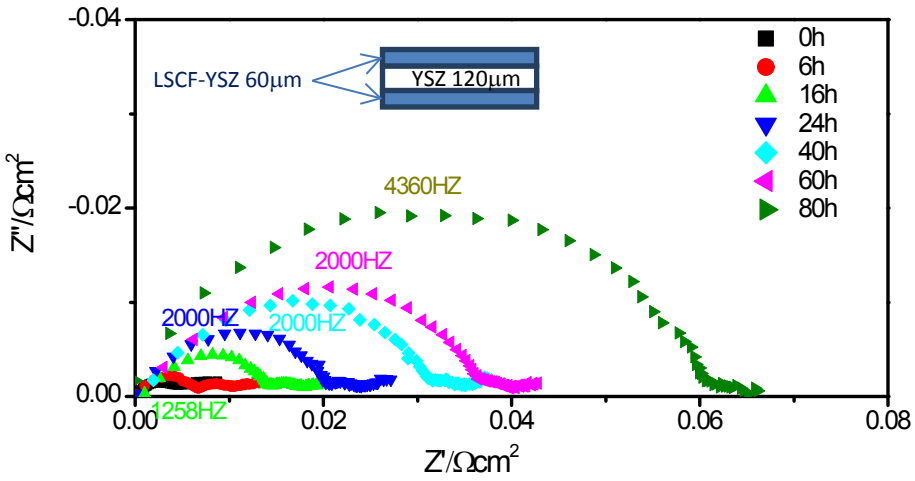

Figure S1 The polarization resistance of the symmetrical LSCF-YSZ cathode with time tested at 700 °C in air.

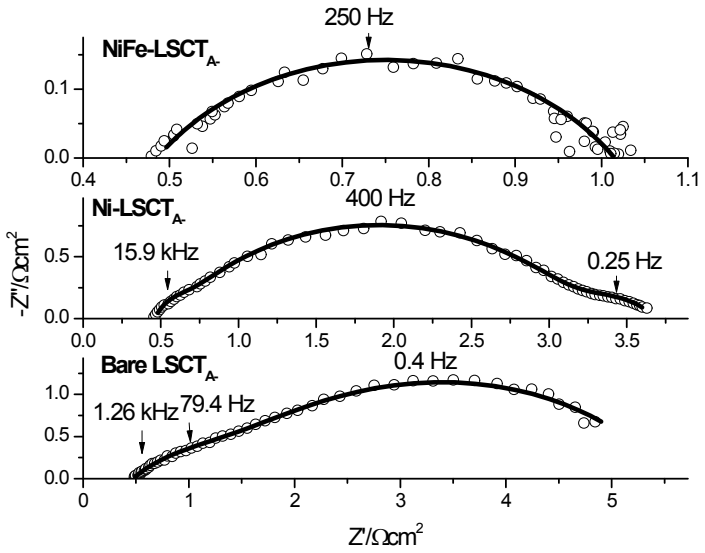

Figure S2 The experimental (open symbols) and simulated (line) EIS results of the three cells under OCV tested at 700 °C in 3% H_2O-H_2.

Table S1 Parameters from the simulated EIS data of the three cells tested at 700 °C. The three cells have been fitted with the equivalent circuit $R_s(R_1Q_1)(R_2Q_2)(R_3Q_3)$, where n and Q are parameters associated with constant phase element. The units of R and Q are Ω cm^2 and $\Omega^{-1}s^n$ cm^{-2}, respectively.

	R_s	Q_1	n_1	R_1	Q_2	n_2	R_2	Q_3	n_3	R_3
$LSCT_{A-}$	0.47				$5.74x10^{-2}$	0.53	1.08	$1.59x10^{-1}$	0.63	4.01
Ni-$LSCT_{A-}$	0.46	$1.69x10^{-4}$	1.00	0.12	$5.22x10^{-3}$	0.66	2.59	1.16	0.61	0.51
NiFe-$LSCT_{A-}$	0.49				$2.11x10^{-2}$	0.63	0.53			

Table S2 Parameters from the simulated EIS data of the bare $LSCT_{A-}$ cell tested at 700 ^{o}C with time. The data have been fitted with the equivalent circuit $R_s(R_2Q_2)(R_3Q_3)$, where n and Q are parameters associated with constant phase element.

		Time /h			
Parameter	Unit	0	12	24	40
R_s	Ω cm^2	0.47	0.58	0.69	0.75
Q_2	Ω^{-1} s^n cm^{-2}	5.75x10^{-2}	5.29 x10^{-2}	5.14 x10^{-2}	4.42 x10^{-2}
n_2		0.53	0.51	0.49	0.50
R_2	Ω cm^2	1.08	1.28	1.62	1.42
Q_3	Ω^{-1} s^n cm^{-2}	0.16	0.15	0.15	0.15
n_3		0.63	0.60	0.67	0.68
R_3	Ω cm^2	4.00	6.38	3.04	2.49

Table S3 Parameters from the simulated EIS data of the Ni- $LSCT_{A-}$ cell tested at 700 ^{o}C with time. The data have been fitted with the equivalent circuit $R_s(R_1Q_1)(R_2Q_2)(R_3Q_3)$, where n and Q are parameters associated with constant phase element.

		Time /h		
Parameter	Unit	0	40	46
R_s	Ω cm^2	0.46	0.53	0.33
Q_1	Ω^{-1} s^n cm^{-2}	1.68x10^{-4}	2.00 x10^{-4}	2.05 x10^{-4}
n_1		1.00	0.23	0.38
R_1	Ω cm^2	0.12	0.05	0.27
Q_2	Ω^{-1} s^n cm^{-2}	5.19 x10^{-3}	9.53 x10^{-3}	9.03 x10^{-3}
n_2		0.66	0.51	0.51
R_2	Ω cm^2	2.61	5.45	5.61
Q_3	Ω^{-1} s^n cm^{-2}	1.16	1.77	1.75
n_3		0.61	0.99	1.00
R_3	Ω cm^2	0.51	0.45	0.49

Table S4 Parameters from the simulated EIS data of the NiFe- $LSCT_{A-}$ cell tested at 700 °C with time. The data have been fitted with the equivalent circuit $R_s(R_2Q_2)$, where n and Q are parameters associated with constant phase element.

		Time /h				
Parameter	Unit	0	12	24	40	56
R_s	Ω cm^2	0.49	0.44	0.46	0.48	0.50
Q_2	Ω^{-1} s^n cm^{-2}	2.11x10^{-2}	5.68 x10^{-2}	5.78 x10^{-2}	5.27 x10^{-2}	4.52 x10^{-2}
n_2		0.63	0.52	0.52	0.52	0.54
R_2	Ω cm^2	0.53	1.48	1.55	1.52	1.52

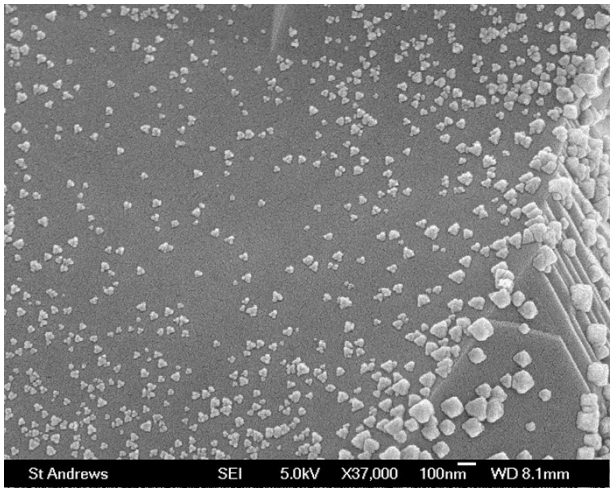

Figure S3 SEM of the Ni infiltrated $LSCT_{A-}$ anode after initial I-V testing at 700 ^{o}C.

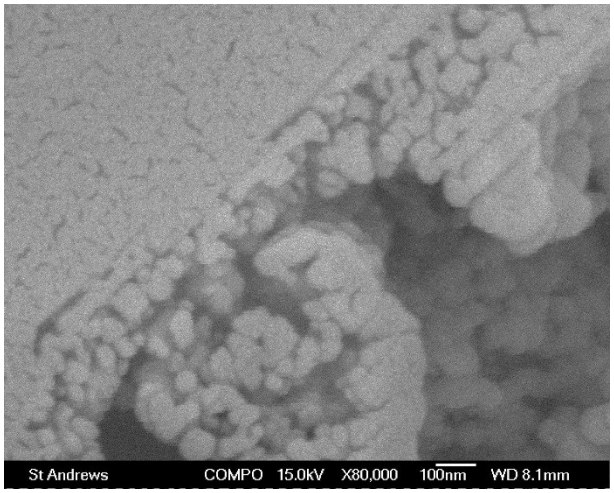

Figure S4 SEM of the Ni-Fe infiltrated $LSCT_{A}$. anode after initial I-V testing at 700 ^{o}C.