

Solar-Battery Cell (SBC) - a battery directly chargeable by sunlight

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- **The needs for this new technology**

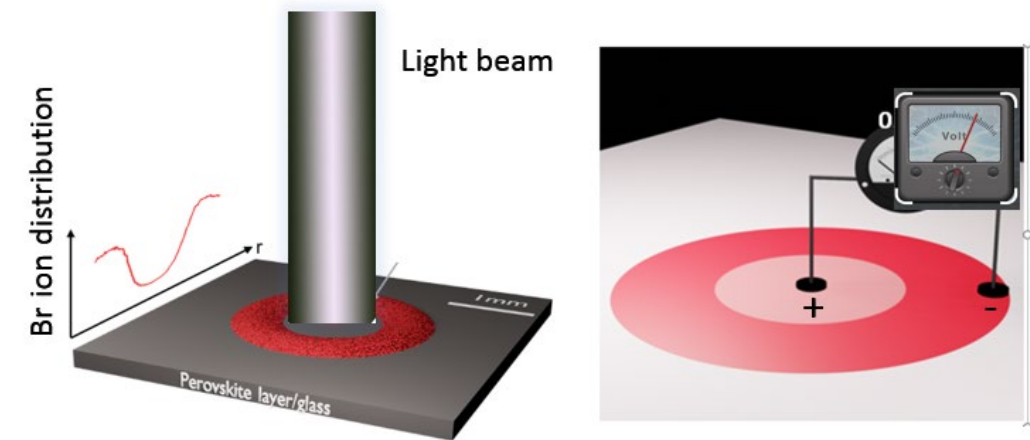
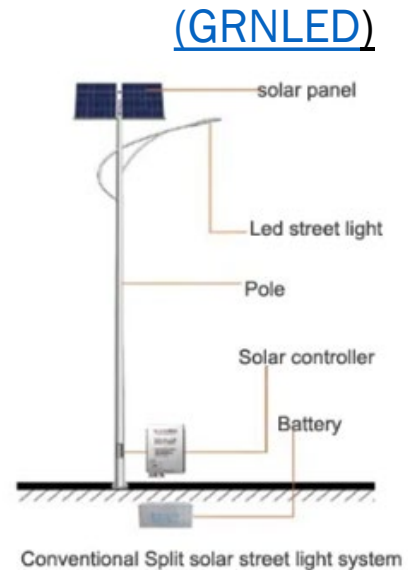
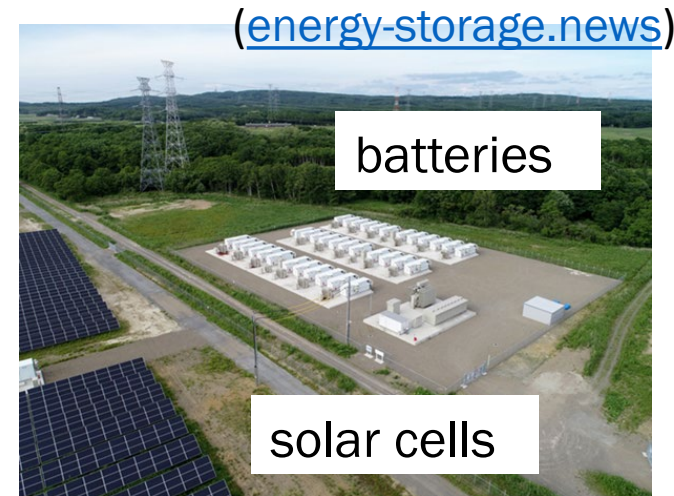
- **Explosive growth of hybrid solar systems: solar cells + batteries**

- **Limitations:**

- Requiring two sets of devices (high cost)
- Requiring more space
- Different installation and maintenance efforts
- Mismatch in lifetime between solar cells and batteries

- **Solar-Battery Cell (SBC)**

- Combining solar cell and Battery in one simpler device
- Functional and monolithic integration of the two devices
- Direct conversion of solar radiation (or other light) into electrical energy stored in the device
- Operation principle demonstrated in a published peer reviewed paper: light induced non-local ion displacement
- A primitive device demonstrated using mixed-halide perovskite (FA,MA)Pb(Br_{0.5}I_{0.5})₃ with $V_{oc} = 0.4$ V.
- A fully-functional device will be demonstrated in Ready!



Schematic of the operational principle of a solar-battery cell.

(Sun, Zhang, and Ge, [Light: Sci. & Appl. 11, 262 \(2022\)](https://doi.org/10.1038/s41467-022-28222-2))