

# Environmental Benefits of Distributed Generation

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# Our Work

Under the My Generation Campaign, the Sierra Club advocates for an equitable transition to a fully electrified economy powered by 100% clean, renewable energy.

This means advocating for solutions that:

- Electrify our gas appliances in buildings;
- Decarbonize the electric sector; and,
- Electrify medium and heavy-duty vehicles.



# Renewable distributed generation matters

Renewable distributed generation (“DG”) provides residents and businesses many non-energy benefits, particularly those in disadvantaged communities, and will continue to be a crucial part of our transition to a 100% clean energy future.

These benefits include:

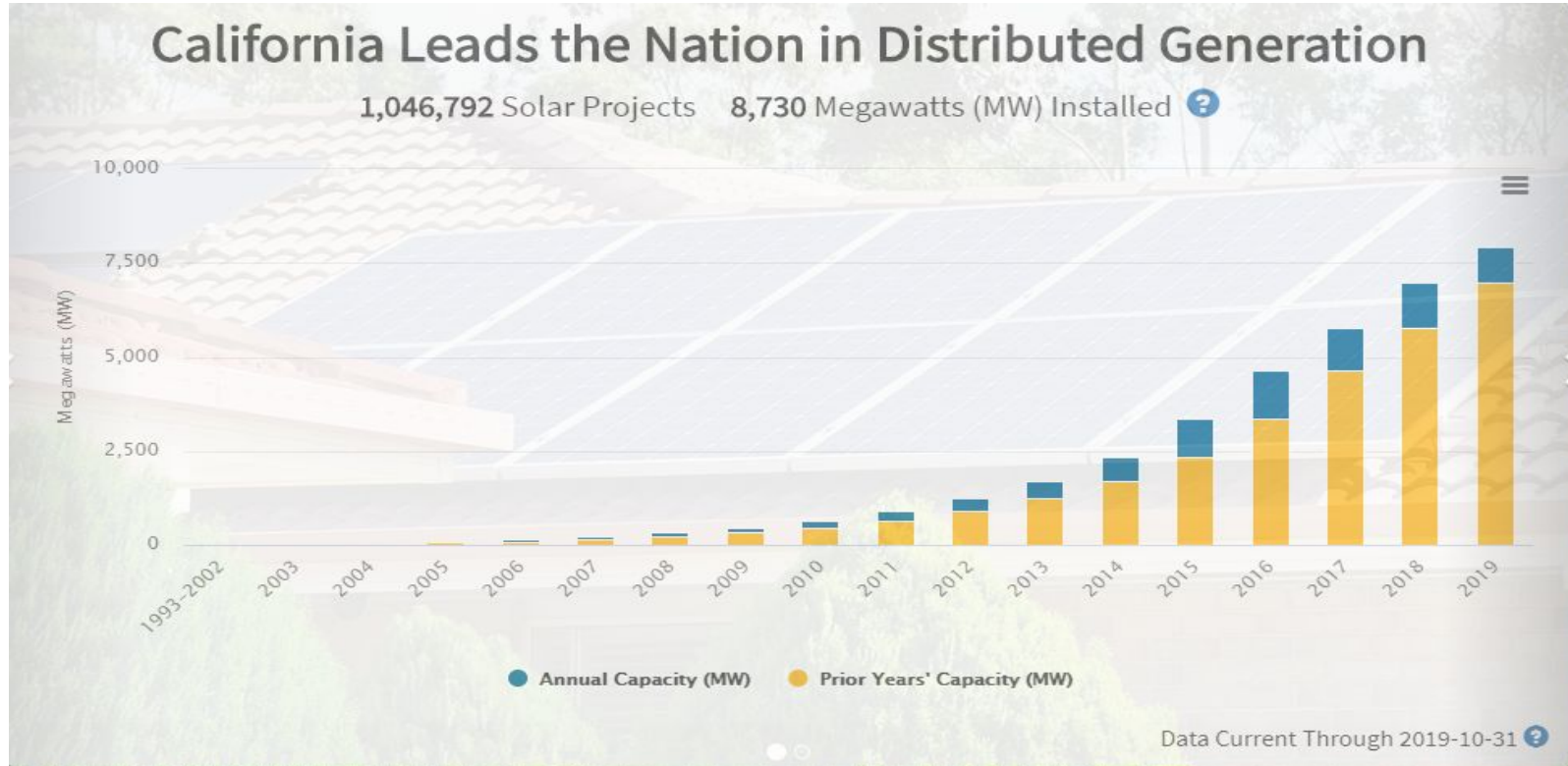
- Utilization of the built environment & reduced water use
- Reducing fossil fuels and greenhouse gas (“GHG”) emissions
- Maintaining reliability & increasing energy resiliency

# Land use and water considerations

- Distributed generation on roofs and parking lots allows for utilization of the built environment.
- Resources are mindful not just on developing on limited land, but also more water efficient than fossil fuel resources.



# California's growth of distributed generation

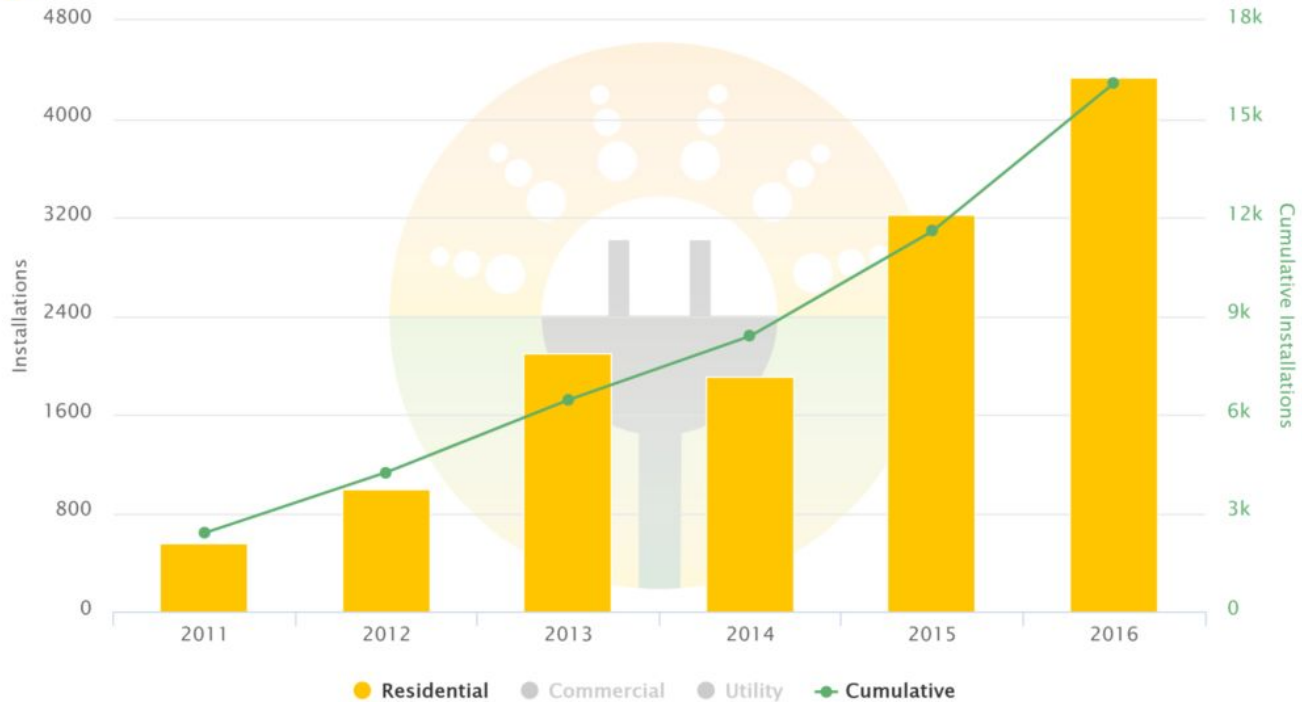


# SMUD consumers lead in DG adoption



Utility Solar Database | powered by SEPA

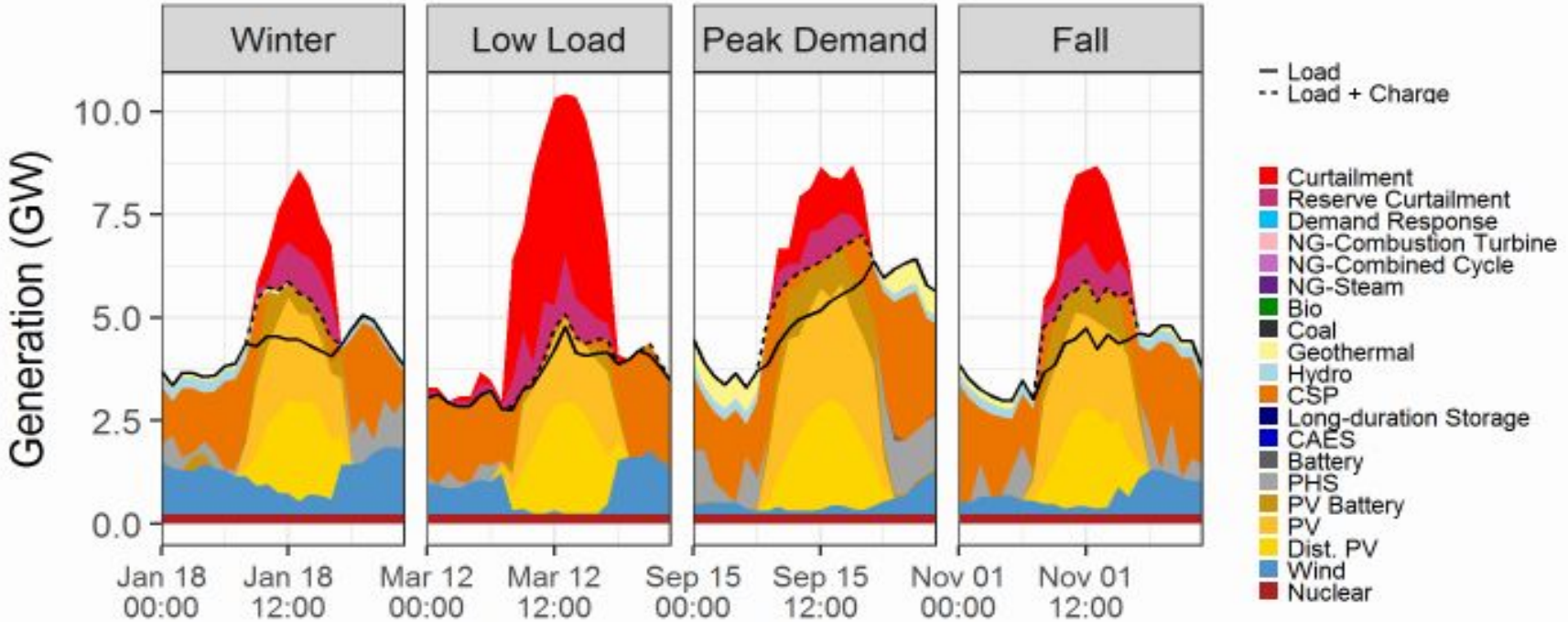
Sacramento Municipal Utility Dist.



# Displacing fossil fuels with distributed generation

- Distributed generation reduces the need for fossil fuel generation during the daytime.
- Coupled with energy storage, excess generation during the daytime can be used in the evening to further reduce utilization of gas-fired power plants.
- Additional potential in the evening hours to provide local capacity needs, meet peak demand, and effectively reduce greenhouse gas emissions.

# Los Angeles' draft scenario





# Compliance with California's energy requirements

- Distributed generation not only provides local energy needs, but also reduces amount of energy to be procured.
- In other words, utilities spend less on purchasing power to meet renewable goals.

2018 POWER CONTENT LABEL					
Sacramento Municipal Utility District smud.org/SMUDPCL					
ENERGY RESOURCES	SMUD	Greenergy Partner	Greenergy PartnerPlus	SolarShares	2018 CA Power Mix**
<b>Eligible Renewable</b>	<b>20%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>31%</b>
Biomass & Biowaste	8%	0%	4%	0%	2%
Geothermal	2%	0%	0%	0%	5%
Eligible Hydroelectric	1%	0%	0%	0%	2%
Solar	2%	100%	86%	100%	11%
Wind	7%	0%	10%	0%	11%
<b>Coal</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>3%</b>
<b>Large Hydroelectric</b>	<b>26%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>11%</b>
<b>Natural Gas</b>	<b>54%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>35%</b>
<b>Nuclear</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>9%</b>
<b>Other</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>&lt;1%</b>
<b>Unspecified sources of power*</b>	<b>&lt;1%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>11%</b>
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# Reliability & Resiliency

- Smaller, widely distributed systems are less likely to all fail compared to a centralized power system.
- Intentional DG program designs can incentivize placement of resources in areas that provide the best benefit to the grid.
- Resource installations provide opportunities to further invest in a modern grid.
- DG and storage can provide backup power to vulnerable populations and critical services.

# In the context of SMUD

- Planning for and designing DG programs to maximize development on the built environment.
- Design considerations should include incentivizing DG in areas that provide the most benefits to the grid, public health, and the climate.
- This is increasingly important as we electrify our transportation and buildings sector.

# In the context of SMUD

- SMUD, currently at 20% RPS, can avoid some RPS costs with DG.
- Planned phase out of gas resources for SB 100 compliance.
- In a time of significant climate impacts, DG engages customers.



Thank you!

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