



Opening the Door to ZNE for Disadvantaged Communities: Oceano Study

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Agenda

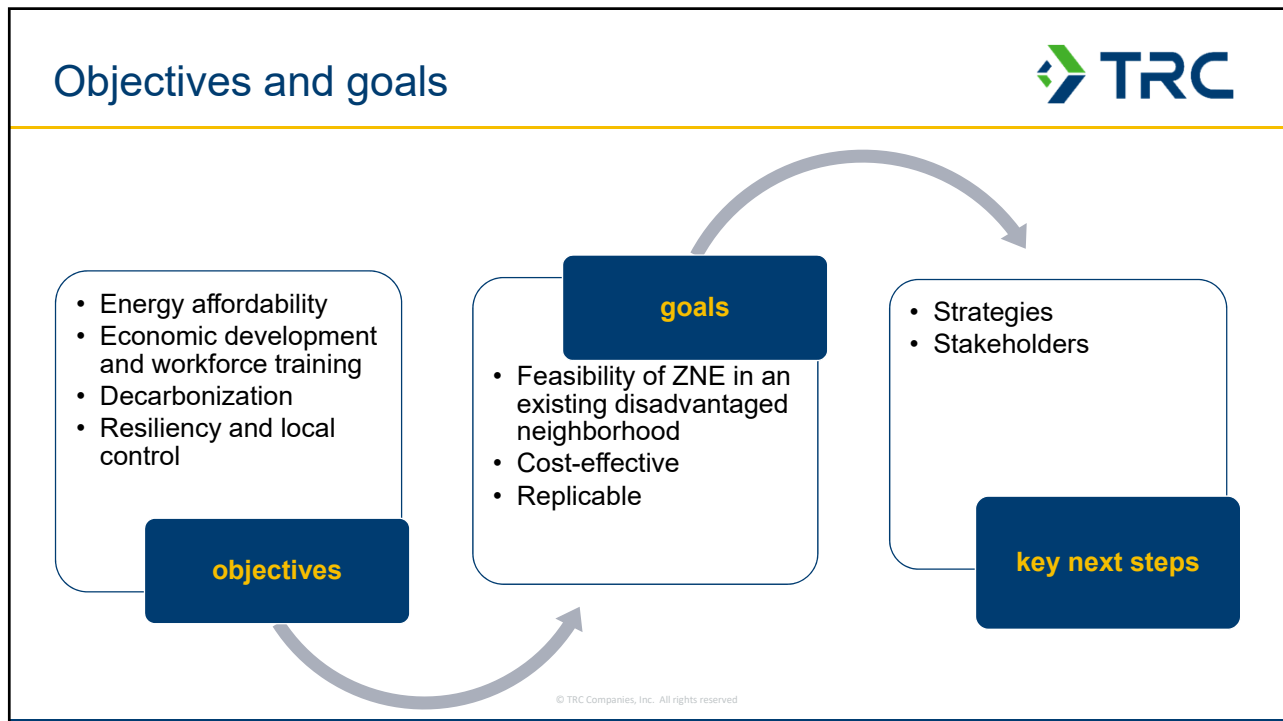
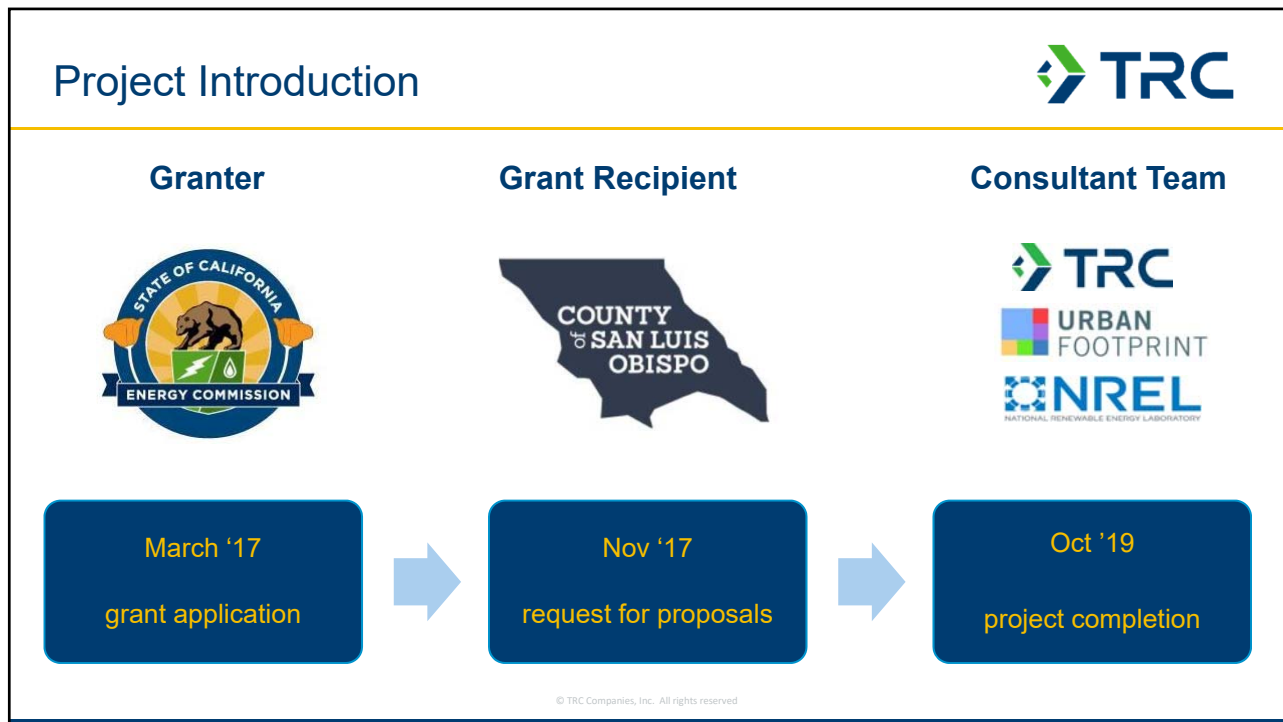


Part 1: Scope / methodology / results



Part 2: Project evolution / recommendations

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Part 1

scope / methodology / results

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Scope of Work



1: Assess existing conditions

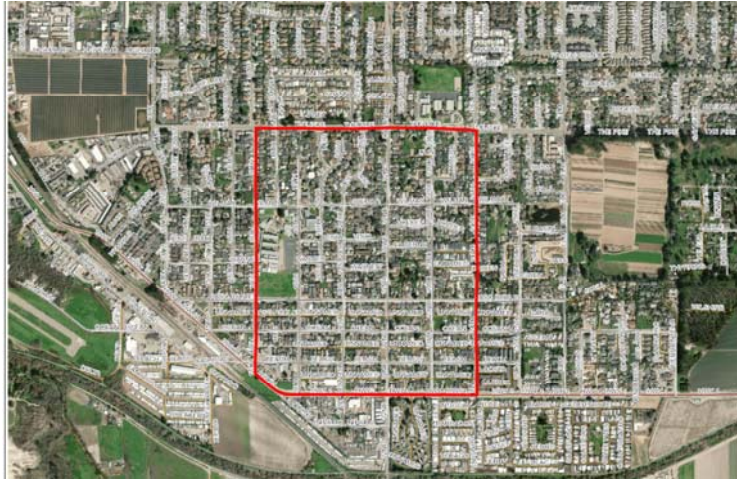
2: Estimate energy efficiency potential

3: Identify Distributed Energy Resource (DER) scenarios

4: Engage and align with community

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Oceano study area



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1: Assess existing conditions (methodology)



Review census, parcel,
and utility energy data

Develop building energy
models

Defined ZNE per California
Department of General
Services

- Natural gas + electricity
- Source conversion factors

Name	Building Type	Floor Area	Num Stories	BUILDINGS.CO2	BUILDINGS.CO2E	Year Built	Footprint Area	Footprint PerC	Maximum Rpt.
2011 PASO ROBLES ST	Single Family	768	1	Electricity	None	1956	1088	133	
1620 22ND ST	Single Family	1188	2	NaturalGas	None	1961	2033	191	
1390 23RD ST	Single Family	1626	1	NaturalGas	None	1952	2100	193	
1981 OCEAN ST	Single Family	1885	2	NaturalGas	Electricity	1953	1644	174	

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1: Assess existing conditions (key findings)



Economically disadvantaged - 50+% low-income, 40% of residents on CARE rates

Potentially overlooked - English-as-second-language, renters, low levels of academic education



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1: Assess existing conditions (key findings)



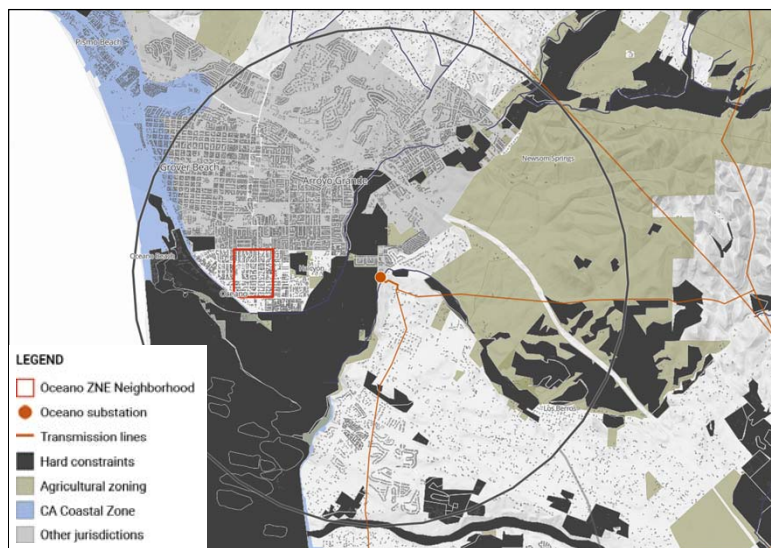
684 single family homes



296 multifamily homes



32 nonresidential properties



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1: Assess existing conditions (key findings)



Utility energy data suggested ZNE achievable by a 5.0 – 5.7 megawatt community solar farm (20-25 acres)



Estudio de Barrios Cero Energía Neta



COUNTY OF SAN LUIS OBISPO
PLANNING AND BUILDING DEPARTMENT

Descripción del Proyecto

El Gobierno del Condado de San Luis Obispo está explorando la posibilidad de redefinir **Solano** y transformarlo en un barrio Cero Energía Neta (CEN). Un barrio CEN, además de ser energéticamente eficiente, produce toda la energía que va a consumir a través de fuentes renovables. La generación de energía renovable puede ocurrir dentro o fuera del barrio, pero lo más probable es que se logre a través de un proyecto solar comunitario.

Beneficios Comunitarios

- \$** Mejoras de eficiencia energética gratuitas y de bajo costo para propietarios de viviendas e inquilinos que cumplen los requisitos en 2019.
- ☀️** Posibilidad de crear una instalación de generación renovable local, que ofrezca facturas de servicios públicos más bajas a los clientes.
- 🔄** Una vez demostrado el éxito, se podrá replicar este modelo para otros barrios del condado y del estado.

Entérese y apóyenos con sus comentarios!

El Gobierno del Condado se encuentra evaluando cómo se utiliza la energía en **Solano** y necesita sus comentarios para que este proyecto resuelva las necesidades y deseos de la comunidad. Entérese y apóyenos con sus comentarios contactando al Condado de San Luis Obispo a través de: trc@solobio.org o (805) 783-5889. Para mayor información acerca los Barrios CEN y de esta iniciativa, puede encontrar documentos relacionados en: data.solanobio.org/dataset/2019



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2: Estimate energy efficiency potential



Methodology

- Reviewed existing program penetration rates over prior 4 years
- Simulated building energy models with efficiency measures
- Estimated measure adoption energy impacts

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Results

Energy Savings Scenario	Measure Group	Annual Penetration for 5 years	Study Area % kBtu Energy Savings			Generation Capacity Reduction
			Residential	Non-residential	Combined	
#1 - Limited offerings, low measure penetration	Lighting	0.25%	0.1%	0.3%	0.1%	12 kW
#2 - Moderate offerings, medium penetration	Lighting + HVAC + Plug Loads	2.5%	2.4%	4.1%	2.7%	180 kW
#3 - Wide offerings, high penetration	Lighting+ HVAC+ Plug Loads + Envelope + Heat Pump WH	6%	7.2%	8.5%	7.4%	450 kW

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2: Estimate energy efficiency potential

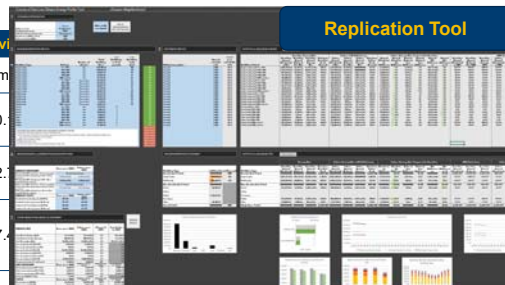


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4: Stakeholder engagement



- Tabled and presented at community outreach events
- Facilitated two stakeholder meetings
- Joined monthly Eco-District Community Coalition meetings
- Held technical advisory committee meetings



3: Identify DER scenarios (methodology)



Physical

- Technology
- Siting
- Land-use & zoning
- Permitting
- Grid infrastructure
- Efficiency and electrification potential
- Resiliency, battery, and microgrid



Financial

- Design and construction costs
- Tariff options
- Incentive programs
- Program pilots and grants
- Financing options
- Revenue streams / pro-formas



Operational

- Ownership options
- Subscription models
- Community feedback mechanisms
- Utility relationship
- Security
- Maintenance
- Controls requirements

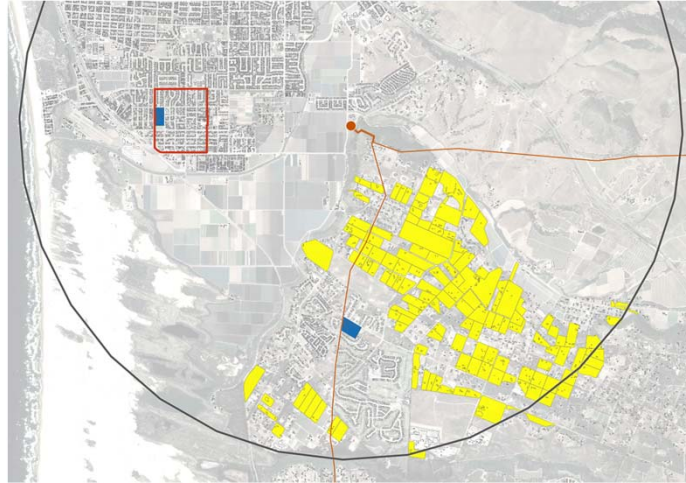


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3: DER scenarios - physical findings



- Community solar, rooftop solar, and/or energy storage are most
 - Economically feasible
 - Efficient use of land area
 - Proven business models
- **Sites:** dozens but need owner communication
- **Rates:** NEMA and NEMV are unsuitable
- **Interconnection:** complex, uncertain, and prolonged
- **Permitting:** not all parcels are created equal



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3: DER scenarios – financial findings



Private

- ITC
- PPAs
- Incentive programs
 - SGIP
 - SASH
 - ITC
- Solar Leasing
- Loans
 - Land-secured financing

Local and Federal Gov't

- Solar bonds
- Enhanced Infrastructure Finance Districts
- Tax Exempt Lease-Purchase Agreements
- **Community Choice Energy**
 - On-bill repayment
 - Public benefit funds
- PACE
- Opportunity Zones

Innovation

- Pre-selling subscriptions
 - Crowd financing
- Grants
 - Community Development Block Grants
 - Weatherization Assistance Program
- ESDER initiative

3: DER scenarios – operational findings



Private

For-profit (e.g. building owners) have direct or third-party ownership

Non-profit (e.g. community organization) cannot leverage ITC directly, learning curve

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3: DER scenarios – operational findings



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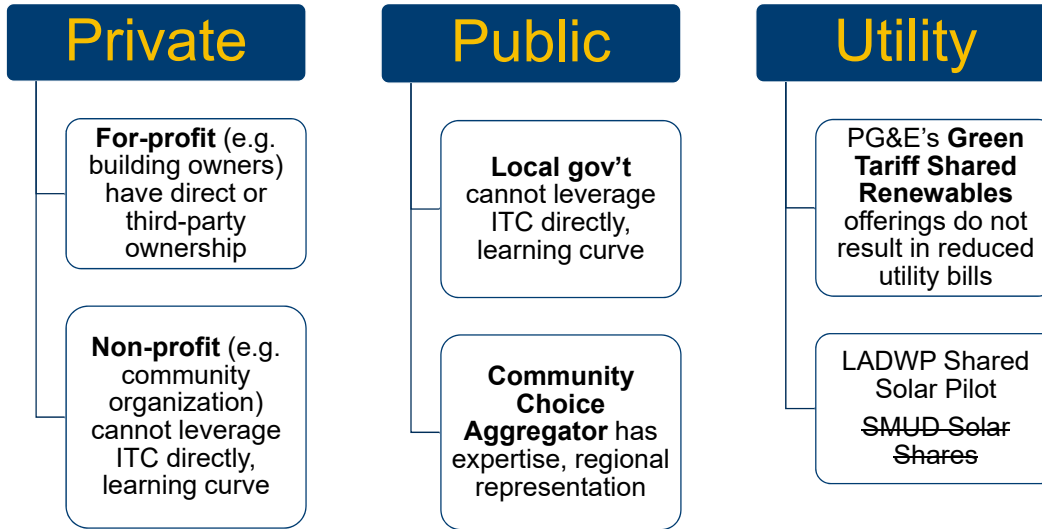
Public

Local gov't cannot leverage ITC directly, learning curve

Community Choice Aggregator has expertise, regional representation

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3: DER scenarios – operational findings



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Part 2

project evolution / recommendations

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Changes over project period



- 2017 and 2018 CA wildfires
- PG&E Public Safety Power Shutoff



- Regulation
 - SB100
 - EO B-55-18
 - SB1477
 - AB3232
 - 3-prong test changed
- Expansion of community choice aggregators
- Time of Use rates become default
- Market enhancements
 - heat pump availability / efficiency increase
 - battery storage price decline
 - microgrid capability

Should ZNE still be the goal?

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Recommendations - Overview



STRATEGIES		OBJECTIVES			
		energy affordability	economic development	decarbonize	resiliency
foundational	energy efficiency	●	●	●	
	rooftop solar PV	●	●	●	●
	beneficial electrification	●	●	●	
aspirational	community solar	●	●	●	●
	battery storage / microgrid	●		●	●
	fuel cells / research hub		●	●	●

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Recommendation - Community solar



- **Challenges**
 - Limited \$ benefits in current regulatory framework
 - Grid harmonization issues when generating electricity to offset gas
 - CCA currently unavailable for investment / expertise. If available, they already provide a high degree of renewable power
- **Co-operative solution**
 - Owners have shares, receive dividends
 - Portion of dividends reserved for other community resilience efforts

Well-established CBOs as Anchor Owners, supported by local gov't to serve as

PEOPLE POWER SOLAR COOPERATIVE

General Owners,
who provide capital and other support for projects.

Anchor Owners,
who provide leadership or spearhead development of projects.



Subscriber Owners,
who get electrical power or other benefits or services from the Cooperative.

Worker Owners,
who provide technical, operational, and organizing support to all other Owners.

More info at: <https://www.peoplepowersolar.org/>

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The human component



- **Complex and persistent barriers**
 - language
 - culture
 - childcare
 - transportation
 - politics
- **How can we successfully build trust and find resources to overcome barriers?**

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Thank You

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