

# THE SOL LUX ALPHA NANOGRID

## GATEWAY TO COMMUNITY RESILIENCE



[www.solluxalpha.com](http://www.solluxalpha.com)

Panasonic Microgrid Smart City, Japan

# SOL LUX ALPHA – First PH Certified multi-unit Nanogrid to US Market

- 4 unit, 6 story, N+E using only PV within the building envelope
- All electric – Fossil Fuel Free
- Passive House PHIUS + US DOE Zero Energy Ready Home program (Includes Energy Star, Indoor Air Plus, EPA “WaterSense”)
- WINNER of the US DOE Housing Innovation Award for Multi-Family
- WINNER of 2018 PHIUS “Best overall Project” in North America



 <b>PHIUS+</b> The Passive House Institute US (Phius), maintains and certifies the highest standards for site energy efficiency in the world today.	 <b>Energy Star</b> The US Energy Star program guides builders and homeowners to the highest efficiency home appliance and other home energy products available in the USA today.	 <b>US EPA WaterSense</b> The US EPA WaterSense program helps save water and protects the environment by promoting WaterSense labeled products for homes, yards, and businesses, while taking various other simple steps to save water each day.	 <b>Department of Energy</b> The United States Department of Energy has developed a partner program dedicated to the building of, the science behind and the energy generation for Zero Net Energy and Net Positive Energy homes in the US. Sol Lux Alpha was built to exceed even the DOE program's highest standards, which is measured and recognized a year after occupancy.
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- **PROOF of CONCEPT: ZERO CARBON LIVING + TRANSPORTATION**

# NET POSITIVE ENERGY – HOW DO YOU GET THERE?

Passive House Baseline + industry best efficient systems  
Passive House methodology reduces energy for HVAC by 80%

- **Passive Solar** design
- Air source heat pumps for HVAC, DHW, Clothes drying
- 100% L.E.D. lighting
- Automatic occupancy and vacancy sensors
- AEK – High efficiency Induction cooktops and Bosch “Benchmark” Appliances
- Next Gen projects - Moving to DC Appliances and systems

North America's first eco-friendly CO<sub>2</sub> hot water solution

**A GREEN BUILDING INNOVATION FOR HIGH-PERFORMANCE, ULTRA-EFFICIENT HOT WATER**

PERFORMANCE AS PROVEN  
UP TO 30% SAVINGS  
LOW GLOBAL WARMING POTENTIAL  
FLEXIBLE INSTALLATION

**SANCO<sub>2</sub>**  
Hot water, naturally.

Heat Pump Water Heaters

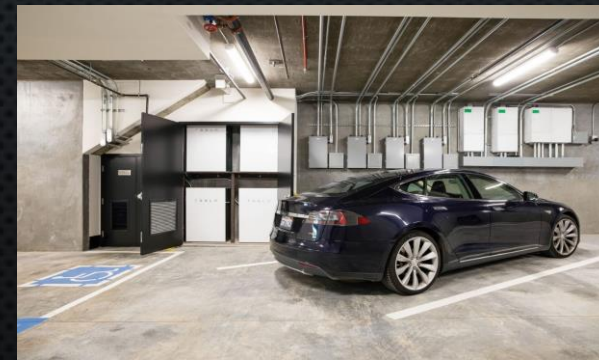
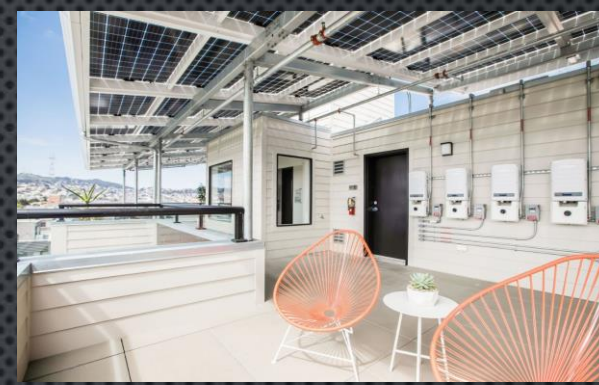


**AC vs. DC Energy Loss Comparison**



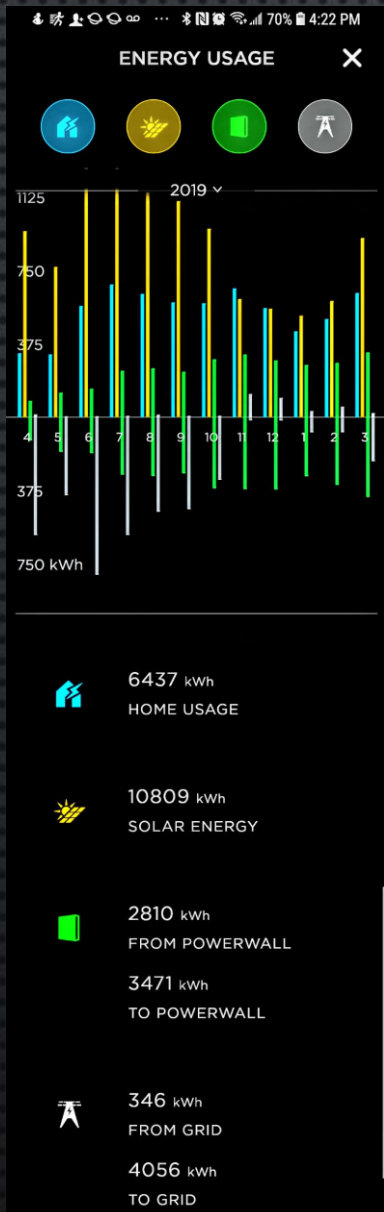
# SOL LUX ALPHA - NANOGRID systems

- **Sunprime** GxB 380w Bifacial panels (up to 25% boost) = 475w
  - 21 panels per unit = **9.975 kW**
- **Tesla Energy** Powerwall x3 (triple redundancy, 2-3 days energy)
  - 3 per unit = 40.5 kWh (X 4 units = **162 kWh**)
- **Blue Planet Energy** “Blue Ion” for 3 phase loads (elevator & commons)
  - Two 12 kWh towers, combined for 14 kW output
  - Three Schneider Conext inverters to create 3 phase power
- **VEHICLE-TO-BUILDING (V2B) ENERGY** enabled



# SOL LUX ALPHA N+E "NANOGRID" CONDOMINIUM ZERO CARBON LIVING +TRANSPORTATION

SAN FRANCISCO, CA.



- **6 STORY 4 UNIT BUILDING** – GENERATING APPROX. 2X ENERGY REQUIRED FROM SOLAR PV COMPLETELY WITHIN THE BUILDING FOOTPRINT
- EXCESS ENERGY = **4056 kWh** (4 MEGAWATTS – 1 OF 4 UNITS)
- EXCESS ENERGY FOR APPROX **15,000 MILES EV DRIVING** PER UNIT
- **ADD ENERGY STORAGE** – “LOAD SHIFT”; CHARGE FROM SOLAR AND DURING LOW TOU RATE PERIODS, **USE AND SELL ENERGY** BACK AT **PEAK** TOU RATES
- **HIGHLY RESILIENT MICROGRID STRUCTURES = COMMUNITY MICROGRID**



# NANOGRIDS AND COMMUNITY MICROGRIDS FOR RESILIENCE



We deliver energy so you can  
live a life without compromise.

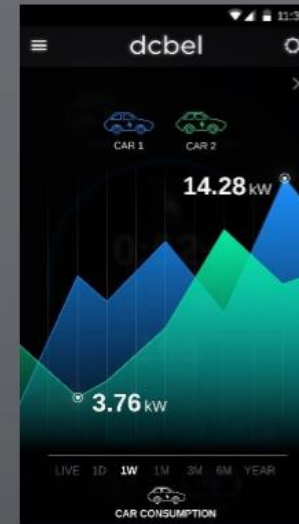


**You will never look at energy the same way**

# dcbel - UX

## Unparalleled User Experience

UX Design inspired by Fred Faubert (World class game designer – Lego / Disney / Pixar)  
Design inspired by Paul Deutschman (Corvette Calloway and Porsche Spexter designer)

A social ranking table titled 'OSBACO COMMUNITY RANKING'. It shows a list of users and their EcoPoints. The user 'YourName' is highlighted in blue with 2095 EcoPoints. The time 11:35 is shown in the top right corner.

Rank	Avatar	Username	EcoPoints
15		MyName	2788
16		Rick	2381
17		Fred	2122
18		Frank	1955
19		Julie	1868
20		Marc	1803
21		Katrina	1777
22		Francis	1659
23		Emily	1588



# Orchestrate – Home / EV / Grid – Energy Management Platform



## Intelligent.

### Unparalleled Intelligence

**Orchestrate** : A unique and proprietary energy management optimization algorithm inspired by real-time hydro system automatic generation control.

### Machine learning Solar / Load / EV Forecast

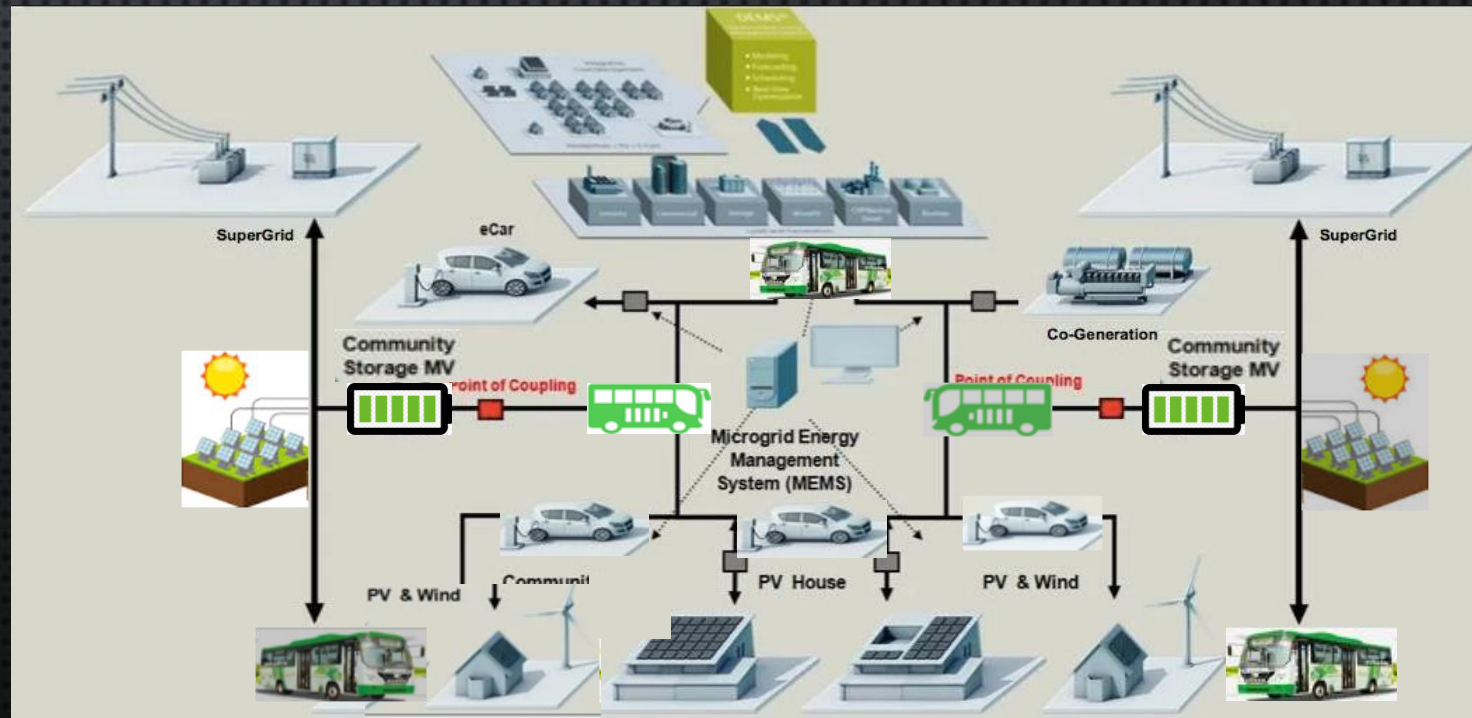
**PureDC™** battery degradation management

**Vehicle to Grid / Home (V2G / V2H), make your EV part of your home energy ecosystem.**

**Utility-Friendly** : The Ossiaco Chorus™ platform allows optimal load forecasts and enables demand response 2.0 in real time, reducing reserve requirements and allowing for better wholesale market management.

# A community of nanogrids + bi-directional EV's = Community "Mobile Microgrid" System

- Stationary & Mobile ESS - load shift & sell ancillary services
- Demand and supply of energy leveled – **DUCK IS SLAYED!**
- Greater resilience by virtue of distributed systems, and fewer single points of failure
- Add Community Scale R.E. + Storage @ Nodes of Connection to larger grid to provide ancillary Grid and Microgrid services



# INTEGRATING TECHNOLOGIES WHILE LOWERING COST + ENHANCING RESILIENCE + REDUCE GHG's



Over 100 years of an archaic and vulnerable  
centralized grid

It is TIME for **ENERGY** to EVOLVE

THANK YOU

FOR

**YOUR TIME!**

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