# MAXOUT RENEWABLES

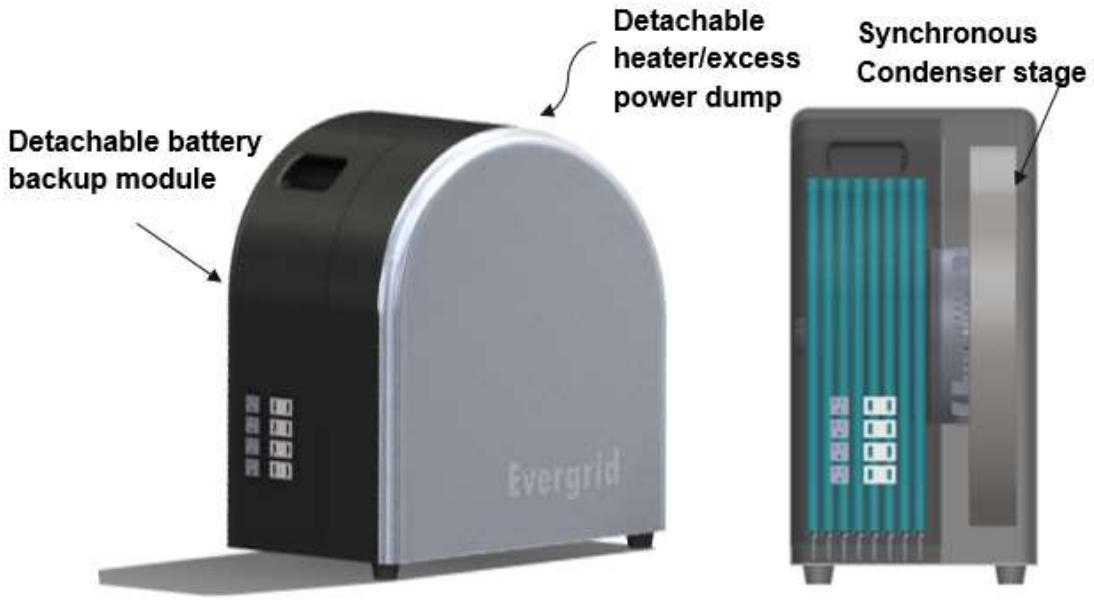
## TECHNICAL ASSISTANCE REQUEST

The Maxout Evergrid is an affordable adapter that turns a grid-tied solar installation into a microgrid during a power outage. The Evergrid combines a household version of a 'Synchronous Condenser' with a Li-Ion battery pack and our innovative control system to allow a PV system to run at full capacity during a grid power outage.

The Evergrid innovative design will provide:

- Ensured grid disconnect for safe off-grid operation,
- 60 Hz AC voltage stabilization and load management, allowing a 'grid-tied' inverter to power the microgrid all day long, and
- up to 6.5 kW surge (source or sink) capability for several seconds to handle surge loads and eliminate damaging voltage transients.

Additionally, the Evergrid's small battery pack (300 Wh, upgradable to 2.5 kWh) can be used for limited nighttime power.




**Schematic diagram of Evergrid (front view, side view cut-away)**

Technical support that would help us expedite the development of the Evergrid includes:

**CFD analysis**
The Evergrid synchronous condenser uses the inertia of a flywheel synchronized with the AV waveform to stabilize the AC voltage waveform. Detailed CFD analysis will be required to model airflow, loads, and heat generation of the flywheel and optimize the design. Technical assistance from a national lab with CFD capability would be allow Maxout to conserve resources (software and manhours) for this specialized task.

**Li-Ion battery module and enclosure design**
The Evergrid will include a Li-Ion battery pack (300 Wh nominal, upgradable to 2.5 kWh) to charge the flywheel and to provide night-time backup power. Technical assistance with battery experts would ensure Maxout's battery design will meet all UL and NEMA certification requirements.

**Regulatory and Certification Consulting**
The Evergrid will need to be certified (e.g., UL 9540, CA Rule 21, NEC 2017, FCC). Consultations with experts in regulatory and certification would help to uncover issues/concerns early, reducing the chance of costly or lengthy delays during the certification process.

**Commercial Partnership Identification, Vetting, and Support**
Given the urgency of power outage abatement, we hope to bring the Evergrid to market within 1 year. The most expedient method of getting to market would be via a partnership with an established company that already has sales in a relevant market (e.g. inverters, generators).