SUPPORTING INFORMATION

Highly efficient solar driven cogeneration of freshwater and electricity

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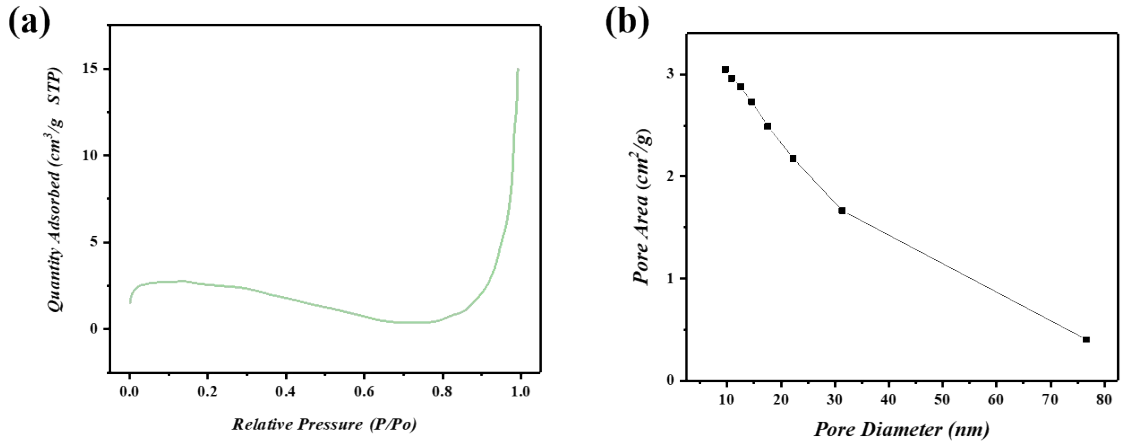

Fig. S1 (a) N_2 adsorption isotherms of the HGA. (b) Pore area distributions of the HGA calculated by Barrett–Joyner–Hallenda (BJH) method.

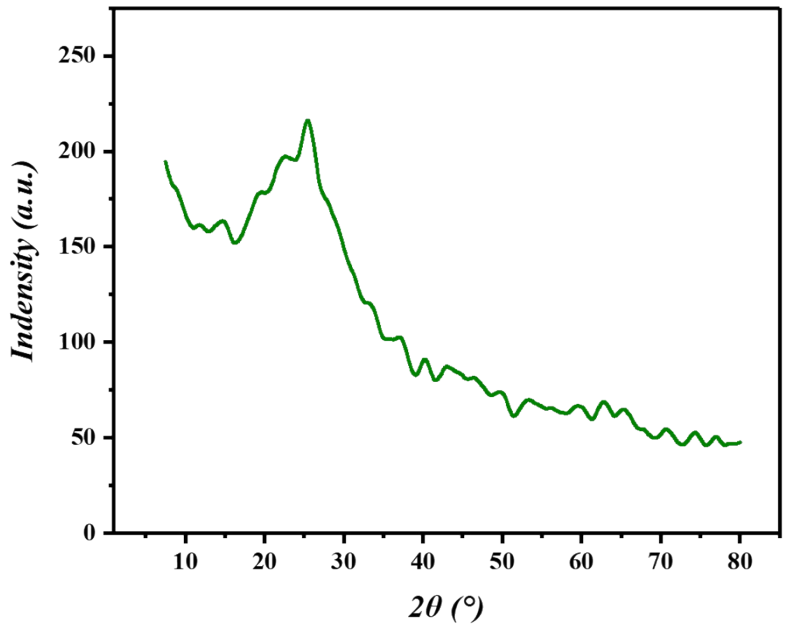

Fig. S2 XRD pattern of the HGA.

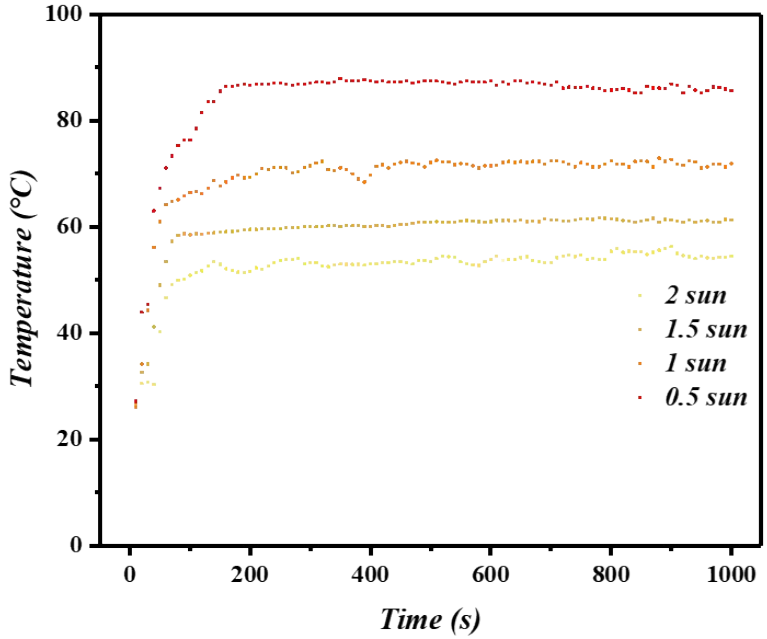

Fig. S3 Temperature rising curves of the pure GA under different solar irradiations.

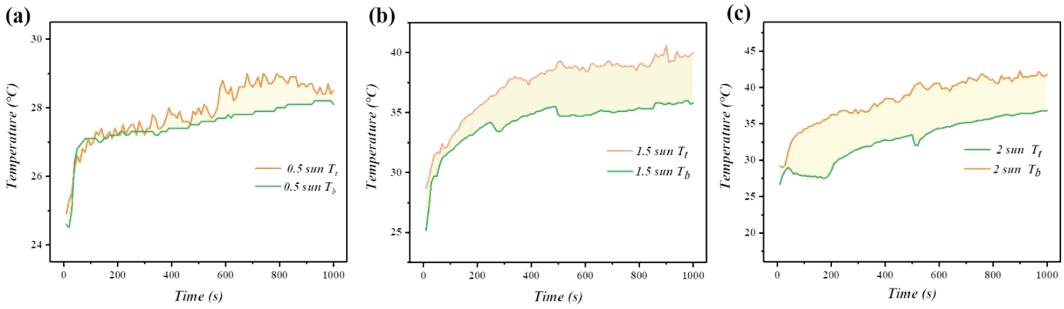

Fig. S4 Temperatures of the upper and lower surfaces of the GA during SSG under different irradiation intensities.

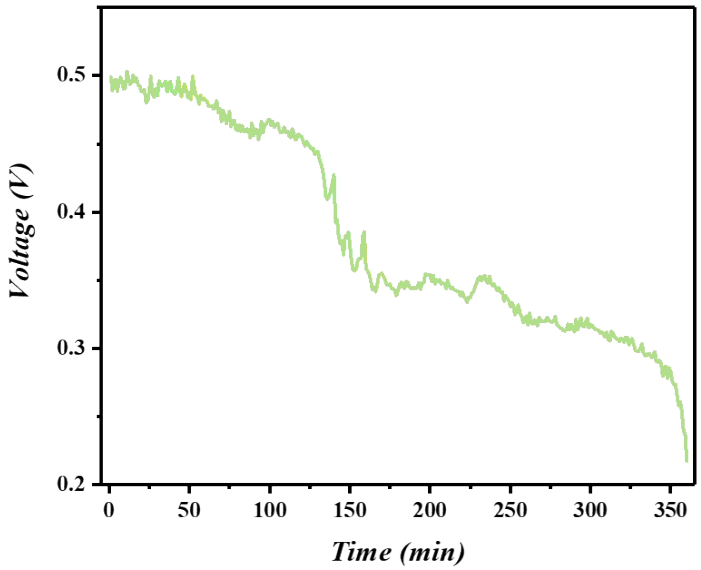

Fig. S5 V_{OC} of the HGA in DI water without wind and irradiation. The V_{OC} gradually decreases from 0. 49 V to 0.22 V in 6 h.

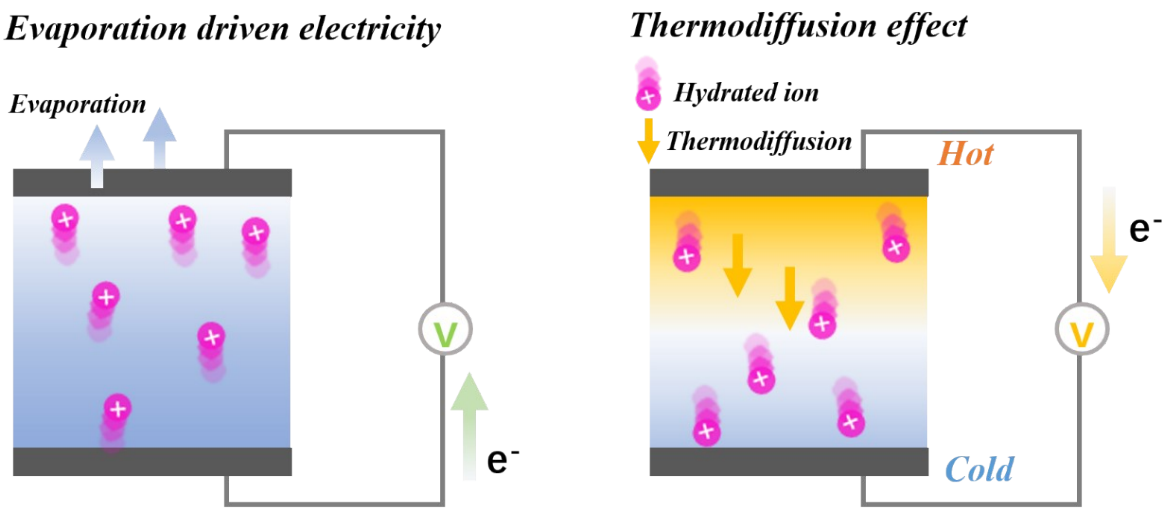

Fig. S6 Hydrated ions move along the evaporation flow while the thermos-diffusion effect makes the hydrated ions move from the hot to cold electrode.

Table S1 Voltage, current and output power at different loads

R (kΩ)	U (V)	I (mA)	P (mW)
0	0	0.5	0
0.5	0.14	0.32	0.0448
1	0.21	0.23	0.0483
1.5	0.24	0.2	0.048
2	0.26	0.17	0.0442
2.5	0.3	0.14	0.042
3	0.32	0.13	0.0416
3.5	0.34	0.11	0.0374
4	0.37	0.1	0.037
4.5	0.4	0.09	0.036
5	0.42	0.08	0.0336

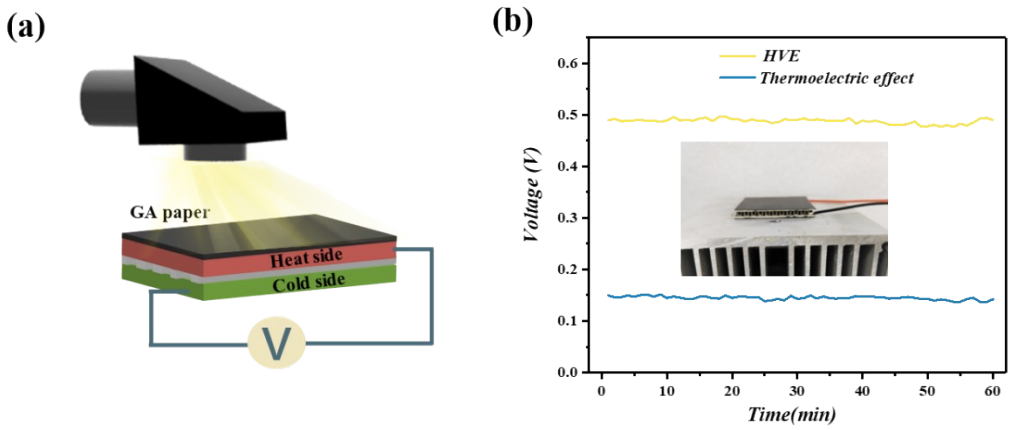

Fig. S7 (a) Schematic illustration of thermoelectric semiconductor driven by GA paper. (b) Comparison of V_{OC} generated by thermoelectric effect and HVE under 1 sun irradiation. Inset: Photo of thermoelectric semiconductor.

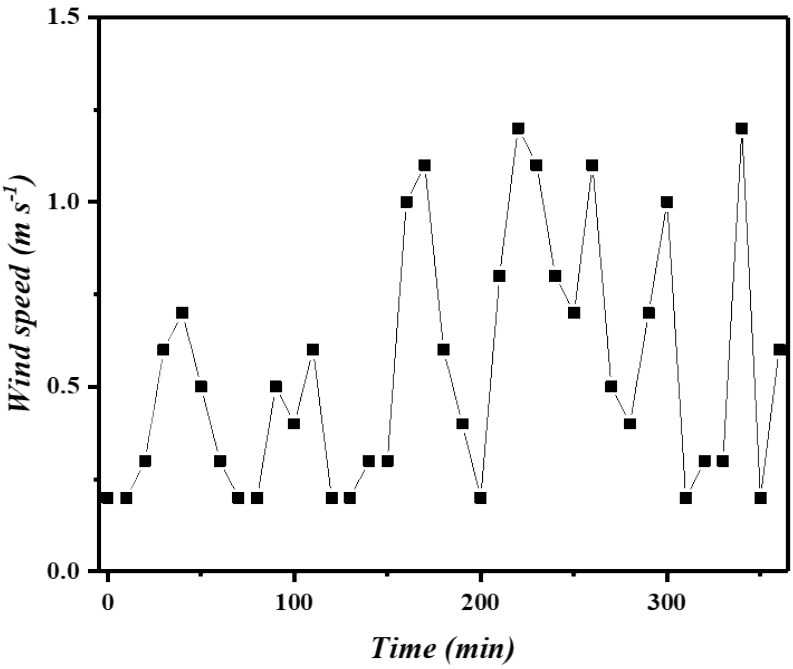

Fig. S8 The wind speed variation during outdoor experiments.

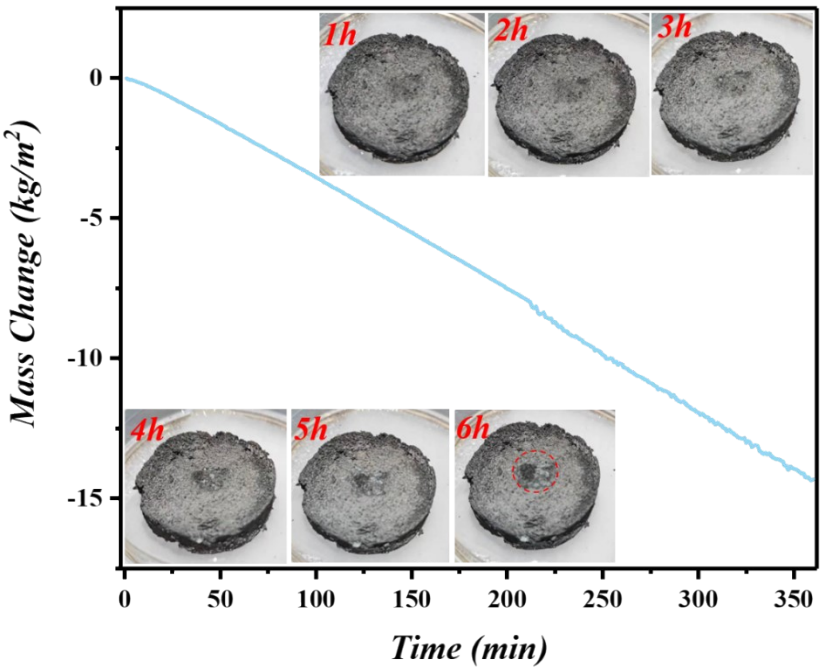

Fig. S9 Mass change of seawater induced by continuous SSG for 6 h. Inset: Photographs of salt accumulation during the long-term desalination.