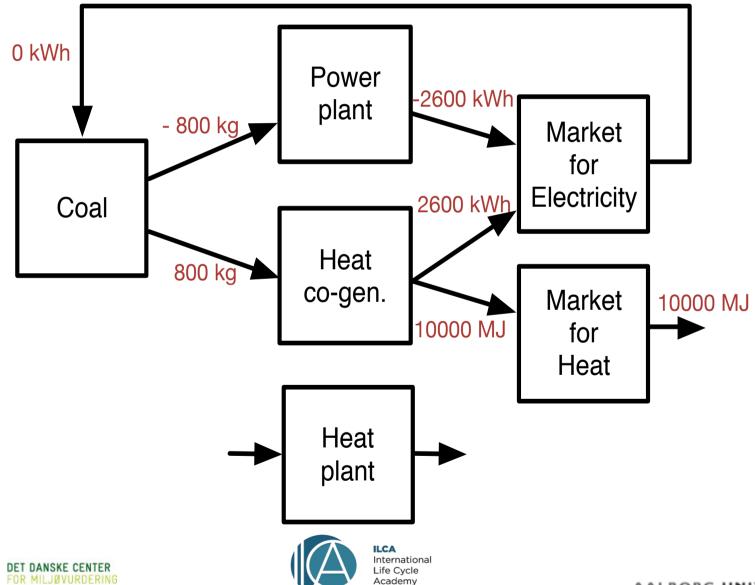
Market inputs for attributional system: Cogen plant has same electricity output as power plant and half the heat output as the heat plant



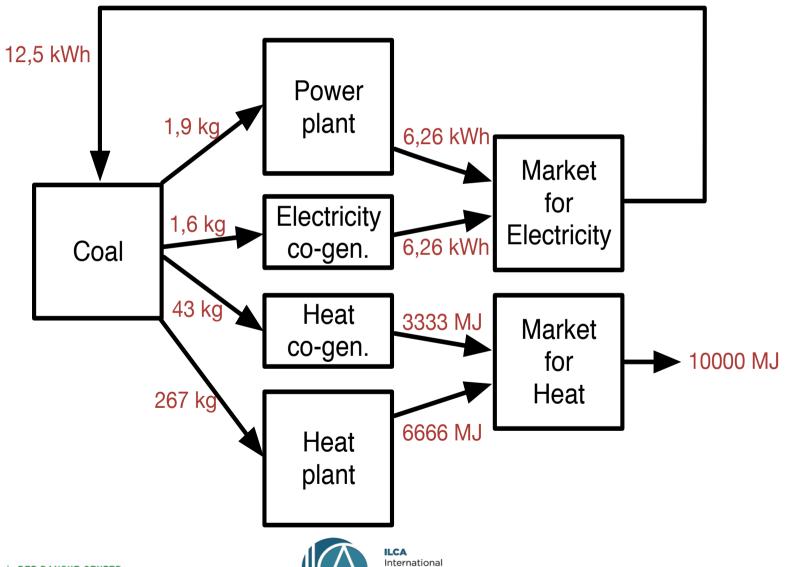
Tip for consequential system: Heat plant is constrained



Solution: Consequential model



Solution: Attributional system



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