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Electronic Supplementary Information

Fabrication of nitrogen-doped graphite felts as a positive electrode using polypyrrole coating agent in a vanadium redox flow battery

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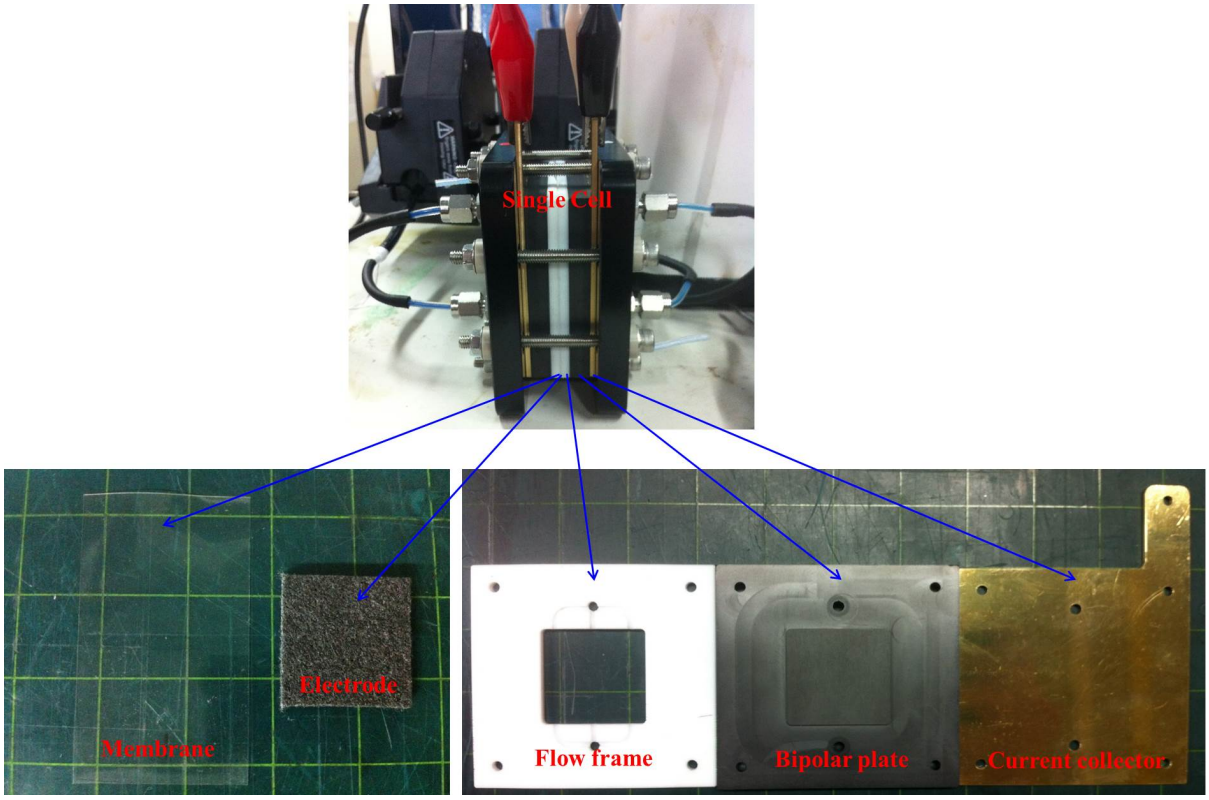

Figure S1. Digital photograph of vanadium redox flow cell component.

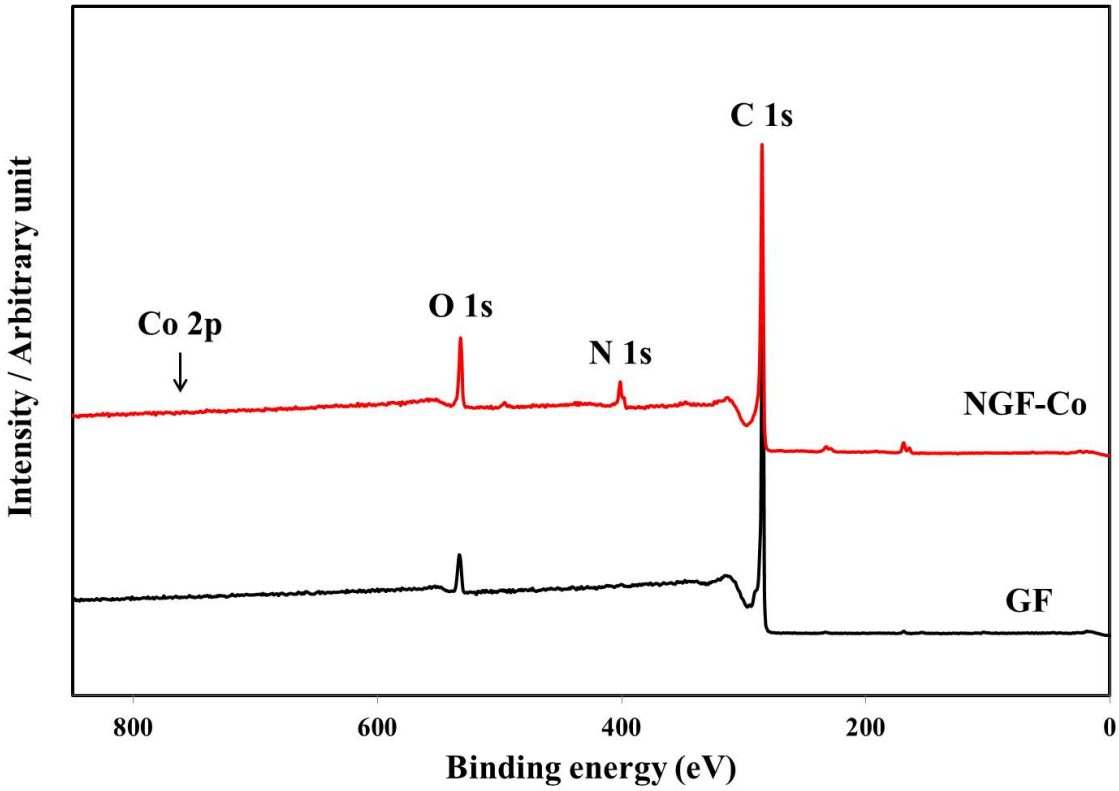

Figure S2. The survey XPS spectra of GF and NGF-Co.

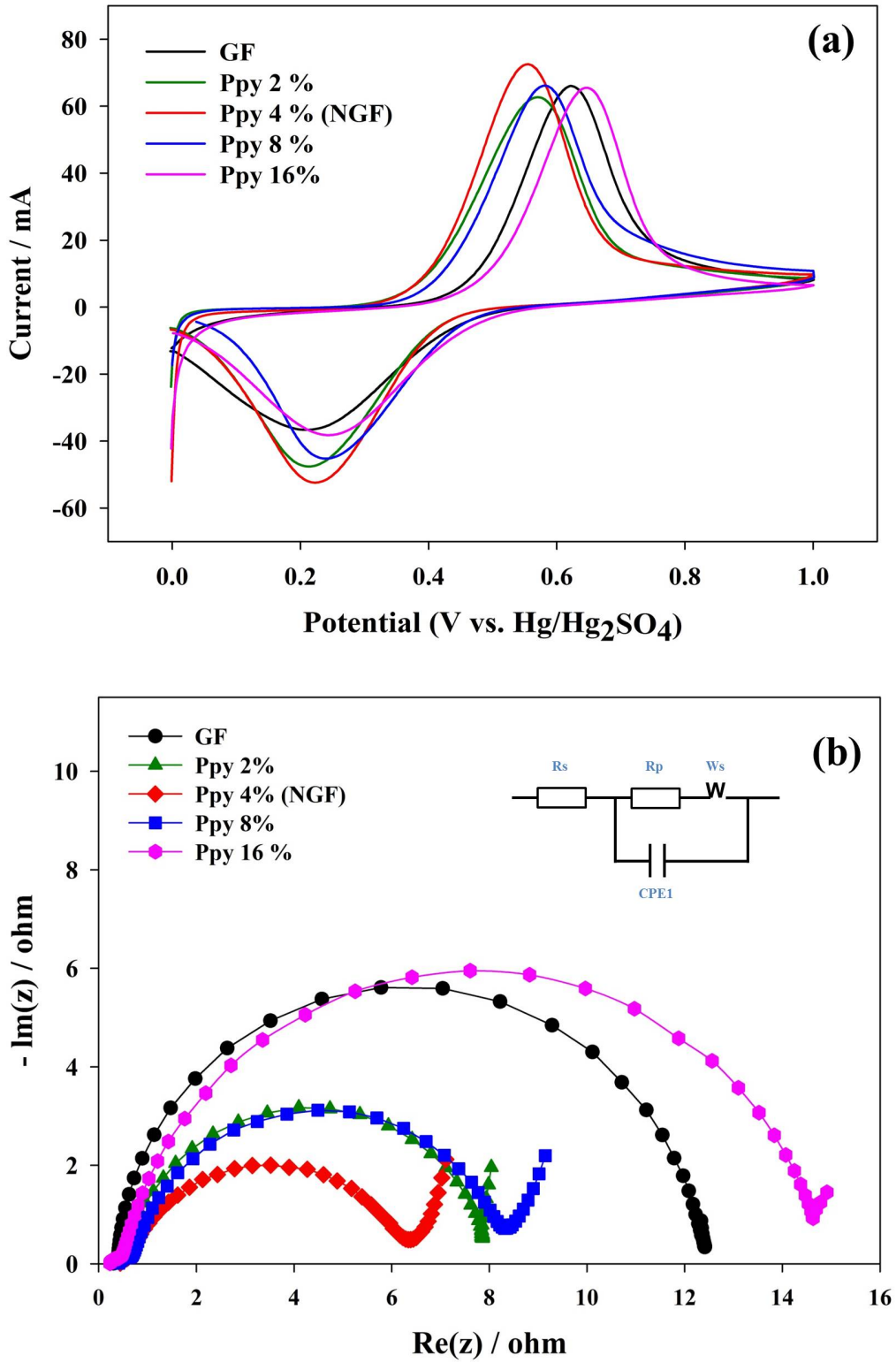

Fig. S3 (a) Cyclic voltammograms for Ppy coated graphite felt electrodes with different coating amount in 0.1 M $VOSO_4$ + 3.0 M H_2SO_4 electrolyte using a 5 mVs^{-1} scan rate with a 0.0 V to 1.0 V vs. $Hg/HgSO_4$. (b) Nyquist plots for Ppy coated graphite felt electrodes with different coating amount across the frequency range from 10^{-2} to 10^{-5} Hz in 0.1 M $VOSO_4$ + 3.0 M H_2SO_4 solution at an open-circuit potential.

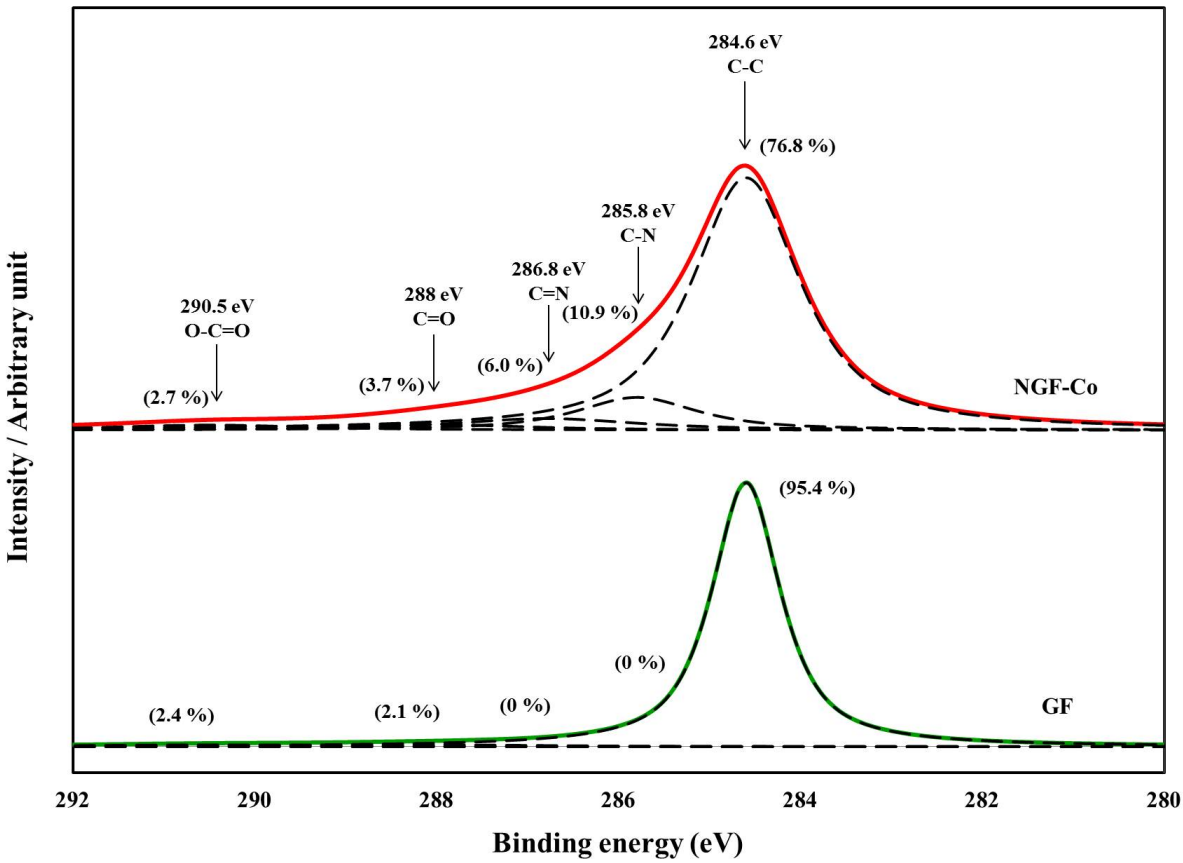

Fig. S4 XPS spectra of the C 1s region deconvoluted for GF and NGF-Co

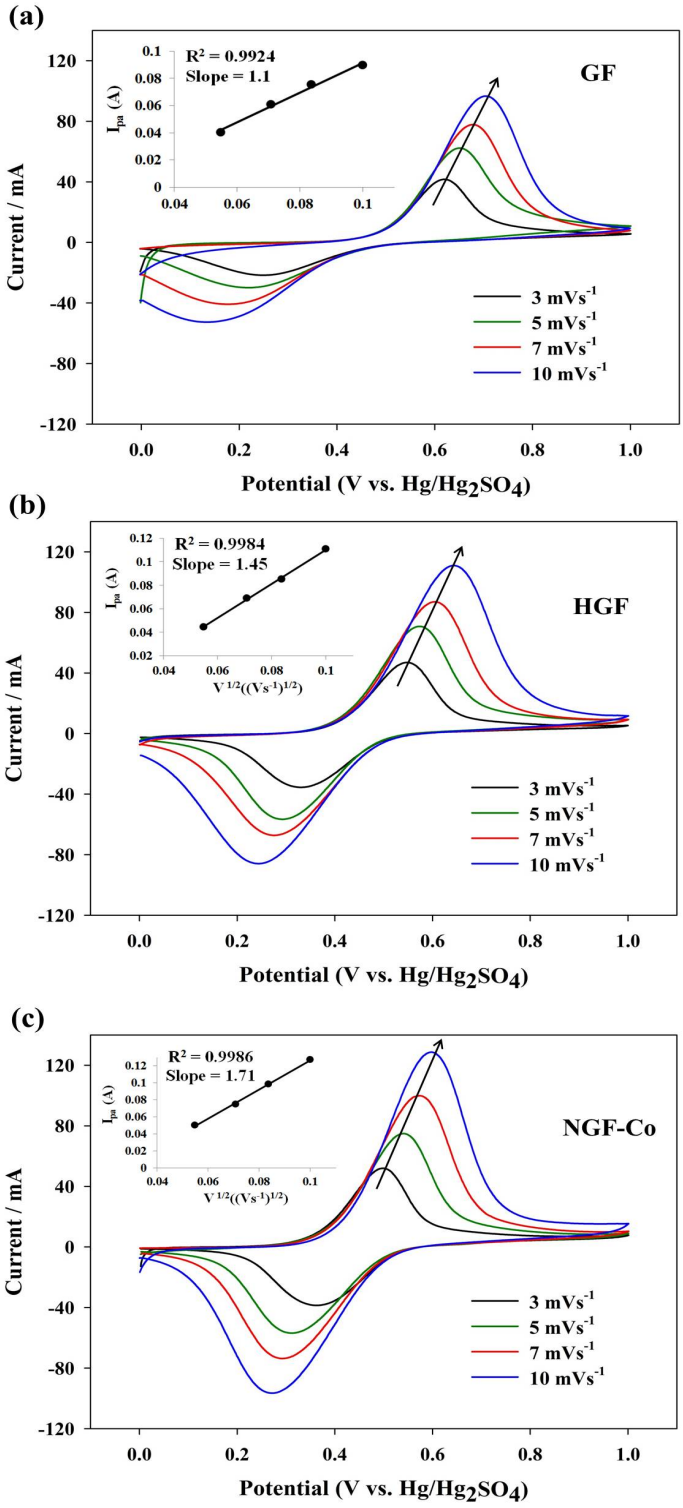

Fig. S5 Cyclic voltammograms of the (a) GF, (b) HGF and (c) NGF-Co in 0.1 M $VOSO_4$ + 3.0 M H_2SO_4 electrolyte using different scan rate with a 0.0 V to 1.0 V vs. Hg/Hg_2SO_4. Insets: plot of the anodic peak current versus the square root of each scan rate.