

1882 New form of lighting proposed by C.L.Howland, who represented California Electric Light Company.

Howland completes the city's first electric light plant.

1883 Los Angeles becomes the first city to abandon gas for street lighting and replace it with electricity. There are a total of 242 street lamps and 85 miles of circuit.

1893 Los Angeles Electric Company becomes the largest electric light and power plant in Southern California.

1907 The Kern River-Los Angeles Transmission Line is completed by Los Angeles Edison Electric. It is the world's longest and highest voltage power line (188 miles and 75kV).

1908 Construction begins on the Los Angeles Aqueduct. LA's first power plant is built at Division Creek in the Owens Valley and generates power from water to construct the LA Aqueduct.

1909 The Bureau of Los Angeles Aqueduct Power is created to build hydro power plants along the Aqueduct.

Ezra F. Scattergood is selected as the Bureau's first chief electrical engineer.

1911 The Bureau begins construction of the San Francisquito Power Plant no. 1 to generate power from the anticipated water.

Pacific Light and Power Corporation begins building the hydroelectric plants in the Big Creek-San Joaquin section of the high Sierras in Central CA for power delivery to Southern California.

1917 Southern California Edison (previously Los Angeles Edison Electric) becomes the major private supplier of electricity in SoCal and Joaquin Valley, serving a population of 1.25 million.

1922 The Bureau purchases SCE's distribution system within the city limits.

1933 The Los Angeles Bureau of Power and Light begins construction of the 266 mile long transmission line between Boulder Dam and Los Angeles.

1936 Construction of Hoover Dam and Boulder-Los Angeles transmission line are complete. Los Angeles receives first power from Boulder Dam.

1937 Bureau of Power and Light consolidates with Bureau of Water Works and Supply and becomes Los Angeles Department of Water and Power (LADWP)

1939 to PRESENT DWP becomes the sole provider of power to the City of Los Angeles, while SCE supplied power to unincorporated areas within the County.

1."Electricity in Early Los Angeles," Water and Power Associates, https://waterandpower.org/museum/First_Electricity_in_Los_Angeles.html.

LOS ANGELES INFRASTRUCTURE: POWER & ENERGY

"THE AQUEDUCT DID MUCH MORE THAN QUENCH THE CITY'S THIRST, IT ALSO BROUGHT POWER TO LOS ANGELES."

During the building of the aqueduct, the LADWP brought online Los Angeles's first power plant—located at Division Creek and built in 1905—to supply hydroelectric power for the aqueduct's construction.

The Bureau of Los Angeles Aqueduct Power was established in 1909,

with Ezra F. Scattergood named as chief electrical engineering.

As William Mulholland's counterpart for the Power System, Scattergood became the driving spirit in the development of the municipal electric system.

2:"Power Past & Present." Los Angeles Department of Water and Power. <https://www.ladwp.com/who-we-are/our-history/power-past-present>.

IN LOS ANGELES, NEW INFRASTRUCTURES HAVE BECOME DIFFICULT, IF NOT IMPOSSIBLE TO BUILD

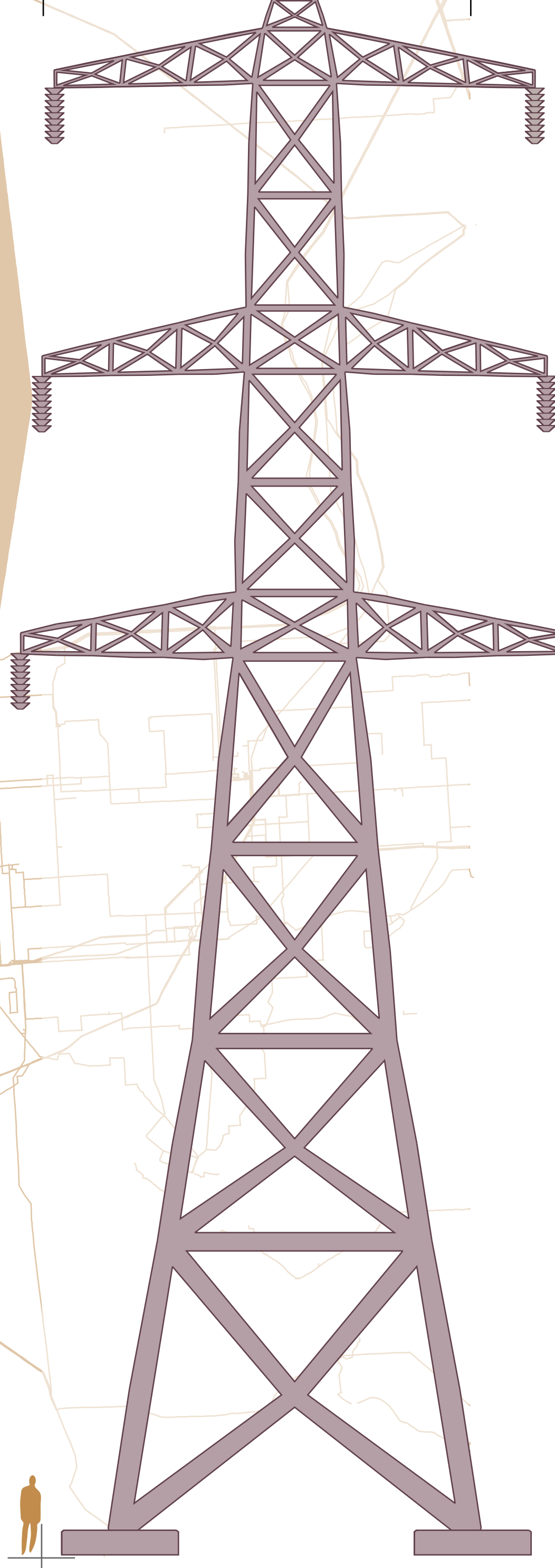
due to the staunch individualism of the city's residents. Settled by self-sufficient loners—often having fled Eastern cities—the West has always been individualistic.

This individualism is a key factor toward Los Angeles's antipathy toward the civic. Communal places to gather have always been lacking: there are few parks, squares, or plazas in Los Angeles. Open space is the province of the lawn, not

a yard to occupy but a buffer against the street and adjoining neighbors (this is changing in neighborhoods like East Los Angeles as Mexican families fence off their yards, turning them into extended living areas).

Trees are less for shade and more to demarcate subdivisions, giving identity to real estate schemes.

3.Varnelis, Kazys. The Infrastructural City: Networked Ecologies in Los Angeles, 2018.

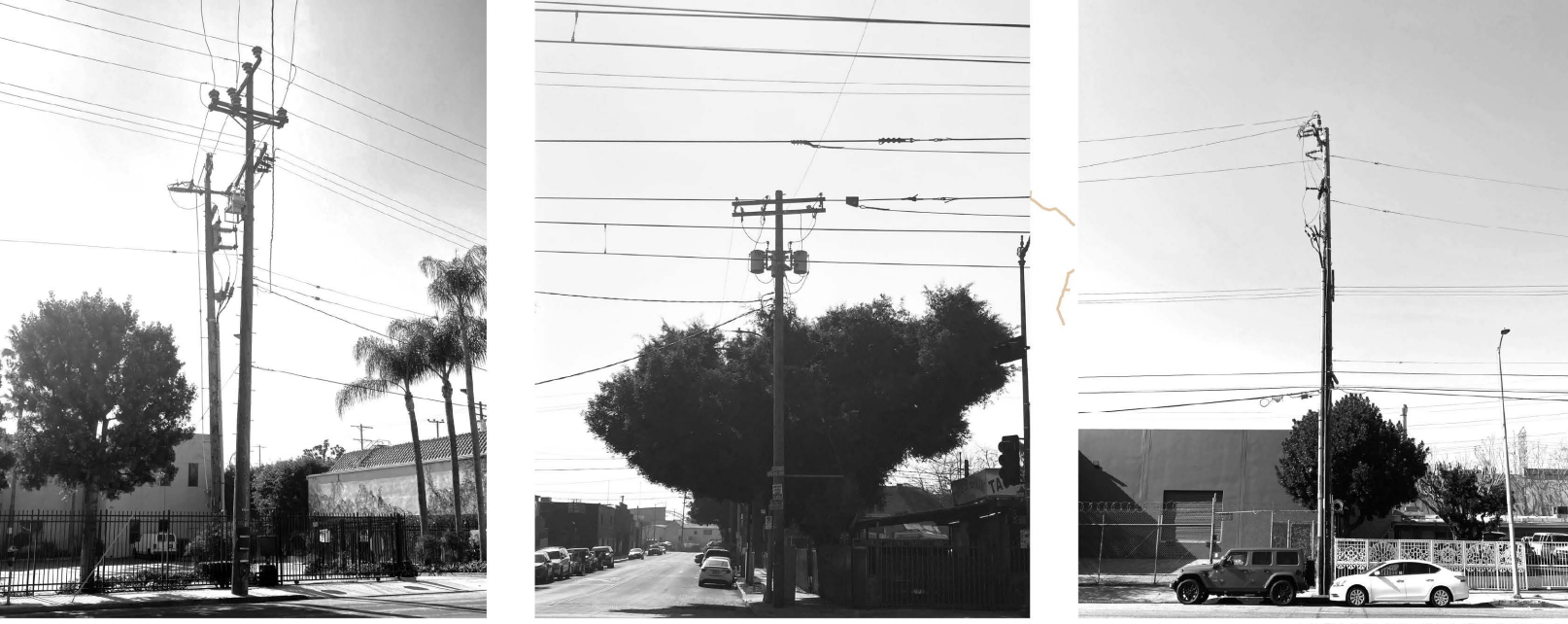




POWER AT METRO RAIL

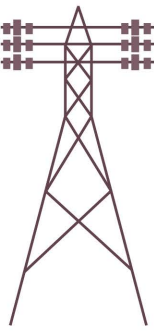


POWER AT LA RIVER



POWER AT STREET

STEEL TRANSMISSION TOWER



Steel lattice structure that supports high voltage cables over long distances.
Height can vary from **60' to 180'**.
Voltage levels up to **500,000 volts**.

Steel towers use **40,000 to 60,000 pounds of galvanized steel** ⁽⁴⁾⁽⁷⁾

WOODEN POLE



A wooden transmission tower that supports cables usually near residential areas.
height can vary **up to 75'**.

Made of **Douglas Fir, Western Red Cedar and Southern Yellow Pine**.
Over **100,000 transmission poles** in LA County. ⁽⁶⁾⁽¹²⁾

TRANSFORMER



Transfers electricity, stepping the voltage up or down.
Transformers can be located under or above ground, or on wooden poles.

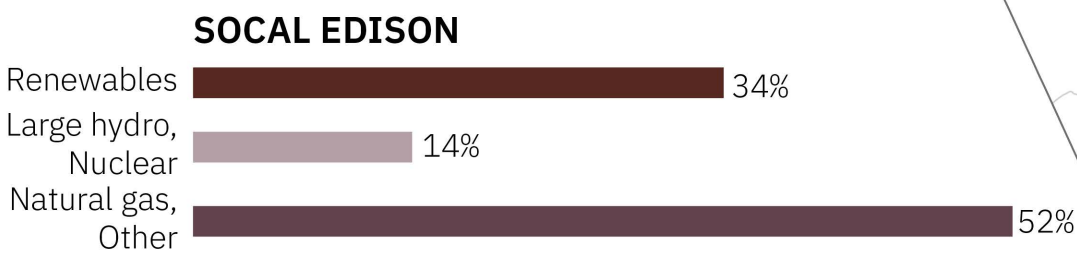
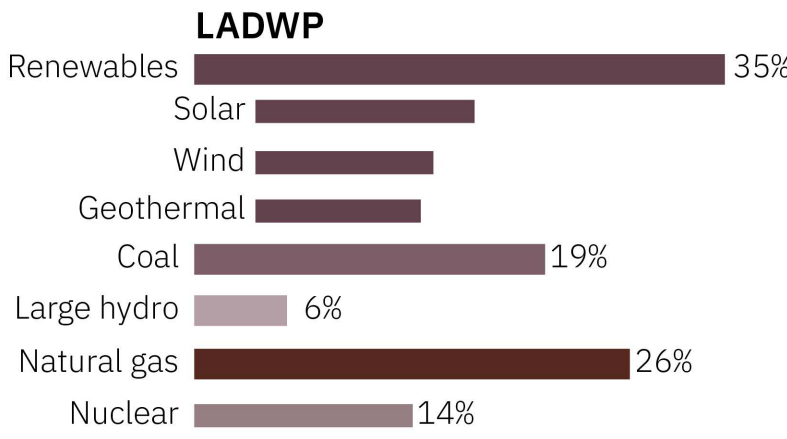
CABLES



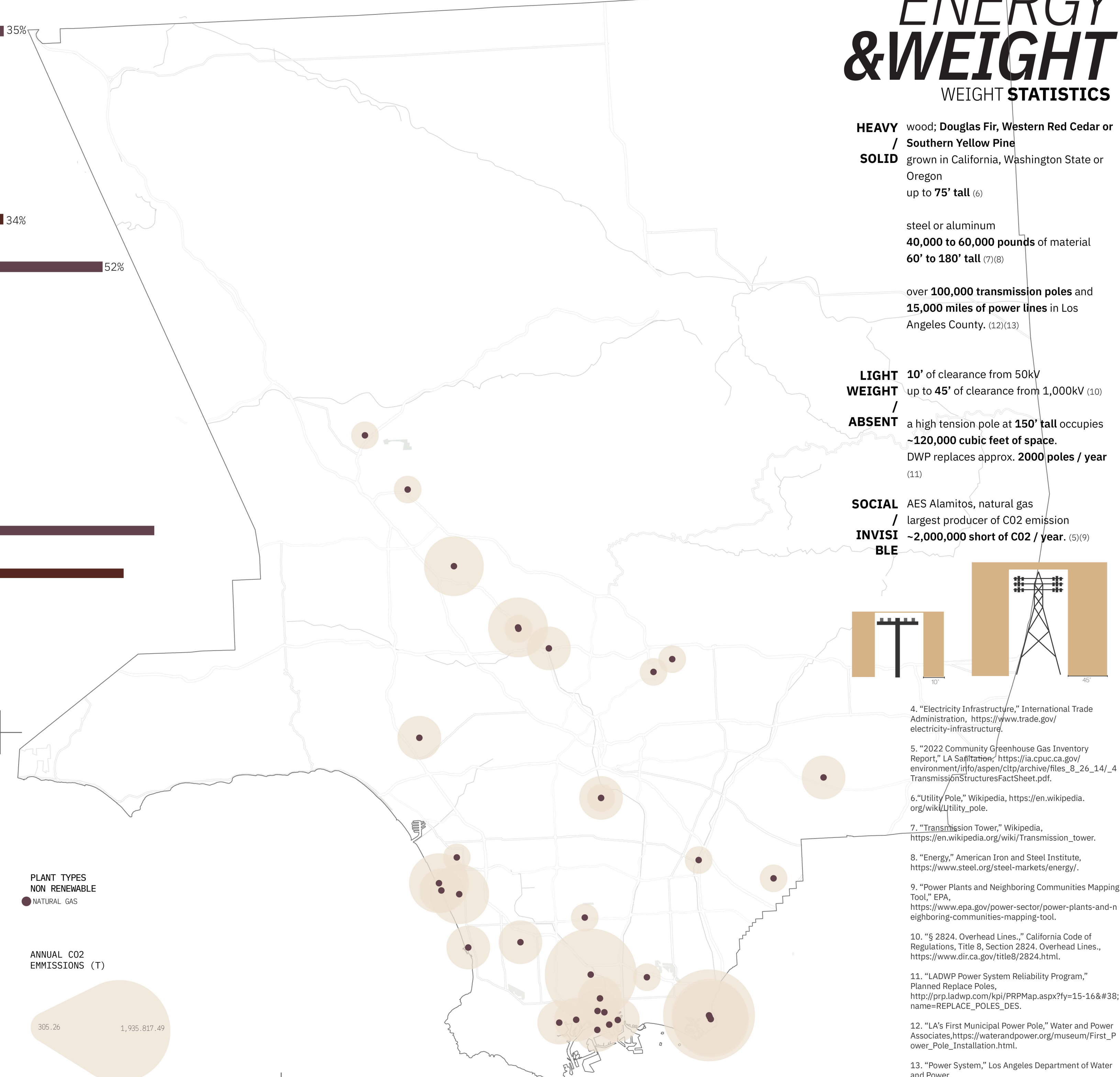
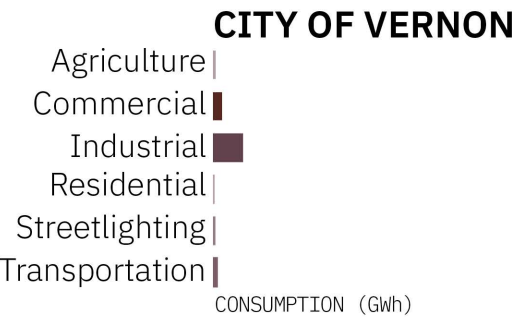
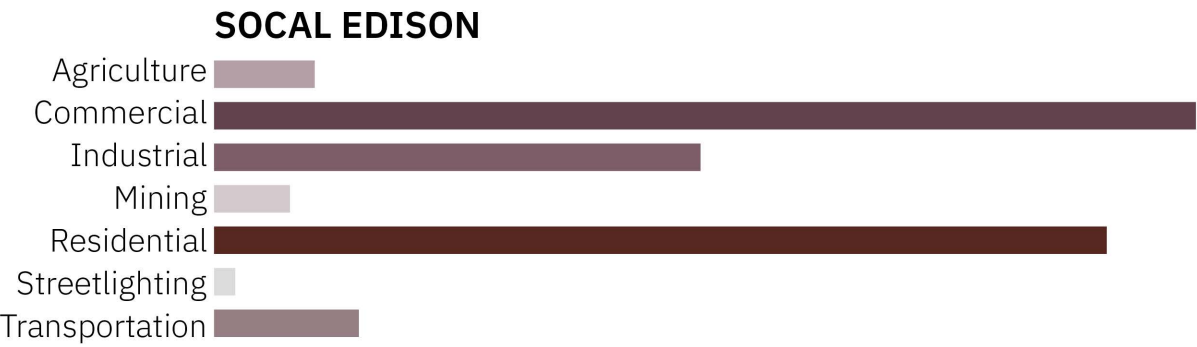
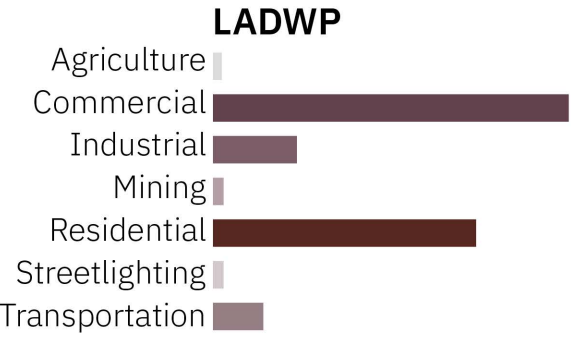
An assembly of wires which is used as an electrical conductor to carry electric current.

Over **15,000 miles** of power lines and cables in LA County. ⁽¹³⁾

TYPOLOGY SOURCE



TYPOLOGY INDUSTRY



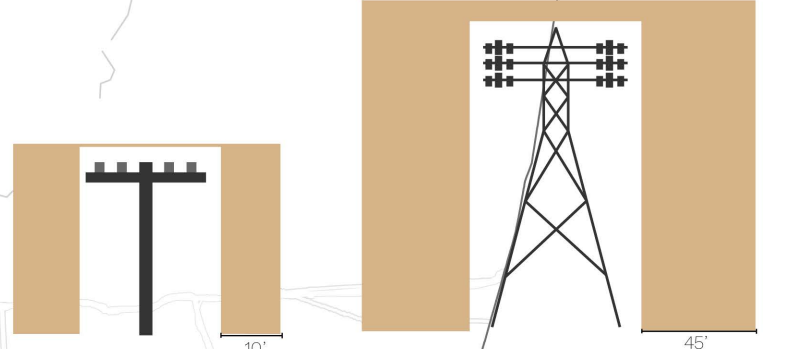
HEAVY wood; Douglas Fir, Western Red Cedar or Southern Yellow Pine
SOLID grown in California, Washington State or Oregon
up to **75' tall** ⁽⁶⁾

steel or aluminum
40,000 to 60,000 pounds of material
60' to 180' tall ⁽⁷⁾⁽⁸⁾

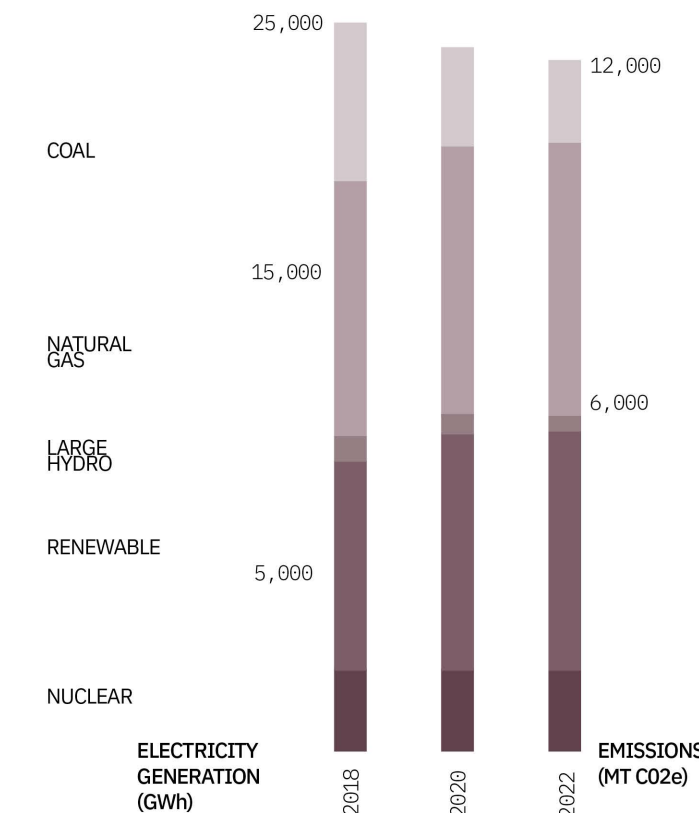
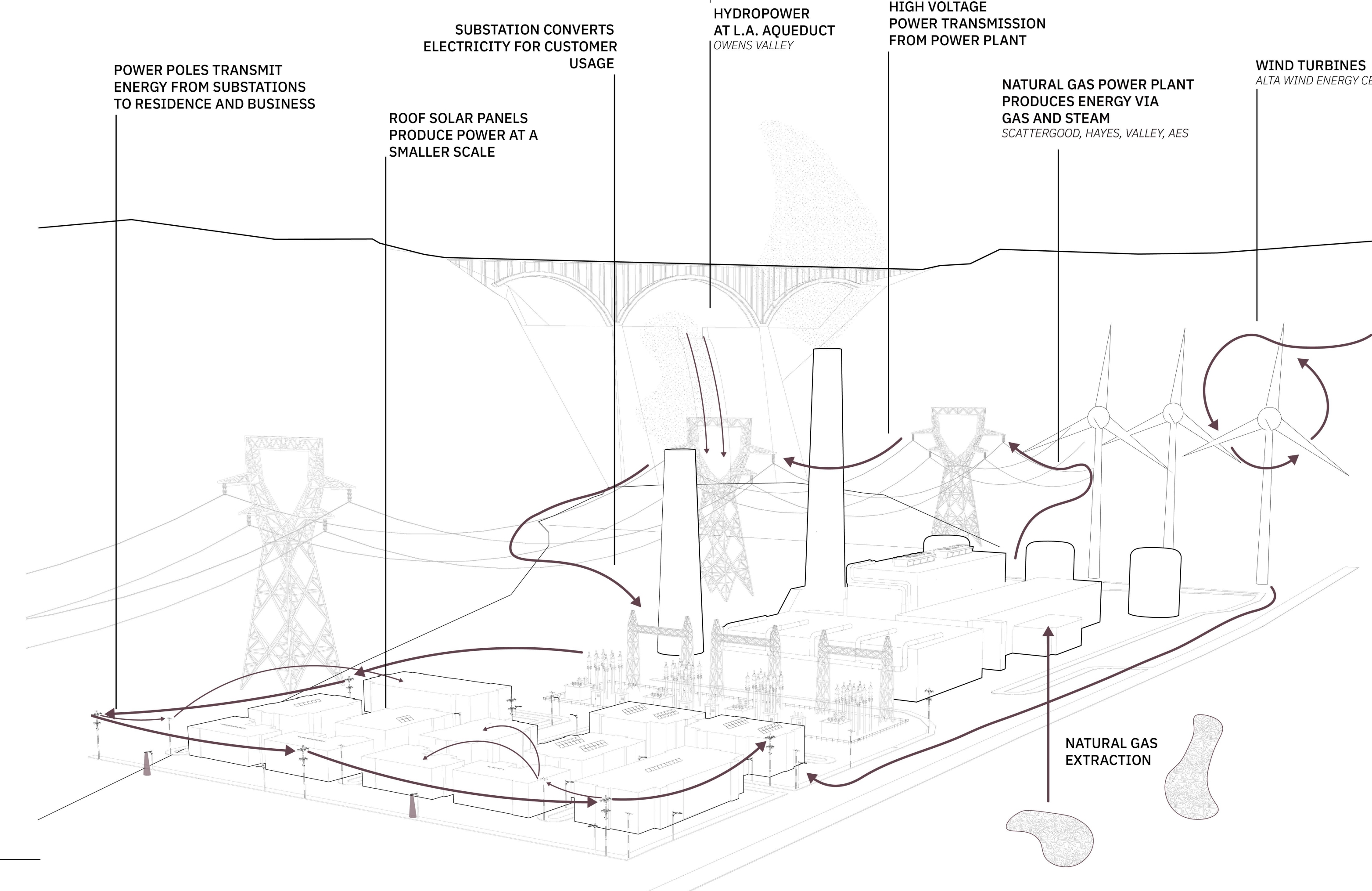
over **100,000 transmission poles** and **15,000 miles of power lines** in Los Angeles County. ⁽¹²⁾⁽¹³⁾

LIGHT WEIGHT 10' of clearance from 50kV
up to **45'** of clearance from 1,000kV ⁽¹⁰⁾
ABSENT a high tension pole at **150'** tall occupies ~**120,000 cubic feet of space**.
DWP replaces approx. **2000 poles / year** ⁽¹¹⁾

SOCIAL AES Alamitos, natural gas
INVISIBLE largest producer of CO2 emission
~**2,000,000 short of CO2 / year**. ⁽⁵⁾⁽⁹⁾



4. "Electricity Infrastructure," International Trade Administration, <https://www.trade.gov/electricity-infrastructure>.
5. "2022 Community Greenhouse Gas Inventory Report," LA Sanitation, https://la.cpuc.ca.gov/environment/info/asp/ctcp/archive/files_8_26_14/_4_TransmissionStructuresFactSheet.pdf.
6. "Utility Pole," Wikipedia, https://en.wikipedia.org/wiki/Utility_pole.
7. "Transmission Tower," Wikipedia, https://en.wikipedia.org/wiki/Transmission_tower.
8. "Energy," American Iron and Steel Institute, <https://www.steel.org/steel-markets/energy/>.
9. "Power Plants and Neighboring Communities Mapping Tool," EPA, <https://www.epa.gov/power-sector/power-plants-and-neighboring-communities-mapping-tool>.
10. "§ 2824. Overhead Lines," California Code of Regulations, Title 8, Section 2824, Overhead Lines., <https://www.dir.ca.gov/title8/2824.html>.
11. "LADWP Power System Reliability Program," Planned Replace Poles, http://prp.ladwp.com/kpi/PRPMap.aspx?fy=15-16&name=REPLACE_POLES_DES.
12. "LA's First Municipal Power Pole," Water and Power Associates, https://waterandpower.org/museum/First_Power_Pole_Installation.html.
13. "Power System," Los Angeles Department of Water and Power, <https://www.ladwp.com/who-we-are/power-system>.



TYPOLOGY EMISSIONS



ENERGY & SPACE

The space around power lines often sits empty, due to clearance restrictions. In a few cases, the space below is taken over by human activity, in the form of parks or plant nurseries.

As the city plans or tries to move away from energy production via fossil fuels, we have the opportunity to rethink not just production, but also transmission and storage, and their intersection with human activity.

HOW IS THE WEIGHT DEFINED?

Existing power lines stretch for miles across the city with large clearance zones that leave the space below underutilized. Power production and transmission constantly intersect with human activity, yet energy infrastructure is given priority in urban planning.

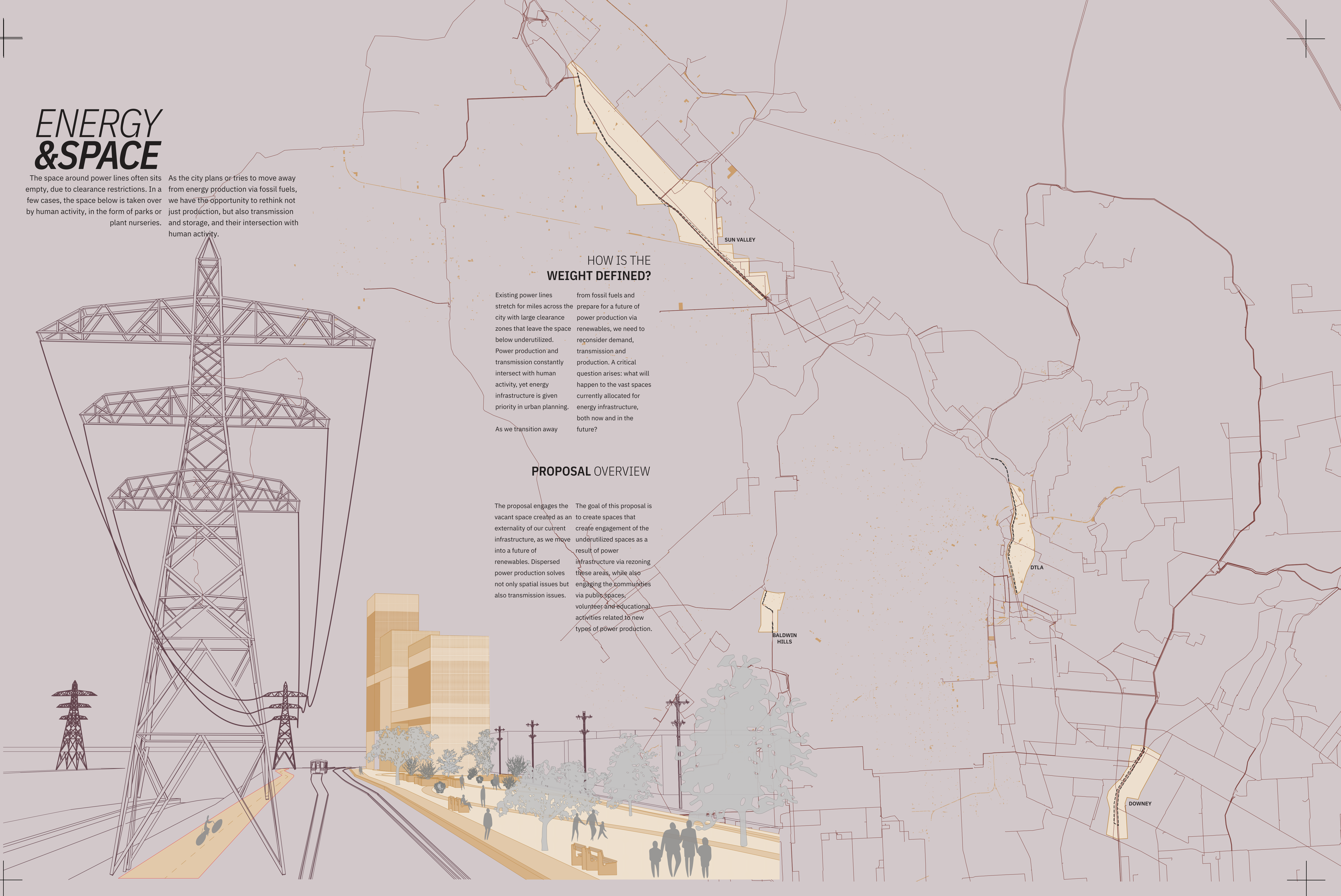
As we transition away

from fossil fuels and prepare for a future of power production via renewables, we need to reconsider demand, transmission and production. A critical question arises: what will happen to the vast spaces currently allocated for energy infrastructure, both now and in the future?

PROPOSAL OVERVIEW

The proposal engages the vacant space created as an externality of our current infrastructure, as we move into a future of renewables. Dispersed power production solves not only spatial issues but also transmission issues.

The goal of this proposal is to create spaces that create engagement of the underutilized spaces as a result of power infrastructure via rezoning these areas, while also engaging the communities via public spaces, volunteer and educational activities related to new types of power production.



LIFE BELOW THE POWER LINES

"BUT OUR SIN IS NOT THAT WE CREATED
TECHNOLOGIES BUT THAT WE FAILED
TO LOVE AND CARE FOR THEM"

14. Rania Ghosn and El Hadi Jazairy, Geostories:
Another Architecture for the Environment (Actar).

PROPOSED
BIKE PATH
WASHINGTON BLVD TO KENNETH HAHN REC

PROPOSED
PEDESTRIAN PATH
WASHINGTON BLVD TO KENNETH HAHN REC

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER PRODUCTION,
COMMERCIAL & RESIDENTIAL

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER PRODUCTION
AND RESIDENTIAL

EXISTING
PUBLIC PARK

EXISTING
COMMUNITY
GARDEN

PROPOSED
BIKE STOPS

VACANT LOTS
POWER PRODUCTION
PUBLIC SPACES
POWER EDUCATION:
LACI & PARTNERS CAMPUS

EXISTING
NURSURIES

PROPOSED
PUBLIC PATH
TO KENNETH HAHN REC AREA
REST STOPS AND BIKE STATIONS

SITE B MID-CITY/BALDWIN HILL

PROPOSED REZONING OF
UNDERUTILIZED AREA BELOW
AND ADJACENT TO POWER
LINES AS COMMUNITY, RESEARCH
AND POWER PRODUCTION SPACES
FOR THE NEIGHBORHOOD.

PROPOSAL CREATES ~ 1.5 MILES OF
PUBLIC SPACE, THAT WOULD
OTHERWISE GO UNUTILIZED

10 YEARS: SPACE NEAR AND BELOW IS FILLED WITH
COMMUNITY SPACES, BIKE AND PEDESTRIAN PATHS.

25 YEARS: PROPOSED RESEARCH BUILDING FOR LACI IS
BUILT ON THE VACANT SITE. LACI FOCUSES ON
RESEARCHING THE NEIGHBORHOOD'S POTENTIAL
FOR PRODUCING POWER.

50 YEARS: POWER IS PRODUCED VIA SOLAR ON FACADES
AND PATHS. NEIGHBORHOODS BECOME SELF-SUSTAINING,
ELIMINATING THE NEED FOR TRADITIONAL POWER
PRODUCTION AND TRANSMISSION.

PROPOSED
LACI CAMPUS

PROPOSED
BIKE PATH

PROPOSED
PEDESTRIAN
PATH

EXISTING
ELECTRICAL
SUBSTATION

METRO E LINE

BALDWIN HILLS
REC CENTER

EXISTING
COMMERCIAL

EXISTING
NURSERY

BALDWIN HILLS
ELEMENTARY

TO KENNETH HAHN
RECREATION AREA

parks are planted
with native species

~60,000 square feet
of planted space

paths are lined
with permeable
pavers to promote
natural drainage and
reduce water runoff

~15,000 square feet of
paths.

solar panels
produced in
City of Industry &
Riverside

after dismantling,
steel is reused for
structure on site

~20 tons of steel
per pylon

parks are planted
with native species

~250,000 square feet
of planted space

solar panels are
produced in City
of Industry and
Riverside

PROPOSED
SOLAR FACADE
MIXED USE DEVELOPMENT

PROPOSED
BIKE PATH

PROPOSED
PEDESTRIAN PATH

PROPOSED
MARKET AREA

PROPOSED
REST STOP AND
BIKE STATION

PROPOSED
COMMUNITY GARDEN

paths are lined
with permeable
pavers to allow
water permeability

~15,000 square feet
of paths

after dismantling,
steel is reused for
structure on site

~20 tons of steel
per pylon

SITE A DOWNTOWN LOS ANGELES RIVER

PROPOSED REZONING OF
UNDERUTILIZED SPACE BELOW AND
NEAR POWER LINES TO OFFER
COMMUNITY SPACE AND
DECENTRALIZED GREEN POWER
PRODUCTION

PROPOSAL CREATES ~ 1.5 MILES OF
PUBLIC SPACE, THAT WOULD
OTHERWISE GO UNUTILIZED

PROPOSED
PEDESTRIAN PATH

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER PRODUCTION
AND RESIDENTIAL/
COMMERCIAL

PROPOSED
COMMUNITY SPACE
GARDEN, PARK, MARKET

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER PRODUCTION
AND RESIDENTIAL/
COMMERCIAL

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER PRODUCTION
AND RESIDENTIAL

UNDER CONSTRUCTION
SIXTH ST PARK

PROPOSED
BIKE PATH
ALONG LA RIVER

VACANT LOTS
MIXED USE
DEVELOPMENT
POWER EDUCATION
AND PRODUCTION
LACI & COMMUNITY PARTNERS

10 YEARS: SPACE NEAR AND BELOW IS FILLED WITH
COMMUNITY SPACES

25 YEARS: SPACE IS REZONED FOR MIXED ZONING.
RESIDENTIAL AND COMMERCIAL BUILDINGS ARE BUILT WITH
SOLAR FACADES, PRODUCING ENOUGH ELECTRICITY TO
SUSTAIN THEMSELVES

50 YEARS: POWER IS PRODUCED VIA SOLAR ON BUILDINGS.
NEIGHBORHOODS BECOME SELF SUSTAINING, ELIMINATING
THE NEED FOR TRADITIONAL POWER PRODUCTION AND
TRANSMISSION