BEYOND ZERO: NET POSITIVE ENERGY

Nanogrid Structures and Community Microgrid Development

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NEWABLE “ENERGY POSITIVE” NANOGRID STRUCTURES

• GENERATE MORE than all required Energy for the Structure with 100% site based renewable energy systems

• STORE the site produced energy in on-site systems

• MANAGE the energy and systems with site based and cloud based management / control systems

• INTERCONNECT with the local grid / microgrid system

• ENERGY export / import for Grid Balancing and revenue
MICROGRID COMMUNITY DEVELOPMENT

- Multiple Renewable Energy Assets
  - Community Solar Farms
  - Community Wind and Hydro Generation
  - Fuel Cells and Combined Heat and Power systems
  - Net Positive Energy Buildings w/site based energy management

- Site based and Grid Scale Energy Storage

- "Smart Grid" Energy Management Systems

- Scalable and expandable, Organic Growth

- Connect to Existing Utilities and Grid

- California CCA’s are potential entities for Microgrid development

For More see https://building-microgrid.lbl.gov/sendai-microgrid
BENEFITS AND DIVIDENDS:

SOCIAL / ENVIRONMENTAL IMPACTS;

- CARBON REDUCTION IN BUILDINGS / LIVING / WORK / TRANSPORTATION SECTORS
- CLIMATE CHANGE MITIGATION
- BUILDING AND COMMUNITY ENERGY RESILIENCE
- NATIONAL AND GLOBAL ENERGY RESILIENCE
- NO REASON FOR ENERGY CONFLICTS (WARS OVER OIL)

"PEACETIME" NATIONAL BUDGET EXPENDITURES

GREATER INVESTMENT IN RENEWABLE ENERGY - MICROGRID SYSTEMS
BENEFITS AND DIVIDENDS

IMPACT; @ COMMUNITY / NATIONAL / GLOBAL SCALE

• No New Powerplant investment + Reduced Transmission losses
• Budget Shift from “Military” to “National Energy Infrastructure”
• PERMANENT Employment gains in Energy
• ZERO CARBON EMISSION Projects for Regional Mass Transit
• Better Community / National Health (Reduced medical costs)
• Reduced costs of Climate Change Mitigation and “Damage Control” from Extreme Weather Events
• Higher GDP and GNH “Gross National Happiness”
BENEFITS AND DIVIDENDS

FINANCIAL IMPACT; @ BUILDING SCALE

- Lower Operational Costs (No energy bills)
- Revenue from excess energy export (HOA dividends??)
- FREE and RENEWABLE Transportation Energy (100% R.E. EV Charging)
- Better Occupant Health (Reduced medical costs)

Higher Appraised Property Values
SOL-LUX ALPHA
100% RENEWABLE
NET POSITIVE ENERGY NANOGRID
LIVING AND TRANSPORTATION SYSTEM

• Highly Efficient Multi-Unit Passive House, PHIUS Certified Building
• 35 Kw FULL ROOF COVERAGE Bi-Facial Raised Trellis BIPV Array.
• 105 Kwh LiFePo Energy Storage System (EV DC-FC capable)
• Energy Management system to manage variable R.E. and changing tariffs
  of Grid (or local Microgrid) energy
• Fully integrated EV charging infrastructure and mgmt.
• Real time monitoring and display of energy production and use by circuit
• Future ready - V2B / V2G infrastructure
Being part of the SOLUTION to Climate Change
PV and Energy Storage costs are dropping dramatically!
Variety of Incentives and Grants for GHG reduction
NEIGHBORHOOD SUPPORT for exemplary projects
City Support for exemplary projects
Fast Track Permitting
Positive Press
Favorable Customer Engagement
PV SOLAR TRELLIS ENERGY AS “ART”

SunPreme Bifacial 360w Panels produce up to 30% more energy

Highest Bifacial boost achieved when raised off roof

96 panels X 360 + 30% = Boost to 44.9 Kw Array

Allows mix of direct and filtered light

Roof deck garden / kitchen

Integrated Rain Catchment

Integrated l.e.d. lighting
105 KWH LITHIUM IRON PHOSPHATE ENERGY STORAGE

• LiFePo Chemistry = Indoor rated, U.L. Listed
• Produces no heat or gases = No venting required
• Small, scalable modules can be distributed within

WHY ADD ENERGY STORAGE?

• Charge off-peak for use at Peak Time of Use
• Uninterruptable, safe, secure Energy, ALWAYS
• Energy / Fuel source during GRID OUTAGES
• Community grid balancing asset
V2B / V2G READY
VEHICLE TO BUILDING / GRID

- Allows expanded energy storage capabilities
- Potentially quadruples energy storage for the building
- Adds community resilience in emergencies (Mobile Energy Source)
- Another tool for grid balancing during high renewable generation
- Opens up “second life” EV batteries for Home Energy Storage
BEYOND SOL-LUX ALPHA

• Designed as Sustainable and Profitable Development Model for Ourselves and Others to follow

• PV and Energy Storage costs are dropping radically!

• Development in areas that provide incentives and funding

• Development in regions with Climate Change imperatives

• Development in regions that PAY for energy export (FiT’s)
  - Some California CCA’s (Such as Palo Alto!)
  - Long Island Power Authority
  - Islands and Island Nations everywhere
PROJECT PARTNERS

Sol-Lux Alpha successfully Achieved the first ever “Alternate Path of Compliance” to the S.F. Green Building Code by agreement to certify through:


• DOE – ZERH Zero Energy Ready Home Program Certified

• Energy Star Certified

• EPA WaterSense Certified
THANK YOU!

QUESTIONS?

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