



The Future of Energy Storage



Olaf Lohr

Sr. Manager, Utility Relations



sonnen

Global leader of residential battery storage and pioneer in the field of innovative energy products

- **Global market leader for residential energy storage systems**
- **One of the fastest growing technology companies in the world**
- **Over 40,000 installed battery storage units around the world**
- **Pioneer in providing innovative power offers to end customers**
- **First residential storage based VPP worldwide**
- **Utility partner in residential battery storage programs**



sonnenCommunity Jasper, AZ

- *Largest residential energy storage project in the world*
- *First significant clean energy Virtual Power Plant in the United States*
- *Largest “energy independent carbon neutral” master planned residential community in the world*



“As a Virtual Power Plant, the Jasper sonnenCommunity becomes an extremely compelling and dynamic resource to the electricity grid. I do not believe the parties involved truly grasp what type of IPP revenues are possible here and the potential regulatory innovation, when considering an aggregated capacity of 40MWH of clean energy and 20MW of power, readily dispatchable at a moment’s notice. This represents a significant T&D investment deferral.” – nationally renowned energy policy lawyer

SONNEN AT WORK IN PUERTO RICO

sonnen Inc. Pledges to Build and Donate Microgrids to Help Bring Emergency Power to the People of Puerto Rico English ▾

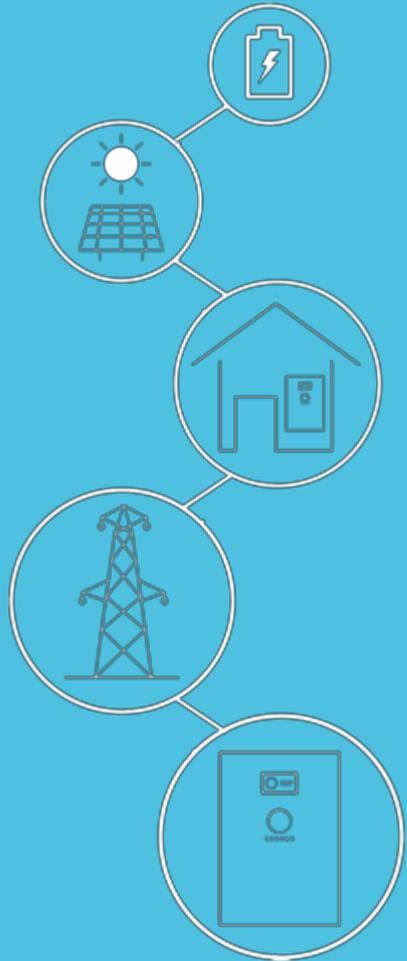
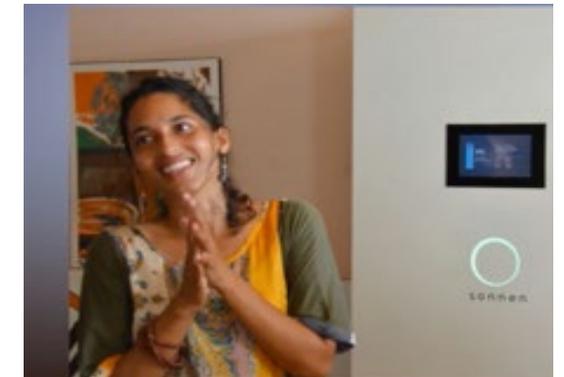
sonnen, the global leader in residential energy storage, launches "Puerto Rico Energy Security Initiative" (PRESI), including the deployment of Microgrids throughout the island



sonnen in Puerto Rico

providing resilient power and re-envisioning the grid

- Decentralized – Digitalized – Decarbonized
- Reducing cost for customers and utility
- enabling Clean Energy Grid
- fighting climate change
- Resiliency for communities in need of a resilient micro-grid today
- Resiliency for tens of thousands of “micro-grid points” throughout the island used as a distributed VPP in the future

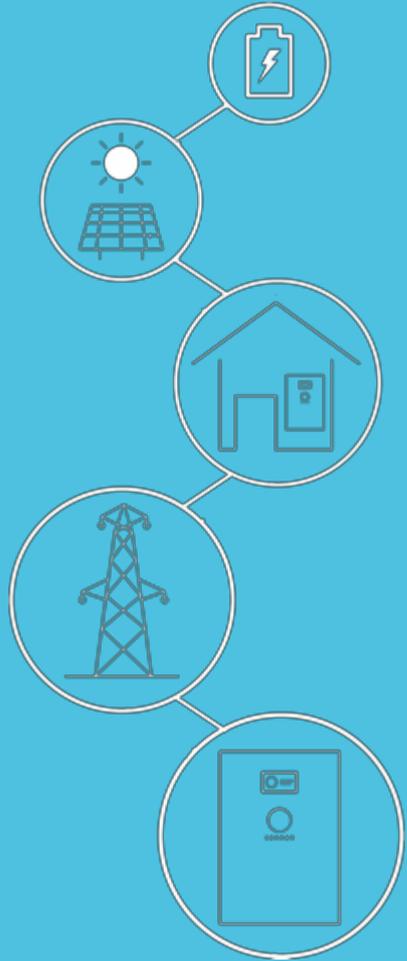


how it works in the sonnenCommunity



<https://vimeo.com/281739881>

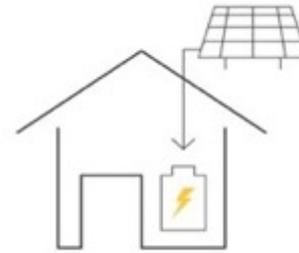
sonnen eco – applications



Customer Side
“BTM”



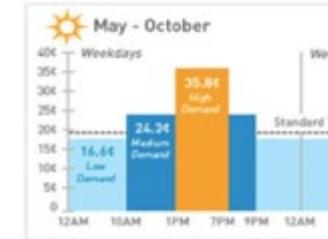
Utility Side
“FOTM”



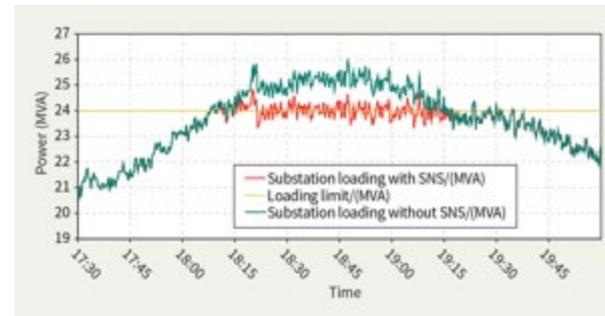
Backup Power



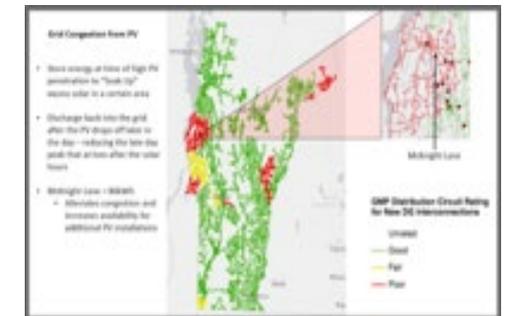
Self-consumption



Time of Use



sub station peak load management



Balance high solar penetration

Home owner benefits

“Sonnen enables customers to achieve a green and efficient life style”

1. Independence from fossil fuel
2. Generating and locally consuming your own clean energy
3. Energy Security
4. Optimized Solar
5. Energy Management without sacrifice
6. Carbon Neutral Living, to “combat” climate change



Utility benefits

“Sonnen helps utilities achieve renewable energy goals with customer participation”

1. **Peak Load Management**
2. Helps customers to switch to new rates - TOU
3. Participation in “reduce your use” events with smaller impact on life style
4. Help customers to achieve energy resiliency
5. Create more renewable energy resources with customer participation



PEAK REDUCTION PROGRAM

Unplug and save.
Reduce your power consumption during peak periods and earn money.
Earn \$10 per kilowatt saved during peak periods.

MY THERMOSTAT REWARDS

CONNECT AND COLLECT AN \$85 REBATE.

cps  Source: CPS Energy

The Smart Home

building block of the sonnenCommunity

1. INSULATION

- High performance insulation
- High performance windows
- High thermal mass walls
- Heat exchange venting

2. ENERGY EFFICIENT APPLIANCES

- high-efficiency heat pump
- Heat Pump water heating
- LED lights
- Variable speed smart pool pump

3. SELF GENERATION

- Rooftop Solar

4. SMART ENERGY MANAGEMENT

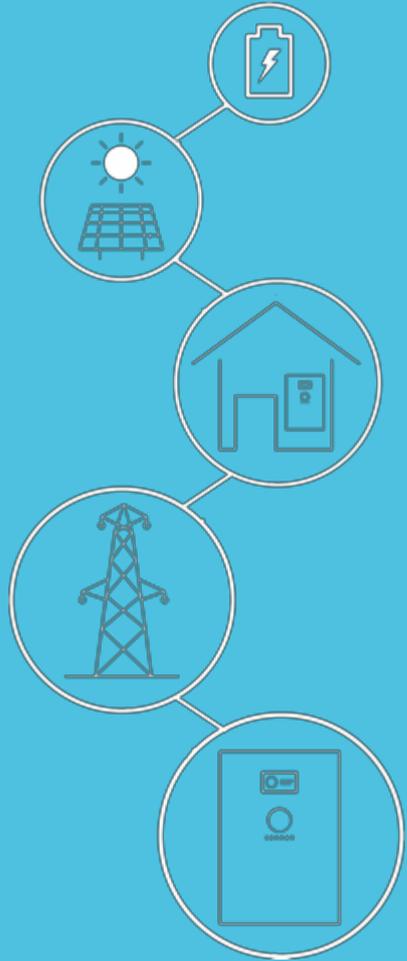
- **Smart Energy storage**
- Home automation platform
- Smart Breakers

5. EXTERNAL AND INTERNAL DATA SOURCES

- Grid Conditions
- Weather
- Utility Rates
- User Preferences, Occupancy

6. PROVIDE GREEN RESOURCES

- EV charging station
- Peak Load Management for utility via VPP





Olaf Lohr
Sr. Manager, Utility Relations, sonnen Inc.
o.lohr@sonnen-batterie.com