Building Electrification Institute

CITIES DRIVING CHANGE

San Diego Community Power Building & Housing Stock Analysis

Completed October 2024

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Background & Approach

Background and Summary of Project

San Diego Community Power (SD Community Power) is a not-for-profit community choice energy provider that delivers cleaner electricity options for multiple jurisdictions across San Diego County. SD Community Power is beginning to design customer energy programs for the seven local jurisdictions in its service territory, which is a key component of its Community Power Plan released in 2023.

SD Community Power worked with the Building Electrification Institute (BEI) and Steven Winter Associates (together the "project team") to create this Building & Housing Stock Analysis to help inform the design of these program offerings. To complete this analysis, the project team created a parcel-based inventory of all buildings in SD Community Power territory. The project team then identified common building typologies in the region and analyzed the building stock based on prioritized technical, ownership, and social vulnerability indicators to help inform equitable and effective building retrofit program design.

Building & Housing Stock Analysis | Background (Cont.)

Analysis Objectives: Develop a parcel-level building inventory for the entire SD Community Power territory and assess common building typologies to uncover key opportunities and barriers to building decarbonization, with a focus on the unique needs of San Diego's Communities of Concern.*

Potential Uses for this Analysis

- **Provide a centralized building inventory across SD Community Power member agencies,** including technical, ownership type, and social vulnerability data

- **Help policymakers and stakeholders understand and address the needs of their local building stock**

- **Support SD Community Power staff and stakeholders in identifying top program and funding priorities** based on the realities of the existing building stock

- **Underpin potential future analyses,** such as investment needs and potential job impacts from building decarbonization

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Building & Housing Stock Analysis | Approach

To achieve the objectives of this analysis, the project team analyzed three types of indicators:

Types of Indicators

Technical Indicators	Ownership & Decision-Making Indicators	Social Vulnerability & Environmental Risk Indicators
Help identify buildings that have high opportunity or specific technical challenges for building electrification	*Help identify buildings with owners or decision-makers who may need tailored outreach and unique support to electrify*	*Help identify buildings that may need greater assistance and public investments to ensure SD Community Power's programs and strategies are effective and equitable*

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San Diego Community Power Territory

San Diego County is the second most populated county in California and fifth most populated in the country.

SD Community Power currently serves 7 local jurisdictions ("SD Community Power Territory") within San Diego County, including:

- City of San Diego
- City of Chula Vista
- City of Encinitas
- City of Imperial Beach
- City of La Mesa
- City of National City
- Unincorporated San Diego County areas

SD Community Power has nearly 1 million customer accounts, representing over two-thirds of the county's population. **This analysis focuses on buildings located in SD Community Power territory** to understand the communities SD Community Power can serve through upcoming retrofit assistance programs.

Population sources: Census QuickFacts, Census News Releases, Census Stories, SD Community
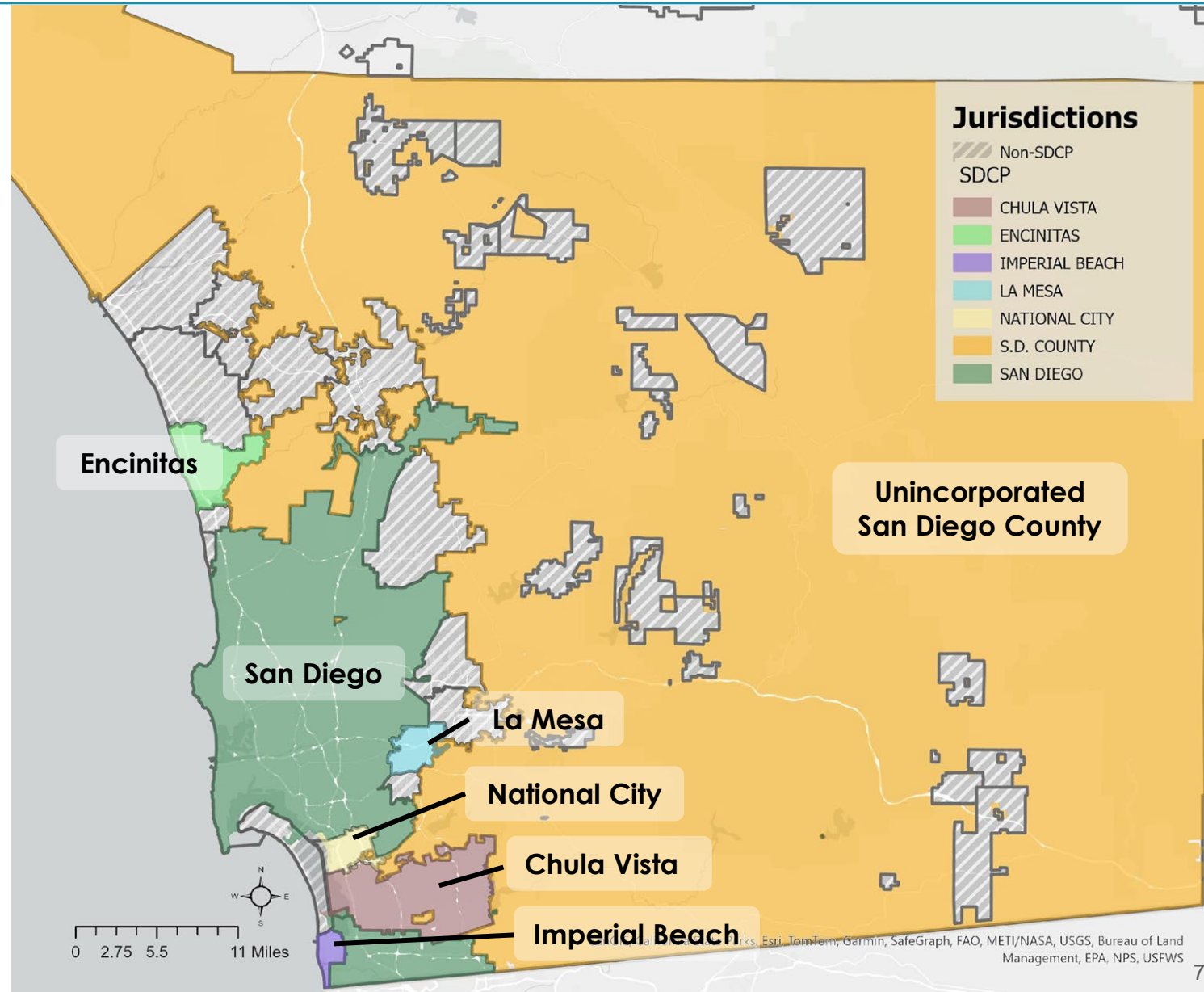
Technical Indicators

Technical Indicators

Technical indicators include data about the building types and infrastructure features that may indicate additional barriers or opportunities to decarbonization.

The project team analyzed the following indicators for all buildings in SD Community Power territory:
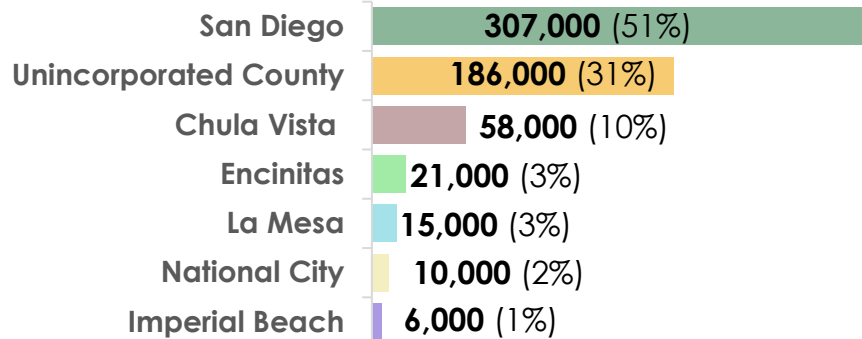
- Number of Buildings
- Buildings Per Parcel
- Building Typologies
- Number of Residential Units

- Building Size
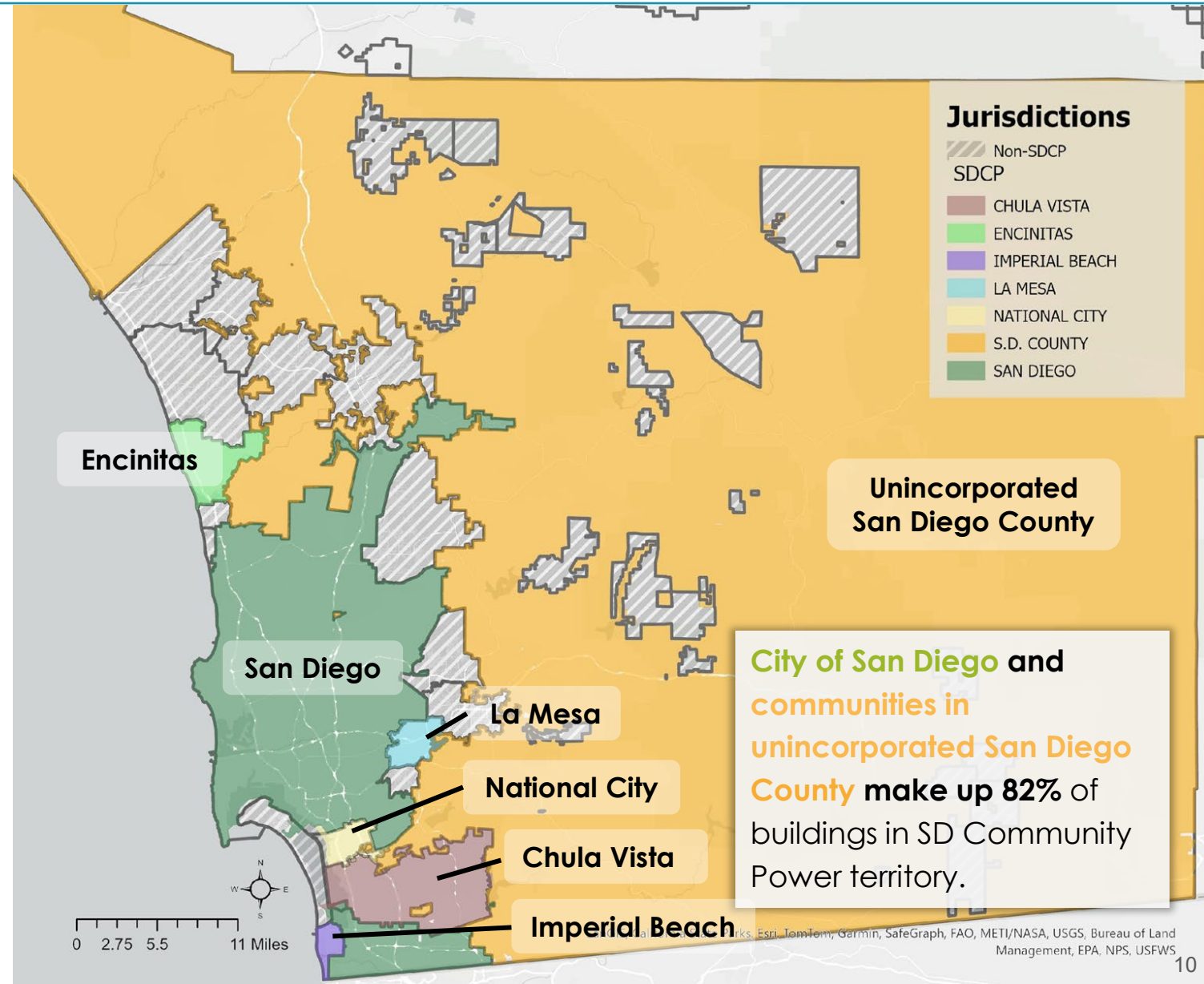- Building Vintage
- Climate Zones

There are over 600,000 buildings located in SD Community Power territory, representing approximately 72% of the 842,000 buildings countywide.

The following shows the breakdown of buildings between SD Community Power member agencies:

Total Buildings in SD Community Power Territory by Local Jurisdiction

Jurisdiction	Buildings
San Diego	307,000 (51%)
Unincorporated County	186,000 (31%)
Chula Vista	58,000 (10%)
Encinitas	21,000 (3%)
La Mesa	15,000 (3%)
National City	10,000 (2%)
Imperial Beach	6,000 (1%)

Not included: Buildings located in the following jurisdictions in San Diego County were excluded from the analysis, as they are not located in SD Community Power territory (total of 238,261 buildings): Carlsbad, Coronado, Del Mar, El Cajon, Escondido, Lemon Grove, Oceanside, Poway, San Marcos, Santee, Solana Beach, Vista, as well as tribal lands.

Additional detail on overarching methodology can be found on Appendix Page 41-47.

Jurisdictions

Non-SDCP

SDCP
- CHULA VISTA
- ENCINITAS
- IMPERIAL BEACH
- LA MESA
- NATIONAL CITY
- S.D. COUNTY
- SAN DIEGO

Encinitas

Unincorporated San Diego County

San Diego

La Mesa

National City

Chula Vista

Imperial Beach

City of San Diego and communities in unincorporated San Diego County make up 82% of buildings in SD Community Power territory.

Sources: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

0   2.75   5.5   11 Miles

Technical Indicators | Buildings Per Parcel

It is most common for a tax parcel to have one building, indicating a singular owner.

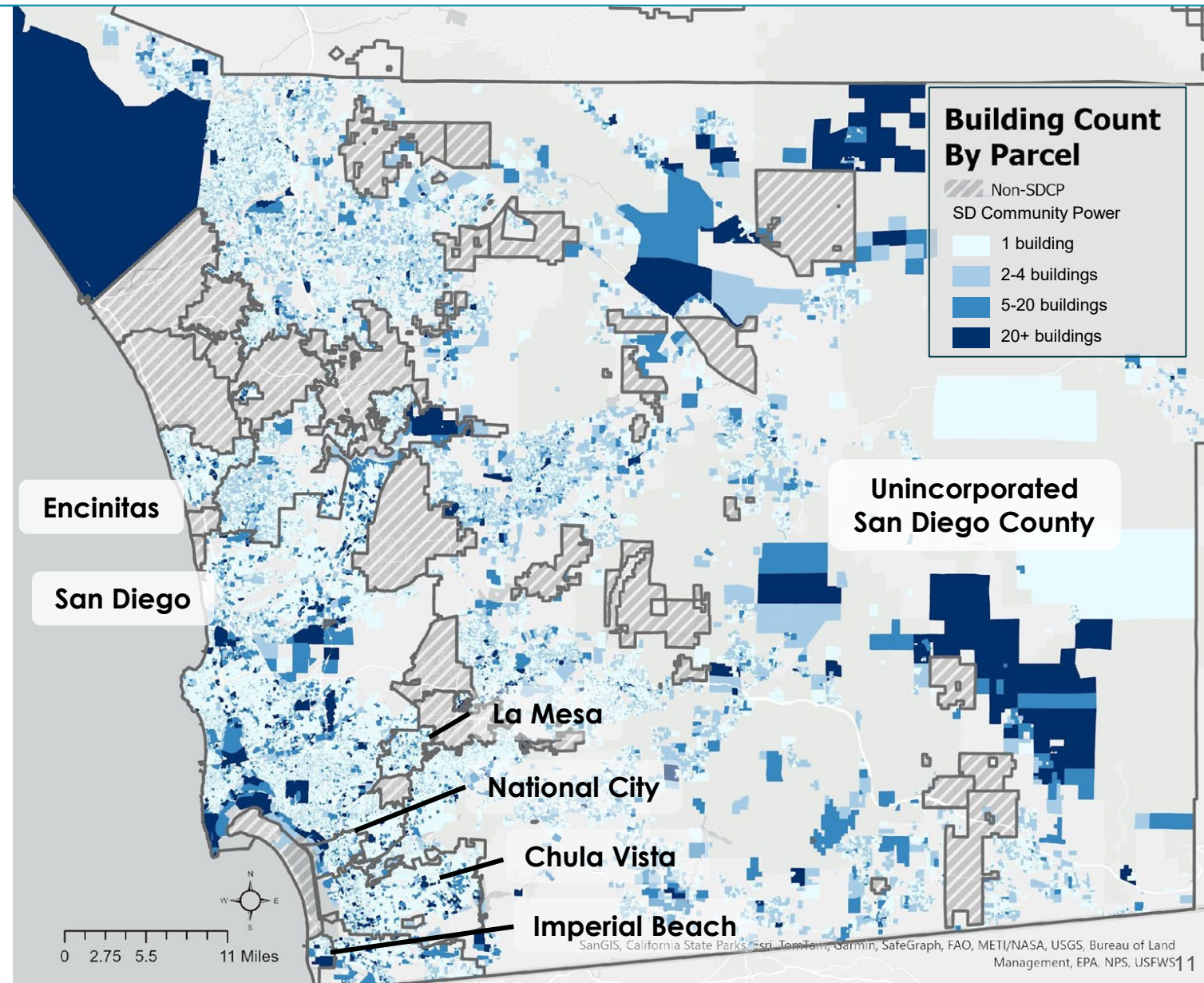However 15% may have multiple buildings.* This may indicate:

- Single family homes with Accessory Dwelling Units (ADUs)

- Campuses

- Mobile or manufactured home parks

- Parcels with multiple owners, such as condominiums and co-operatives.

Although a smaller portion, these ownership structures may require unique approaches in coordinating and implementing retrofits.**

*See Appendix Page 48 for individual examples illustrating parcels versus buildings versus units. See Page 21-22 for more information on mobile and manufactured homes and Page 23 for condominium and co-operatives considerations.
**In addition, these unique instances should also be considered when determining policy threshold definitions for clarity on parcel- versus building-specific characteristics.

Building Count By Parcel

- Non-SDCP
- SD Community Power
- 1 building
- 2-4 buildings
- 5-20 buildings
- 20+ buildings

Encinitas

San Diego

Unincorporated San Diego County

La Mesa

National City

Chula Vista

Imperial Beach

SanGIS, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

0 2.75 5.5   11 Miles

Technical Indicators | Building Typologies

To create a shared language on building categories, the project team developed building typologies specific to the San Diego region. These typologies will help inform common building decarbonization retrofit strategies by grouping buildings that are likely to have similar systems and equipment.

The project team developed 15 building typologies, including six residential and six commercial typologies, which the team grouped based on common use types, size, and ownership structures.

SD Community Power Building Typologies

Commercial: General
Commercial: Office
Commercial: Public Assembly
Commercial: Retail
Commercial: Hospitals, Labs & Medical Offices
Commercial: Hotels & Motels

Residential: Single Family Homes
Residential: Manufactured Homes
Residential: 2-4 Unit Homes
Residential: Multifamily Housing (5+ Units)
Residential: Condos & Co-Ops
Residential: Mixed Use

Public Ownership
Other
Unknown

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Technical Indicators | Building Typologies (Cont.)

The more than 600,000 buildings in SD Community Power territory make up a total of 1.8 billion square feet of built space.

The **most common building type is single family homes**, representing 71% of buildings and 46% of built square footage of SD Community Power territory building stock.

Commercial Typologies
- 15,173 buildings
- 187 million square feet

Residential Typologies
- 544,697 buildings
- 1.3 billion square feet

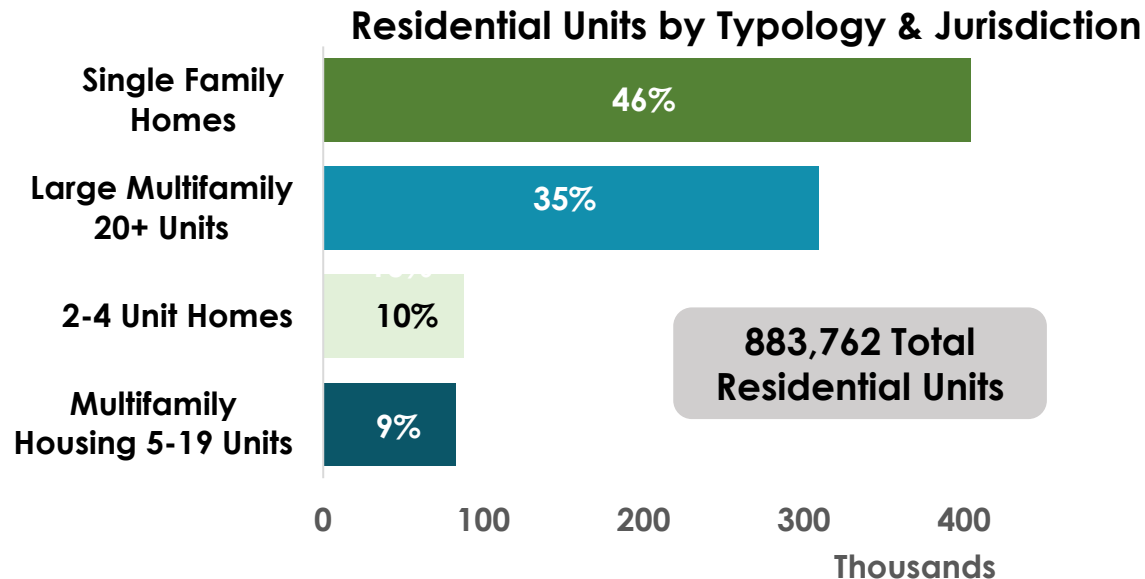**Remaining Typologies**
- 43,385 buildings
- 324 million square feet

Building Typology	Number of Buildings		Total Square Footage	
Commercial: General	2,796	0.5%	20 M	1%
Commercial: Office	7,478	1.3%	87 M	5%
Commercial: Public Assembly	1,376	0.2%	5 M	0.3%
Commercial: Retail	1,253	0.2%	27 M	2%
Commercial: Hospitals, Labs & Medical Offices	1,220	0.2%	20 M	1%
Commercial: Hotels & Motels	1,050	0.2%	28 M	2%
Residential: Single Family Homes	425,578	71%	830 M	46%
Residential: Manufactured Homes	20,767	3%	19 M	1%
Residential: 2-4 Unit Homes	42,152	7%	61 M	3%
Residential: Multifamily Housing (5+ Units)	21,965	4%	184 M	10%
Residential: Condos & Co-Ops	33,313	6%	171 M	10%
Residential: Mixed Use	922	0.2%	27 M	2%
Public Ownership	14,123	2%	93 M	5%
Other	17,780	3%	201 M	11%
Unknown	11,482	2%	30 M	2%
Total in SD Community Power Territory	**603,225**	*100%*	**1.80 billion**	*100%*

For more information on publicly owned buildings, see Page 24, and for a full breakdown of typologies by member agency, see Appendix Page 49-50.
"Other" includes use types such as agricultural, recreational, industrial, utility-related, or privately-owned institutional buildings.
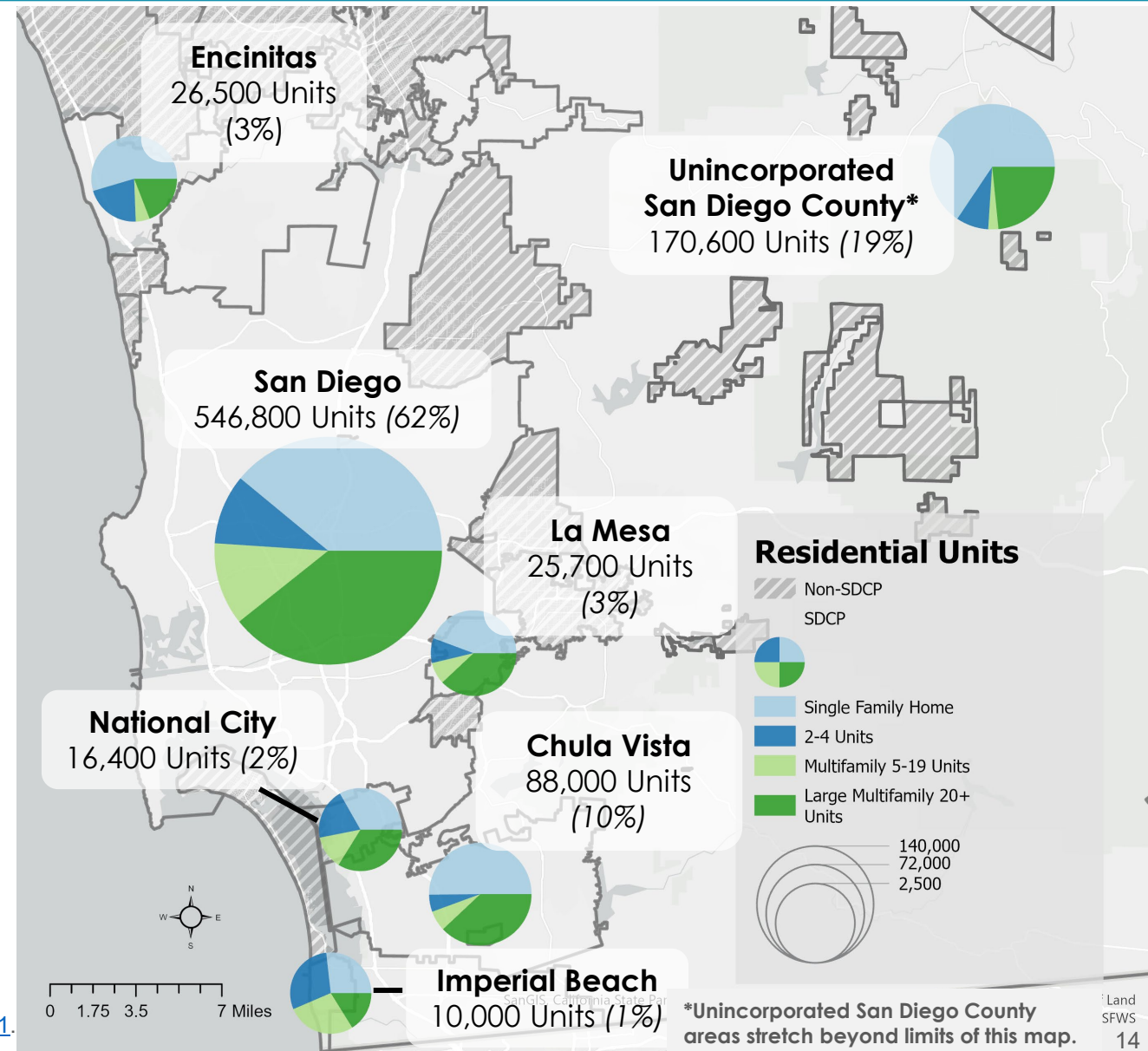
Technical Indicators | Residential Units

There are 883,000 residential units across 545,000 residential buildings in the SD Community Power territory.*

- Almost half of residential units (46%) are on single family parcels.

- Multifamily housing makes up 24% of residential units, while condominiums and co-operatives make up 16% of units.

- Unincorporated County, San Diego, and National City, as the largest jurisdictions have the highest number of multifamily units.

Residential Units by Typology & Jurisdiction

Single Family Homes	46%
Large Multifamily 20+ Units	35%
2-4 Unit Homes	10%
Multifamily Housing 5-19 Units	9%

883,762 Total Residential Units

0   100   200   300   400

Thousands

For a full breakdown of residential units by jurisdiction and typology, see Appendix Page 51.

Encinitas 26,500 Units (3%)

Unincorporated San Diego County* 170,600 Units *(19%)*

San Diego 546,800 Units *(62%)*

La Mesa 25,700 Units *(3%)*

National City 16,400 Units *(2%)*

Chula Vista 88,000 Units *(10%)*

Imperial Beach 10,000 Units *(1%)*

Residential Units

- Non-SDCP
- SDCP

- Single Family Home
- 2-4 Units
- Multifamily 5-19 Units
- Large Multifamily 20+ Units

140,000
72,000
2,500

0   1.75   3.5   7 Miles

SanGIS, California State Park

***Unincorporated San Diego County areas stretch beyond limits of this map.**
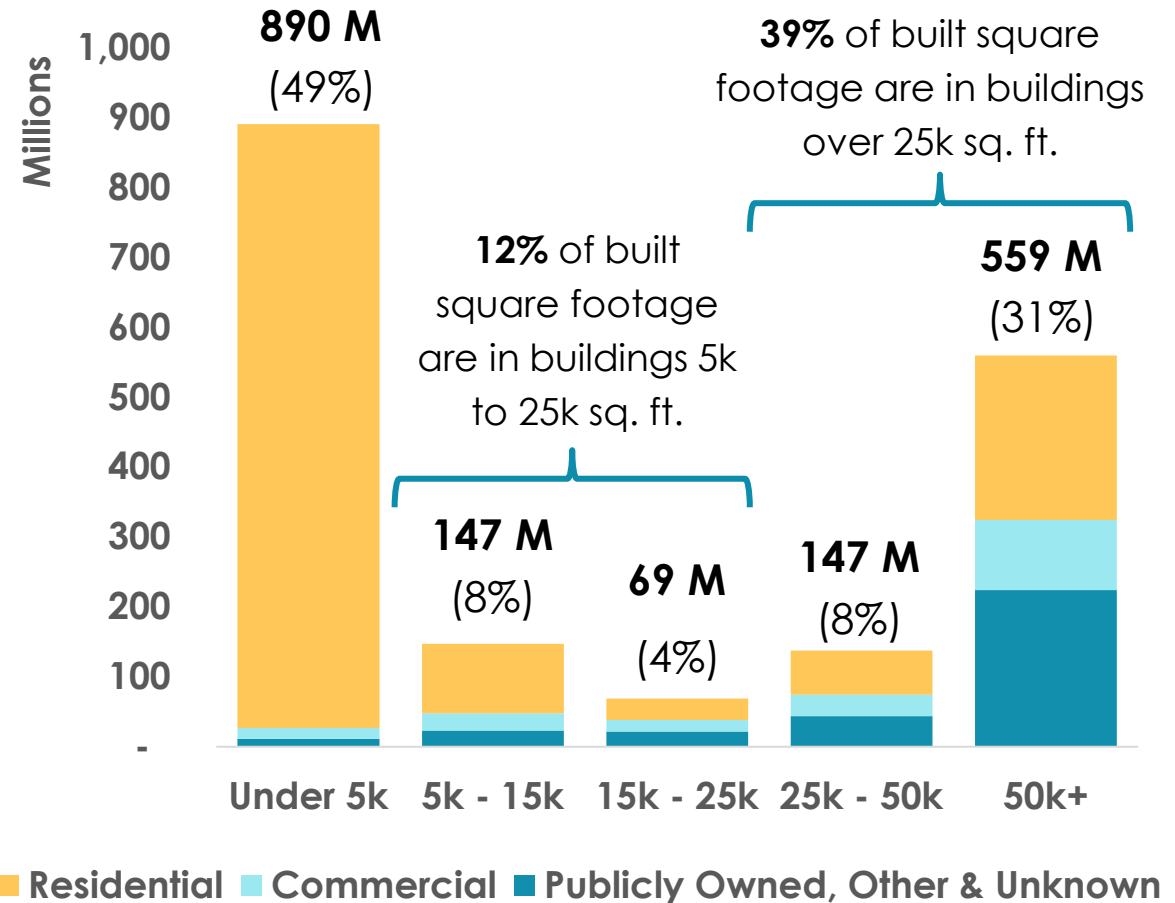
Land
SFWS
14

Technical Indicators | Building Size

Nearly half (49%) of total built square footage exists in smaller buildings (under 5,000 sq. ft.), and just over half (51%) exists in mid-size and large buildings (over 5,000 sq. ft.).

- Large buildings over 25,000 sq. ft. make up almost 40% of built square footage.

- Mid-sized buildings 5,000 to 25,000 sq. ft. make up 12% of built square footage.

Building size can be used as a proxy for energy usage. Better understanding how much square footage lies within larger buildings can uncover where programs and policies may focus for high energy and emissions savings.

Total Square Footage by Size Threshold*

39% of built square footage are in buildings over 25k sq. ft.

890 M (49%)

12% of built square footage are in buildings 5k to 25k sq. ft.

559 M (31%)

147 M (8%)

69 M (4%)

147 M (8%)

Millions

1,000 / 900 / 800 / 700 / 600 / 500 / 400 / 300 / 200 / 100 / -

Under 5k | 5k - 15k | 15k - 25k | 25k - 50k | 50k+

■ Residential ■ Commercial ■ Publicly Owned, Other & Unknown

The selected size classes align with typical size thresholds of building decarbonization policies across cities, such as benchmarking or building performance requirements.

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Technical Indicators | Building Vintage

Building vintage, or year built, can help identify buildings that may have critical retrofit and/or deferred maintenance needs, such as health and safety improvements, older fossil fuel-based systems, outdated electric wiring and HVAC distribution systems, and/or poor envelope performance. For buildings that serve low- and moderate-income households that have been historically disinvested, these needs may be significantly greater.

- **Almost half of buildings in SD Community Power territory (45%) were built before 1978**, the year in which an energy code went into effect in California. This may indicate the presence of outdated wiring and insufficient electric panel capacity, which are critical to update for electrification.

- **Only 7% of buildings were built after 2005**, after which buildings are more likely to have more modernized systems, high-performing envelopes, and need less significant repairs before electrifying.
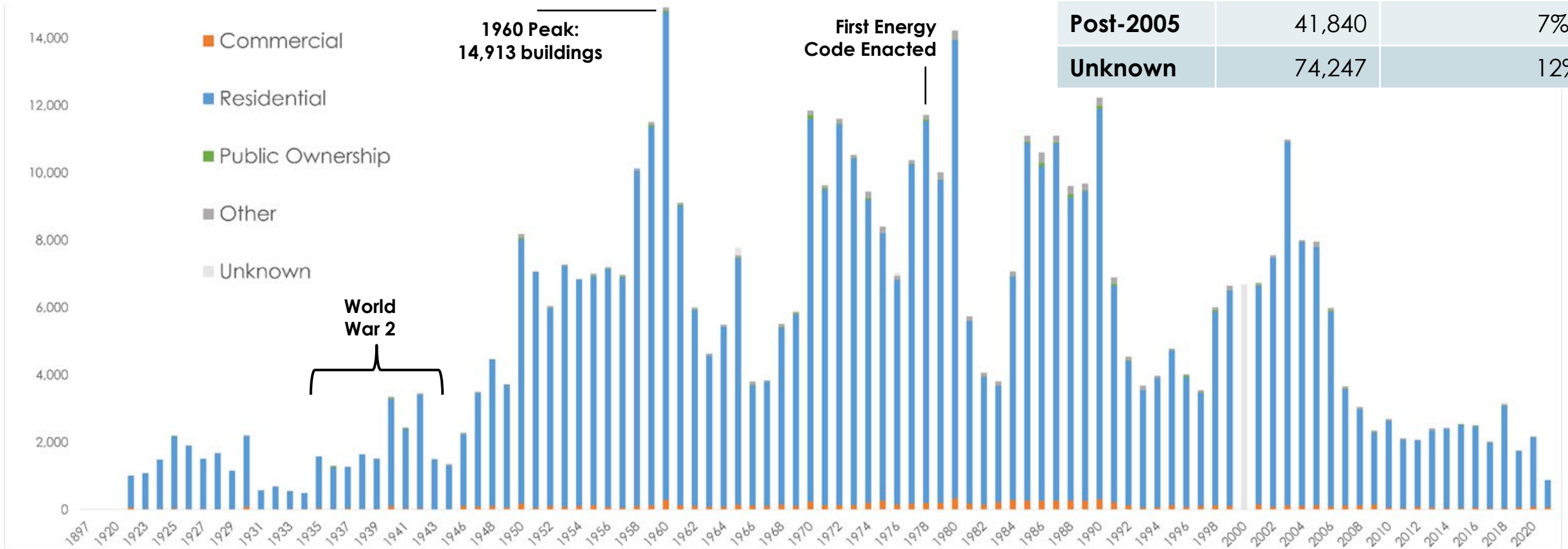
Use Type	Number of Buildings by Typology and Vintage										Total Buildings
	Pre-1978		**1978 – 1991**		**1992 – 2005**		**Post-2005**		**Unknown**		
Commercial	4,895	1%	3,430	<1%	1,522	<1%	63	<1%	1,399	<1%	12,394
Residential	265,153	44%	121,144	20%	82,166	13%	39,862	6%	9,521	2%	517,828
Public Ownership	672	<1%	515	<1%	191	<1%	136	<1%	9,607	2%	111,21
Other	2,973	<1%	2,789	<1%	1,248	<1%	610	<1%	3,627	<1%	11,247
Unknown	449	<1%	38	<1%	0	0%	84	<1%	50,093	8%	50,664
Total Buildings	274,124	45%	127,916	21%	85,128	14%	41,840	7%	74,247	12%	603,255

Technical Indicators | Building Vintage (Cont.)

Vintage	Number of Buildings	Percentage of SD Community Power Territory
Pre-1978	274,124	45%
1978-1991	127,916	21%
1992-2005	85,128	14%
Post-2005	41,840	7%
Unknown	74,247	12%

The majority of buildings in SD Community Power territory were built between 1950 and 1990, with the highest concentrations built in the years 1960 (14,913 buildings) and 1980 (14,227 buildings).

Legend:
- Commercial
- Residential
- Public Ownership
- Other
- Unknown

1960 Peak: 14,913 buildings

First Energy Code Enacted

World War 2

Note: Tax assessor data only had two-digit building vintage information. Assumptions were built to extrapolate this information and was supplemented with state benchmarking reported data. The year 2000 was artificially high, likely reflecting null values misappropriated to the year. Data for the year 2000 was therefore based on the median of the preceding and following years' values. For additional analysis, see Appendix Page 52.

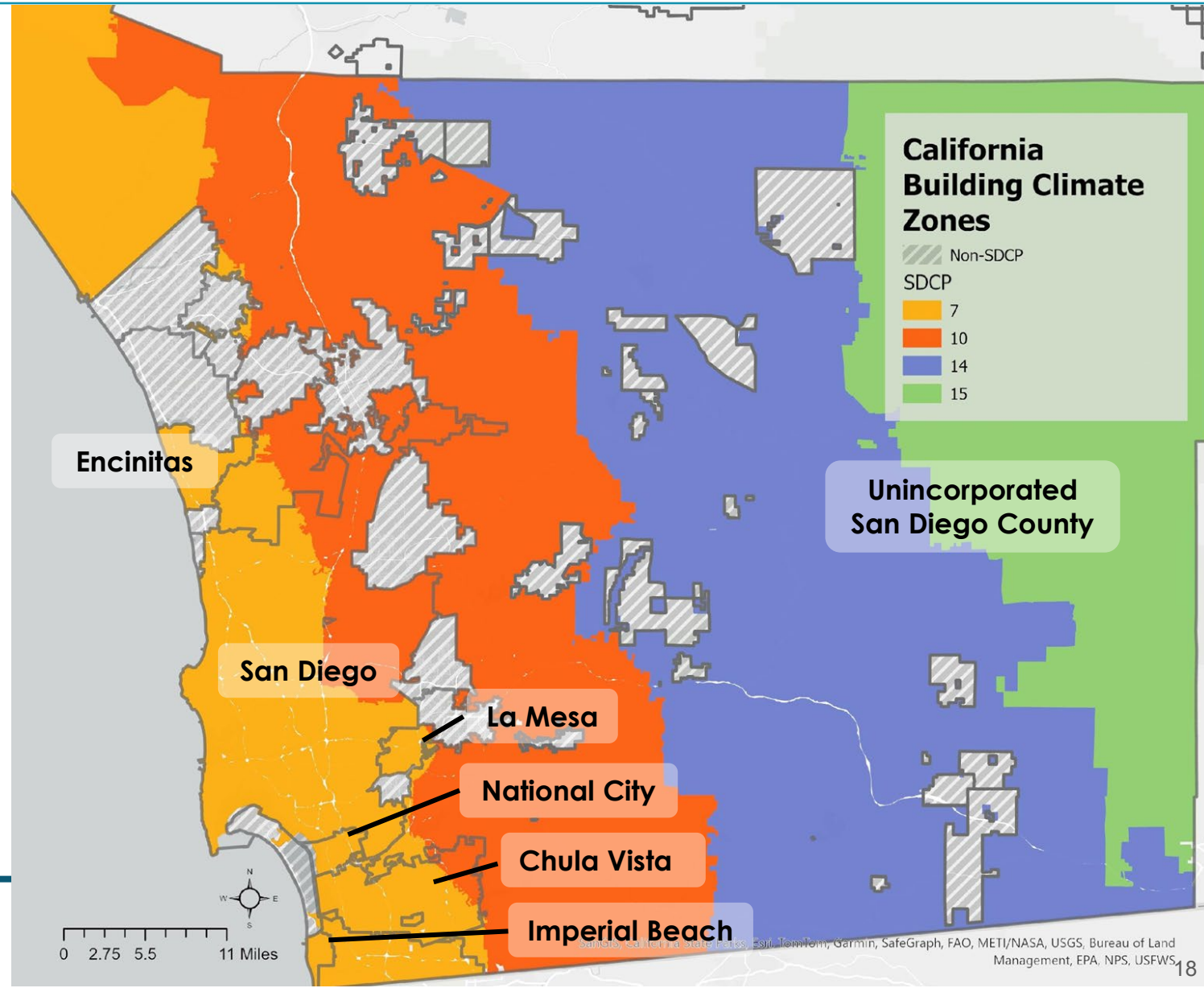BEI Building Electrification Institute

Technical Indicators | Climate Zone

There are 4 major climate zones in SD Community Power territory: Climate Zones 7, 10, 14, and 15.

- Inland climate zones (10, 14 & 15) are significantly hotter and dryer necessitating potential envelope improvements and cooling.

- In climate zone 7, a much cooler coastal region with less demand for either heating or cooling. Water heating may be a more cost-effective electrification measure in these

Climate Zone	Total number of buildings
7	398,699 (66%)
10	185,253 (31%)
14	15,591 (3%)
15	3,712 (1%)

California Building Climate Zones

Non-SDCP

SDCP
- 7
- 10
- 14
- 15

Encinitas

Unincorporated San Diego County

San Diego

La Mesa

National City

Chula Vista

Imperial Beach

0   2.75   5.5   11 Miles

County, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

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Ownership & Decision-Making Indicators

Ownership & Decision-Making Indicators

Building ownership structures can inform key barriers and opportunities a building may face when decarbonizing.

The following building types were specifically identified as likely needing specialized outreach and tailored technical assistance. While they are smaller portions of the overall SD Community Power building stock, this targeted support will be critical for them to access public programs and successfully navigate the retrofit or decarbonization process.

Mobile Homes and Manufactured Home Parks

- 20,767 buildings (3% of SD Community Power territory)
- 19 million square feet (1%)
- 26,233 residential units (3%)

Condominiums & Co-Operatives

- 33,313 buildings (6%)
- 171 million square feet (10%)
- 140,973 residential units (16%)

Publicly Owned Buildings

- 14,123 buildings (2%)
- 93 million square feet (5%)
- 3,667 residential units (<1%)

While not assessed in this analysis due to data limitations, **affordable housing (both regulated and unregulated)** will need significant technical and financial assistance to decarbonize, as owners and managers must navigate limited resources as well as a complex ecosystem of funding sources, regulations, and capital improvement cycles.

Ownership | Mobile & Manufactured Homes

There are almost 21,000 manufactured and mobile homes in SD Community Power territory, approximately 4% of buildings. These homes are often located on a single parcel with dozens to hundreds of homes.

- Only 13% were built before 1976, when the federal government began regulating them and applying energy efficiency standards.

- Almost 13,500 (65% of typology) mobile homes and manufactured homes are located in unincorporated San Diego County.

- On average, there are 8 homes on these parcels, with the average higher in San Diego and Chula Vista.

- Mobile and manufactured homes often house low- to moderate-income earners, and therefore may need additional programmatic support to electrify.*

Mobile & Manufactured Homes by Jurisdiction				
Jurisdiction	**Number of Buildings**	*% of Typology*	**Number of Parcels**	*% of Typology*
Chula Vista	2,831	*14%*	79	*3%*
Encinitas	486	*2%*	18	*<1%*
Imperial Beach	24	*<1%*	3	*<1%*
La Mesa	95	*<1%*	24	*<1%*
National City	208	*1%*	19	*<1%*
San Diego	3,692	*18%*	126	*4%*
Unincorporated County areas	13,431	*65%*	2,764	*91%*
Total	**20,767**			**3,033**

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Mobile & Manufacture Home Considerations

Mobile homes are regulated by the federal government.

- Local city government building policies often do not apply to mobile and manufactured homes.
- The U.S Department of Housing and Urban Development (HUD) began regulating the design of mobile and manufactured homes in 1976.

The technology to decarbonize these homes is available, but major barriers remain.

- The U.S. Department of Energy recommends energy efficiency upgrades including insulation improvements, roof and window replacements, and whole home weatherization.
- Space constraints and HUD permitting continue to add a layer of complexity to installing heat pump technology in these homes, but opportunities to electrify water heaters are available.*

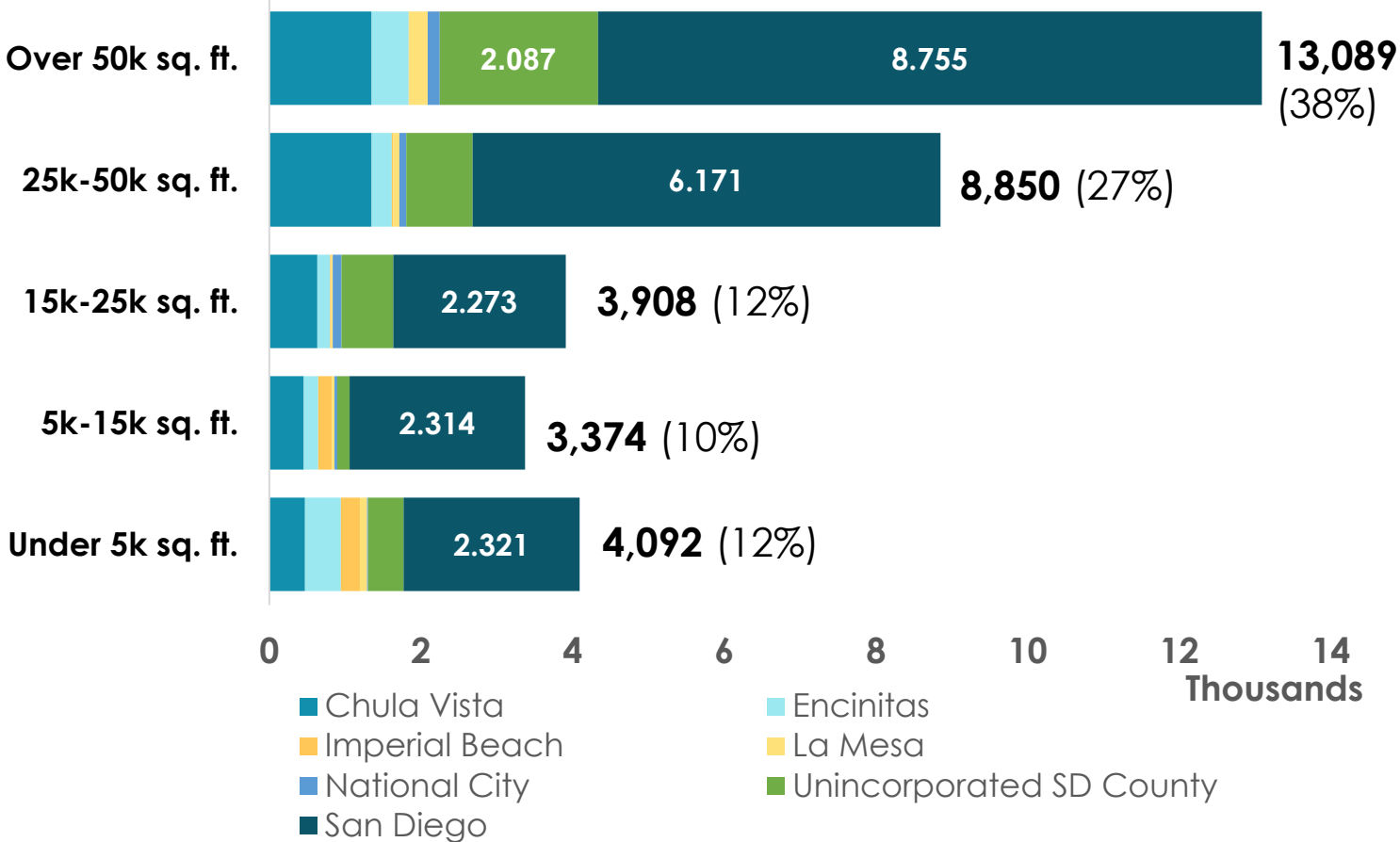**Additional funding opportunities may be available for this typology.**

- This typology may have unique funding opportunities available, such as the California Energy Commission's Equitable Building Decarbonization program carves out 5% of the program funding for mobile homes.**

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*Innovative technologies, such as the E-8 120 split heat pump water heater (HPWH) from Nyle and the AO Smith 120V Voltex 26" HPWH may be suitable replacements for gas equipment in mobile homes.
**Based on CEC Program Guidelines as of March 2024.

Ownership | Condominiums & Co-Operatives

Condominiums and co-operatives ("co-ops") are buildings with shared ownership of the building or complex.

- **There are 33,000 condos and co-ops in SD Community Power territory**. The majority are located in San Diego, unincorporated County, and Chula Vista.

- **Sixty-five percent of condos are in buildings over 25,000 square feet.**

- These buildings often have common areas with shared systems require **tailored owner engagement efforts** to identify decision-makers (such as a homeowners' association), build consensus, and overcome barriers to retrofits.

Number of Condo & Co-Op Buildings by Size and Jurisdiction

Size	Unincorporated SD County	San Diego	Total
Over 50k sq. ft.	2.087	8.755	**13,089** (38%)
25k-50k sq. ft.		6.171	**8,850** (27%)
15k-25k sq. ft.		2.273	**3,908** (12%)
5k-15k sq. ft.		2.314	**3,374** (10%)
Under 5k sq. ft.		2.321	**4,092** (12%)

Legend:
- Chula Vista
- Encinitas
- Imperial Beach
- La Mesa
- National City
- Unincorporated SD County
- San Diego

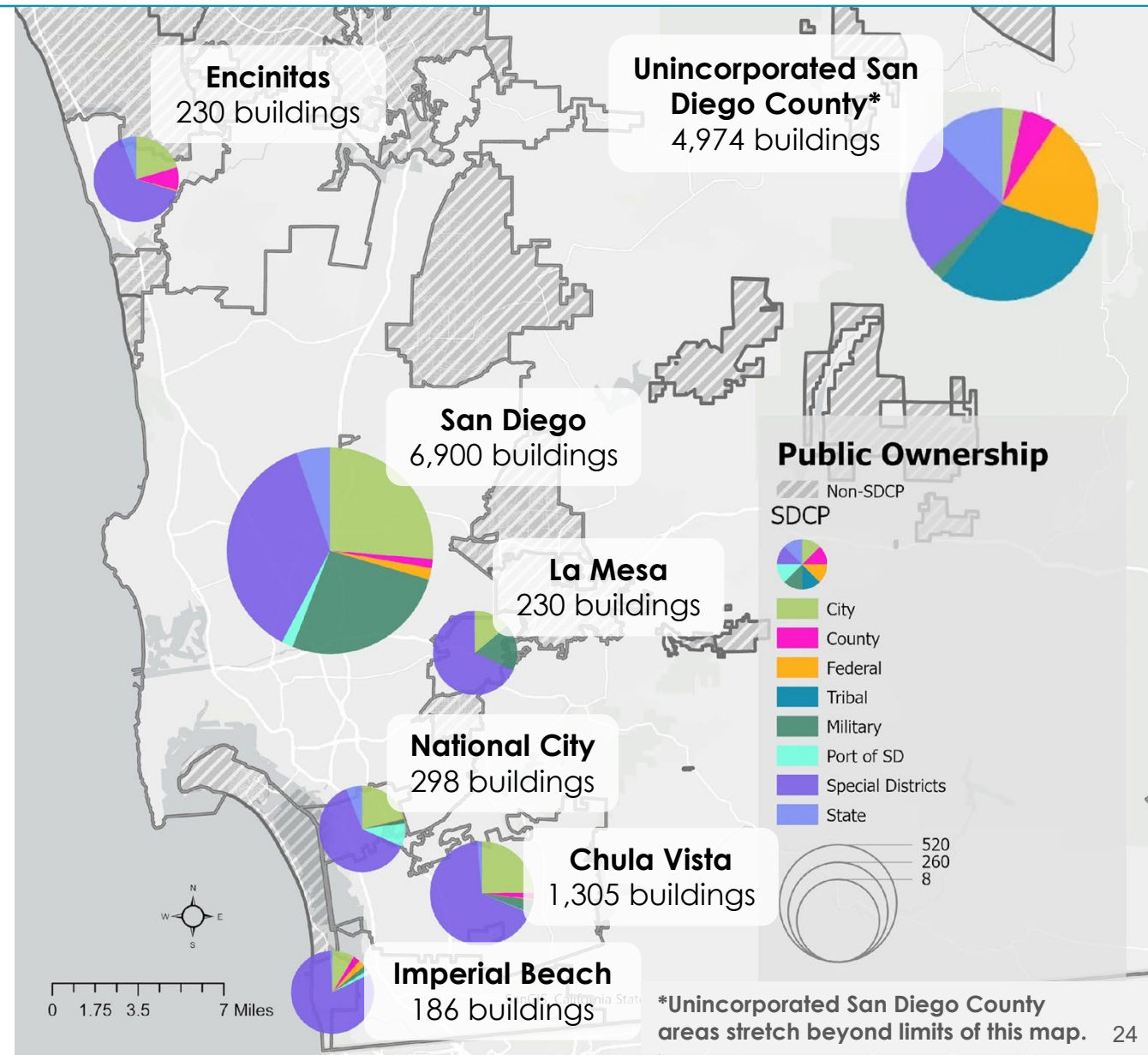(x-axis: 0, 2, 4, 6, 8, 10, 12, 14 Thousands)

Ownership | Public Ownership

There are 14,123 publicly owned buildings (2% of SD Community Power territory), making up 88 million square feet (5%).

▪ **The most common public owner types are local governments, the U.S. military, and special districts** (i.e., school districts).

▪ **Public entities could be great partners to lead by example on decarbonization; however, they may also face barriers** such as funding gaps, additional regulation, and coordination and decision-making challenges.

Public Owner Type	Number of Buildings	% of Typology
City	2,572	18%
County	575	4%
Federal	1,611	11%
Indian Reservation	19	<1%
Military	2,029	14%
Port of San Diego	154	1%
Special Districts	5,839	41%
State	1,324	9%
Total		**14,123**

Encinitas
230 buildings

Unincorporated San Diego County*
4,974 buildings

San Diego
6,900 buildings

La Mesa
230 buildings

National City
298 buildings

Chula Vista
1,305 buildings

Imperial Beach
186 buildings

Public Ownership

Non-SDCP
SDCP

- City
- County
- Federal
- Tribal
- Military
- Port of SD
- Special Districts
- State

520
260
8

0   1.75   3.5   7 Miles

*Unincorporated San Diego County areas stretch beyond limits of this map.

Ownership | Affordable Housing

Decarbonization retrofits can bring clean air, comfort, and efficient cooling benefits to all homes in SD Community Power territory. However, it is critical to consider how decarbonization retrofits may impact housing and utility costs, particularly in regulated and unregulated affordable housing.

At BEI, we use the term **"affordable housing"** to mean any housing in which all-in costs fit within a household's budget, and tenants are not forced to make choices between other critical needs.

This can include both:

- **Regulated Affordable Housing**, including subsidized or public housing, rental assistance or rent-controlled housing

- **Unregulated Affordable Housing**, also known as "Naturally Occurring Affordable Housing", which is affordable to existing residents but is not subject to regulations restricting rents or incomes.

Data on regulated affordable housing is often managed at the City level, and unregulated affordable housing may take additional layers of analysis to define and identify. Analysis of this key sector was therefore not included in this Building & Housing Stock Analysis. However, it is critical for partners to gather this data to inform program design and implementation.

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Ownership | Affordable Housing (Cont.)

Energy program implementers should work closely with housing agencies, advocates, and policy experts to ensure that retrofits improve housing and energy affordability for vulnerable communities.

These partners have an opportunity to design programs based on community feedback that could include but are not limited to:

- **Technical assistance** to plan for decarbonization, such as audits, plans that accommodate capital improvement timelines and incentive stacking assistance

- **Incentive cost coverage or equitable financing products** for buildings housing low-income tenants, including flexibility for health & safety measures

- **Prioritization of measures that lower utility bills** and coordination with bill assistance programs

- **Affordability agreements** attached to incentives that may limit pass-through costs

- **Complementary tenant protection** policies and enforcement efforts by collaborating with local governments who often have the authority to enact these policies

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Social Vulnerability Indicators

Social Vulnerability Indicators

Social vulnerability indicators help illuminate who the occupants of the buildings are across SD Community Power's territory. These indicators can reveal where priority populations who could benefit the most from housing retrofits live but have the least resources to fund upgrades.

The project team analyzed the following social vulnerability indicators for SD Community Power territory:

- SD Community Power Communities of Concern
- Justice 40 Communities
- Median Income
- Income Categories

Social Vulnerability Indicators | Communities of Concern

"Communities of Concern" is a term developed by local partners to refer to communities who face higher socioeconomic and climate vulnerability risks and impacts.

The SD Community Power Plan defined SD Community Power Communities of Concern to include:

- California Climate Investment (CCI) Priority Populations*

- City of Chula Vista Communities of Concern

- City of San Diego Communities of Concern

Buildings in SD Community Power's Communities of Concern (COC)**

Jurisdiction	Chula Vista COC	San Diego COC	CCI Priority Populations	SD Community Power COC
Chula Vista	9,261		28,216	28,216
Encinitas			2,002	2,002
Imperial Beach			5,919	5,919
La Mesa			13,891	13,891
National City			9,796	9,796
San Diego		71,880	137,129	146,112
Unincorporated County			94,349	94,349
TOTAL	**9,261**	**71,880**	**291,302**	**300,285**

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Half (50%) of SD Community Power's buildings are in census tracts designated as Communities of Concern. This includes:

▪ 300,000 total buildings (45% of territory-wide buildings)

▪ 260,000 residential buildings with 493,000 residential units (56% of territory-wide units).

Over 90% of buildings in Imperial Beach, La Mesa, and National City are in census tracts considered Communities of Concern.

Close to half of buildings in Chula Vista, San Diego, and the unincorporated County are in census tracts considered Communities of Concern.


Note: This map only depicts Communities of Concern identified in SD Community Power territory, following the definition identified in the Community Power Plan.

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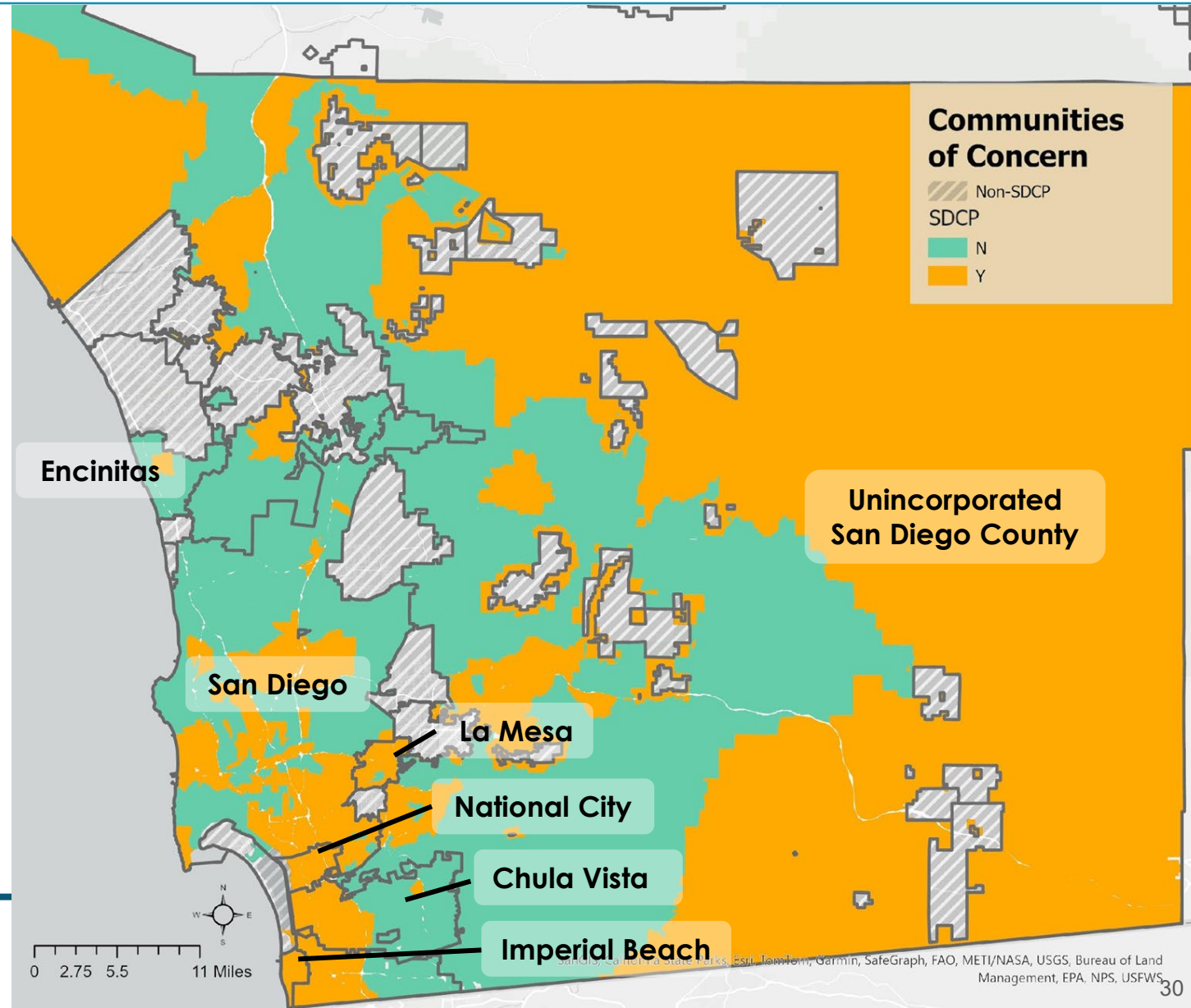
Social Vulnerability Indicators | Justice 40 Communities

Justice 40 (or "J40") Communities* is a federal designation to identify communities that experience higher social vulnerability based on a long history of racially discriminatory policies and practices.

J40 Communities represent approximately 25% of all SD Community Power census tracts. Almost 18% of buildings are located in J40 Communities.

Jurisdiction	SD Community Power COC	J40 Communities
Chula Vista	57,850	12,368
Encinitas	2,002	--
Imperial Beach	5,919	3,187
La Mesa	13,891	272
National City	9,796	7,117
San Diego	137,129	44,832
Unincorporated County	94,349	26,847
TOTAL BUILDINGS	**320,936**	**94,423**
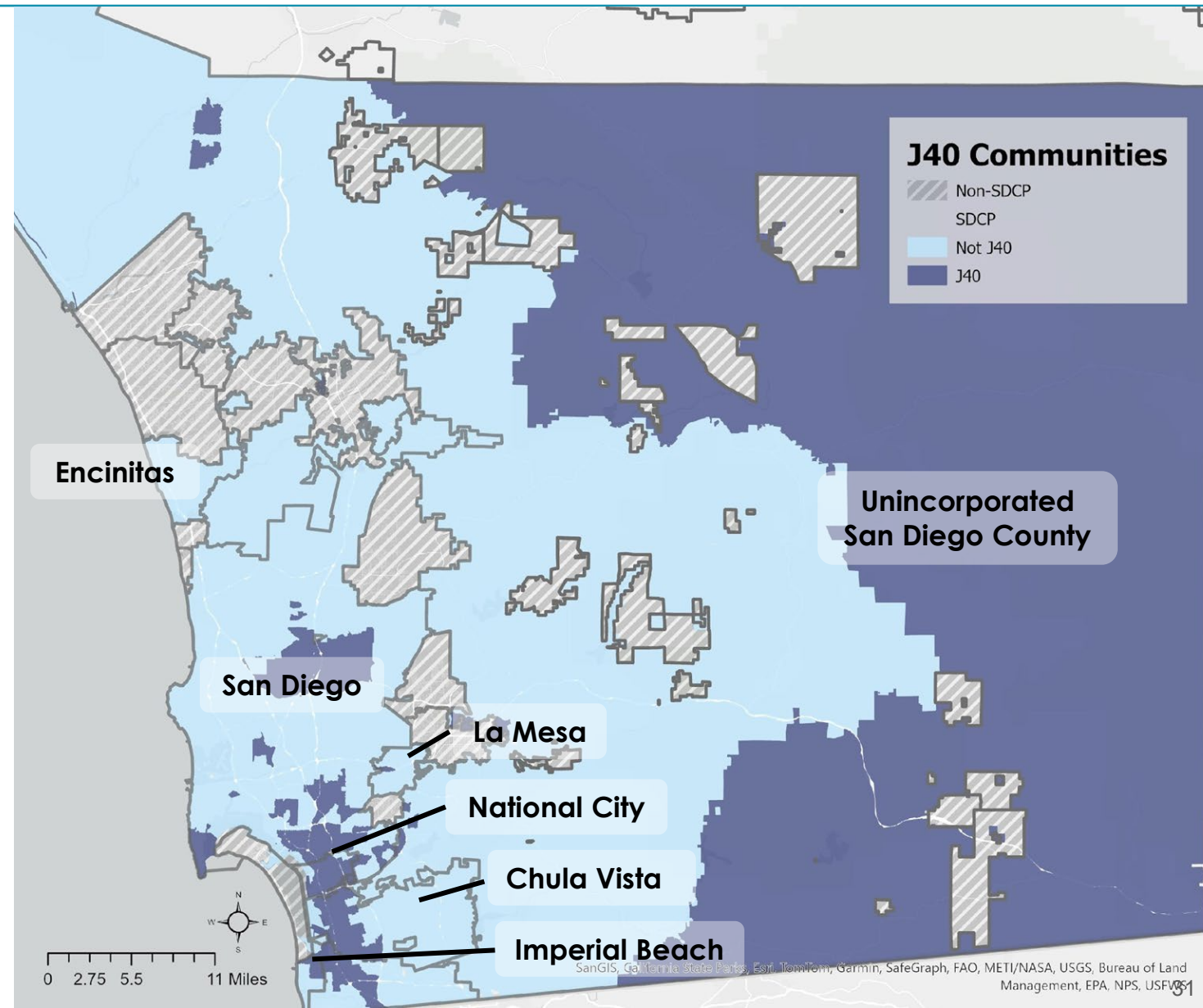
For full definition and more detail on the overlap between SD Community Power Communities of Concern and J40 Communities* see Appendix Page 53.

J40 Communities
- Non-SDCP
- SDCP
- Not J40
- J40

Encinitas

Unincorporated San Diego County

San Diego

La Mesa

National City

Chula Vista

Imperial Beach

0 2.75 5.5   11 Miles

SanGIS, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

Social Vulnerability Indicators | Income Categories

In SD Community Power territory, 83% of buildings are located in census tracts considered low- or moderate-income (LMI), with 59% in a very-low or low-income census tract.*

Very Low-Income (VLI)
- Below 50% AMI**
- Under $69k for a family of four

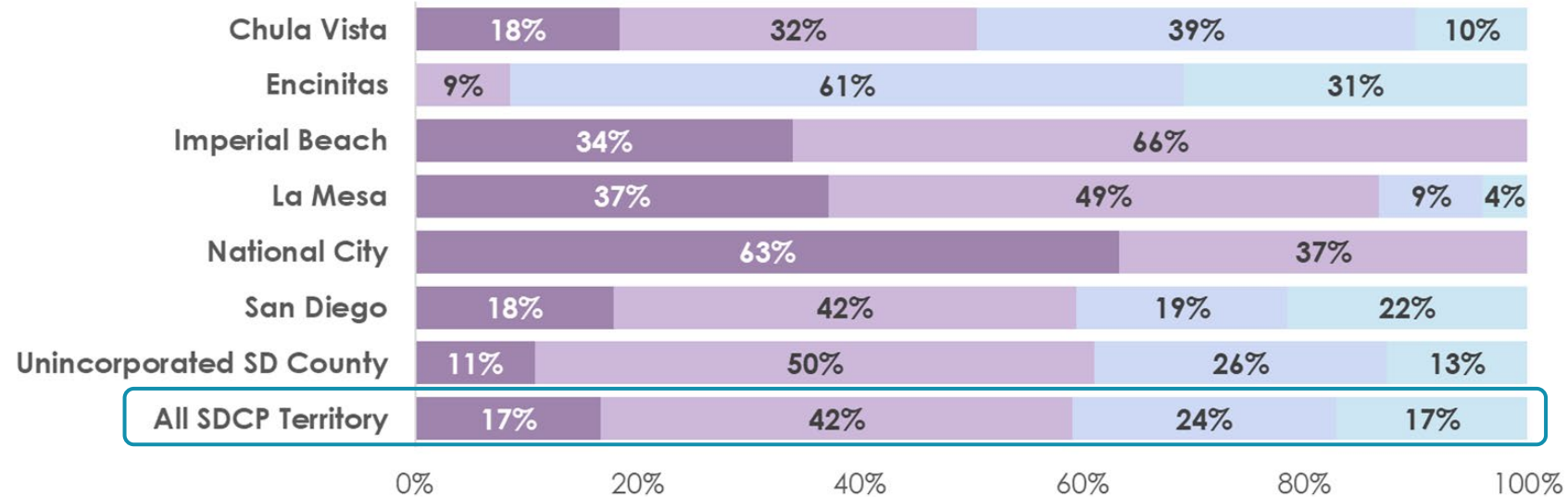**Low-Income (LI)**
- 50 - 80% AMI
- $69-110k for a family of four

Moderate-Income (MI)
- 80 - 120% AMI
- $110-140k for a family of four

Market Rate (MR)
- Over 120% AMI
- Over $140k for a family of four

The Area Median Income (AMI) for San Diego County for a family of four is $116,800.**

**Number of Residential Buildings
by Income Category and Member Agency**

Agency	VLI	LI	MI	MR
Chula Vista	18%	32%	39%	10%
Encinitas	9%	61%		31%
Imperial Beach	34%	66%		
La Mesa	37%	49%	9%	4%
National City	63%	37%		
San Diego	18%	42%	19%	22%
Unincorporated SD County	11%	50%	26%	13%
All SDCP Territory	17%	42%	24%	17%

Note: Analysis excludes mobile and manufactured homes

*The project team mapped income categories available by census tract onto all buildings located in each tract, which is a proxy to estimate the number of buildings in each income category and does not assume building-level accuracy.
**Income levels based on 2023 Income Limits defined by the California Department of Housing and Community Development for San Diego County, for a family of four.
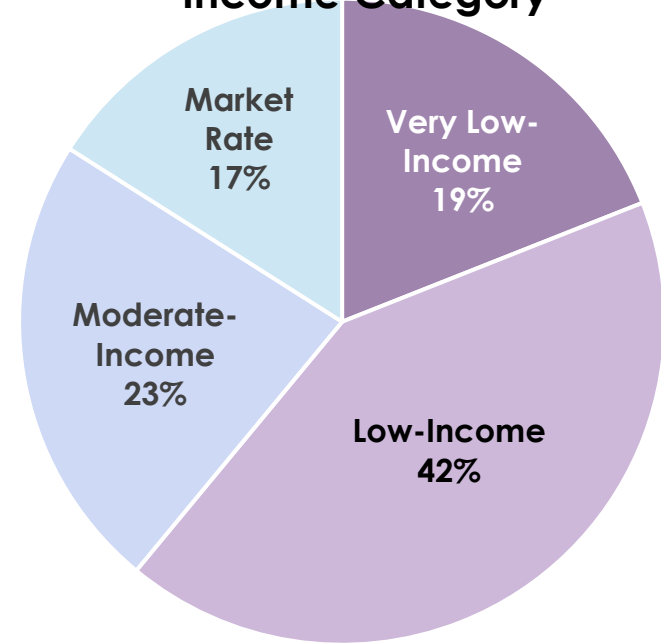
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Social Vulnerability Indicators | Income Categories (Cont.)

Almost two-thirds of buildings (370,000 buildings) in SD Community Power territory are located in a low- or very low-income census tract. A significant majority (84%, 509,000 buildings) are located in a low- or moderate-income census tract.

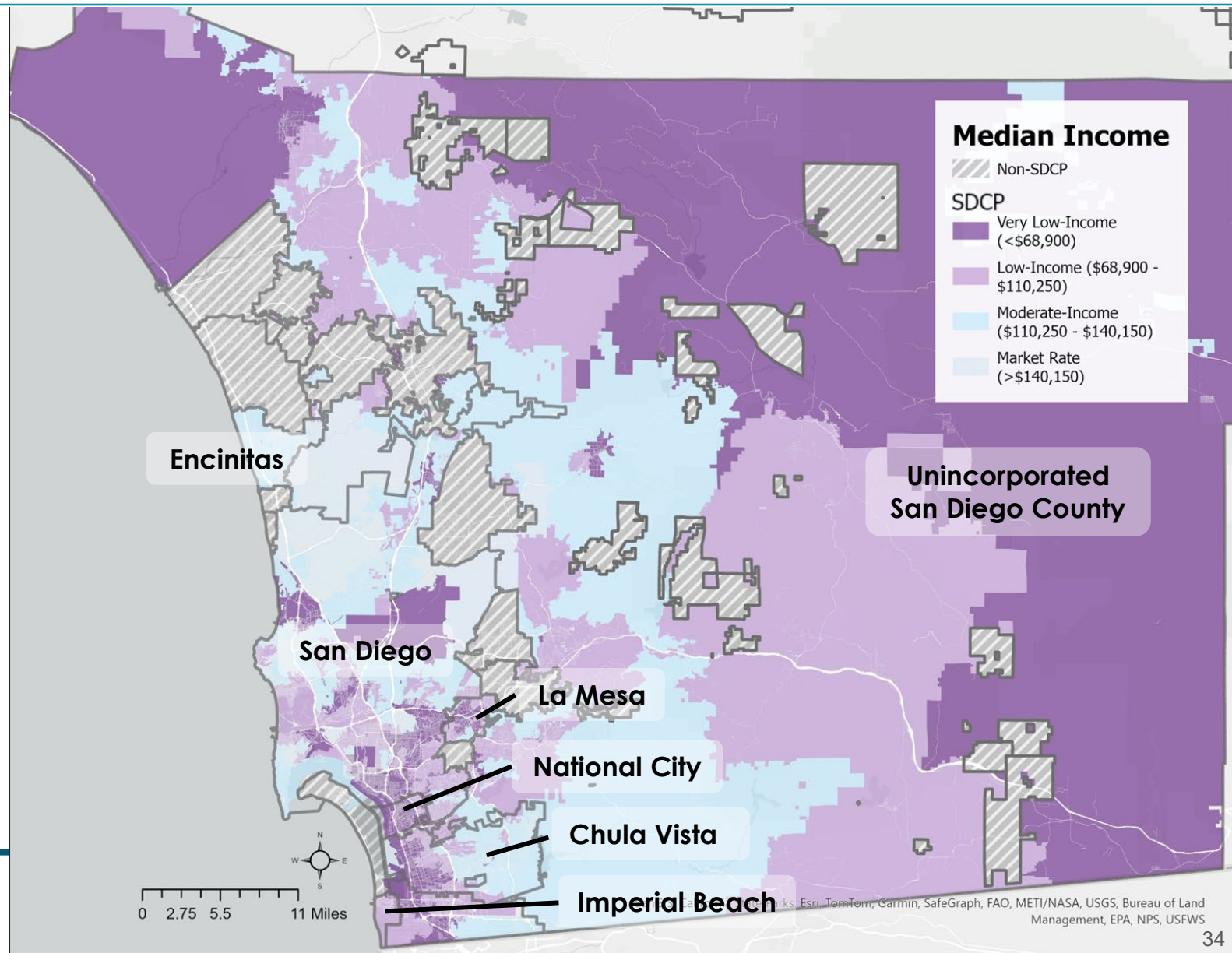| Jurisdiction	Very LI	LI	MI	MR	Grand Total
Chula Vista	13,349	17,656	21,478	5,367	57,850
Encinitas		1,790	12,308	6,487	20,585
Imperial Beach	1,988	3,931	--	--	5,919
La Mesa	5,973	7,411	1,413	587	15,384
National City	6,913	3,491	--	--	10,404
San Diego	59,727	126,941	58,455	61,694	306,817
Unincorporated County areas	29,025	91,265	46,045	19,961	186,296
All SD Community Power Territory	116,975	252,485	139,699	94,096	603,255

Number of Buildings in SD Community Power Territory by Income Category

Market Rate 17%
Very Low-Income 19%
Moderate-Income 23%
Low-Income 42%

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Median Income

▪ Very low-income communities are concentrated in the northern and eastern parts of unincorporated County areas, as well as along a corridor from the City of San Diego through La Mesa, National City, Chula Vista, and Imperial Beach.*

▪ There are no census tracts in National City or Imperial Beach that are market rate—all tracts are moderate-income, low-income, or very low-income.

▪ Market rate census tracts (those with a median household income over $140,000) are scattered throughout the region, with large swaths in the western portion of unincorporated County areas.

Median Income

Non-SDCP

SDCP
- Very Low-Income (<$68,900)
- Low-Income ($68,900 - $110,250)
- Moderate-Income ($110,250 - $140,150)
- Market Rate (>$140,150)

Encinitas

Unincorporated San Diego County

San Diego

La Mesa

National City

Chula Vista

Imperial Beach

Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

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Takeaways & Recommendations

Building & Housing Stock | Key Takeaways

There are over 600,000 buildings located in SD Community Power territory; the majority are located in the City of San Diego (51%) and unincorporated San Diego County (31%).

- **Residential buildings make up 91% of the building stock in SD Community Power's territory**.

  Single family homes make up 71% of buildings, with two-thirds in coastal areas and one-third inland, where cooling demand may be higher given the warmer inland climate.

  Multifamily buildings (with 5 or more units) make up only 4% of total buildings, but 24% of residential units, given the higher number of units in each building.

- **Approximately 61% of buildings are located in a very low- or low-income census tract and 23% are located in a moderate-income tract.** These buildings may need additional technical and financial support to decarbonize. **56% of buildings are located in an SD Community Power-defined Community of Concern.**

Building & Housing Stock | BEI Recommendations

SD Community Power and local jurisdictions could consider the following recommendations in upcoming program design and partnership-building opportunities.

- **Co-create community-centered programs that help the region equitably electrify buildings and achieve ambitious climate targets.**

  - **Co-design and iterate on solutions in close collaboration with community leaders and representatives from Communities of Concern (COC).** COCs face compounding impacts from historic disinvestment and climate change. To ensure that COCs are not left behind in the building decarbonization transition, public agencies must co-create solutions to overcome all barriers and ensure the benefits of this transition are equitably distributed.

  - **Strengthen partnerships and coordination with housing partners** to analyze the needs of affordable housing, both regulated and unregulated. Identify opportunities to accelerate comprehensive building retrofits that preserve and improve housing affordability, quality, and safety.

  - **Engage in culturally appropriate outreach** to share the potential benefits of electrification with the many diverse communities across SD Community Power's territory.

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Appendix

Appendix | Table of Contents

- **Technical Indicators Methodology**

- **Parcel, Building & Unit Example**

- **Typology Summary Tables**

- **Justice 40 Communities Overlap**

Technical Indicators | Methodology

Methodology

- **Base dataset**

- SD Community Power Territory designation

- Condo record rollup

- Number of Buildings

- Number of Units

- Building size

- Building Vintage

Base Dataset

- BEI uses tax assessor datasets as the backbone data for building stock analyses. Tax assessor data is designed for tax purposes, often based on ownership and plots of land ("parcels").

- For this analysis, the project team used the **County of San Diego's GIS parcel-level tax assessor dataset**. The following methodology was developed to adjust the data for the analysis needs.

Technical Indicators | Methodology

Methodology

- Base dataset

- **SD Community Power Territory designation**

- Condo record rollup

- Number of Buildings

- Number of Units

- Building size

- Building Vintage

SD Community Power Territory Designation

- SD Community Power territory was identified using a GIS layer of all local jurisdictions, marking the seven member agencies for all data pulled into the analysis.

- In addition, the California Climate Investments Priority Populations GIS layer was used to exclude tribal lands, given SD Community Power does not have jurisdiction in these areas.

Technical Indicators | Methodology

Methodology

- Base dataset

- SD Community Power Territory designation

- **Condo record rollup**

- Number of Buildings

- Number of Units

- Building size

- Building Vintage

Condo Record Rollup

- Tax assessor data has individual records for each unique owner within a condominium, despite potentially being located on the same parcel or in the same building.

- The project team rolled up these condo records, summarizing relevant data such as square footage and units, to create a dataset that has a single record of information per parcel.

Technical Indicators | Methodology

Methodology

- Base dataset

- SD Community Power Territory designation

- Condo record rollup

- **Number of Buildings**

- Number of Units

- Building size

- Building Vintage

Number of Buildings

- Tax assessor data is based on parcels. To estimate number of buildings on each parcel, a publicly available Microsoft satellite imagery dataset was mapped on to the parcel layer in GIS.*

- A building footprint count in the Microsoft data was used to estimate number of buildings on each parcel, excluding footprints under 600 sq. ft. to ensure garages and sheds were not counted.

*Number of Buildings is a count of building footprints based on satellite imagery.

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Technical Indicators | Methodology

Methodology

- Base dataset

- SD Community Power Territory designation

- Condo record rollup

- Number of Buildings

- **Number of Units**

- Building size

- Building Vintage

Number of Units

- San Diego County's tax assessor data includes residential and commercial number of units. However, because BEI has found in past research that commercial unit counts tend to be inaccurate, the project team did not use these counts for this analysis.* Therefore, unit counts were filtered to include building types only and the indicator refers to "Residential Units" only.

*Number of Residential Units is a field the County maintains that references the number of legal units.

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Technical Indicators | Methodology

Methodology

- Base dataset

- SD Community Power Territory designation

- Condo record rollup

- Number of Buildings

- Number of Units

- **Building size**

- Building Vintage

Building Size

- The project team relied on the livable square footage field of the tax assessor dataset. Although gross square footage is often used for decarbonization policy thresholds, livable square footage was the best available datapoint.

- The livable square footage field was limited to 5 digits, so building sizes listed as 99,999 sq. ft. were instead calculated by multiplying an assumption of 1,000 sq. ft. per unit, where unit counts were available and the resulting value was greater than 99,999 sq. ft.

- For remaining null fields, the Microsoft building footprints area was used.

Technical Indicators | Methodology

Methodology

- Base dataset

- SD Community Power
  Territory designation

- Condo record rollup

- Number of Buildings

- Number of Units

- Building size

- **Building Vintage**

Building Vintage

The Year Built field in the tax assessor dataset was limited to only two digits. The the project team made the following assumptions to estimate building vintage:

- Assumed values between "01"-"23" are 2001-2023 and values between "24"-"99" are 1924-1999.

- Added vintages, when available, to parcels with no Year Built information based on the state's benchmarking submissions dataset (AB 802).

- Given an unusually high number of parcels with 00 listed in the tax assessor Year Built field (likely from a tax assessor data error) values for the year 2000 were extrapolated based on the medians of 1999 and 2001 for each building typology. The remaining buildings with 00 were assumed to be unknown, although should be assumed to be older vintages (pre-1978), based on comparison with proportions pulled from statewide vintage datasets (see Slide 52).

Parcels, Buildings & Units | Example

To illustrate the difference between parcels, buildings, and units, see the following two examples:

- **Example 1**: A single commercial parcel with multiple buildings. The dataset is unable to determine the square footage of each individual building, but has the total built square footage on the parcel.

- **Example 2:** A single residential parcel with multiple buildings. The dataset is unable to determine the square footage or units of any individual building, but lists the total built square footage and total residential units on the parcel.

Example 1
Parcel No. 8539
Number of Buildings: 10
Total Parcel Sq. Ft.: 52,625 sq. ft.
Number of Residential Units: 0
Public Ownership: School District

Example 2
SD Community Power Jurisdiction: Unincorporated SD County (Fallbrook)
Parcel No. 746139
Number of Buildings: 6
Total Parcel Sq. Ft.: 26,994 sq. ft.
Number of Residential Units: 21

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Building Typologies Breakdown

Building Typology	Number of Buildings		Total Square Footage	
Commercial: General	2,796	0.5%	20 M	1%
Commercial: Office	7,478	1.3%	87 M	5%
Commercial: Public Assembly	1,376	0.2%	5 M	0.3%
Commercial: Retail	1,253	0.2%	27 M	2%
Commercial: Hospitals, Labs & Medical Offices	1,220	0.2%	20 M	1%
Commercial: Hotels & Motels	1,050	0.2%	28 M	2%
Residential: Single Family Homes	425,578	71%	830 M	46%
Residential: Manufactured Homes	20,767	3%	19 M	1%
Residential: 2-4 Unit Homes	42,152	7%	61 M	3%
Residential: Multifamily Housing (5+ Units)	21,965	4%	184 M	10%
Residential: Condos & Co-Ops	33,313	6%	171 M	10%
Residential: Mixed Use	922	0.2%	27 M	2%
Public Ownership	14,123	2%	93 M	5%
Other	17,780	3%	201 M	11%
Unknown	11,482	2%	30 M	2%
Total in SD Community Power Territory	603,225	100%	1.80 billion	100%

Building Typologies Breakdown by Jurisdiction

Building Typology	Chula Vista		Encinitas		Imperial Beach		La Mesa		National City		San Diego		Unincorporated SD County	
Commercial: General	207	<1%	145	1%	25	<1%	92	1%	146	1%	1,582	1%	599	<1%
Commercial: Office	563	1%	254	1%	81	1%	335	2%	270	3%	4,650	2%	1,325	1%
Commercial: Public Assembly	92	<1%	99	<1%	12	<1%	43	<1%	49	<1%	654	<1%	427	<1%
Commercial: Retail	143	<1%	91	<1%	8	<1%	58	<1%	47	<1%	743	<1%	163	<1%
Commercial: Hospitals, Labs & Medical Offices	131	<1%	52	<1%	6	<1%	107	1%	52	<1%	675	<1%	197	<1%
Commercial: Hotels & Motels	51	<1%	32	<1%	3	<1%	13	<1%	25	<1%	499	<1%	427	<1%
Residential: Single Family Homes	42,530	74%	15,249	74%	2,841	48%	11,683	76%	5,647	54%	212,380	69%	135,248	73%
Residential: Manufactured Homes	2,831	5%	486	2%	24	<1%	95	1%	208	2%	3,692	1%	13,431	7%
Residential: 2-4 Unit Homes	2,382	4%	1,636	8%	1,675	28%	1,148	7%	1,923	18%	26,568	9%	6,820	4%
Residential: Multifamily Housing (5+ Units)	2,203	4%	373	2%	458	8%	865	6%	733	7%	14,821	5%	2,512	1%
Residential: Condos & Co-Ops	4,254	7%	1,589	8%	466	8%	483	3%	412	4%	21,834	7%	4,275	2%
Residential: Mixed Use	54	<1%	25	<1%	28	<1%	31	<1%	15	<1%	681	<1%	88	<1%
Public Ownership	1,305	2%	230	1%	186	3%	230	1%	298	3%	6,900	2%	4,974	3%
Other	1,008	2%	303	1%	30	1%	156	1%	386	4%	6,328	2%	9,569	5%
Unknown	96	<1%	21	<1%	76	1%	45	<1%	193	2%	4,810	2%	6,241	3%
Total in SD Community Power Territory	57,850	100%	20,858	100%	5,919	100%	15,384	100%	10,404	100%	186,404	100%	306,817	100%

Residential Units | Totals by Jurisdiction

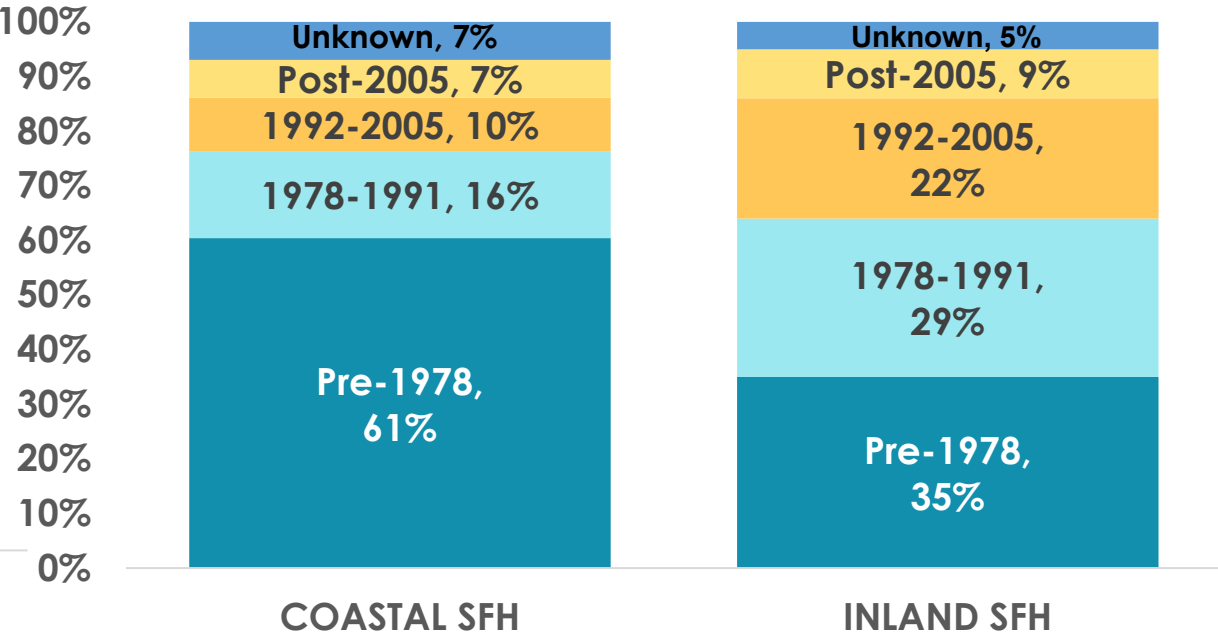| Building Typology	Chula Vista		Encinitas		Imperial Beach		La Mesa		National City		San Diego		Unincorporated SD County	
Residential: Single Family Homes	43,774	50%	15,985	60%	2,776	48%	11,279	44%	5,475	33%	215,772	39%	115,170	67%
Residential: Manufactured Homes	2,499	3%	828	3%	828	<1%	157	1%	267	2%	4,970	1%	17,509	10%
Residential: 2-4 Unit Homes	3,917	4%	2,943	11%	2,357	24%	2,055	8%	3,142	19%	45,411	8%	8,190	5%
Residential: Multifamily Housing (5+ Units)	21,421	24%	2,543	10%	3,172	32%	8,318	32%	6,147	38%	150,160	27%	17,533	10%
Residential: Condos & Co-Ops	15,271	17%	3,786	14%	1,514	15%	3,206	12%	1,113	7%	104,069	19%	12,014	7%
Residential: Mixed Use	940	1%	237	1%	149	1%	145	1%	204	1%	23,537	4%	137	0%
Public Ownership	76	0%	146	1%	0	0%	528	2%	4	0%	2,841	1%	72	0%
Total in SD Community Power Territory	87,898	100%	26,468	100%	9,971	100%	25,688	100%	16,352	100%	546,760	100%	170,625	100%

Building Vintage | Methodology

Given inaccuracies found in tax assessor vintage data, the project team compared the BHSA methodology to secondary data source—the state's Cost Effectiveness Explorer tool—to ensure general accuracy. The State's data could not be directly mapped to the building inventory, but single-family vintage ranges were compared proportionately below. On the left, see the state's tool data and on the right, the BHSA tax assessor adjusted data. For single family homes, the proportionate trends are consistent between these two data sources, and therefore the analysis team was confident in moving forward with the vintage methodology developed for the tax assessor data on the right.

California Cost-Effectiveness Explorer Tool Single Family Unit Breakdown

COASTAL SFH: Post-2005, 8%; 1992-2005, 11%; 1978-1991, 16%; Pre-1978, 66%
INLAND SFH: Post-2005, 11%; 1992-2005, 20%; 1978-1991, 31%; Pre-1978, 38%
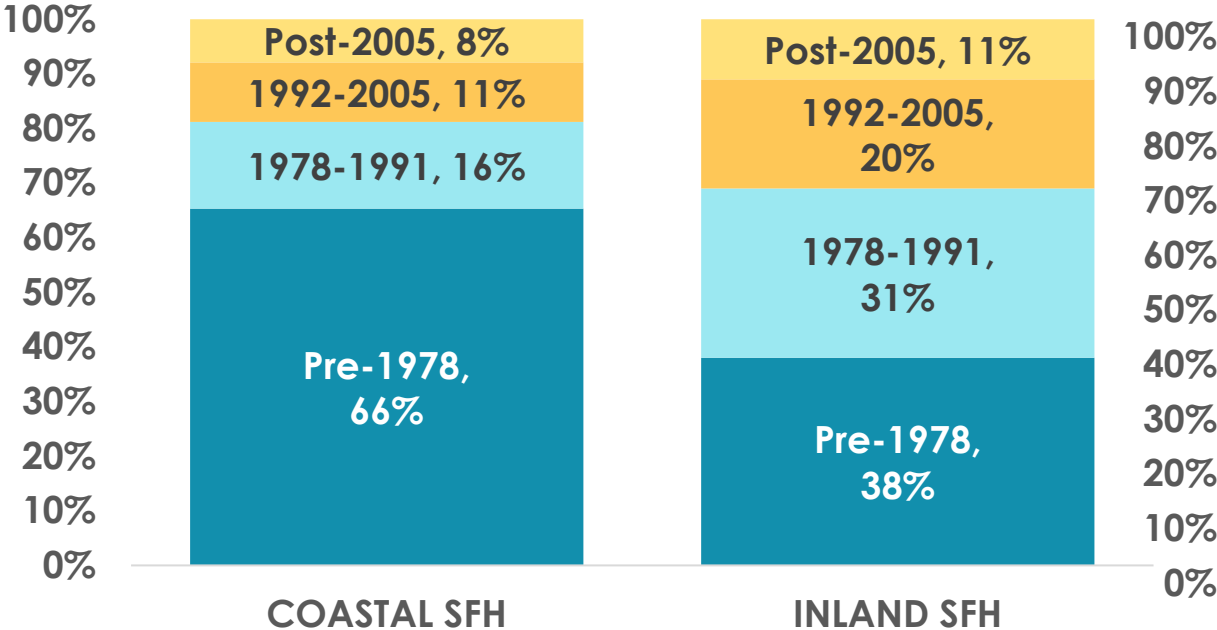
SD Community Power BHSA Single Family Unit Breakdown

COASTAL SFH: Unknown, 7%; Post-2005, 7%; 1992-2005, 10%; 1978-1991, 16%; Pre-1978, 61%
INLAND SFH: Unknown, 5%; Post-2005, 9%; 1992-2005, 22%; 1978-1991, 29%; Pre-1978, 35%

Justice 40 and COC Communities | Overlap

In SD Community Power territory, Justice 40 ("J40") communities* overlap with SD Community Power Communities of Concern significantly.

About 108,000 buildings (18%) are within both Justice 40 and Community of Concern designations.

- 2% of buildings (2,153 buildings) are located in census tracts designated <u>only</u> as J40 communities. These buildings are all located within the City of San Diego and unincorporated County.

- 34% of buildings (183,534 buildings) are within census tracts designated <u>only</u> as SD Community Power-defined Communities of Concern. The majority of these buildings are concentrated in the City of San Diego and unincorporated County.

Number of Buildings located in Justice40 and SD Community Power Communities of Concern			
SD Community Power Jurisdiction	**J40 Only**	**SD Community Power COC Only**	**Both J40 & SD Community Power COC**
Chula Vista	--	11,567	16,649
Imperial Beach	--	1,687	4,232
La Mesa	--	13,524	367
Encinitas	--	2,002	--
National City	--	1,447	8,349
San Diego	2,016	82,828	54,301
Unincorporated SD County	137	70,479	23,870
Total	**2,153**	**183,534**	**107,768**

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