



Clean Grid LA Plan Update

Aligning with LA100

**Briefing for City of Los Angeles Council Committee
Energy, Climate Change, Environmental Justice, and River
August 19, 2021**



The Los Angeles 100% Renewable Energy Study

LA City Council motions directed LADWP to evaluate:



What are the **pathways and costs to achieve a 100% renewable electricity supply** while electrifying key end uses and maintaining the current high degree of reliability?



What are the potential benefits to **the environment and health**?



How might **local jobs** and the **economy** change?



How can communities shape these changes to prioritize **environmental justice**?

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Scenarios Based on Advisory Group Priorities

Each Scenario Evaluated Under Different Customer Demand Projections (different levels of energy efficiency, electrification, and demand response)

Moderate

High

Stress



SB100

Evaluated under **Moderate**, **High**, and **Stress** Load Electrification

- 100% clean energy by **2045**
- Only scenario with a target based on retail sales, not generation
- Only scenario that allows up to 10% of the target to be natural gas offset by renewable electricity credits
- Allows existing nuclear and upgrades to transmission



Early & No Biofuels

Evaluated under **Moderate** and **High** Load Electrification

- 100% clean energy by **2035**, 10 years sooner than other scenarios
- No natural gas generation or biofuels
- Allows existing nuclear and upgrades to transmission



Limited New Transmission

Evaluated under **Moderate** and **High** Load Electrification

- 100% clean energy by **2045**
- Only scenario that does not allow upgrades to transmission beyond currently planned projects
- No natural gas or nuclear generation



Transmission Focus

Evaluated under **Moderate** and **High** Load Electrification

- 100% clean energy by **2045**
- Only scenario that builds new transmission corridors
- No natural gas or nuclear generation

LA100 Study Outcomes

LA100 Study was completed and final report was released on March 24, 2021.

- 100% renewable energy is achievable through multiple pathways
- Rate impacts will approximately track inflation if we see building and transportation electrification
- Significant investment (approx. \$57-87B) and job creation (9,500 jobs)
- We can achieve 100% by 2035
- There are common investments across all pathways to 100%



Across All LA100 Scenarios



Electrification
Efficiency
Flexible Load



Customer
Rooftop Solar



Renewable
Energy



Storage



Transmission,
Distribution



Renewably Fueled
Dispatchable
Turbines

Solar: + >5,700 MW
Wind: + >4,300 MW

+ >2,600 MW

+ >2,600 MW
(in basin)

Much More

Natural gas



Biofuel/ hydrogen

Today:
Daily

Future:
Infrequently

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100% Carbon Free by 2035



- LA100 studied one 2035 scenario, the remaining scenarios targeted 2045
- LADWP will study paths to 2035 in the next Strategic Long-Term Resource Plan (SLTRP)
- However, we learned from LA100 there are investments we can make now under any scenario
- Those investments comprise the Clean Grid LA Plan

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Clean Grid LA Plan: Guiding Principles

Environment. Reducing levels of GHGs and gas usage on a system level and in-basin.

Equity. Preventing over-reliance on Valley Generating Station, while reducing overall GHGs and gas usage, while increasing DERs equitably.

Resiliency. Ensuring LADWP's grid resilience during high-impact, low-frequency events such as wildfires.

Affordability. Minimizing costs to ratepayers while pursuing ambitious clean energy goals and ensuring a reliable power supply.

Progress Towards 100%. Providing the flexibility necessary for the rapid transmission buildout required to **support our progress towards 100%.**

Clean Grid LA Plan: Aligning with LA100

**Accelerate to 80% Renewable
97% GHG-Free by 2030**

Increase to 80% renewable energy by 2030 to achieve 97% GHG free by adding **3,000 MW** of new renewables.

**Complete No-Regrets
Transmission Projects**

Complete **10 critical transmission projects over 10 years** to maintain grid reliability and meet growing EV, building electrification, LAX, and Port of LA electricity demand

Transform Local Generation

Green hydrogen Request for Information (RFI) for all in-basin generating stations. Construct **hydrogen capacity at Scattergood**. Retrofit **Haynes to recycled water cooling**.

Accelerate Energy Storage

Build over **1,000 MW of energy storage by 2030** to support short-duration in-basin and out-of-basin capacity needs.

**Accelerate Distributed
Energy Resources Equitably**

Deploy **1,000 MW of local solar, 500 MW of demand response**, doubling energy efficiency, and support 580,000 electric vehicles by 2030. Adopt goal of **50% of DER investment reaching disadvantaged communities**.

Accelerate to 80% Renewable and 97% Carbon Free by 2030

- Deploy 3,000 MW of new renewable projects
- Leverage significant existing external transmission
- Local transmission critical to delivering renewable power
- Local generation and transmission capacity critical to integrating renewables and reliability

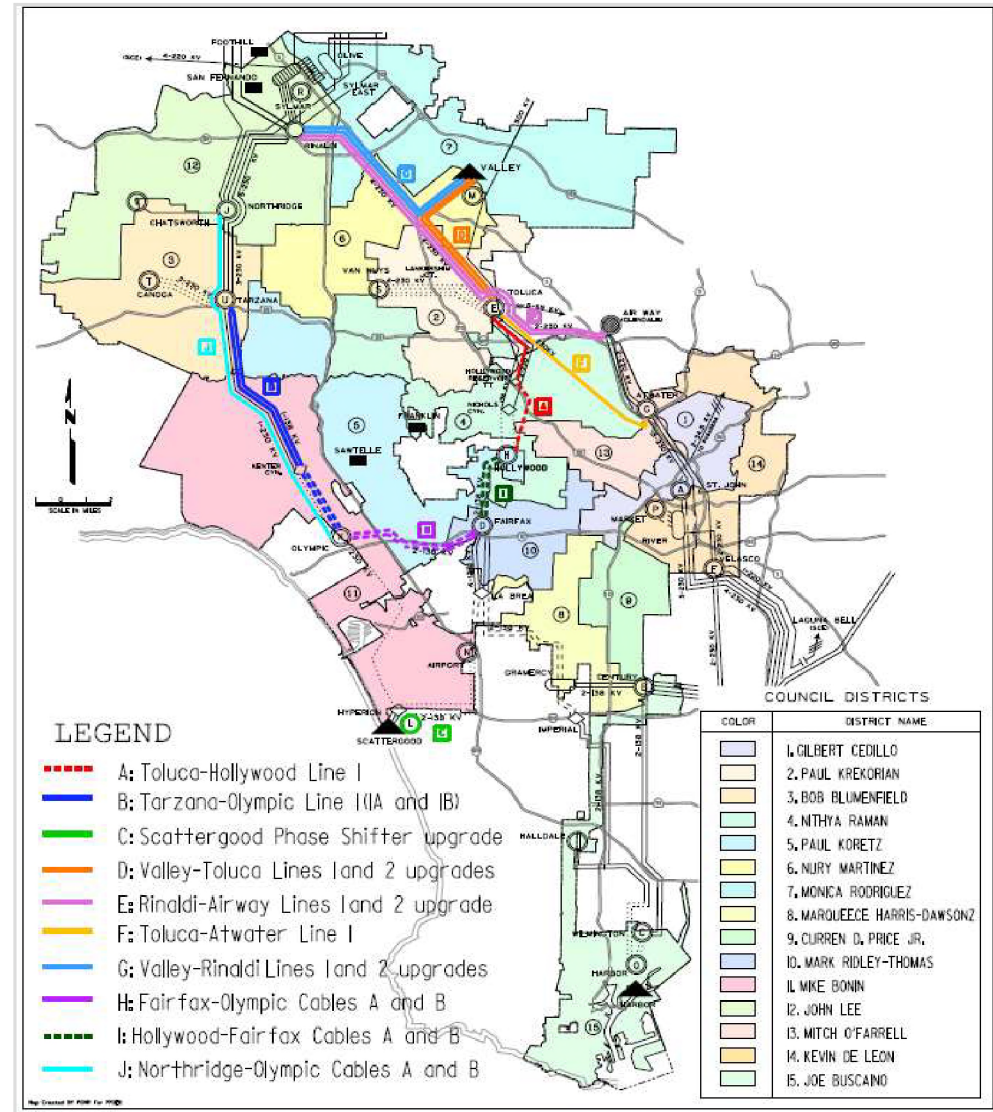
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Complete No-Regrets Local Transmission Projects

- 10 Transmission Projects over 10 years to bring renewable power where its needed within the City
- Unprecedented deployment of transmission infrastructure
- **Flexible generation capacity in-basin needed to complete transmission projects in time for 2035**

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Transform Local Generation

- Green hydrogen Request for Information (RFI) for all in-basin generating stations
- Construct green hydrogen capacity at Scattergood
- Retrofit Haynes to recycled water cooling
- Dramatic reduction in gas across all fleet, particularly at Valley Generating Station

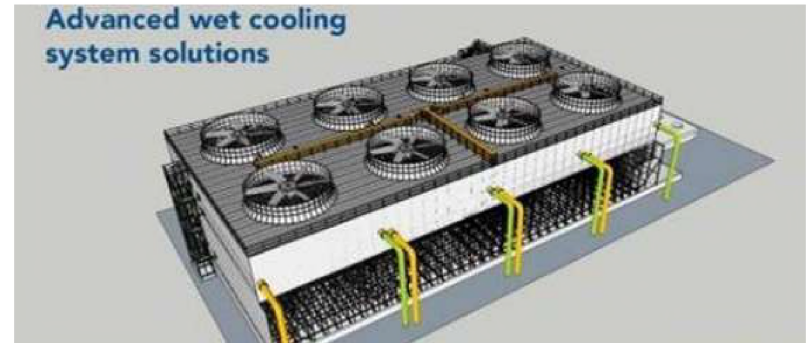
Hydrogen Capacity at Scattergood

- **Transforming local generation.** LA100 study shows need for renewable in-basin capacity at all generating stations, in all scenarios.
- **System reliability.** Capacity at Scattergood is our most immediate need.
- **Load growth.** Port & LAX electrification, Operation NEXT at Hyperion.
- **Challenges.** Limited footprint and in-service prior to retirement of Units 1 & 2 to support transmission buildout.
- **OTC extension critical.** Scheduled for 2024, seek extension to 2029. Net reduction in water use with early elimination of water usage at Haynes.



Haynes Recycled Water Cooling

- **Newer efficient unit.** One of the most efficient units, constructed in 2005.
- **Significant cost savings and GHG reductions.** Utilization of efficient units means less gas utilization.
- **Reduces usage of Valley Generating Station.** Haynes is more efficient than Valley and would get dispatched instead of Valley.
- **Explore green H2 Usage.** Explore the possibility to utilizing green H2 through the RFI.
- **Early OTC Compliance Opportunity.** Recycled water cooling could be in place prior to 2029 OTC resulting in early cessation of ocean water usage.



Reduced Use of Valley Generating Station

- Clean Grid LA Plan dramatically reduces utilization of Valley Generating Station:
 - Today Valley is utilized 30% of the time
 - 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%
- Utilize significant space at Valley Generating Station for future clean energy projects

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Accelerate Energy Storage

- Build over 1,000 MW of energy storage by 2030 in-basin and out-of-basin
- Large scale energy storage at or near all in-basin Generating Stations
- Negotiating expansion of Beacon Energy Storage by 50 MW
- Expand energy storage by co-locating storage at all future utility scale solar projects
- Advertised Energy Storage Rolling Request for Proposals in 2020
- Increased usage of Castaic pumped hydro to integrate increased renewables



Accelerate Distributed Resources Equitably

- Deploy 1,000 MW of local solar, 500 MW of demand response
- Support 580,000 electric vehicles by 2030
- 50% of DER investment to disadvantaged communities
- Community-driven outcomes identified through stakeholder engagement




Doubling Energy Efficiency

- LADWP's successfully achieved our 15% reduction goal between 2010-2020
- Over the next 10 years LADWP's goal will be another 15% reduction in energy use
- Lower cost pathways to 100% rely both on significant EE and electrification
- Provides cost savings to customers, particularly our most vulnerable customers
- Provides jobs and workforce development opportunities



Electric Transportation Efforts

- Over 13,500 Commercial EV Chargers and on track for 25,000 by 2025
- \$40M for incentives approved and funded by State programs (LCFS & AB 32)
- \$5,000 rebate for Level 2 EV Chargers in disadvantaged communities
- \$1,500 Used EV Rebate
- Supporting LADOT/Blue LA low-income EV car share program and education and outreach
- Installing public chargers at LADWP Customer Service Centers in disadvantaged communities



Charge Up LA!

Free electric vehicle charging at our Crenshaw Customer Service Center


7 days a week
8 a.m. to 8 p.m.

Fast Chargers Available!

4030 Crenshaw Blvd.
LA, CA 90008

LADWP has great rebates for new and used electric vehicles and vehicle chargers.

ladwp.com/ev

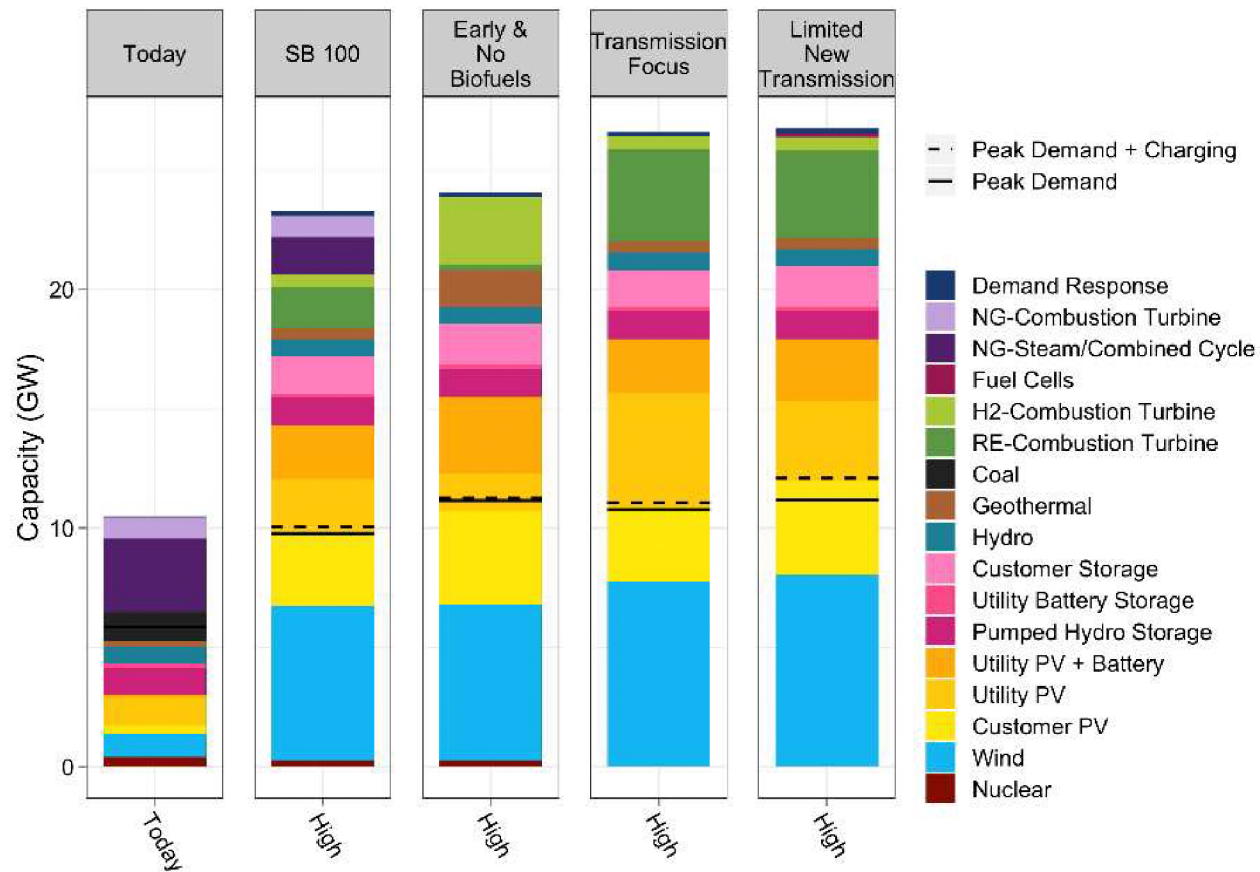


Recent Significant Efforts on DERs

- Recreation & Parks Microgrid MOU
- Community Solar Programs Expansion
- Feed-in Tariff Expansion
- Expand Demand Response Programs
- Advertised DER Request for Proposals
- Comprehensive Affordable Multifamily Retrofits (CAMR)
 - Deep decarbonization of multi-family buildings by retrofitting for energy efficiency, building electrification, and on-site solar PV
 - Template for expansion across all LADWP customer DER programs

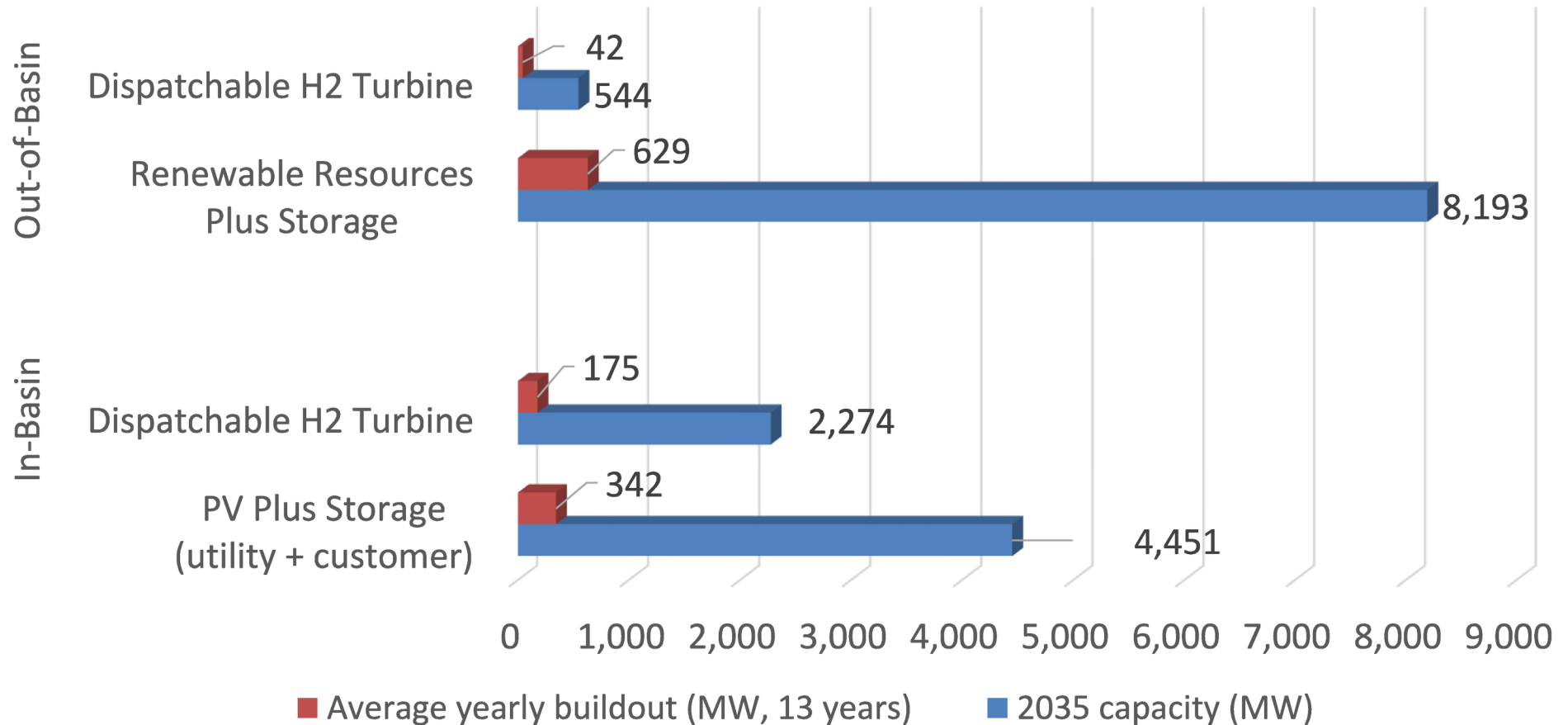


LA100 Study's Capacity Mix in 2045



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LA100's 100% Carbon Free 2035 Scenario Required Yearly Buildouts (MW)

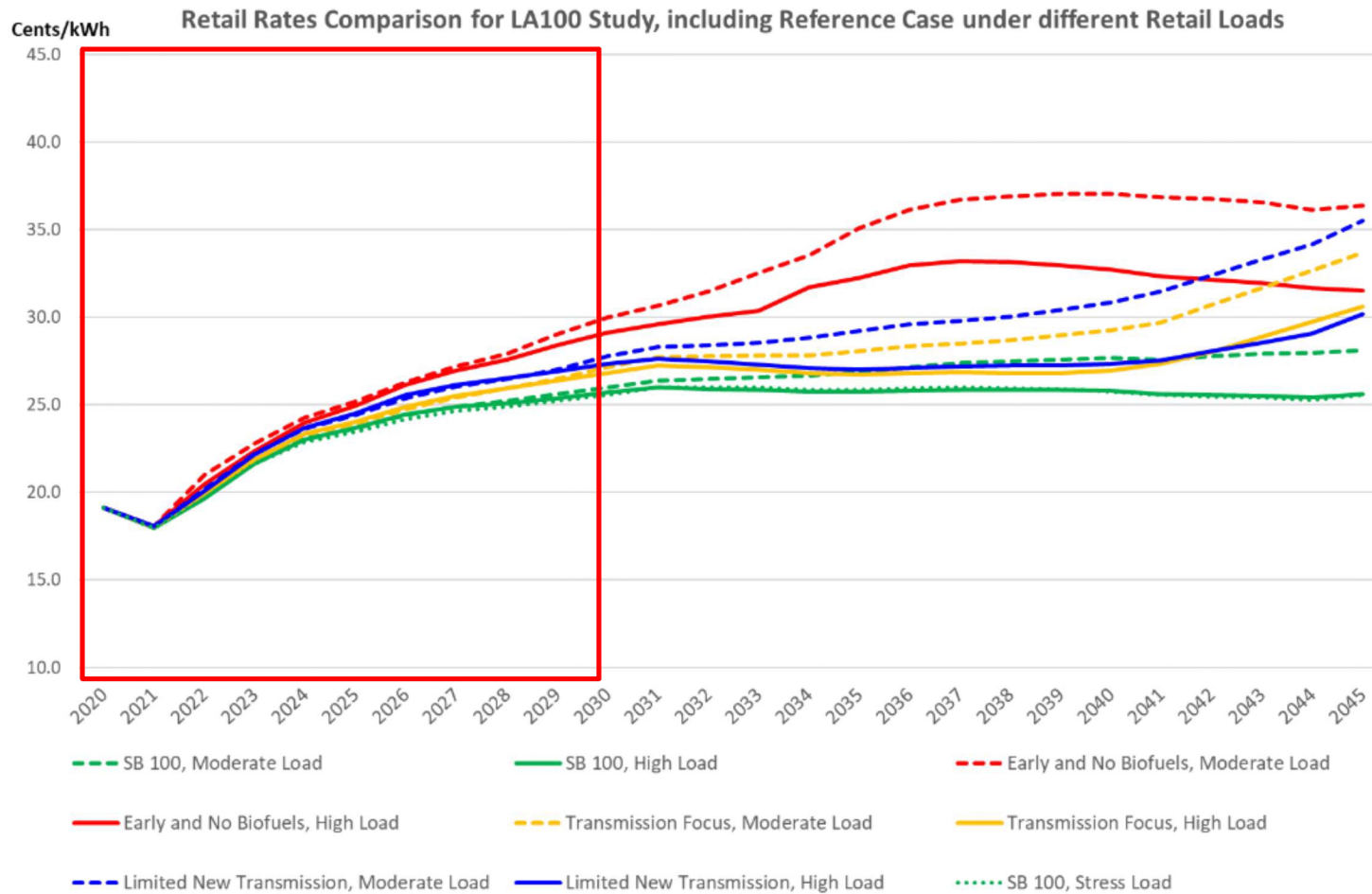


Needed Distribution Investments

- **Distribution Automation**
 - LADWP does not yet have a full smart meter deployment
 - Provides critical visibility for planners and operators, **crucial for Distributed Energy Resource deployment**
 - Distribution Automation (communications network) is in progress
- **Capacity Needs for Electrification**
 - Over 650 MW Receiving Station capacity shortfall by 2040
 - Over 800 MW of Distributing Station capacity shortfall by 2040
 - These require the building or expansion of tens of new stations
 - **In the last 15 years LADWP has built two stations**
- **Hundreds of Stressed Distribution Assets**
 - A third of all feeders (>500 distribution lines) are over capacity
 - **Existing replacement targets need to increase several fold**

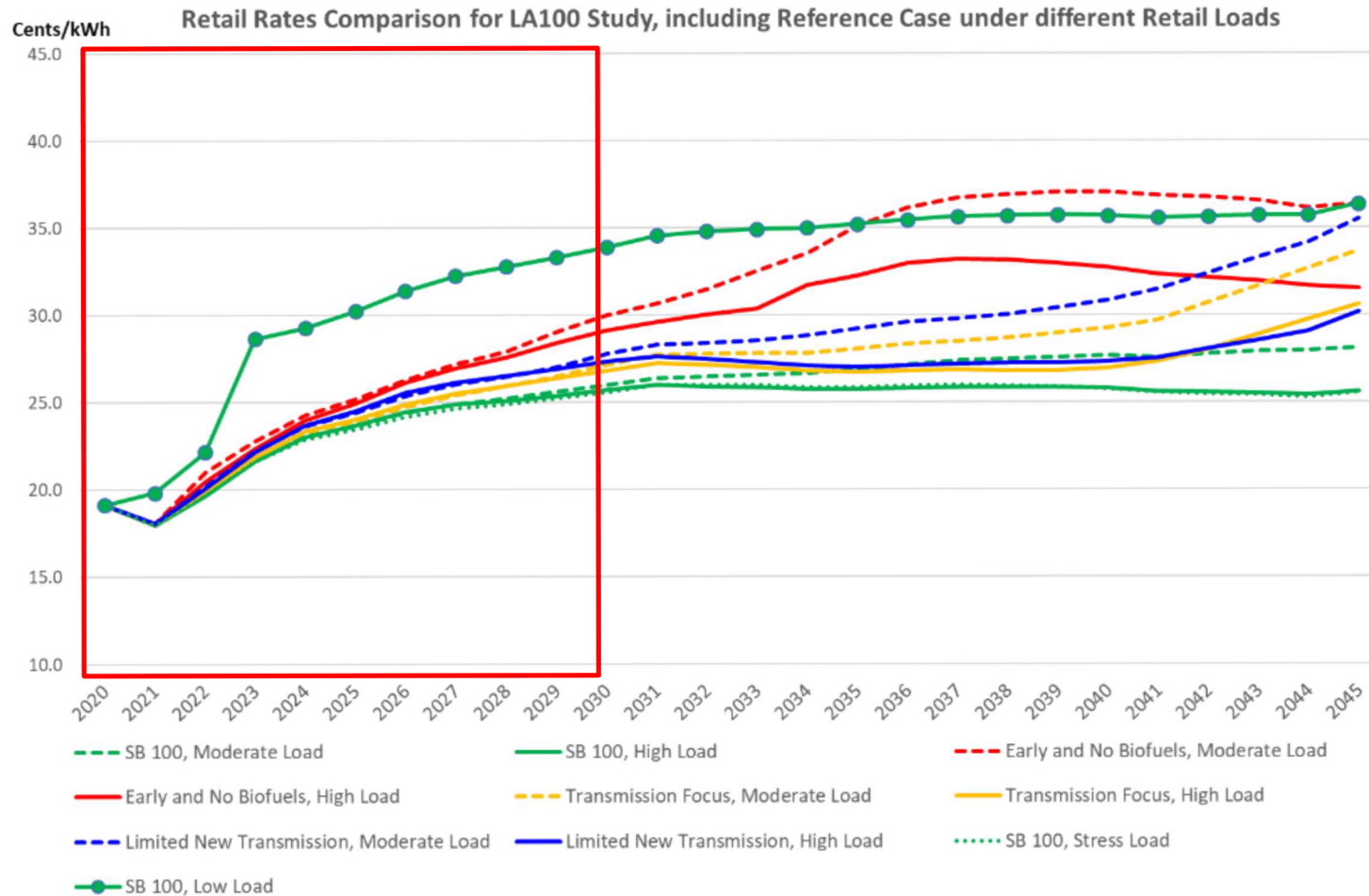


LA100 Rate Analysis

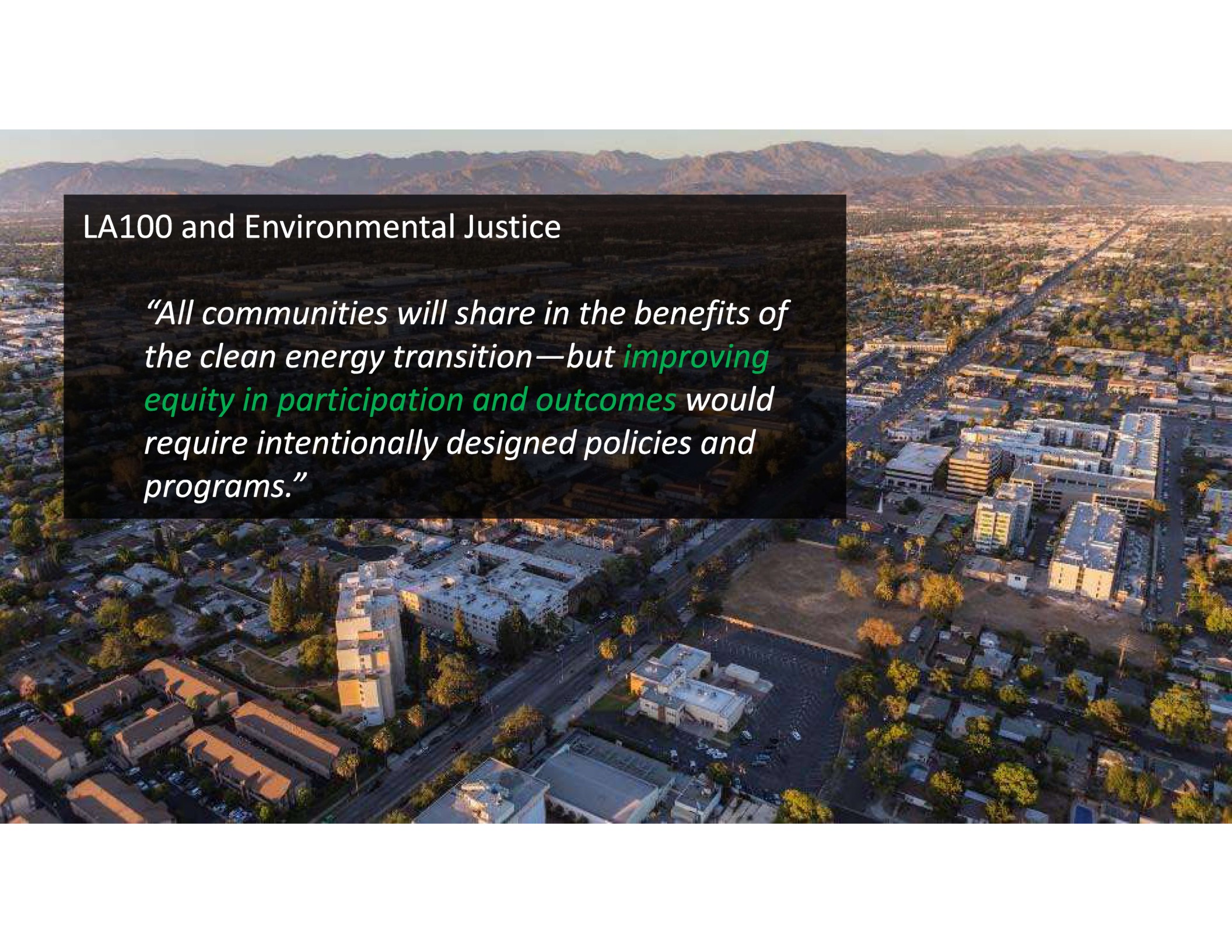


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LA100 Rate Analysis



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An aerial photograph of a city, likely Los Angeles, showing a mix of urban development, green spaces, and a large body of water in the foreground. The city is surrounded by mountains, and the sky is clear. The image is used as a background for the text overlay.

LA100 and Environmental Justice

*“All communities will share in the benefits of the clean energy transition—but **improving equity in participation and outcomes** would require intentionally designed policies and programs.”*

An aerial photograph of a city grid, likely Los Angeles, showing a dense pattern of buildings and streets. A semi-transparent dark rectangle is overlaid on the center of the image, containing text. The top right corner of the image has a bright, hazy yellow light effect.

“LA100 Equity Strategies” effort approved on June 22, 2021

- Analyze how to achieve specific, energy-just, stakeholder-driven outcomes
- Energy Justice Structure:
 - Procedural justice
 - Recognition justice
 - Distributional justice
- Analyze contributing factors to historical inequities
- Evaluate strategies to achieve community-driven equitable outcomes
- Process to be inclusive, with legitimate and substantive engagement

LA100 Advisory Group Stakeholder Engagement Process

Extensive three-year engagement process: 2017 – 2021
Led by NREL and facilitated by Kearns & West (K&W)

47 Advisory Group Member Organizations

47 Primaries, 29 Alternates, 32 Observers
32 Meetings Total + Owens Valley Tour
11 in-person & 21 virtual

Two Rounds of Public Community Outreach

4 virtual meetings in Jan 2021 (Awareness)
6 virtual meetings in May 2021 (Results)
Targeted Briefings with AG Members & EJ groups



LA100 Advisory Group



SLTRP Advisory Group

Ongoing Stakeholder Engagement

2021 SLTRP Advisory Group builds off of LA100 Advisory Group Roster

Modeled after LA100 protocols with K&W facilitation

Plans to launch in September 2021

Meetings through mid-2022

Iterative process that happens every two years

Focused on bulk power resources planning



LA100 Equities Strategies will also have deep, targeted stakeholder engagement.

Clean Grid LA - Next Steps

Urgency of Clean Grid LA Plan

- Unprecedented build-out of resources; cannot wait for 1-year SLTRP to adopt formal path towards 2035
- The next 10 years is critical to LADWP's success in reaching 100% by 2035
- Port & LAX electrification, increased demand from Hyperion, building and transportation electrification
- 2028 Olympics



Next Steps

- **LA100 Equity Strategies Kickoff**
- **SLTRP Kickoff**
- **Initiate Clean Grid LA Plan**
 - Accelerate Renewables
 - Transmission No-Regrets
 - Accelerate DERs Equitably
 - Accelerate Distribution Investments
 - Commence approval process for Haynes Recycled Water Cooling
 - Begin CEQA process for Scattergood Green Hydrogen Capacity
 - Advertise Green Hydrogen RFI
- **Integrated Human Resource Plan Update**