

Supporting Information
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**Structure Regulation Engineering for Biomass-derived
Carbon Anodes Enabling High-rate Dual-ion Batteries**

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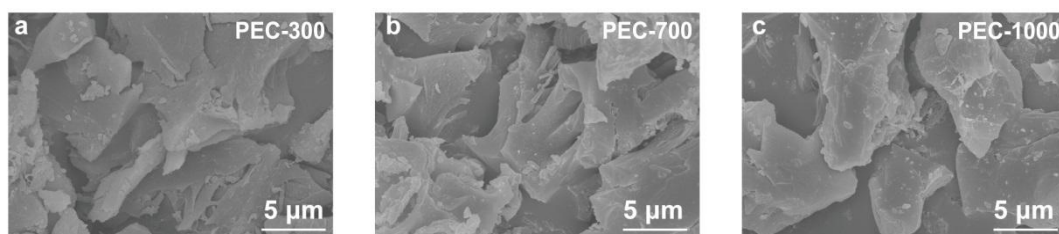


Figure S1. SEM images of (a) PEC-300, (b) PEC-700, (c) PEC-1000 samples.

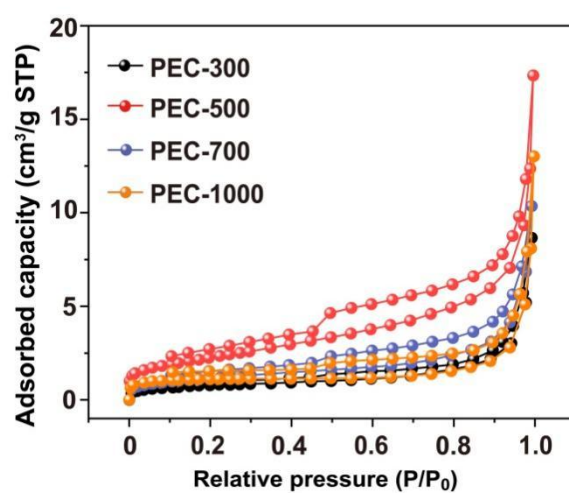


Figure S2. Nitrogen adsorption/desorption isotherms of PEC samples.

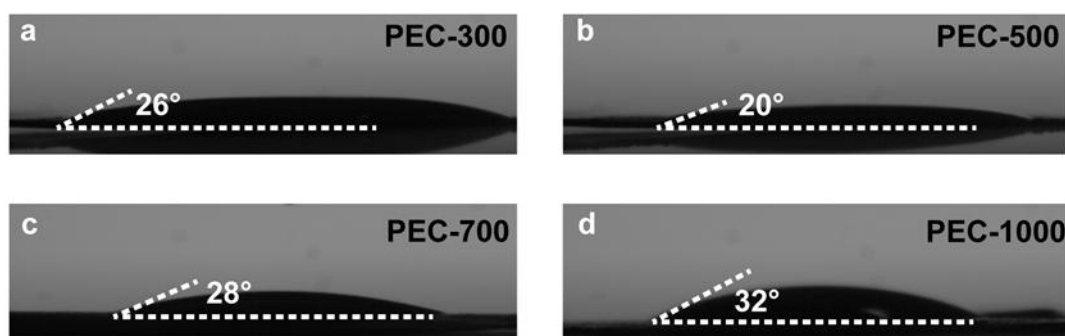


Figure S3. The contact angles of PEC samples.

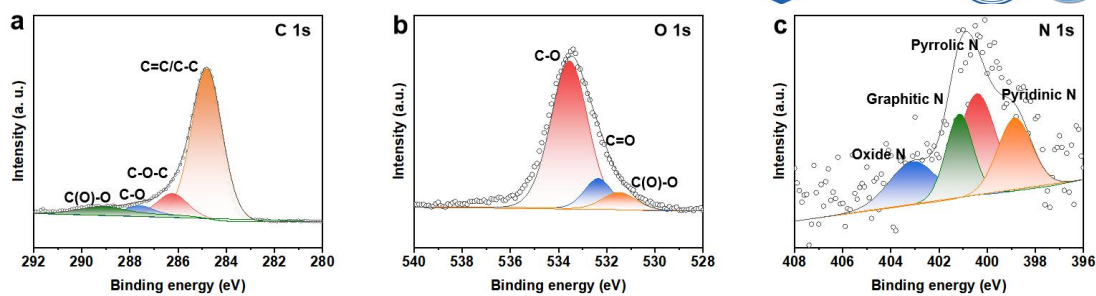


Figure S4. XPS spectra of graphite surface (a) C 1s, (b) O 1s, and (c) N 1s.

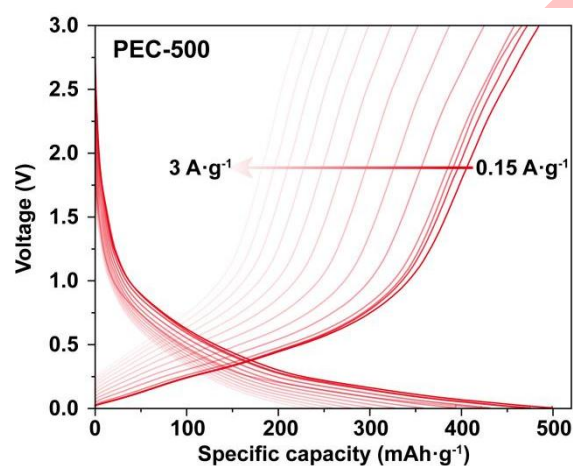


Figure S5. Charge and discharge curves of the PEC-500 sample assembled LIBs at varied current rates.

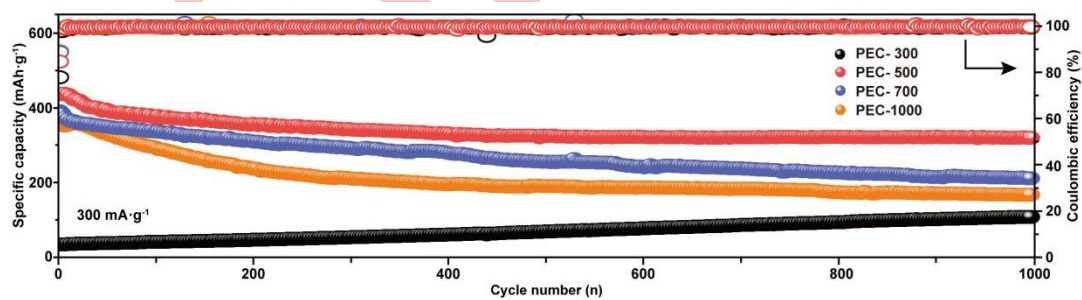


Figure S6. Cyclic performance of PEC-300, PEC-500, PEC-700 and PEC-1000 sample assembled LIBs.

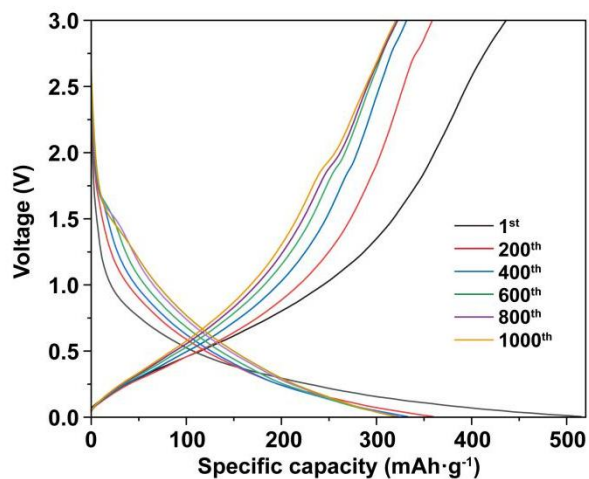


Figure S7. Charge/discharge curves of the PEC-500 sample assembled LIBs at 1st, 200th, 400th, 600th, 800th, and 1000th cycles at 300 mAh·g⁻¹.

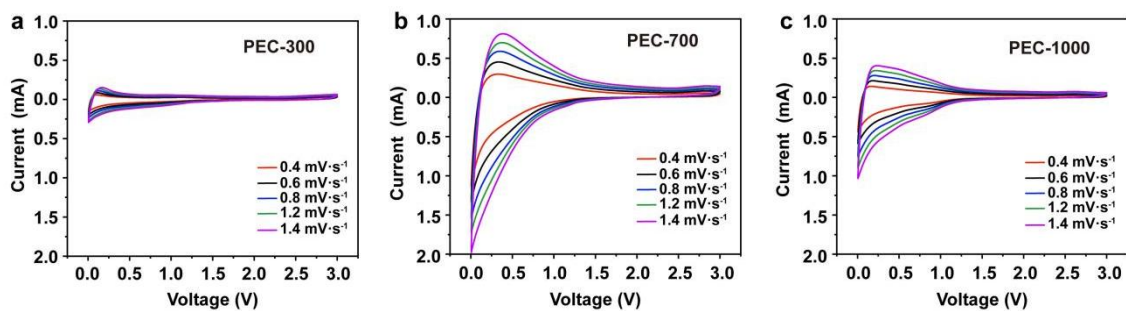


Figure S8. The CV curves of (a) PEC-300, (b) PEC-700 and (c) PEC-1000 samples at various scan rate.

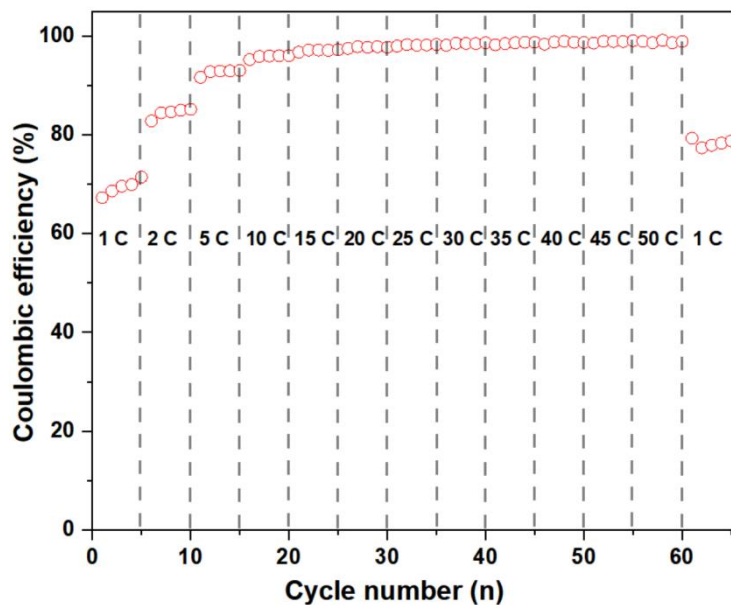


Figure S9. The Coulombic Efficiency (CE) corresponding to rate performance of the PEC-500||graphite dual carbon DIBs.