Electronic Supporting Information

A robust solid oxide electrolyzer for highly efficient electrochemical reforming of methane and steam

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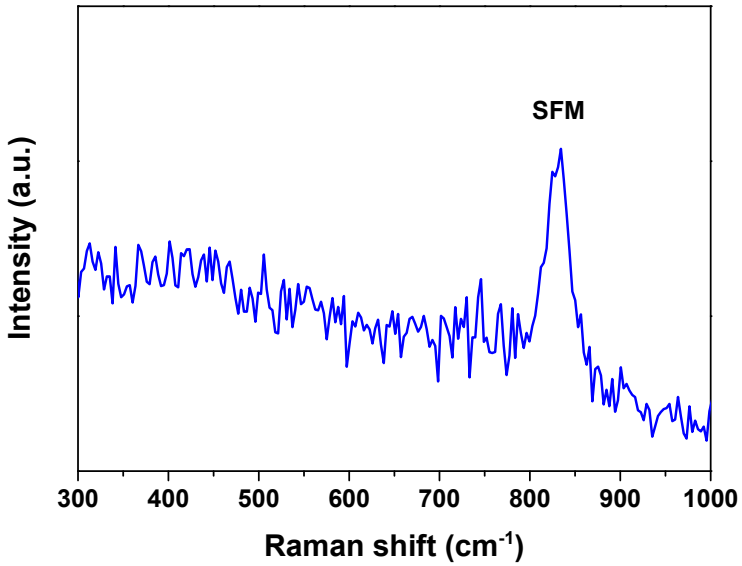

Figure S1 Raman spectra for SFM powders used in this work.

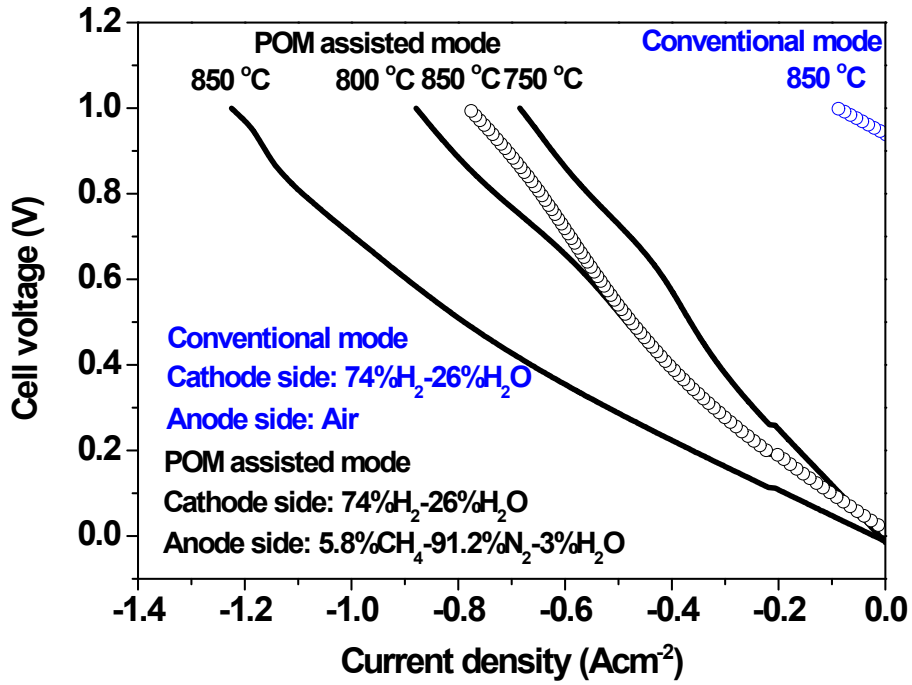

Figure S2 *i-V* curves of solid oxide electrolyzers for steam electrolysis in conventional mode and POM assisted mode. The solid line (—) and open circle (○) represent Ru-SFM-SDC/LSGM/SFM-SDC and SFM-SDC/LSGM/SFM-SDC electrolyzers, respectively, while the black and blue colors denote the POM assisted mode and conventional mode, respectively.

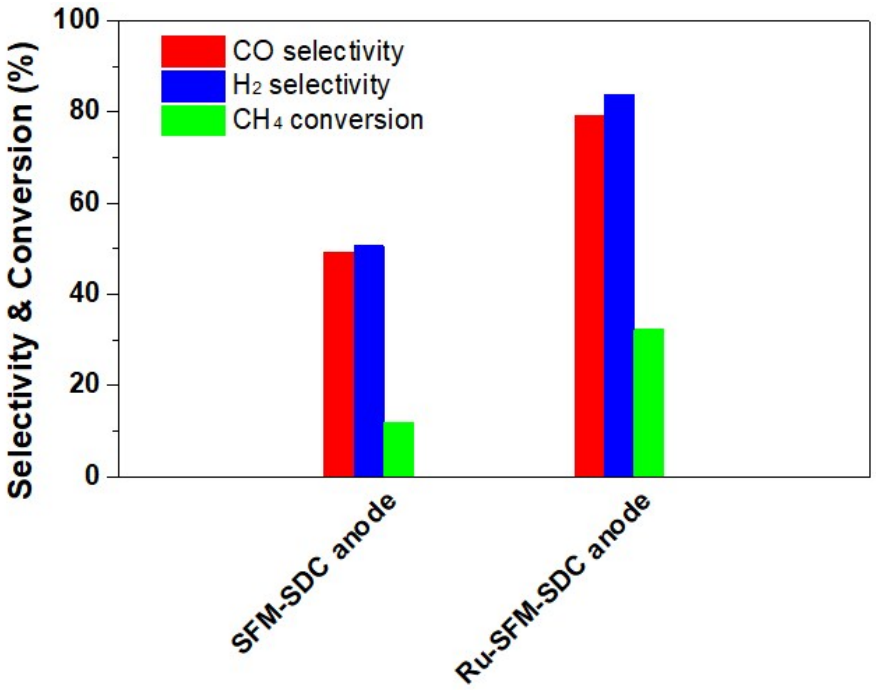

Figure S3 CH_4 conversion, CO selectivity and H_2 selectivity in the anode of the two electrolyzers with SFM-SDC anode and Ru-SFM-SDC anode operated in POM assisted mode at 850 ^oC and OCV condition. During the operation, the anode and the cathode are exposed to 5.8%CH_4-91.2%N_2-3%H_2O and 74%H_2-26%H_2O atmosphere, respectively.

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