

Figure S1. Test system;

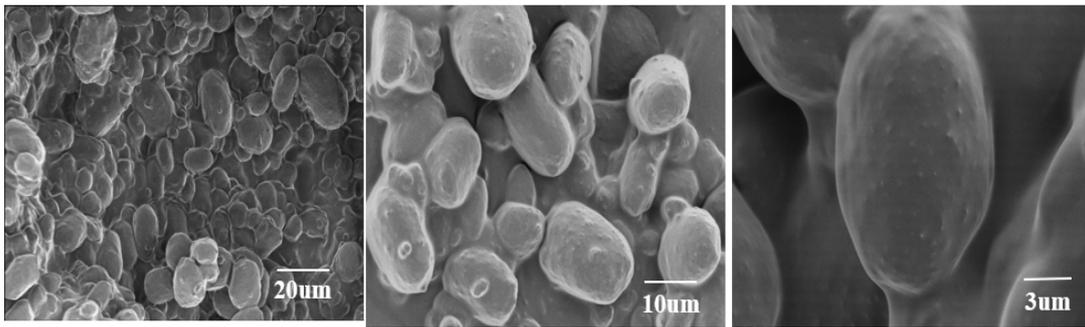


Figure S2. SEM image (cross-section);

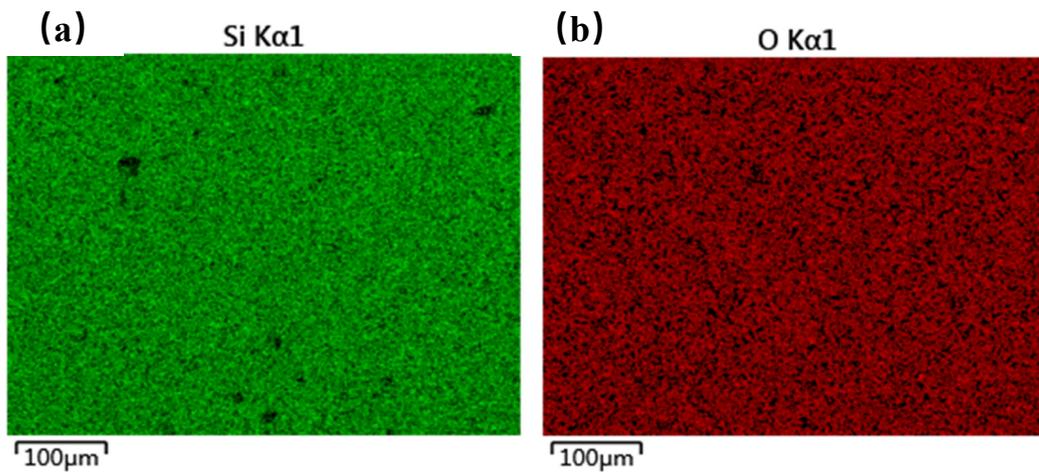


Figure S3. (a, b) EDS image;



Figure S4. d_{33} test of the ZnO/PAN/Ecoflex composite membrane

We tested the piezoelectric coefficient d_{33} of the ZnO/PAN/Ecoflex composite membrane (PAN ratio of 33%), and the average result of multiple tests was 15 pC/N (Figure R3a). According to the literature, the d_{33} of ZnO is 12.3 pC/N[1], while the piezoelectric coefficient d_{33} of the ZnO/PAN/Ecoflex composite film is 15 pC/N. Therefore, the composite of the two materials, ZnO and PAN, resulted in a certain enhancement of the piezoelectric coefficient, which is consistent with the experimental results.

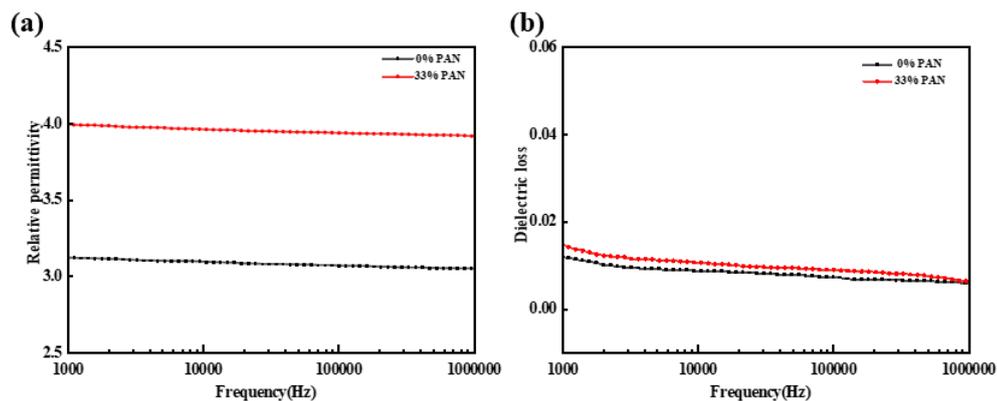


Figure S5. (a) Comparison of relative permittivity of composite films at different PAN ratios. (b) Comparison of dielectric loss of composite films at different PAN ratios.

1. Bhunia, R.; Das, S.; Dalui, S.; Hussain, S.; Paul, R.; Bhar, R.; Pal, A. K., Flexible nano-ZnO/polyvinylidene difluoride piezoelectric composite films as energy harvester. *Applied Physics A* **2016**, 122, (7), 637.