LA100 Equity Strategies
Advisory Committee Meeting #4
June 22, 2022

LA DWP

NREL Transforming ENERGY

UCLA

Welcome and Opening Remarks

Los Angeles Department of Water & Power (LADWP) Project Leads

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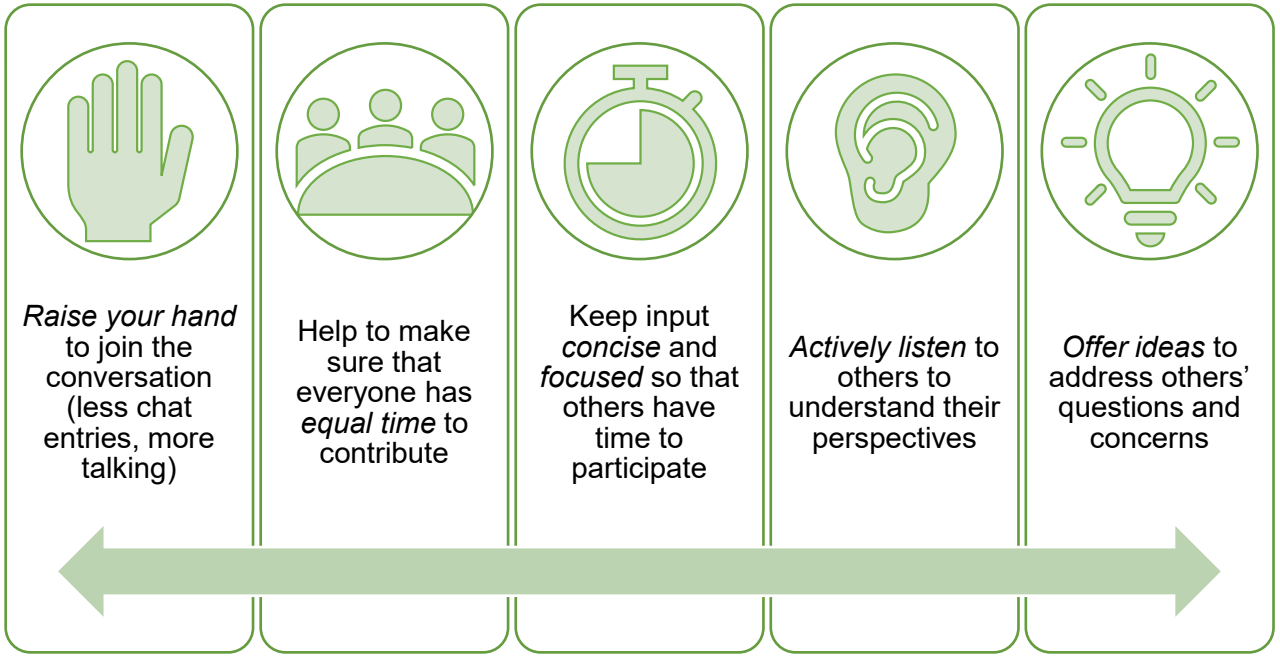
Agenda

Start Time	Item
10:00 a.m.	Welcome
10:05 a.m.	Meeting Purpose and Agenda Overview
10:10 a.m.	Analysis of LADWP Programs and Investments (NREL)
10:35 a.m.	Community Engagement: What We Have Learned So Far (NREL)
11:05 a.m.	Scale of Analysis (Eric Fournier, UCLA)
11:25 a.m.	LADWP's Strategic Long-Term Resource Plan
11:45 a.m.	Q & A
11:55 a.m.	Wrap Up and Next Steps

Our Guide for Productive Meetings



Analysis of LADWP Programs and Services

Are certain socio-demographic groups disproportionately receiving (or *not receiving*) investments and benefits from LADWP?

LADWP Programs and Services

Solar Installation Programs

- Net-energy metering (SIP and NEM)

Energy Efficiency Incentive Programs

- Commercial Direct Install Program
- Home Energy Improvement Program
- Consumer Rebate Program
- Refrigerator Turn In and Recycle Program
- 14 other energy efficiency incentive programs (Includes one low-income targeted program)

Electric Vehicle Incentives

- New commercial/residential chargers/sub-meters
- Used residential vehicles
- Direct current fast charging
- Medium and heavy-duty

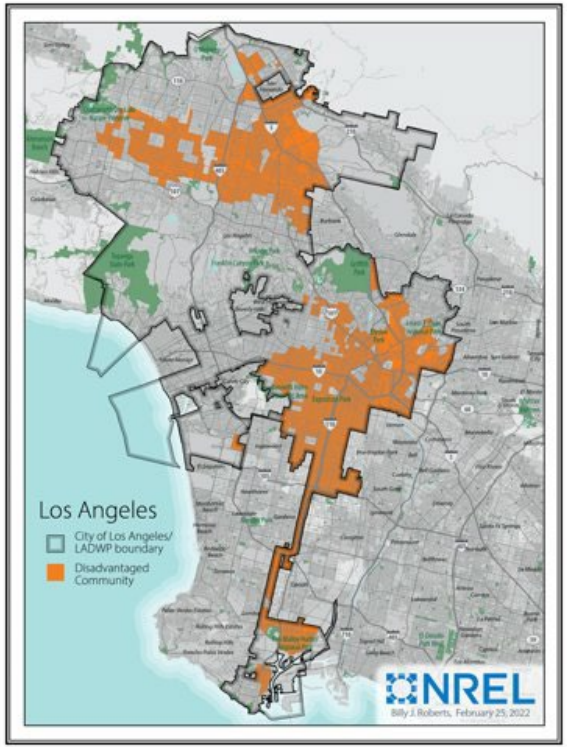
Customer Discount Programs

- Low-income
- Lifeline

Power Infrastructure Reliability Metrics

- System Average Interruption Duration Index (SAIDI)
- System Average Interruption Frequency Index (SAIFI)

LADWP Programs and Services



Disadvantaged Communities (DAC):
Census tracts with the *highest 25%* *CalEnviroScreen 4.0* *scores.*

Socio-Demographic Indicators*

Mostly White/Mostly Non-White**

Mostly Hispanic/Mostly Non-Hispanic

Mostly Renters/Mostly Owners

Mostly Below/Mostly Above Median Income***

*Data from the American Community Survey (2019)

**Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Other.

***$66,757.75 annual salary (2019)

LADWP Programs and Services

NREL evaluated the distribution of incentives across communities for each program by:

- Adjusting benefits by population and comparing dollars spent
- Performing analysis to determine programs with statistically significant uneven distribution of benefits

LADWP INVESTMENTS

		NUMBER OF YEARS	TOTAL AMOUNT SPENT	WHICH COMMUNITIES DISPROPORTIONATELY BENEFITED FROM PROGRAMS? DAC/Non-DAC	Mostly Non-White/White	Mostly Hispanic/Non-Hispanic	Mostly Renters/Owners	Below/Above Median Income
SOLAR INSTALLATION	Net Energy Metering Programs	22	$340,604,541	Non-DAC	White	Non-Hispanic	Owners	Above
ENERGY EFFICIENCY	Commercial Direct Install Program	8	$220,352,003	DAC			Renters	Below
	Home Energy Improvement Program	3	$3,378,869	DAC		Hispanic		
	Refrigerator Turn-In and Recycle Program	5	$2,667,307	Non-DAC	White	Non-Hispanic	Owners	Above
	Consumer Rebate Program	6	$93,248,144	Non-DAC	White	Non-Hispanic	Owners	Above
	Other Non-Low-Income-Targeted Programs	15	$252,513,659	Non-DAC	White	Non-Hispanic	Owners	Above
	Low-Income-Targeted Program*	5	$7,897,260	DAC	Non-White	Hispanic	Renters	Below
ELECTRIC VEHICLES	Incentive Programs	8	$71,239,371	Non-DAC	White	Non-Hispanic	Owners	Above
CUSTOMER DISCOUNTS	Low-Income Program*	15	$173,633,204	DAC	Non-White	Hispanic	Renters	Below
	Lifeline Program*	15	$313,424,782	DAC	Non-White	Hispanic	Renters	Below

* Low-Income Targeted

Non-disadvantaged communities received on average 70% of the total number of incentive benefits but only make up 56% of the population.

Solar net energy metering and EV incentive programs disproportionately benefited non-disadvantaged communities, majority White, non-Hispanic, owner-occupied, affluent households.

Low-Income and Lifeline programs appropriately provide benefits to disadvantaged communities.

LADWP Programs and Services

LADWP

		NUMBER OF YEARS	AVERAGE PER YEAR
POWER INFRASTRUCTURE RELIABILITY	Frequency of Interruptions *(number)*	6	0.94 DAC / 0.79 Non-DAC
	Duration of Interruptions *(minutes)*	6	158 DAC / 152 Non-DAC

DO SOME COMMUNITIES EXPERIENCE MORE/LONGER INTERRUPTIONS?

DAC/ Non-DAC	Mostly Non-White/White	Mostly Hispanic /Non-Hispanic	Mostly Renters/Owners	Below/Above Median Income
DAC		Hispanic		

Disadvantaged communities (DACs) had marginally higher power interruption frequency than non-DACs, but there was no statistical difference in the duration of interruptions.

Steering Committee Feedback:

LADWP program investment equity analysis

- Interest in:
  - Data on the scale of inequity
  - Obtaining data and results for review, further analysis
  - Virtual solar net metering program update
  - Aggregating analysis by neighborhood (e.g., South LA, Northeast Valley, etc.)
- Building age/deferred maintenance noted as barrier to efficiency and electrification upgrades
  - Building programming around upgrading electrical panels and roofs prior to installations suggested
- Inequity in frequency of service interruptions
  - Related to infrastructure upgrades to accommodate solar and EVs in non-disadvantaged communities?
  - Suggested equity analysis of grid maintenance

Q&A

Research & Community Engagement

What We've Done and Learned Thus Far

Ongoing Literature Review

Includes over **130** sources

Search

- academic databases
- official documents
- policy databases

Analyzing Secondary Data

- academic (e.g., journal articles and books)
- research reports
- policy documents
- newspaper articles
- local community-based organization (CBO) publications
- press releases
- policies
- reports
- public comments and community impact statements*

With the goal of:

Informing our understanding of **structural factors contributing to existing inequities** and anticipating **potential barriers to equity strategies** under consideration by the project team.

*Associated with more than 20 separate Los Angeles City Council motions relevant to energy, equity, and environmental issues affecting the LADWP service territory.

Ongoing Community Engagement

Three Stages of Community Engagement

1. Envisioning a just energy future, understanding LA's energy justice problems, and analyzing determinants of energy inequities
2. Informing communication of strategy analysis and development
3. Sharing analysis, models, and community feedback.

Primary Social Research & Engagement Efforts

- Steering Committee meetings
- Advisory Committee meetings
- Citywide community meetings
- Neighborhood-specific community listening sessions

Preliminary Results

Factors influencing **current inequities** based on the first stages of our research and community engagement.

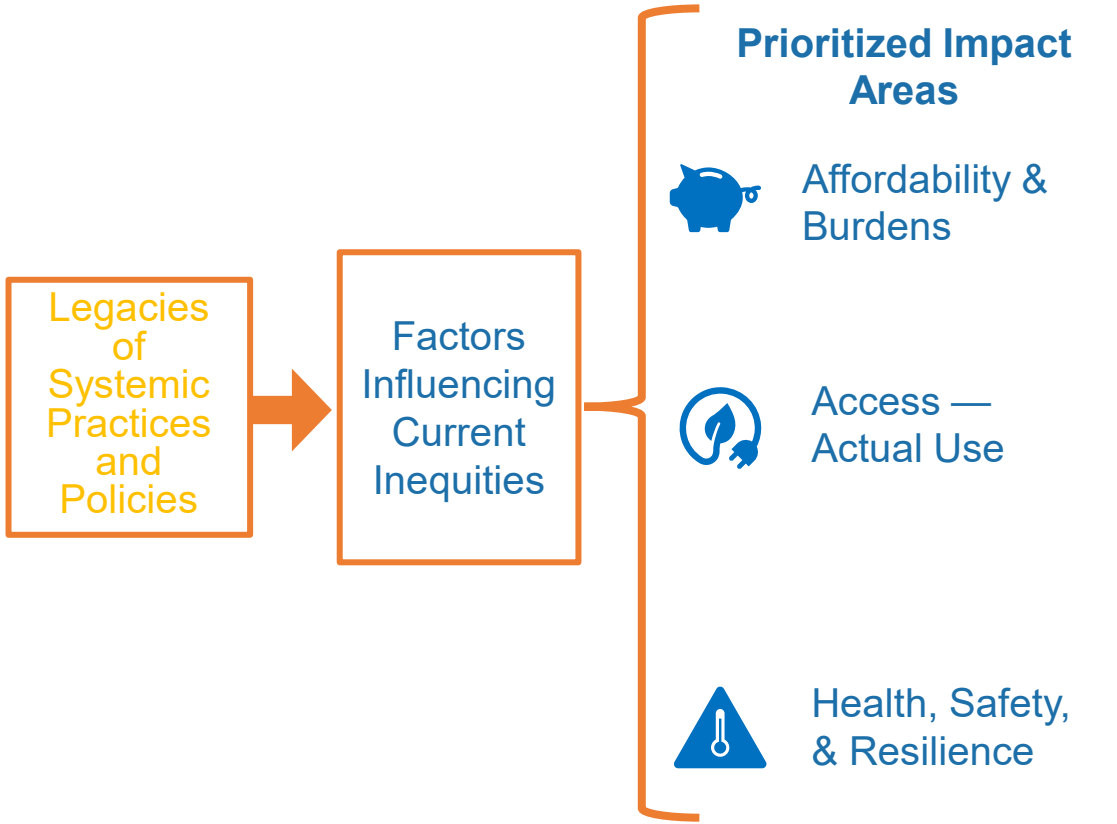
LA100 EQUITY STRATEGIES

Legacies of Systemic Practices and Policies

Factors Influencing Current Inequities in:

Prioritized Impact Areas	Prioritized NREL Equity Strategy Development Pathways
Affordability & Burdens	- Energy bill stability - Energy burdens
Access — Actual Use	- Universal home cooling - Solar/storage, energy efficiency (multifamily, renter-occupied buildings) - Community solar - Light duty electric vehicle & charging
Health, Safety, & Resilience	- Mitigation of heavier-duty vehicle health impacts - Building weatherization and resilience - Resilience through solar-plus-storage siting - Support electric reliability through distribution grid upgrades

LA100 EQUITY STRATEGIES



Listening Session: Factors Affecting Energy Inequity (Key Take Aways)

- Low to moderate income (beyond very low income)
- Multimedia outreach, programs, assistance & information

- Low to moderate income
- Culturally Sensitive, Multimedia, Audience-Specific Outreach & Trusted Information
- Transparency, Accountability
- Education & Training
- Affordable and Safe Upgrades
- Agency

- Transparency
- Accountability, lack of enforcement across departments/agencies
- Maintenance
- Affordable and Safe Upgrades
- Illegal dumping, industrial pollution
- Health effects of local air pollution

This is What We Have Heard on Affordability and Burdens

We examined affordability and energy burdens holistically, including:

- The percentage of income spent on energy
- Inequalities embedded in housing and transportation
- Energy tradeoffs that households may make

Inequalities in Energy *Affordability* and *Access*

Factor: Low to Moderate Income

East LA Resident:

"I'm envisioning…a future of carbon free…and I was thinking about like, you know, *will it be cheap to buy solar panels for charging my car?*

Or like, as of *right now, gas prices are so expensive, so…I'm choosing to not…go to certain places, like sometimes even skip work because I work so far away like a cost-benefit is [not going to work]*, it's really impacting, you know, my financial decisions.

Right? Will it be affordable for everybody?"

Inequalities in Energy *Affordability and Burdens*

Factor: Low to Moderate Income

East LA Resident:

"We [are] often…faced with…a cap on how much money you're supposed to make a year, and if we don't qualify for that, then you don't [gain access to assistance]…then we end up struggling and we don't qualify for anything;
...
So, *we're often living paycheck to paycheck* and sometimes when we need like certain things for the family, like even last year paying…the light and gas, it was cut off because we didn't have the money to pay it right then and there.

So, maybe…just really looking into what really we get every check compared to what we get annually would…in some way help."

This is What We Have Heard on Access or Household's *Actual* Use

Access typically refers to a household's actual use of:

- A minimum level of reliable electricity and service
- Transition technologies
- Safer and more sustainable AC, heating, mobility

Inequalities in *Access / Actual Use*

Factor: Culturally Sensitive, Multimedia, Audience-Specific Outreach

San Fernando Valley [Pacoima] Resident:

"I'm…helping families to enter the LADWP low-income program…*LADWP never contacted them to let them know that they do not qualify for the program or that they were missing some document to access these programs.*

So, if we talk about transparency, I'd like that right now, especially in the time we're living in, where many families are going through a difficult economic situation and with very high bills when it comes to electricity and water…*I wish LADWP would .. put more effort into providing help for these families who are going through this kind of difficult situation*."

Inequalities in *Access / Actual Use*

Factor: Upgrades & Individual Agency

South LA Resident:

"*I visualize having free solar panels installed…on all the homes*…in South Central LA…those people…that are low income because we…have to help those that need help. It is not right that only those that have the money can do this. And we all benefit when everybody is treated equally and fair.

I have solar panels that I installed at the very beginning, and they never worked right to begin with. They never gave me what was promised, ……

Now Tesla took over and I'm going to try to negotiate with them to upgrade because *I didn't buy them, because I don't believe in buying something that's going to be obsolete in a few months. So, I'm leasing them, and I would like them to upgrade but I don't know how easy that's going to be.*"

This is What We Have Heard on Public Health, Safety, and Community Resilience

Inequalities result from legacies of past practices and policies. These factors:

- Constrain access to environmental amenities
- Determine higher exposure and lower resilience

Inequalities in *Health, Safety, and Community Resilience*

Factor: Health Effects of Local Air Pollution

San Fernando Valley [Pacoima] Resident:

“We [in Pacoima] don't get a lot of benefits, a lot of resources, a lot of opportunities, because I go to other communities and I've noticed that the parks don't look like the parks where I live, and why? …

My daughter's godmother lives in Burbank, when I go to leave my daughter there it is totally *entering a different world: it smells different, I am not sick there*, even when I go to visit her for 2 days I feel as if I were honestly a queen because *I can breathe*….

My daughter takes photos. Here in Pacoima where I am, we can't even take photos because…*the wind carries a lot of garbage, I'm always suffering from asthma*…”

Inequalities in *Health, Safety, and Community Resilience*

Factor: Health Effects of Local Air Pollution

What kinds of programs and services would help you have cleaner air in your area?

Harbor Area Resident:

"In transportation, *access for people to be able to get an electric car …also [mobility] services for people who are sick with a respiratory problem*; also *help* for *those* who have *health problems* because there are already many people affected by the refineries, and many diseases that are around here: cancer and asthma and eczema"

Inequalities in *Health, Safety, and Community Resilience*

Factor: Affordable and Safe Upgrade Options

South LA Resident:

"Everyone's talking about "hey, you know, let's get plug-in cars."…but…*looking in an area that people don't have a lot of money, you're saying, so homeowners should get this, homeowners should get new HVAC systems, you should get new appliances…those all come with new electrical panels. You can't get those safely.* You can get them, you can burn down your house because your *panels aren't upgraded, your house isn't upgraded, your wiring isn't there*, so what are the people going to do to actually get that? … If you're talking about [all] that, you can't use them because it's going to make your house unsafe...

It's great that you [LADWP] can give it to people and help them, but if they can't afford to actually do the upgrades that are needed to have it done safely, then there's no point."

Steering Committee Feedback

—

Breakout Groups

SC Meeting Overall Highlights

- Need for transparency
  - Members valued hearing from the voices of community members
  - Special programs need their own follow-up teams to help applicants
  - More public information, i.e., to protect consumers from scams
- Ensure funding for long-term maintenance of infrastructure

Breakout: Access / Actual Use

- Realistic scope of work for DACs
  - Upgrades possible given existing conditions of home/neighborhood
  - Promote existing and proposed programs to ensure greater customer participation
- Investing in public spaces in DACs
  - For municipal utilities/government to be initial investors in DACs in order to attract private investments in DACs

Breakout: Affordability & Burdens

- From beginning, need to co-define what an “equitable scenario” is with:
  - Steering Committee members
  - Community members
- Transparency & collaboration
  - Actual community feedback is key
  - Work *with* the SLTRP, not siloed

Breakout: Health, Safety & Resilience

- Equity involved to reach a level playing field
  - Extreme remediation must happen before certain interventions begin
  - DACs may need to use more energy rather than less
- Infrastructural Investments targeting:
  - Multi-family buildings
  - Air-conditioned community spaces

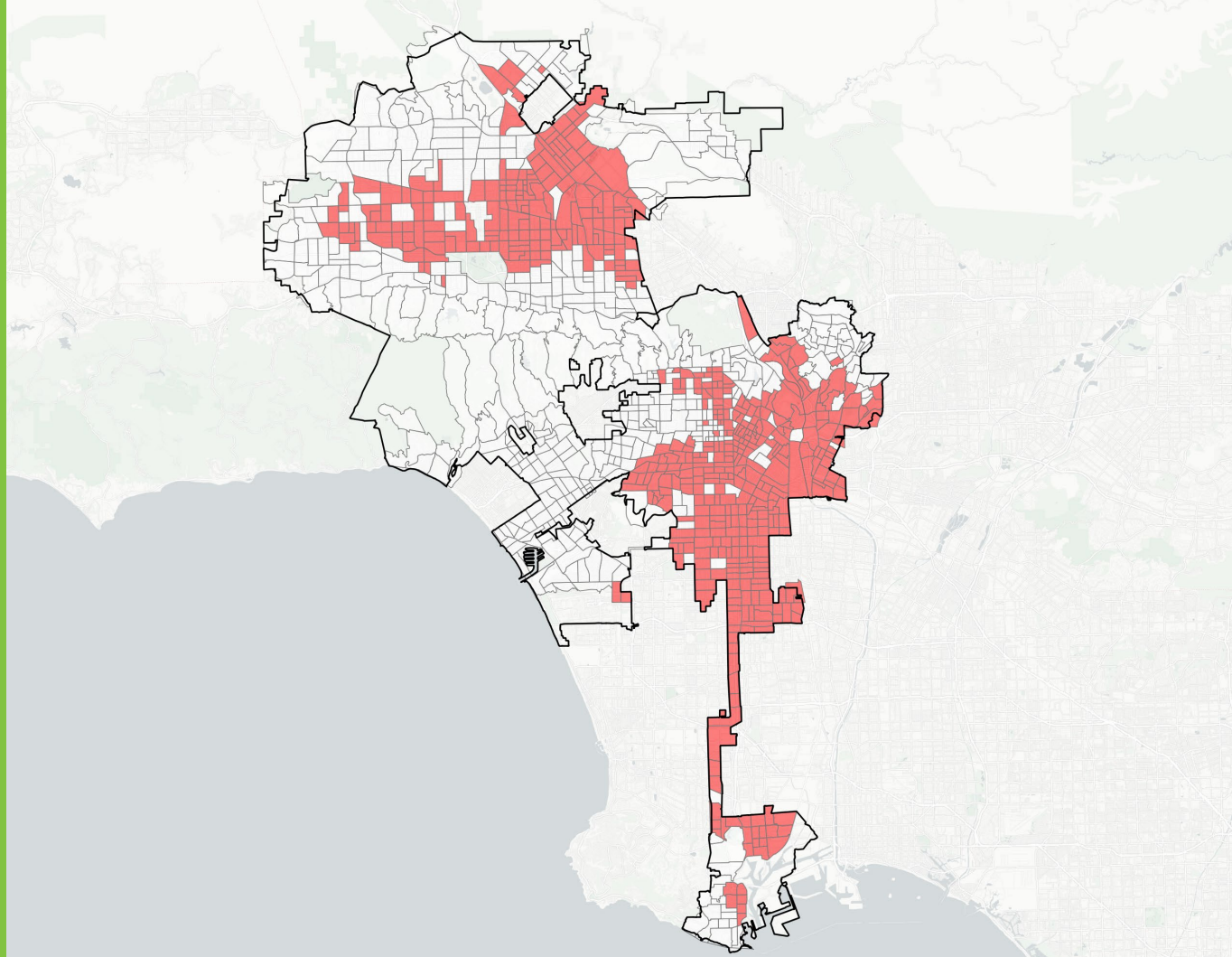
Q&A

Scale of Analysis

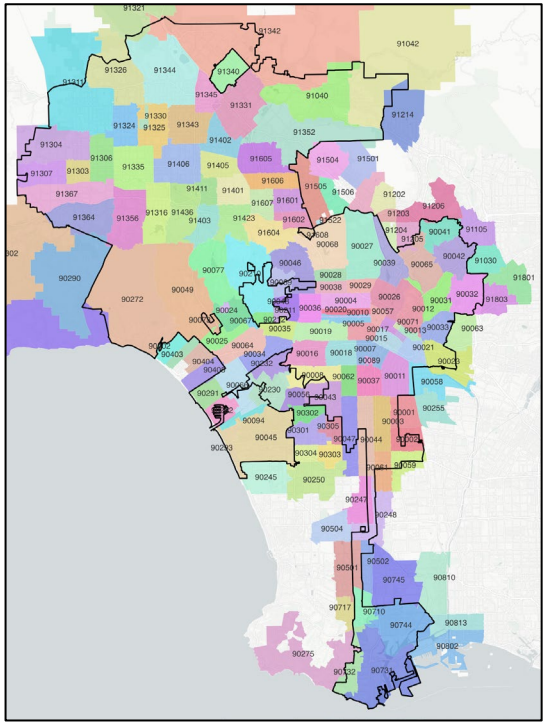
Scale of Analysis

We are all familiar with how CalEnviroScreen uses census tract boundaries to define disadvantaged communities.

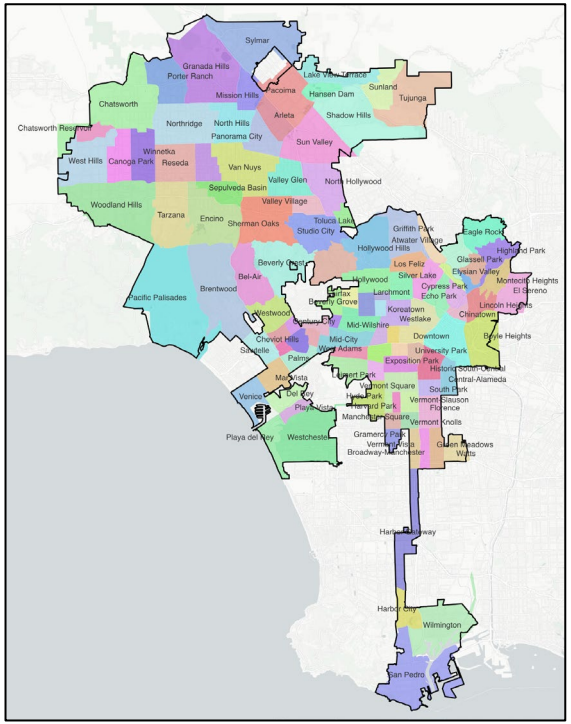
But many people do not know which census tract they live in.



Which geographies are the most meaningful?



Zip Codes
158

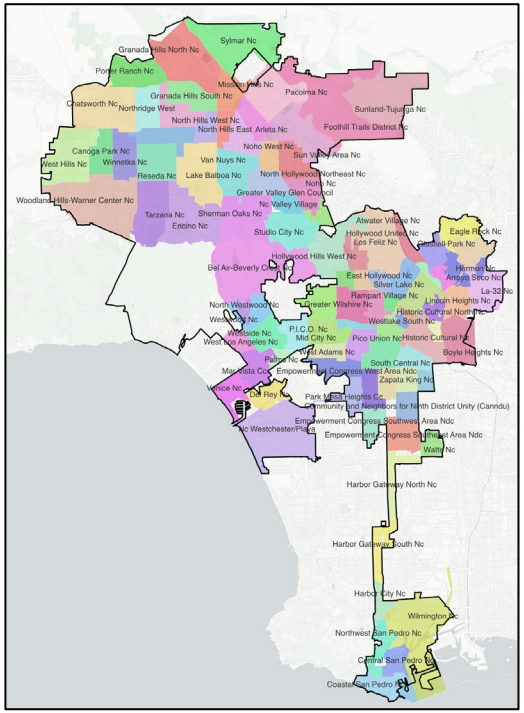


Neighborhoods
114

Zip codes are familiar to many people but vary widely in size and don't align well with LADWP's service area.

Neighborhood boundaries are available but come from an LA-Times crowd sourced mapping project.

Which geographies are the most meaningful?



Neighborhood Councils
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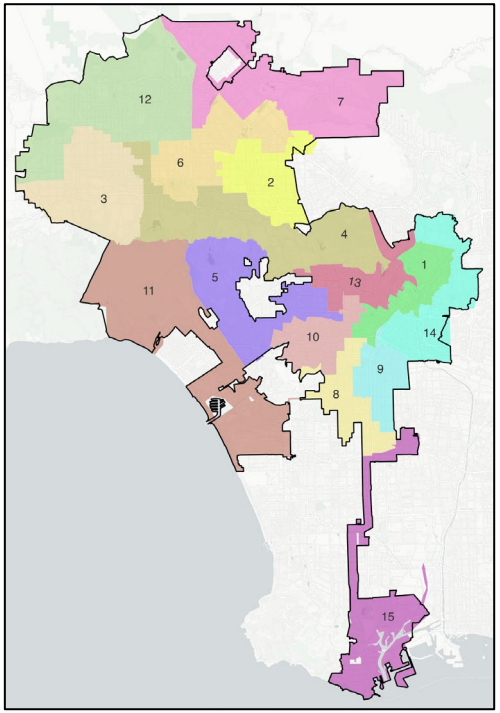


Council Districts
15

Neighborhood councils are well established, but some areas are not represented.

Council districts are also familiar and politically relevant but tend to be quite large by comparison.

Steering Committee Feedback

- Steering Committee members indicated that the "Neighborhood" geographies would be useful to consider as these were familiar and readily identifiable to many.
- Concerns were also expressed about the potential sensitivity of data that might be reported at the Zipcode level because of the large variability in the size and composition patterns of customers within those geographies.
- What other feedback do you have?

Q&A

LADWP's
Strategic Long-Term Resource Plan

Roadmap to an Equitable Carbon-Free Future

LA100

ACHIEVING 100% RENEWABLE ENERGY IN LOS ANGELES

LA100 Study

Completed

Unprecedented analysis ID'd multiple paths to achieve 100% target

Considers reliability, equity, sustainability and affordability

- Confirmed 100% by 2035 achievable
- Community & stakeholder input

Common Investments Across All Scenarios

LA100 Equity Strategies

Fall 2021-23

Community-driven, objective to achieve equity

Robust community engagement

Areas of Focus

- Improve air quality
- Solar access
- Energy Efficiency
- Affordable rates
- Demand management
- Debt relief
- EV charging access

2022 SLTRP

Fall 2021-2022 | 2035 & 2045 Targets

Our comprehensive integrated power plan

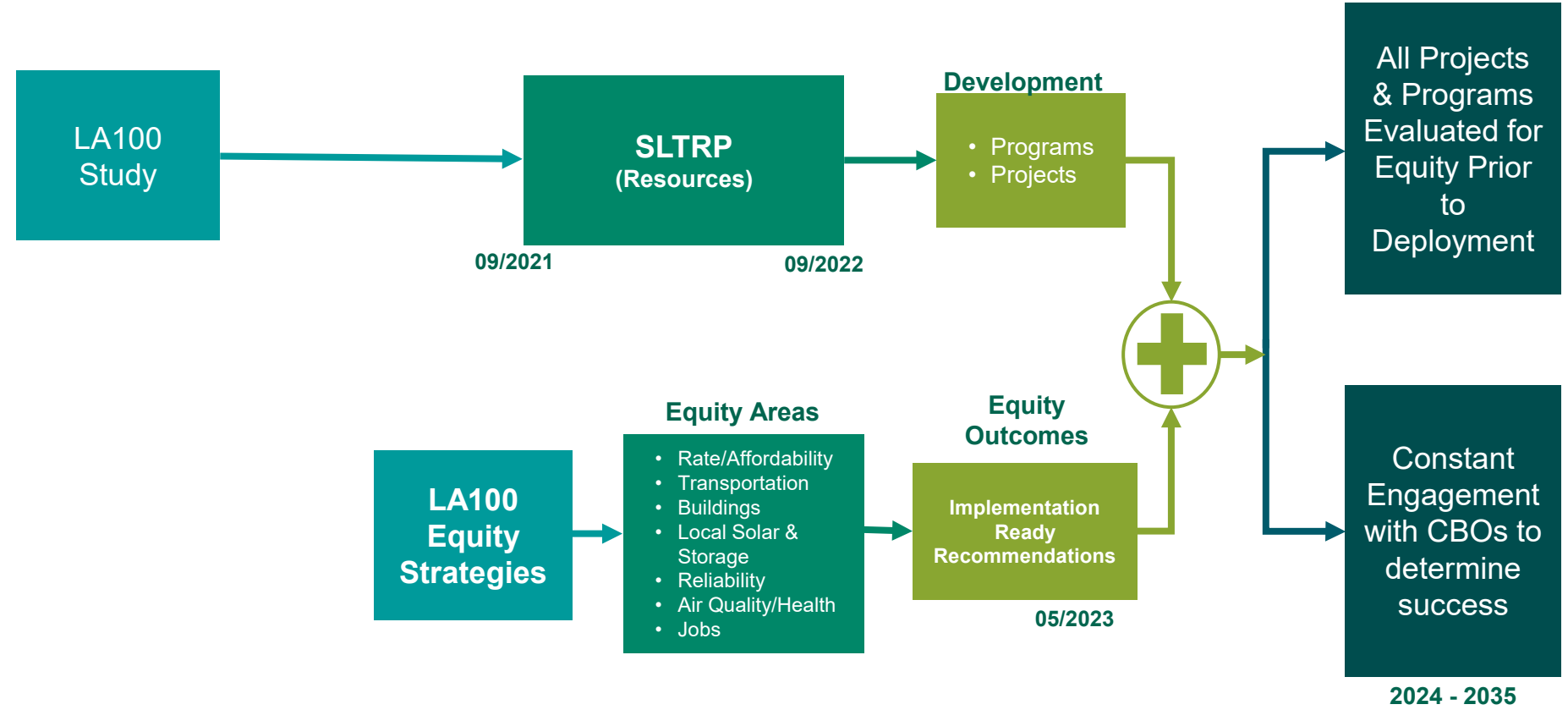
Recommends path forward to achieve our goals

- Integrates findings of LA100
- Community & stakeholder input
- Prioritizes reliability, resiliency, equity, affordability, sustainability

Considerations

- Workforce
- Building, Operating & Maintaining
- Cost to customers
- Supply Chain Risk
- Implementation and Feasibility

Interdependency between SLTRP and Equity Study




LA100
ACHIEVING 100% RENEWABLE ENERGY IN LOS ANGELES
Identified pathways to get to 100% renewable & carbon-free energy, along with job creation, environmental benefits, equity implications, and costs & rate impacts.

Based on LA100 findings, Mayor and City Council set accelerated targets and requirements for developing the 2022 SLTRP

City Council Motion (No. 21-0352):

- New target to achieve 100% carbon free by 2035 (with equitable and minimal adverse impact on ratepayers) with interim goals of 80% renewables and 97% carbon free by 2030.
- Prioritize equity in SLTRP for EJ communities. Ensure no increase in emissions at EJ communities.
- Report on “no-regrets” projects, accelerated pathway, and “shovel-ready” projects.
- Report on community engagement strategies.
- Six-month report card to ECCEJR, including challenges and barriers.

LA100 Study Caveats for SLTRP

- Scenarios to achieve 100% by 2035 assume ability to quickly scale up hydrogen infrastructure.
- Major new and expanded transmission are among the most uncertain inputs to modeling the pathways to 100% renewable energy.
- The evolution of the power system outside of LADWP could impact LADWP's opportunities.
- The potential role of the customer has not been fully explored.
- Climate change could impact the ability of LADWP to maintain resource adequacy.
- The study did not fully assess the feasibility of the accelerated deployment; in particular, the study does not evaluate the availability of manufacturing supply chains and labor forces or detailed construction schedules for the resources identified in each scenario.

Overview: What is LADWP's SLTRP?

The Power Strategic Long-Term Resource Plan (SLTRP) is a roadmap to meet our future energy needs, comply with regulatory mandates, meet reliability requirements, and reduce emissions in a cost-effective manner.

Goals:
Develop a recommended scenario that guides our near-term actions and future energy planning through 2045.
Provide a recommended path to achieve 100% carbon free by 2035.

SLTRP Framework

Guided by an Advisory Group of stakeholders from community, businesses, local government, homeowners and customers

Updated annually with major stakeholder engagement every 2 years

Paused after 2017 while LA100 Study was underway

Resuming annual updates with the 2022 SLTRP

2022 SLTRP Key Elements (Planning)

Public Engagement:

- Advisory Group input
- Equity Strategies engagement
- Community & stakeholder outreach

Planning Considerations:

- Future resource mix
- Legislative and Regulatory Mandates
- Resource Adequacy
- Greenhouse Gas Emissions
- Program Revenue Requirements
- Rate Impacts
- Minimizing Usage of Valley
- Resiliency

2022 SLTRP Key Considerations (Implementation)

How long do projects take to build?
- California Environmental Quality Act (CEQA) timeline

How much power do we need for local neighborhoods?

Understanding emerging technologies and maturity
(e.g. green hydrogen, energy storage)

Deadlines for retiring ocean-cooled generating units
(Scattergood, Haynes & Harbor)

2022 Strategic Long-Term Resource Plan (SLTRP) – Core Scenarios

LA DWP Los Angeles Department of Water & Power

SCENARIOS (100% Carbon Free by 2035)

CLEAN ENERGY TARGETS

	SB 100 Reference Case	Case #1	Case #2	Case #3
Total Renewable Portfolio Standard 2030	60%	80%	90%	90%
Total Clean Energy (Renewable, Hydro and Nuclear) Penetration Achieved 2035 vs. 2045	2035 80% 2045 90%	2035 100% 2045 100%	2035 100% 2045 100%	2035 100% 2045 100%
Distributed Energy Resource Deployments	Reference Levels	High Levels	High Levels	Highest Levels

2022 SLTRP Overview - Sensitivities

Commodity Prices	Examples	Price Sensitivity	Scenario to Apply
Fuel Prices*	Natural Gas, Green Hydrogen, etc.	High/low sensitivities	SB100, Case 2, Tentative Recommended Case
GHG Prices*	GHG Allowance Prices	High/low sensitivities	SB100, Case 2, Tentative Recommended Case
Renewables and Energy Storage Prices*	Solar, Wind, Geothermal, Li-Ion, flow, etc.	High/low sensitivities	SB100, Case 2, Tentative Recommended Case

**bookend scenarios to evaluate price sensitivities by matching low and high commodity prices:*

- ***Low Bookend:*** *Low natural gas prices, low hydrogen prices, low GHG prices, low renewable and energy storage prices*
- ***High Bookend:*** *High natural gas prices, high hydrogen prices, high GHG prices, high renewable and energy storage prices*

Implementation Risk	Description	"What-if" Sensitivities	Scenario to Apply
Emerging Technologies	No In-Basin Combustion Alternatives	Long duration capacity (e.g. Hydrogen Fuel Cells)	Case 1, Case 2, Case 3
Demand Side Resources	Demand Response	Reaching only half of the 576/633 MW of DR by 2035	Case 1, Case 2, Case 3
Transmission	Transmission Upgrades (over 10 projects by 2030)	More difficult in-basin upgrades not completed by 2030	Tentative Recommended Case
Load	Transportation/Building Electrification	Low Load and High Load	Tentative Recommended Case

Outcomes of 2022 SLTRP

- High-level roadmap to 100% carbon free by 2035, driven by LADWP with stakeholder input
- Focus on big buckets of resources (large-scale renewables and energy storage, small-scale local solar and storage, EE and demand response, etc.)
- Modeling scenarios to determine best path to meet our mandates based on the guiding principles
- Integrates total Power System costs, infrastructure, resource planning, etc.

SLTRP Examples that relate to LA100 Equity Strategies

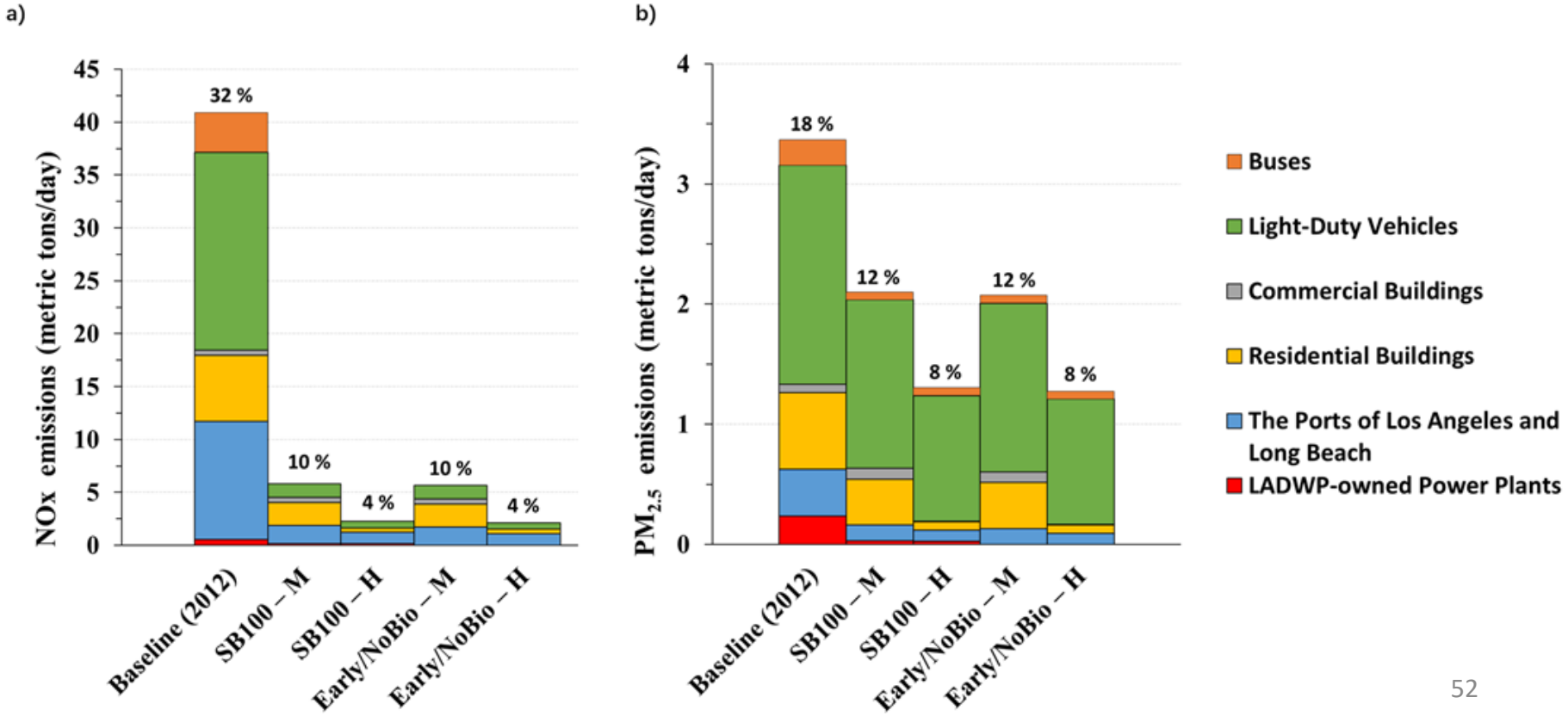
Reducing Use of Valley Generating Station

LADWP to dramatically reduce utilization of Valley Generating Station:

- The combination of **80% renewables** by 2030, **Haynes recycled water cooling,** and **Scattergood capacity** reduces Valley usage
- Valley usage to be reduced from 30% to 5% thereby reducing adverse impacts on the local community

Utilize significant space at Valley Generating Station for future clean energy projects

Electrification Drives Air Quality and Health Benefits



Deploying Distributed Energy Resources Equitably

We need: 1,000 MW of local solar, 500 MW of demand response, double energy efficiency, and support 580,000 electric vehicles by 2030.

Progress:

- LA100 Equity Strategies study through 2023
- Expanded FiT from 150 MW to 450 MW
- Launched FiT+ allowing energy storage
- Launched VNEM Pilot Program
- Expanded Power Savers (residential DR program)
- More DER proposals under negotiations

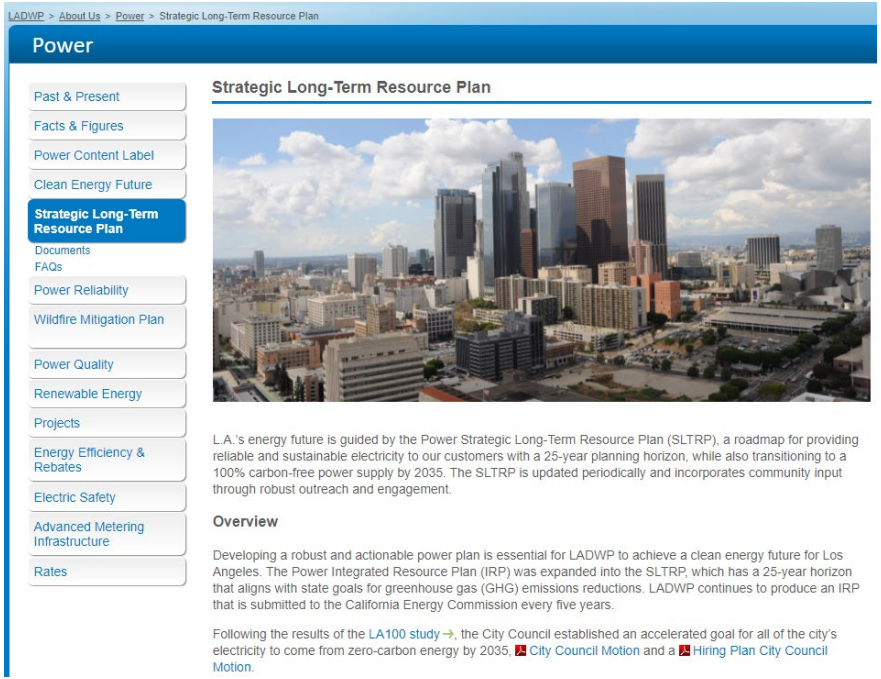
Key Takeaways on the 2022 SLTRP

- SLTRP is a living document; updated each year with stakeholder engagement every 2 years.
- 2022 SLTRP will identify the buckets for achieving goals. Within these buckets, LADWP will incorporate the LA100 ES findings.
- Expect to fully incorporate LA100 ES recommendations in 2024 SLTRP update.
- LA100 ES recommendations will inform future programs designs and bulk power development

Communications & Public Affairs

Website: ***ladwp.com/sltrp***

Email address: ***powerSLTRP@ladw.com***



Recap from LA100 Equity Strategies Steering Committee

Questions and Comments from LA100 ES Steering Committee on SLTRP:

- Streamlining CEQA Process
- Selection of SLTRP recommended case
- Glad to hear SLTRP is evaluating air quality, environmental, and rate impacts

Q&A

Wrap Up and Next Steps

Going Forward

Advisory Committee Meetings

August 24, 2022
Virtual

- Energy affordability modeling approach
- Equity strategies and metrics synthesis from Steering Committee feedback

October 26, 2022
Virtual

- Air quality and health impact/medium- and heavy-duty vehicle emissions impact modeling approach
- Workforce development
- Household energy modeling approach

Subsequent Meetings

- **Fourth Wednesday of every other month, 10:00 a.m. – 12:00 p.m. PT**
- **Virtual** for near-term

Thank you!