County of San Diego

Renewable Energy & Resiliency 101

Virtual Climate Action & Agriculture Symposium
Friday May 28, 2021

Agenda

1. Climate Change Impacts
2. Current Options & Grid Shift
3. Which option & where to start
4. Permit & Inspection process
5. County resources
6. Permitting & Inspection process
7. Case Study

Climate Change Impacts

Changes in our local climate include:

- Increase temperatures
- Decrease precipitation
- Increase chances of wildfire
- Increase grid outages
- Need for renewable energy and resiliency

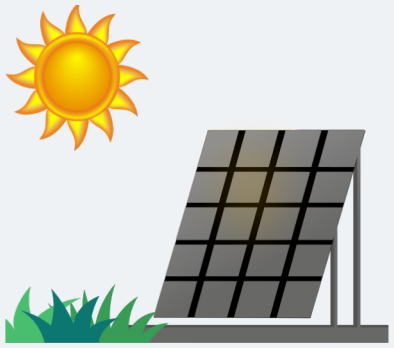
Renewable Energy & Resiliency Options

Renewable Energy Sources:

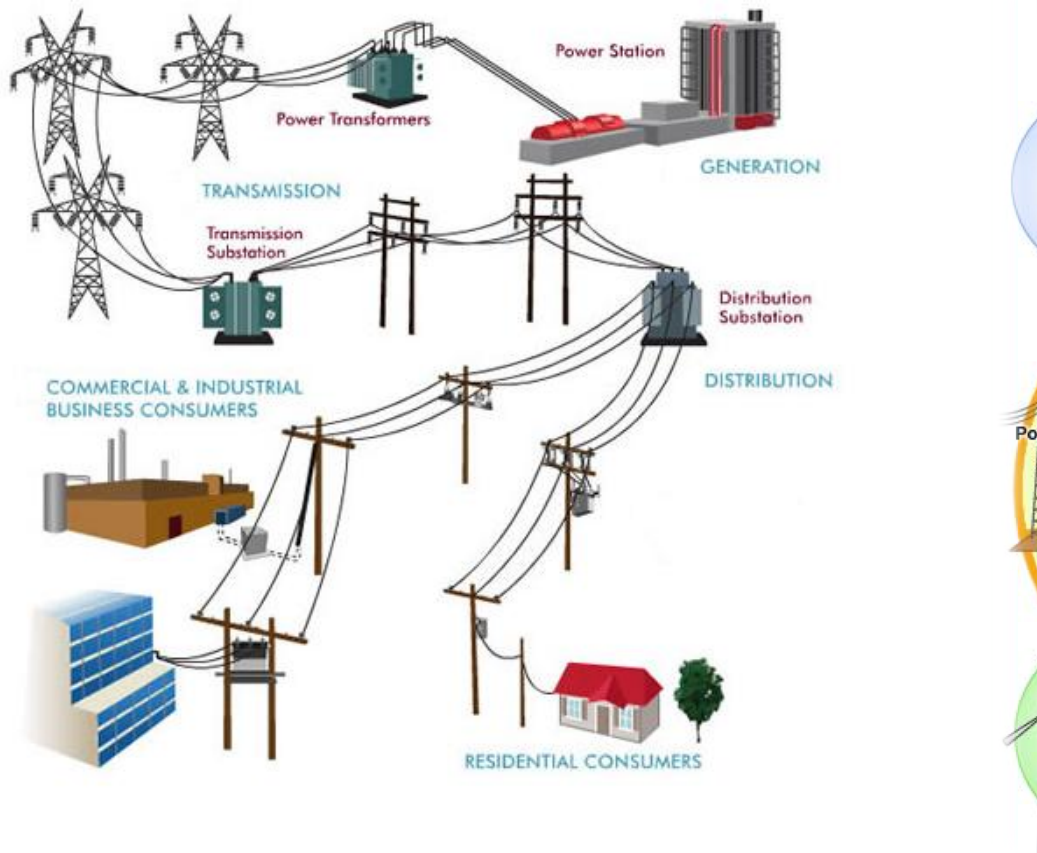
- Wind
- Solar

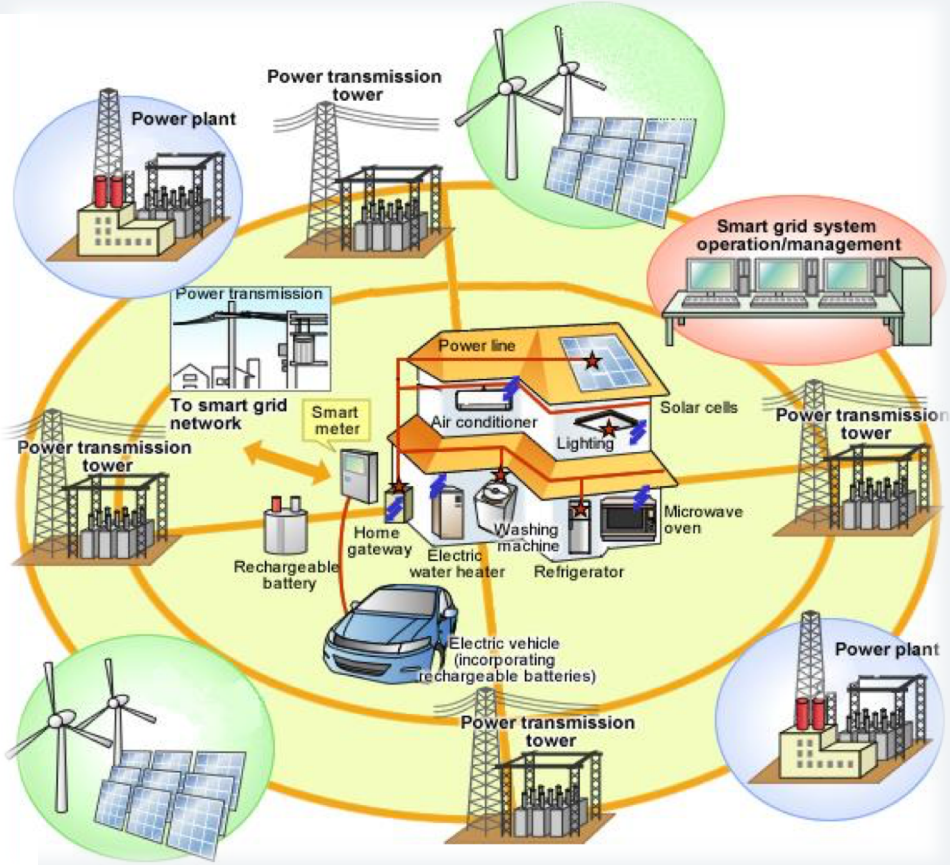
Grid Resiliency Sources:

- Storage
- Generator



Utility Grid Shift



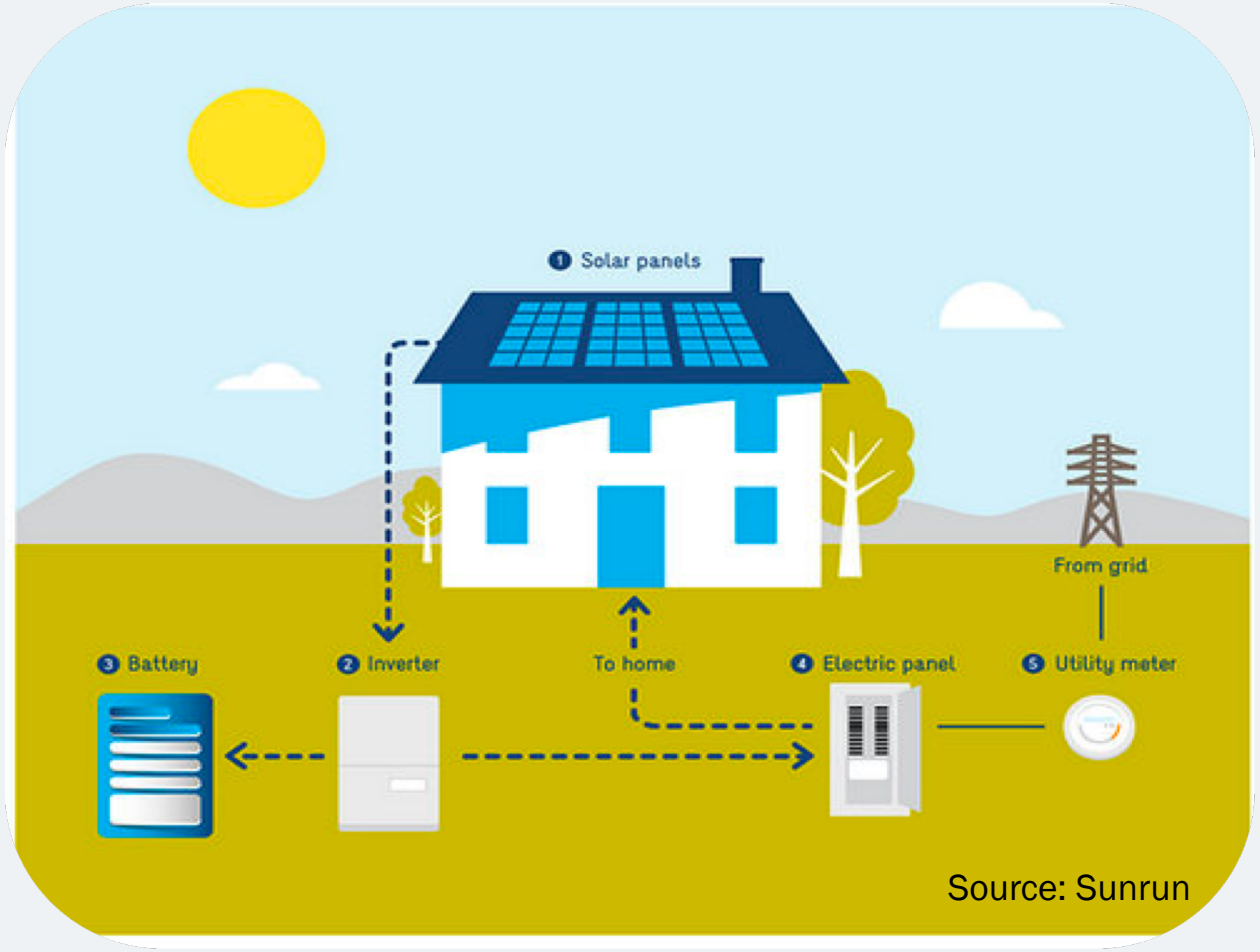


Historical Grid Model → "Smart" Grid Model

Which is right for you?

Site Assessment & Design:

- Grid, off-grid, or micro-grid
- Needs assessment
- Energy use & Site design
- Other consideration:
  - Infrastructure & capacity
  - Utility policy & cost
  - End goals



Where to start?

Regulation & Codes:

- Federal, State, & Local Codes

Resources & Regulations:

- Industry Groups and Associations
- Incentives and rebates
- State Resources
  - “CA Solar Design Guidebook” (link)
- County Resources
  - Online resources and incentives

County of San Diego Resources

Online Resources:

- Getting started with solar (link):
- Property Summary Report (link)
- Renewable Energy Permitting (link)

Incentives:

- HRA Fee Waiver Program (link):
- RE Fee Waiver Program (link)
- PACE/HERO Financing (link)
- Green Building Program (link)

Permitting & Inspection Process

Permitting Project Coordination:

- Owner + Developer + Manufacture = Initial Site Design
- Utility (grid connection permitting)
- Permitting Authority Having Jurisdiction (local permitting)
- Local fire authority permitting
- Inspections & Releases

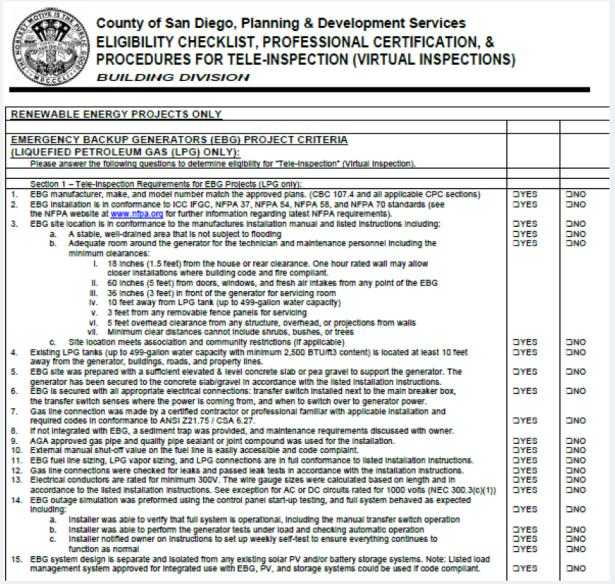
Source: www.24hplans.com

Case Study: Utility Resiliency Project

SDG&E Resiliency Project (Backup Generator):

- Partnership between CPUC, utility, & manufacture
- Wildfire & resiliency site assessment
- County Streamlining & Innovation:
  - Preapproved plans & inspection checklist
  - Virtual “Tele-Inspection”

Source: Generac



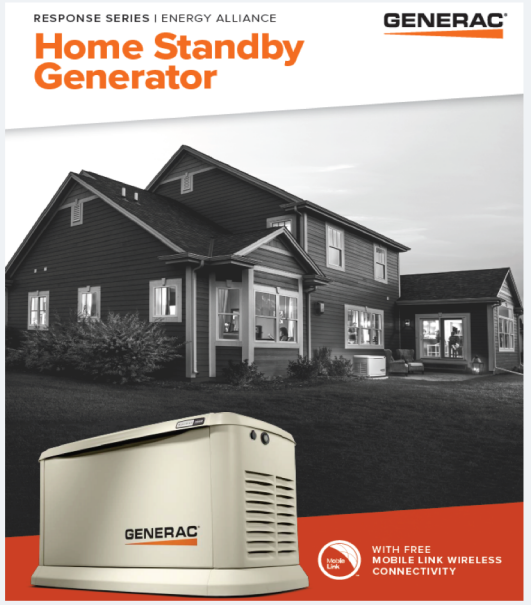
County of San Diego, Planning & Development Services
ELIGIBILITY CHECKLIST, PROFESSIONAL CERTIFICATION, & PROCEDURES FOR TELE-INSPECTION (VIRTUAL INSPECTIONS)
BUILDING DIVISION

RENEWABLE ENERGY PROJECTS ONLY

EMERGENCY BACKUP GENERATORS (EBG) PROJECT CRITERIA (LIQUEFIED PETROLEUM GAS (LPG) ONLY):
Please answer the following questions to determine eligibility for "Tele-Inspection" (Virtual Inspection).

Section 1 – Tele-Inspection Requirements for EBG Projects (LPG only):

1.	EBG manufacturer, make, and model number match the approved plans. (CBC 107.4 and all applicable CPC sections)	☐YES	☐NO
2.	EBG installation is in conformance to ICC IFGC, NFPA 37, NFPA 54, NFPA 58, and NFPA 70 standards (see the NFPA website at www.nfpa.org for further information regarding latest NFPA requirements).	☐YES	☐NO
3.	EBG site location is in conformance to the manufactures installation manual and listed instructions including:	☐YES	☐NO
	a. A stable, well-drained area that is not subject to flooding	☐YES	☐NO
	b. Adequate room around the generator for the technician and maintenance personnel including the minimum clearances:	☐YES	☐NO
	i. 18 inches (1.5 feet) from the house or rear clearance. One hour rated wall may allow closer installations where building code and fire compliant.		
	ii. 60 inches (5 feet) from doors, windows, and fresh air intakes from any point of the EBG		
	iii. 36 inches (3 feet) in front of the generator for servicing room		
	iv. 10 feet away from LPG tank (up to 499-gallon water capacity)		
	v. 3 feet from any removable fence panels for servicing		
	vi. 5 feet overhead clearance from any structure, overhead, or projections from walls		
	vii. Minimum clear distances cannot include shrubs, bushes, or trees		
	c. Site location meets association and community restrictions (if applicable)	☐YES	☐NO
4.	Existing LPG tanks (up to 499-gallon water capacity with minimum 2,500 BTU/ft3 content) is located at least 10 feet away from the generator, buildings, roads, and property lines.	☐YES	☐NO
5.	EBG site was prepared with a sufficient elevated & level concrete slab or pea gravel to support the generator. The generator has been secured to the concrete slab/gravel in accordance with the listed installation instructions.	☐YES	☐NO
6.	EBG is secured with all appropriate electrical connections: transfer switch installed next to the main breaker box, the transfer switch senses where the power is coming from, and when to switch over to generator power.	☐YES	☐NO
7.	Gas line connection was made by a certified contractor or professional familiar with applicable installation and required codes in conformance to ANSI Z21.75 / CSA 6.27.	☐YES	☐NO
8.	If not integrated with EBG, a sediment trap was provided, and maintenance requirements discussed with owner.		
9.	AGA approved gas pipe and quality pipe sealant or joint compound was used for the installation.	☐YES	☐NO
10.	External manual shut-off value on the fuel line is easily accessible and code complaint.	☐YES	☐NO
11.	EBG fuel line sizing, LPG vapor sizing, and LPG connections are in full conformance to listed installation instructions.	☐YES	☐NO
12.	Gas line connections were checked for leaks and passed leak tests in accordance with the installation instructions.	☐YES	☐NO
13.	Electrical conductors are rated for minimum 300V. The wire gauge sizes were calculated based on length and in accordance to the listed installation instructions. See exception for AC or DC circuits rated for 1000 volts (NEC 300.3(c)(1))	☐YES	☐NO
14.	EBG outage simulation was preformed using the control panel start-up testing, and full system behaved as expected including:	☐YES	☐NO
	a. Installer was able to verify that full system is operational, including the manual transfer switch operation	☐YES	☐NO
	b. Installer was able to perform the generator tests under load and checking automatic operation	☐YES	☐NO
	c. Installer notified owner on instructions to set up weekly self-test to ensure everything continues to function as normal	☐YES	☐NO
15.	EBG system design is separate and isolated from any existing solar PV and/or battery storage systems. Note: Listed load management system approved for integrated use with EBG, PV, and storage systems could be used if code compliant.	☐YES	☐NO



Contacts

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List of Resources:

Resources:

- State OPR: Streamline Permitting Resource (link)
- State OPR: California Solar Design Guidebook (link)
- State OPR: Thermal Water Heating System Guide (Link)
- Alternative Energy Applicant Guide (UL link)
- Solar Investment Tax Credit (ITC) – (SEIA link)
- Sustainable Energy Action Committee (SEAC link)
- California Solar & Storage Association (CALSSA link)
- Guidelines for rooftop solar installation (NRCA link)
- Renewable Energy Product Listing (IAPMO link)
- Solar training and education (IREC link)
- California Solar Rights Act (USD EPIC link)
- California Building Standards Commission (CBSC link)
- Center for Sustainable Energy (CSE rebate link)
- Self-Generation Incentive Program (SGIP rebate link)

County of San Diego Resource :

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