Supplementary information

MOF-derived hollow  $Co_3O_4/NiCo_2O_4$  nanohybrid: A novel anode for aqueous lithium-ion battery with high energy density and wide electrochemical window

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Figure S1. Mapping image of C, O, Co, and Ni distribution analysis.

Table S1.	The weight	distribution	of C, O,	Co, and I	Ni in Figure	1i.
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Element	С	0	Со	Ni	Gross
wt%	9.36	22.91	51.32	16.41	100



Figure S2. TEM image of ZIF-67 derived Co<sub>3</sub>O<sub>4</sub> nanocrystal.



Figure S3. Co 2p XPS spectrum of Co<sub>3</sub>O<sub>4</sub>, NiCo<sub>2</sub>O<sub>4</sub>, CN-1, CN-2, CN-4 and CN-6.



Figure S4. C 1s peak of XPS spectrum of CN-6.



Figure S5. The XRD image of Co<sub>3</sub>O<sub>4</sub>, NiCo<sub>2</sub>O<sub>4</sub>, CN-1, CN-2, CN-4, and CN-6.



Figure S6. Specific capacity and coulombic efficiency of  $CN-6/LiMn_2O_4$  full battery in 450th cycles at 1.0 C.



Figure S7. SEM images of anode (a) before and (b) after charging and discharging.



Figure S8. Charge-discharge curve based on a full cell with  $Co_3O_4$  as anode.



Figure S9. Charge-discharge curve based on a full cell with NiCo<sub>2</sub>O<sub>4</sub> as anode.



Figure S10. Charge-discharge curve based on a full cell with CN-1 as anode.



Figure S11. Charge-discharge curve based on a full cell with CN-2 as anode.



Figure S12. Charge-discharge curve based on a full cell with CN-4 as anode.



Figure S13. The situation of a 3 V bulb supplied by  $CN-6/LiMn_2O_4$  full cell in 60 min.