Back Up Power Information

Seaview Residents Association

2024-9-4

Goals

- Provide information on how power sources work
- SCE instability = needs for back/alternative energy
- Discuss various scenarios
  - Short term power outage (1-2 days) with return to SCE hook up
  - Intermediate power outage with return to SCE hook up
  - Indeterminate outage
  - (Off the grid)
- Options
  - Pros/Cons
  - Equipment/Costs

Thanks

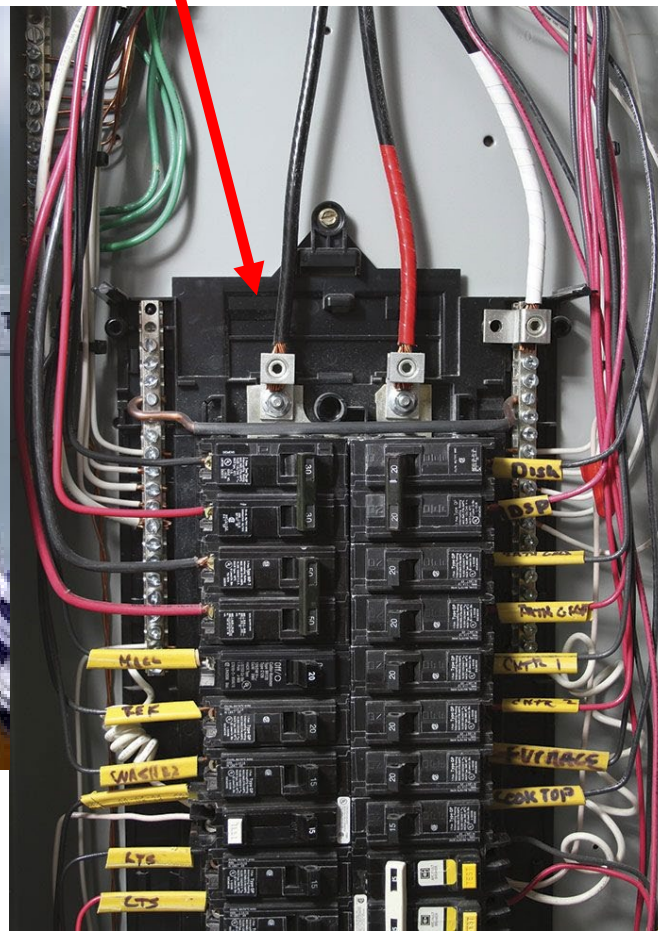
- Nic Grillo SRA Board and KCLAD Board
- Rayne Sherman SRA Board VP
- Ara Mihranian City Manager
- Ramzi Awaad City Dir City Works Dept
- Brett Himmel SunRun
- Eric Helgason NexGen Construction Services
- Mario Pizarro Pizzaro Electric

Options for Discussion Today

- Portable Generators
- Standby Generators – Mounted integrated into you system
- Solar with Battery Back up
- All Panelists Agree. Anyone consulting with you should do an onsite visit with you. Don’t do remote (google maps) purchase over the phone

Electrical Basics

- Your home electrical panel
  - Takes SCE AC current and distributes to your home
  - Panels rated in AMPs 100, 125, 200, 300 Big home/need = big panel
  - Seaview is older neighborhood
    - Most panels last 30-40 years or less
    - Non insurable panels: Federal Pacific, Zinsco/Sylvania, Challenger, Trumbull, Bulldog Pushmatic, FPE Stab-Lok
    - Current housing code requirements
- SCE interface with your panel.



Bulldog Pushmatic

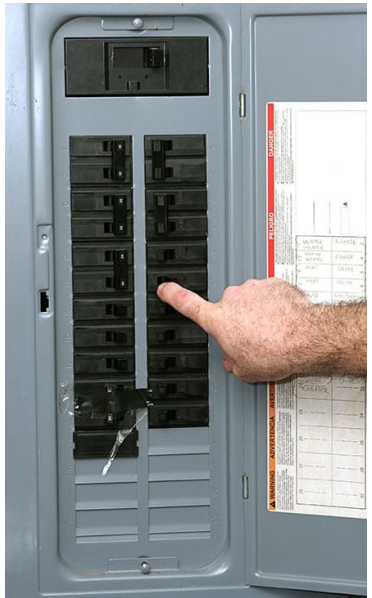
Zinsco-Sylvania

Federal Pacific

Challenger

100 amp panel

200 amp panel



400 amp panel

- Current Code Requirements
- Transfer Switch
- AC versus DC
  - Portable Generators
  - Standby Generators
  - Solar
- Needs for plug in portable generator
- Needs for standby generators
- Needs for Solar (inverter)
- Ballpark costs to upgrade panels

Short Term Power Loss 1-2 days
Plan to hook back up with SCE

- “Average Home” with “Average Energy Demands”
- No current existing back up or alternative power in home
- Panel – Estimate of KW needs
  - Basic function (5-7)
  - Whole house function (10-15)
- Optimal economics
  - Portable Generators ✓
  - Standby Generator
  - Solar plus Battery

Generators

- Portable: plug into major appliances
  - Size requirements? What is too small?
  - Safety Hazards? (Location CO, Extension Cords, Capacity)
- Portable to power home
  - Panel modifications? Cost of modification?
  - KW size? 10-15? Lots of 15-20 KW
  - Standard versus Inverter generator - Noise
    - Inverter = higher cost Worth it?
  - Estimated costs
  - Buy versus Lease
- CA restrictions on gas Generators 2024, 2028 (CARB compliant)
- Permitting issues? Cost/KW
- Maintenance

Longer Term Power Loss 1-3 weeks
Anticipate Return of SCE Service

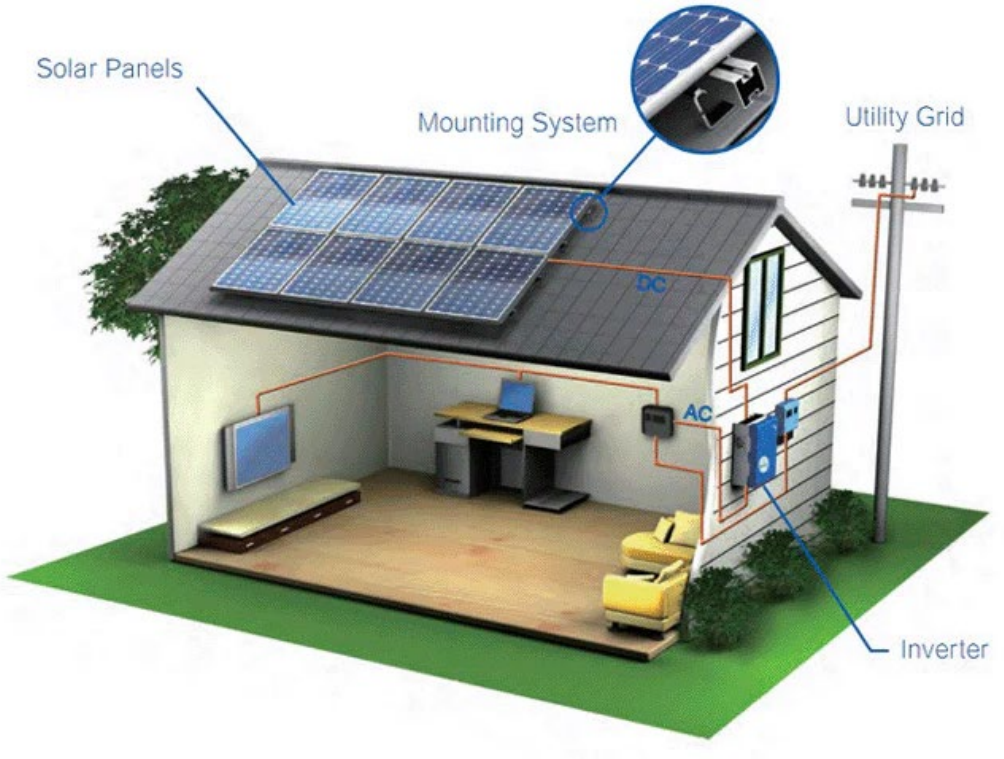
- Portable Generators ✗
- Standby Generators (Natural gas/Propane) ✓
- Solar plus batteries ✓

Standby Generators

- Power sources (Will you need separate gas line? Propane tanks in residential areas)
- Panel requirements?
- Location/pad issues
- Noise/neighbors
- Size for average home?
- Cost for average home
- Permitting issues? SCE interface issues?
- Maintenance
- CA CARB rules?

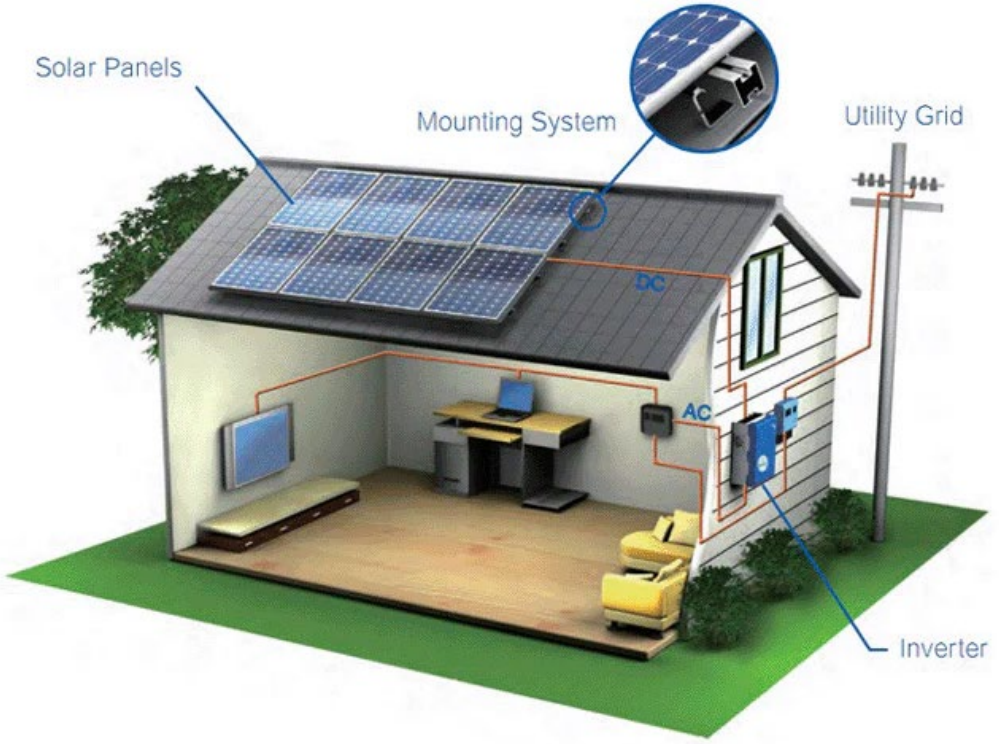
Solar

- California Solar Protection Disclosure
- No Solar Panels in Place
  - **Back up** vs. Energy savings
  - Panel requirements – need for upgrade
  - Components of solar system
    - **Panels** Number for “average home to generate 10-12 KW” Standard
    - **Inverter** Sized to match panels and batteries Standard
    - **Batteries** Adequate to store power and run home at nighttime **What to look for**
  - Basic roof characteristics (Roof that are not compatible with panels)
    - Alternatives to roof placement in suburbs
  - Permitting issues. SCE connection



Solar

- No Solar Panels in Place
  - **Average home size (# of panels for 10-12 KW – Off the grid)**
  - Battery capacity
- How to determine how much capacity to plan for/buy?
- Typical overcapacity recommendations for back up
- Planning for future long term use. Impacts upon system design
- Costs all in for average home - Backup



Solar

- Solar Panels in Place
  - **Average home size**
  - Battery capacity
- How to determine how much capacity to plan for/buy?
- Typical overcapacity recommendations for back up.
- Lots of battery sales people. What do you need to know?
- Maintenance, lifespan
- Cost estimates - Back Up

Indeterminate Loss of Power

- Portable Generators ✗
- Standby Generators ✗
- Solar ✓
- Combo ✓

Solar for the Long Term

- Thinking as an investment
- Future capacities, not just back up
- Cost estimates
- Broad strokes – Options for payment: Do your research on terms
  - Buy outright
  - Financing
  - Leasing
  - Prepayment
- Should you have generator back up/augmentation?

Summary

- Very individualized home approaches
- Short term temporary manual episodes. Portable generators for appliances or to plug into panel for whole house
- Intermediate power loss Standby Generator/Solar
- Indeterminate power loss Solar
- You will need to check you panel
- California Solar Protection Disclosure
- On site visit with you to go over home and needs
- Individualized approach to dealing with costs