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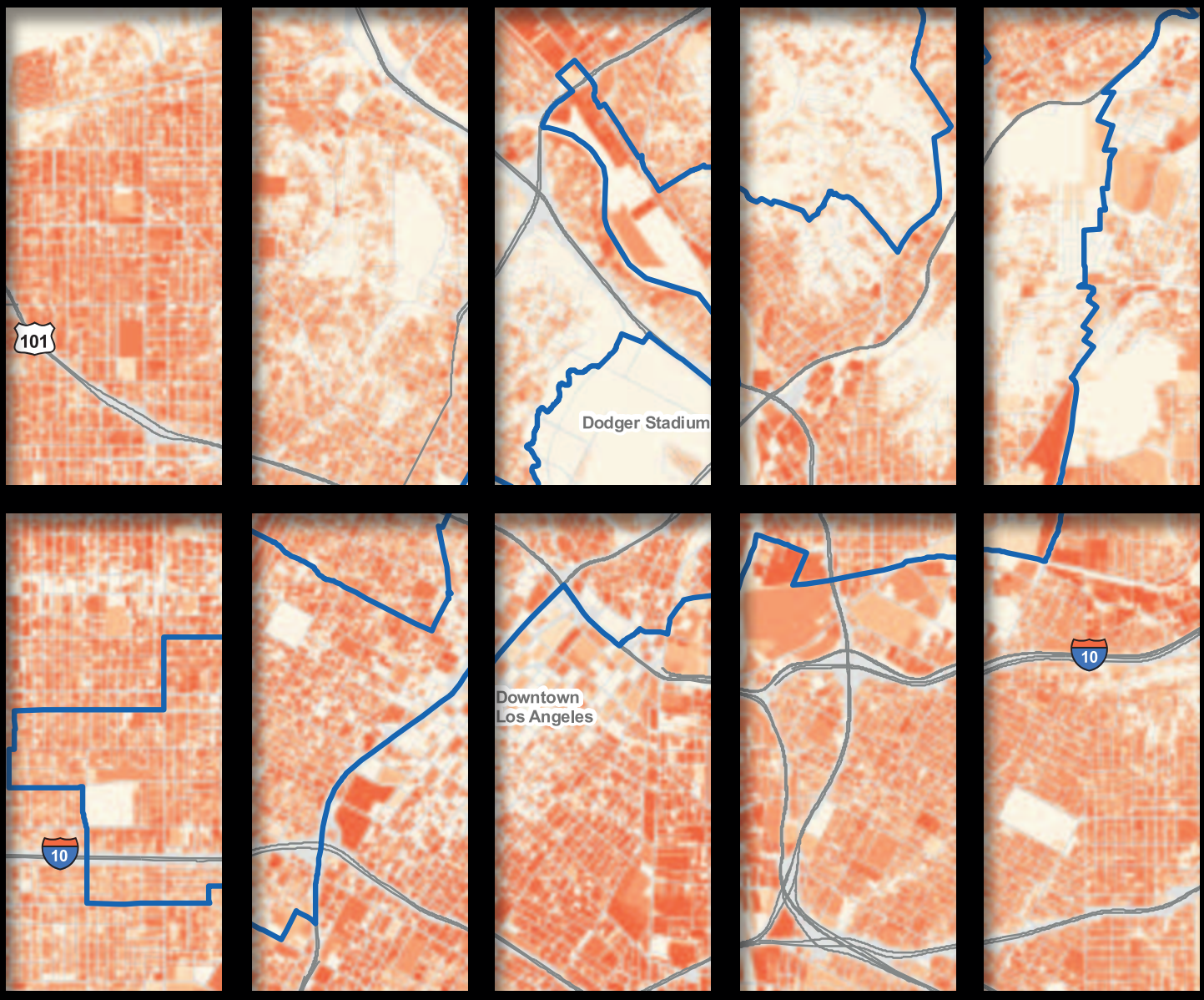

Los Angeles

SOLAR ATLAS

“For Los Angeles to be

the cleanest, greenest city,

we need participation

from every Angeleno...

we know that dirty fossil fuels

will only become more scarce

and more expensive

in the years to come.

This helps move

us toward renewable energy

while at the same

time creating new jobs.”

– Mayor Villaraigosa

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2011

Los Angeles
ROOFTOP SOLAR ATLAS

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INTRODUCTION

Los Angeles is endowed not only with bountiful sunshine, but also with vast expanses of low-rise urban development that offers valuable siting opportunities for distributed solar energy generation. This atlas describes the geography of the region's rooftop solar resources. The information may prove useful for economic development planners, solar photovoltaic (PV) installers, utility planners, building owners, public administrators, labor union leadership, and anyone interested in the development of solar power in Los Angeles.

Los Angeles County has over 19,000 megawatts of rooftop solar PV potential, while the City of Los Angeles has over 5,500 megawatts.* These maps, which are based on aerial photography of the solar-usable rooftop space,** should be viewed as providing long-run estimates of rooftop potential.***

This atlas is organized to help cities and electricity utilities understand their own solar rooftop potential so that they may be better stewards of these resources. Each map presents the geographical distribution of solar potential across neighborhoods and parcels. In addition, each map is accompanied by a description of how the solar potential varies across single- and multifamily residences, commercial and industrial parcels, and nonprofit and government parcels, since the economic benefits and policy incentives may vary accordingly. Because cost-effectiveness increases with the size of a solar installation, the atlas also presents for each jurisdiction the number of potential solar projects by size as well as the total rooftop potential.

The maps in this atlas are best used for identifying the overall spatial patterns of rooftop solar potential. However, they are an incomplete tool for investigating individual sites. This atlas does not contain information on the age or material integrity of rooftops. The usable portion of rooftop may change over time due to changes in shading (tree growth or tall adjacent construction) or roof modification. Those interested in specific rooftops should consult with a qualified professional for an on-site analysis. The data sources and analytical methods used in this atlas are discussed in detail in the appendix.

** See Bringing Solar Energy to Los Angeles at (luskin.ucla.edu/publications) authored by the UCLA Luskin Center and commissioned by the Los Angeles Business Council.*

*** See the Los Angeles County Solar Map at (solarmap.lacounty.gov).*

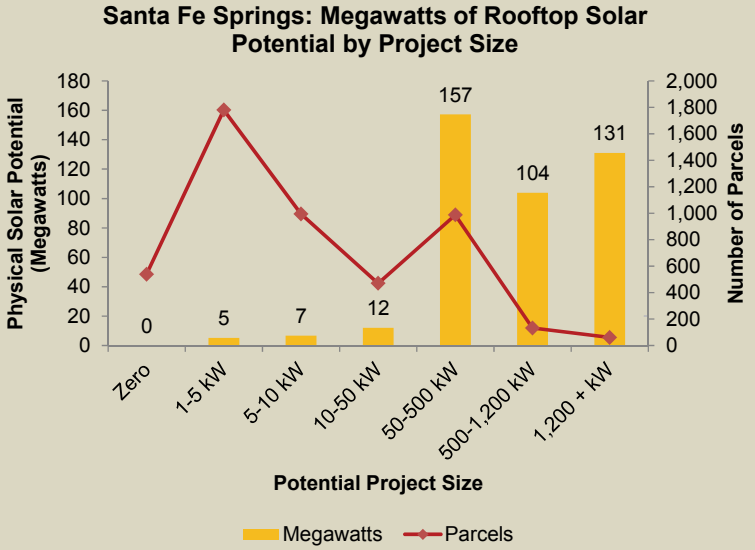
**** This atlas assumes that roofs that have solar potential but cannot currently not support solar because of old age or poor quality will be replaced in 10 to 15 years under a standard capital maintenance program.*

CONTENTS

Solar Statistics of Santa Fe Springs, California

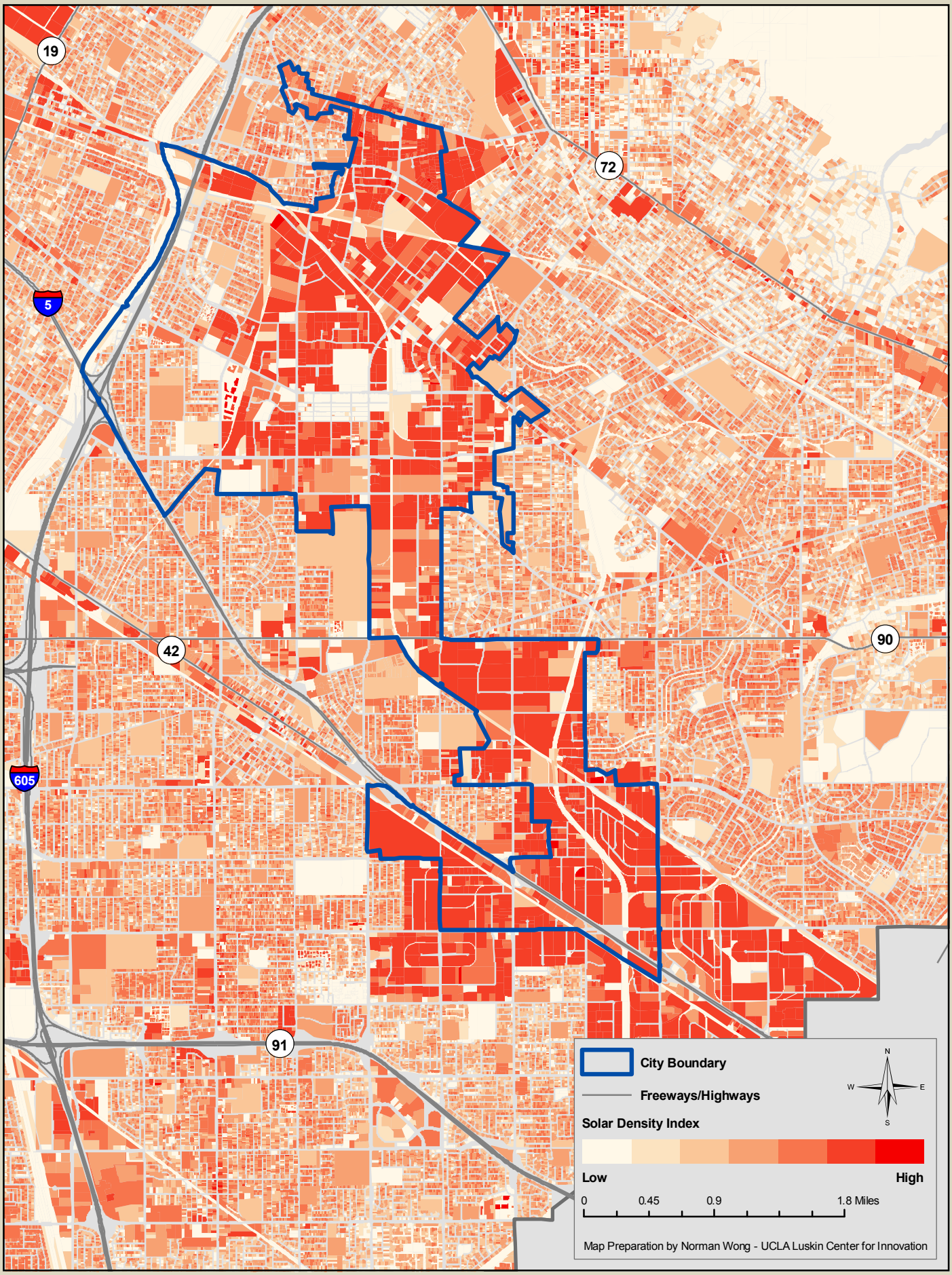
Area	8.9 square miles
Population	17,929 (2009 estimate)

Total Potential Sites	4,425		
Commercial & Industrial	35.5%	Median Rooftop Availability	25.3%
Multi-family	2.4%	Median Potential of Parcels	5.5 Kilowatts
Single Family	62.0%	Median Solar Density Index	14.6%
Government or Non-profit	0.3%	Total Rooftop Solar Potential	416 Megawatts



Parcels with the Largest Potential Solar Projects in Santa Fe Springs				
Rank	**Potential (kW)**	**Parcel Address**	**Zip Code**	**Parcel Use Description**
1	5,979	12520 Slauson Ave	90670	Warehousing, Distribution, Storage
2	5,552	13500 Foster Rd	90670	Warehousing, Distribution, Storage
3	5,279	9630 Norwalk Blvd	90670	Warehousing, Distribution, Storage
4	5,125	9400 Santa Fe Springs Rd	90670	Warehousing, Distribution, Storage
5	4,372	15700 Shoemaker Ave	90670	Warehousing, Distribution, Storage
6	3,705	13220 Orden Dr	90670	Warehousing, Distribution, Storage
7	3,342	11204 Norwalk Blvd	90670	Warehousing, Distribution, Storage
8	3,302	14141 Alondra Blvd	90670	Warehousing, Distribution, Storage
9	3,049	13300 Carmenita Road	90670	Warehousing, Distribution, Storage
10	2,889	14404 Best Ave	90670	Warehousing, Distribution, Storage
11	2,843	12816 Adler Dr	90670	Warehousing, Distribution, Storage
12	2,655	13012 Molette St	90670	Warehousing, Distribution, Storage
13	2,628	12434 Lakeland Rd	90670	Warehousing, Distribution, Storage
14	2,628	12935 Leffingwell Ave	90670	Warehousing, Distribution, Storage
15	2,525	11821 Florence Ave	90670	Warehousing, Distribution, Storage
16	2,466	13227 Orden Dr	90670	Warehousing, Distribution, Storage
17	2,441	12825 Carmenita Rd	90670	Warehousing, Distribution, Storage
18	2,389	12828 Carmenita Rd	90670	Warehousing, Distribution, Storage
19	2,212	9501 Norwalk Blvd	90670	Warehousing, Distribution, Storage
20	2,111	11130 Bloomfield Ave	90670	Warehousing, Distribution, Storage

Rooftop Solar Potential of Santa Fe Springs, California



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INITIATIVES

CLIMATE CHANGE

The Luskin Center's Climate Change Initiative is designed to strengthen local governments' capacity to reduce emissions and adapt to climate change.

GREEN CHEMISTRY

The Luskin Center's Green Chemistry initiative is advancing health and environmental protections in the field of engineered nanomaterials (ENMs). Luskin Center researchers in collaboration with academic partners and state and federal agencies are advancing health and environmental protections in the booming field of nanotechnology.

SMART WATER SYSTEMS

The Luskin Center's Smart Water Systems initiative seeks to inform solutions for more sustainable and smart water systems. This initiative explores options for addressing Southern California's severe drought by tapping into unused or underutilized water sources.

CLEAN TECHNOLOGY

Through strategic research and communication, the Luskin Center is supporting Mayor Villaraigosa's Office and other members of the Clean Tech LA collaborative in the goal to make the city of Los Angeles a center for the clean technology industry.

SUSTAINABLE ENERGY

Researchers analyze and recommend strategies to effectively advance renewable energy and energy efficiency in California. The Luskin Center's Sustainable Energy initiative analyzes and recommends strategies to effectively advance renewable energy and energy efficiency in California.

www.luskin.ucla.edu

APPENDIX

The Los Angeles County Chief Information Office provided the data used to create this atlas. The data was compiled to support the Los Angeles County Solar Map initiative, an interactive web-based application designed to help people investigate the feasibility of rooftop solar for individual sites (see solarmap.lacounty.gov). The Luskin Center modified this data in order to measure solar potential from a regional perspective. These adjustments allowed each tax-assessed land parcel in Los Angeles County to be evaluated for solar potential and categorized into market segments. A detailed discussion of the methodology used to accomplish this is provided in the Luskin Center report "Bringing Solar Energy to Los Angeles" (available at luskin.ucla.edu/publications). The "physical potential" of a rooftop is defined as the maximum solar capacity that could be achieved if solar PV arrays were installed on all available rooftop space that receives direct sunlight from 9 a.m. to 4 p.m. every day of the year. These maps represent the physical potential existing on rooftops. Parking lots, open space, infrastructure rights-of-way, and building-integrated photovoltaics (BIPV) are not shown on these maps.

Two methods were used to analyze the spatial patterns of solar potential. First, for small-scale maps that show large areas of Los Angeles County, we created the images using "heat map" analysis. This technique shows high-level patterns and concentrated "hot spots" of solar potential, but does not show individual land parcels. Second, for large-scale maps of smaller geographies, parcel maps were used to categorize each parcel. The parcels were categorized by geometric interval to facilitate a visually appealing and accurate display of the distribution of solar potential.*

While it is possible to distinguish individual parcels on these maps, there can occasionally be differences between the measured solar potential and the actual potential of a rooftop. Users of this atlas should verify the solar potential of a specific site with other sources of information.

Adjacent to each map is a page of descriptive statistics about the geography shown on the map. The page provides basic information such as population and physical area. It also contains a breakdown of the land parcels in the jurisdiction based on market segment. Rooftop Availability is the ratio of the area available for solar to the rooftop area. Median Potential of Parcels is the median size of the potential projects based on the assumptions in Appendix 1 of "Bringing Solar Energy to Los Angeles."**

Median Solar Density Index describes the ratio of area available for solar to the area of the land parcel. This measure incorporates land use patterns and suitable area for solar to show the "density" of solar potential in Los Angeles. Total Rooftop Solar Potential is the sum of the potential for all parcels within the geographic boundary. The chart shows how the potential projects are distributed by size, while the table shows the 20 largest potential projects based on capacity in kilowatts.

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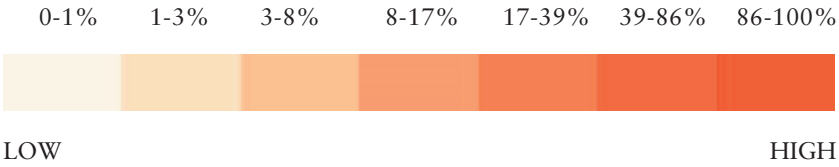
* *http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm?TopicName=Geometrical_interval*

** *Assuming 100 square feet per kilowatt of solar capacity.*

APPENDIX

The color gradients in the legend of each map represent the solar density index. The parcels were categorized according to the ratio of square feet available for solar to the square feet of the land parcel. The colors suggest a continuous distribution of the density of parcels corresponding to these ratio values. Land use patterns, building profiles, development history, and numerous other factors influence the solar density of each area. Areas with commercial and industrial uses typically stand out as being denser, while single-family residential uses, high-rise commercial uses, and older developments with mature vegetation tend to be less dense according to this measure.



The maps in this atlas are intended to describe the physical distribution of the solar potential as a function of land use. These maps should not be used as a primary source of information for a single rooftop without validating the results against several other sources of information.

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“Sustaining

the environment

is the greatest

inheritance one can

leave to children,

and the most

enduring gift to

community and nation.”

– Meyer Luskin

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