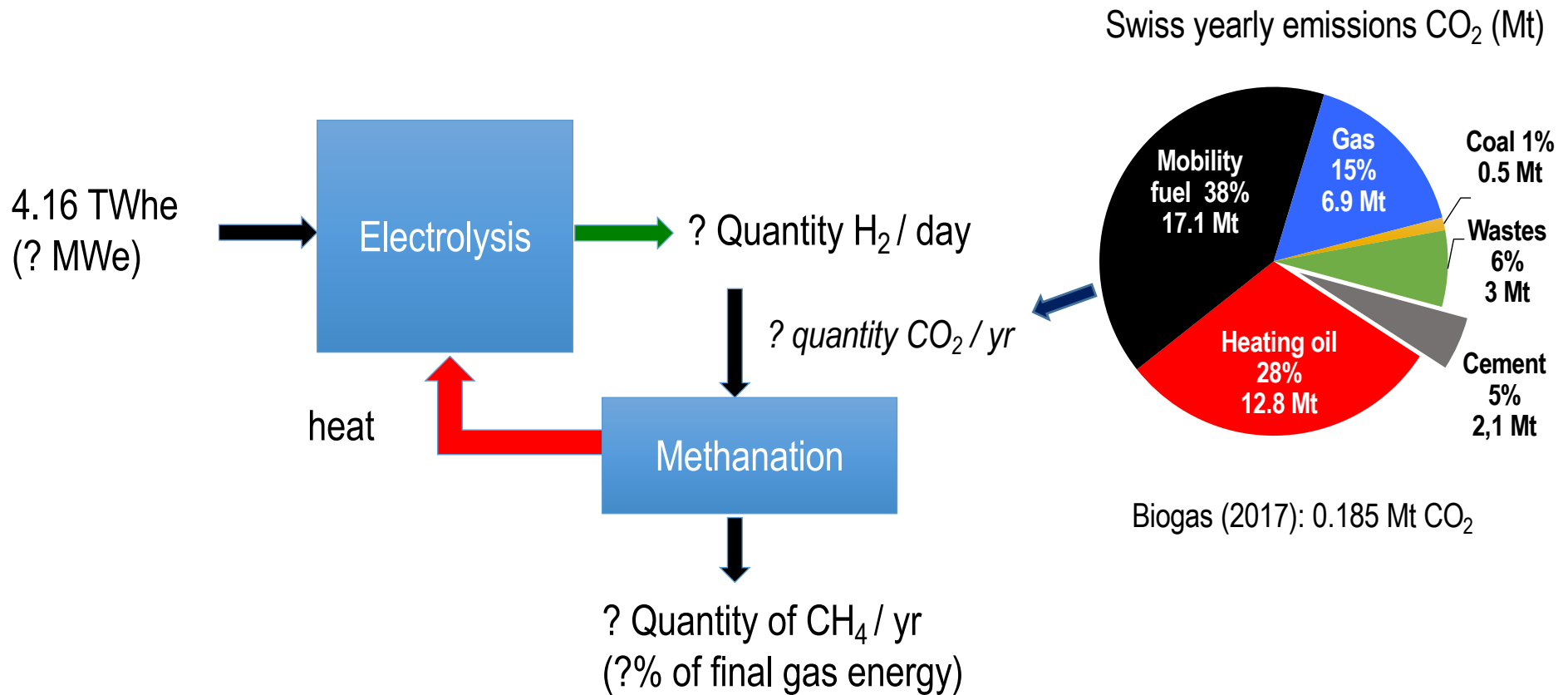


1. Onsite electrolysis

Q: How big an electrolyser is needed to produce the daily amount of H₂ for a filling station (HRS), under the following assumptions? :

- 1000 cars/day, equivalent of 50 L gasoline/car (LHV_gasoline: 33MJ/L)
- car average consumption : 7L gasoline/100km
- a FCEV consumes 1 kg H₂/100km (HHV_H₂ : 142 MJ/kg)
- electrolyser efficiency 78% HHV
- compression energy needed to 400 bar
- the electrolyser operates 50% of the time

2. P2G instead of hydro-pumping (CH – 2017 data)



Objective « 30/30 » of Swiss gas industry: 30% of renewable gas in the grid by 2030

4.16 TWhe of electricity was stored by hydro-pumping in 2017 in Switzerland.
 If instead we use this electricity to produce H₂ via electrolysis, and then CH₄ via methanation, how much methane gas could we store this way? Swiss NG = 35 TWh (130 PJ) / year