Supporting Information

Determining the Importance of the Electrode Support and Fabrication Method during the Initial Screening Process of an Active Catalyst for the Oxygen Evolution Reaction

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Table S1. Summary of RuO_2 coated electrodes fabricated in this study

Powder to electrode fabrication method techniques (acronym):	Pressed disc	Dropcast	Doctor-blade
Substrate materials used	Pt	Pt, Ti, GC discs Ni foam*	Pt, Ti
Solvents and additives used during fabrication	None	ethanol, water, Nafion	ethanol, water, glacial acetic acid, terpineol, ethyl cellulose
Additional annealing steps	None	Dried at 40 °C for 30 mins * dried in air for 30 mins	450 °C for 30 mins
Catalyst loading	1.2 mg cm^{-2}	Discs: 1.3 mg cm^{-2} Foam: 1.1 mg cm^{-2}	Approx 1 mg cm^{-2}
Electrode naming**	P-metal	DC-metal	DB-metal

**For the electrode naming, the P-Pt stands for Pressed-Platinum i.e. Fabrication technique – material of support
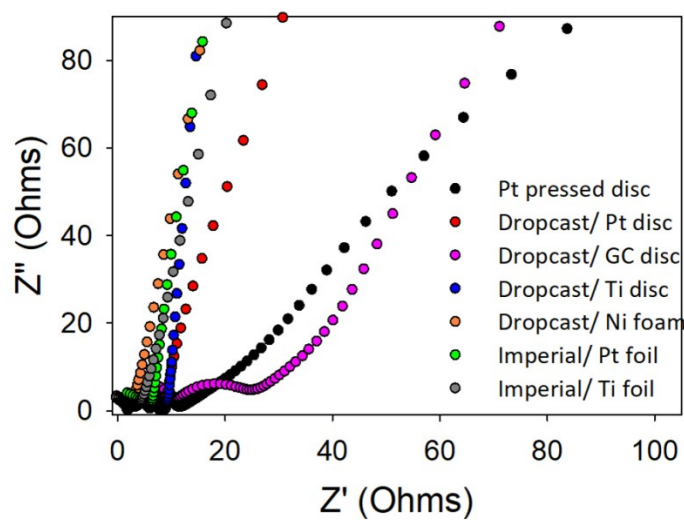
Figure S1. Nyquist plot of the RuO_2 coated Pt Pressed disc, RuO_2 dropcast Pt discs, GC discs, Ti disc and Ni foam and doctor-blade coated RuO_2 Pt and Ti foil in 1M NaOH
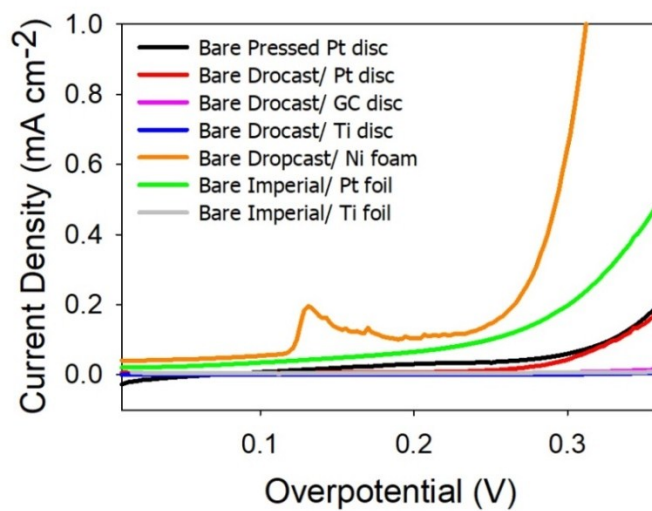

Figure S2. LSV curves of the bare supports at low current densities at a scan rate of 0.1 mV/s^{-1} in 1M NaOH.
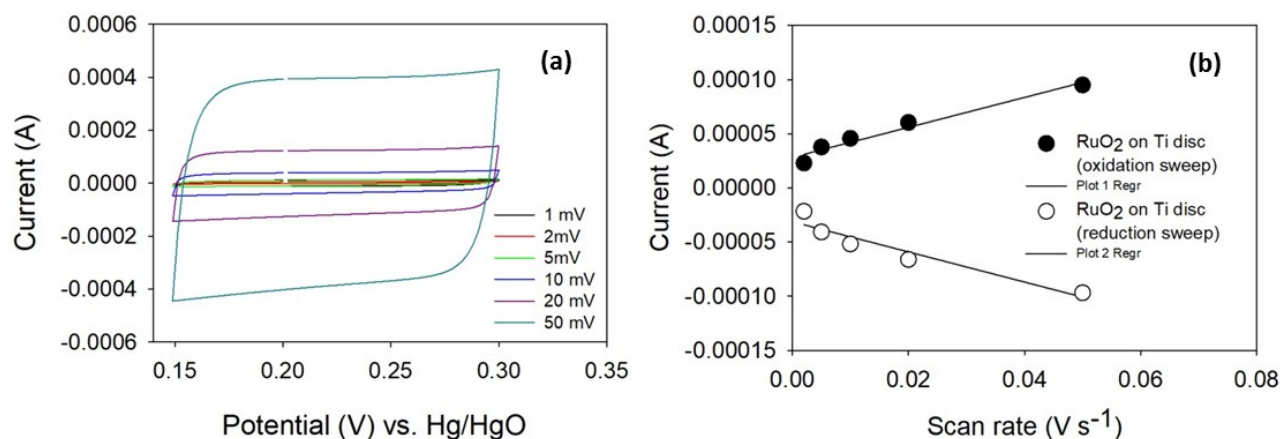
Figure S3. Typical Electrochemical Surface Area Measurement (ECSA) **(a)** Cyclic Voltammograms for RuO_2 dropcast on a Ti disc **(b)** Capacitance curves for the data in Figure (a)
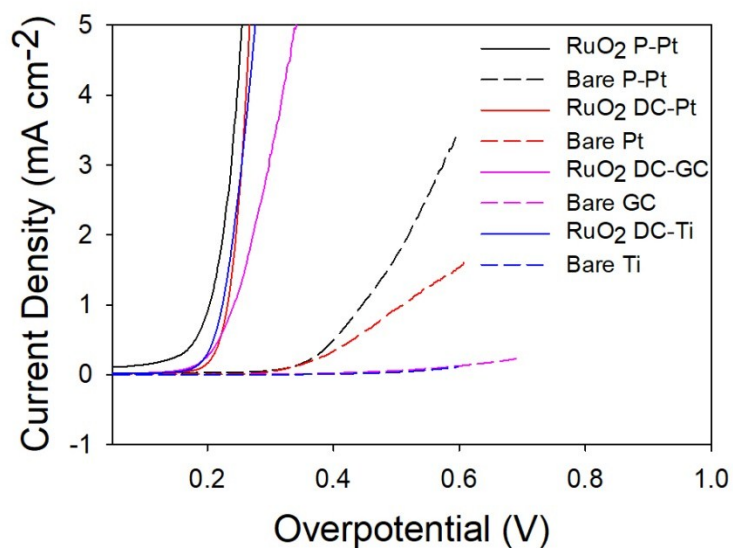

Figure S4. LSV curves of the RuO_2 coated Pt Pressed disc, RuO_2 dropcast Pt discs, GC discs and Ti disc (i.e. optimum support/fabrication technique combination for OER screening) at a scan rate of 0.1 mV/s^{-1} in 1M NaOH with a rotation speed of 1600 rpm.
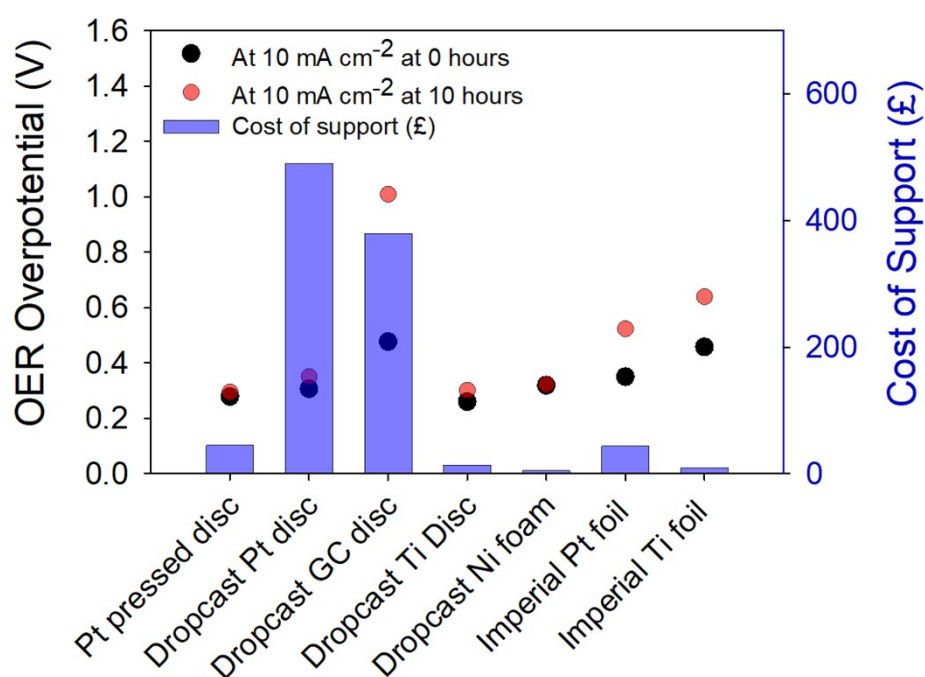
Figure S5. Summary of the RuO$_2$ coated electrodes OER activity at 10 mA cm^{-2} at a time of 0 hours and at 10 mA cm^{-2} at a time of 10 hours (from the stability tests, Figure S6) and the cost of the bare supports.
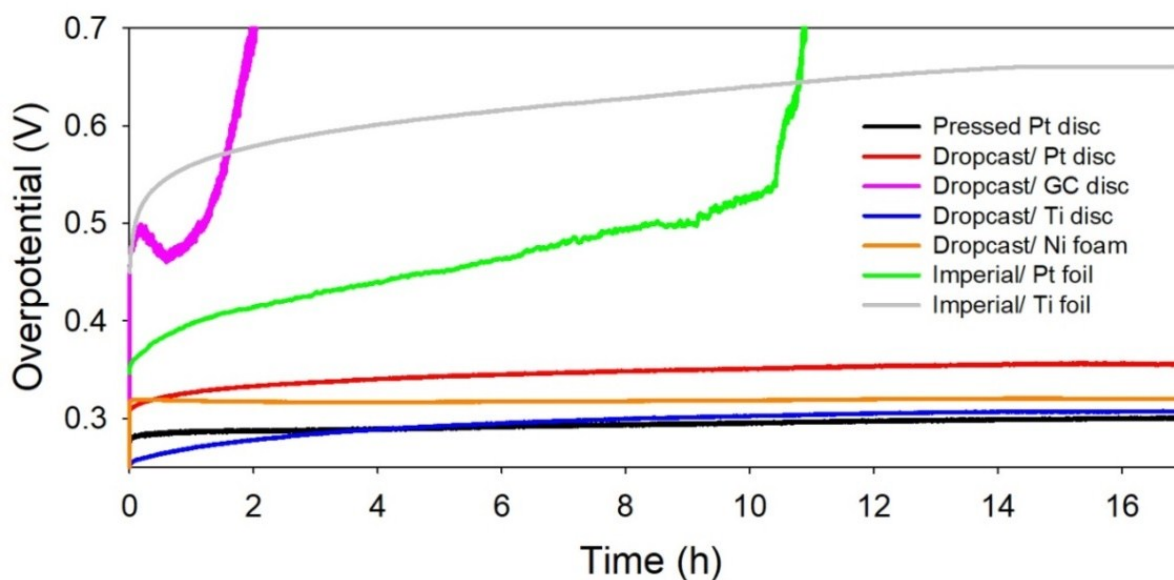

Figure S6. Stability curves of all the RuO$_2$ coated electrodes in 1M NaOH over 17 hours at a current density of 10 mA cm^{-2}.