



Energy research Centre of the Netherlands

First FSC results

Herbert Zondag

IEA task 32 meeting Stuttgart 2007



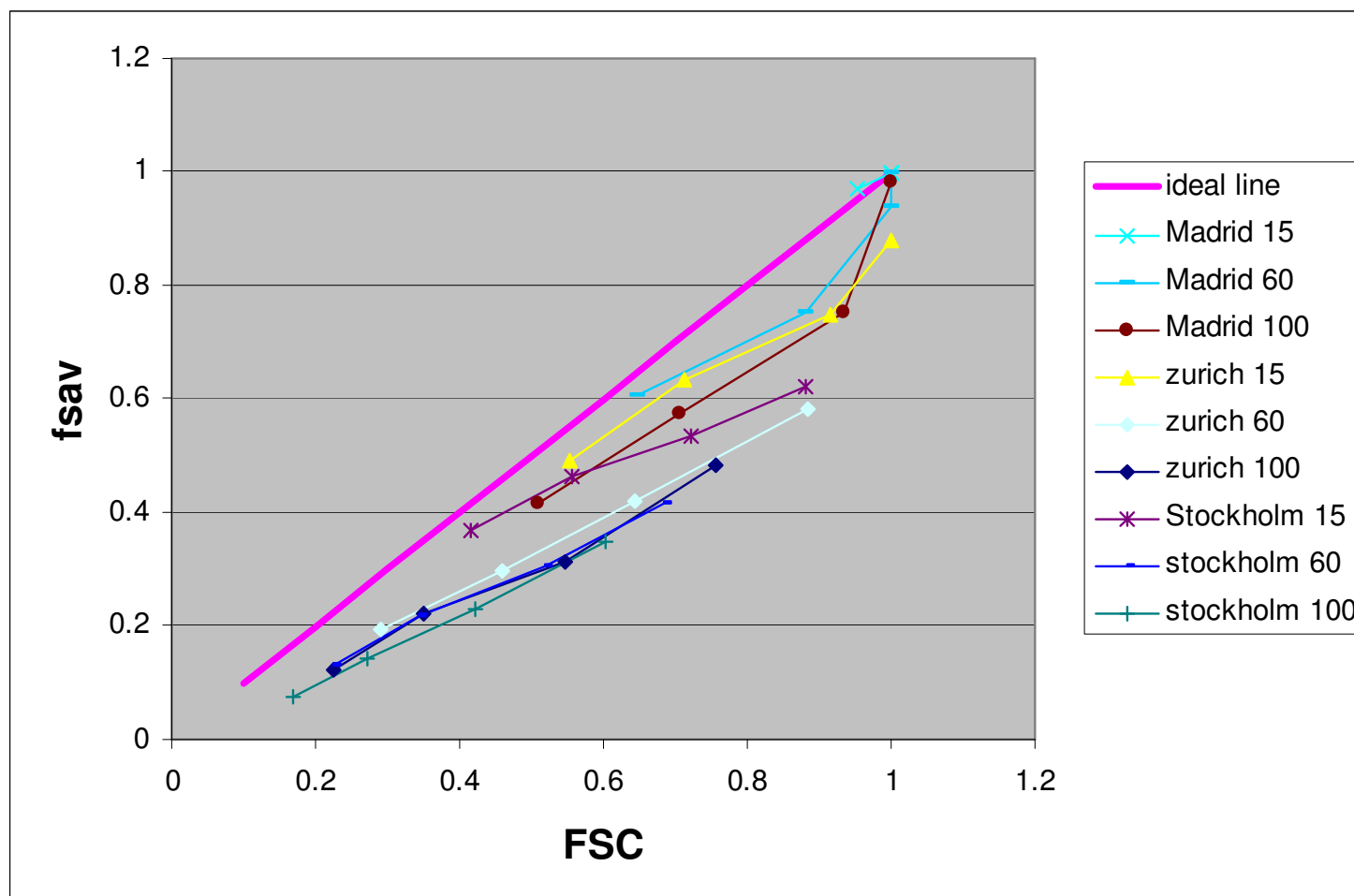
TCM model

- Matlab model, connected by TRNSYS Type 155
- Very basic model:
 - Includes effects of DH, T_{reaction}, C_p, multiple dehydration steps
 - Assumes ideal heat- and vapour transport
- Heat source is presently borehole with fixed temperature (10 C)
- At charging, all sensible heat is lost.
- At discharging, all sensible heat is used (preheating)

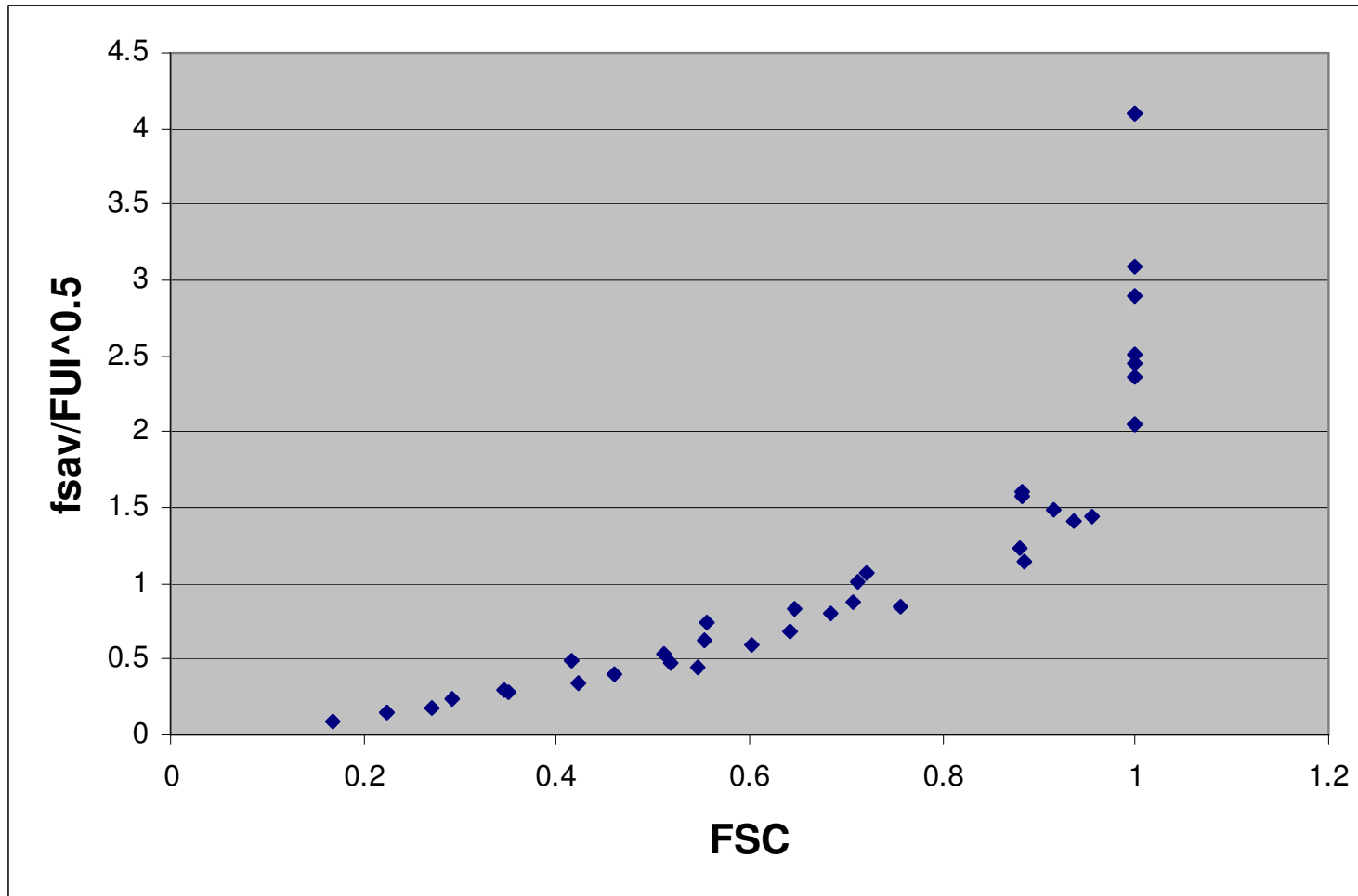
Modification of template

- Template changed due to incorporation of
 - TCM tank (no internal temperature, only State Of Charge (SOC))
 - Heat source (borehole)
 - New collector control based on SOC
 - New auxiliary heater control based on SOC
- Because of problems with heater control, ideal heater was assumed with efficiency of 90%
- To limit heater on/off switches, whenever SOC dropped below SOC=10%, TCM storage was charged from SOC=10% to SOC=20%.

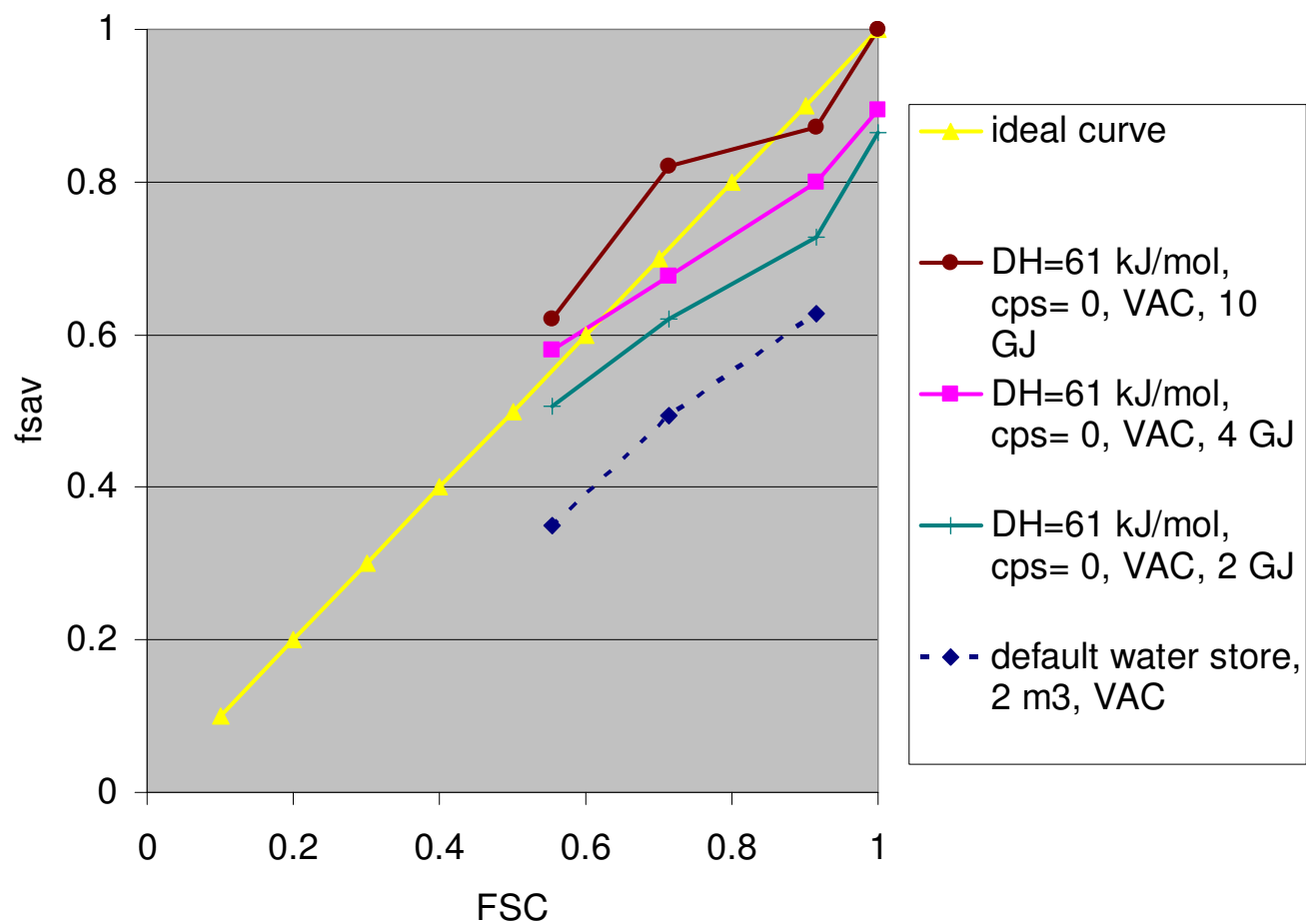
Results – FSC for 4 GJ tank (2 m³)



Results – FSC for 4 GJ tank (2 m³)



Results – Effect TCM parameters (store capacity)



Results – Effect TCM parameters (effect cp & DH & collectortype)

