

# Electronic Supplementary Information (ESI):

## Thermodynamic assessment of the stability of bulk and nanoparticulate cobalt and nickel during dry and steam reforming of methane

Moritz Wolf\*

Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy (IEK-11), Forschungszentrum Jülich GmbH, Egerlandstraße 3, 91058 Erlangen, Germany.

\*Corresponding author. E-mail address: mo.wolf@fz-juelich.de

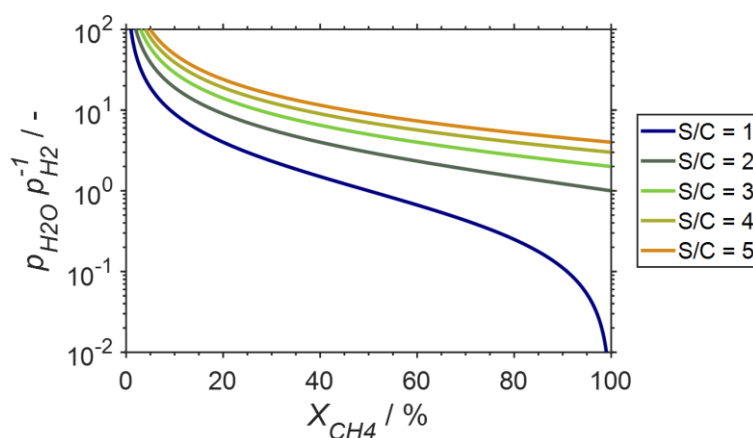


Figure S1: Partial pressure ratio of water to hydrogen during steam reforming of methane with various steam:carbon (S/C) ratios in the inlet stream. The calculations neglect any side reactions and assume a stoichiometric feed composition.

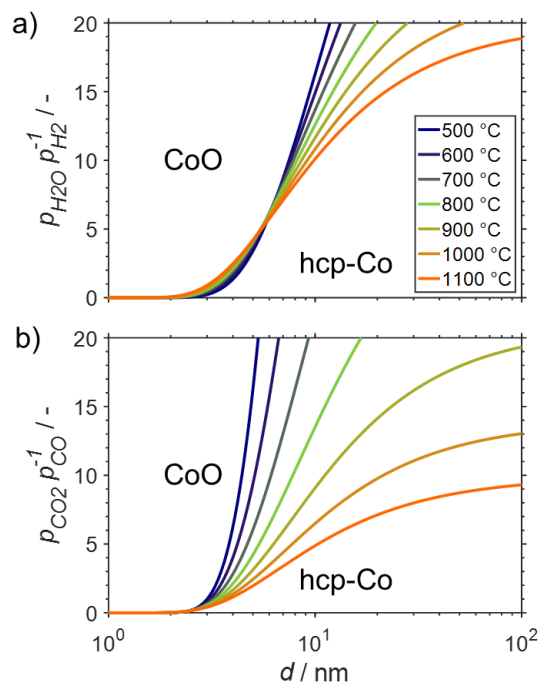


Figure S2: Stability regions of nanometre-sized particles with required ratios of oxidant over reductant for oxidation of hcp-cobalt nanoparticles to cobalt(II) oxide during (a) steam reforming and (b) dry reforming of methane.