LA100 Equity Strategies
Steering Committee Meeting #11
September 21, 2022

LA DWP

NREL Transforming ENERGY

UCLA

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

Simon Zewdu
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Utility Administrator
LA100 Equity Strategies Oversight
& UCLA Contract Administrator

Stephanie Spicer
Community Affairs Manager

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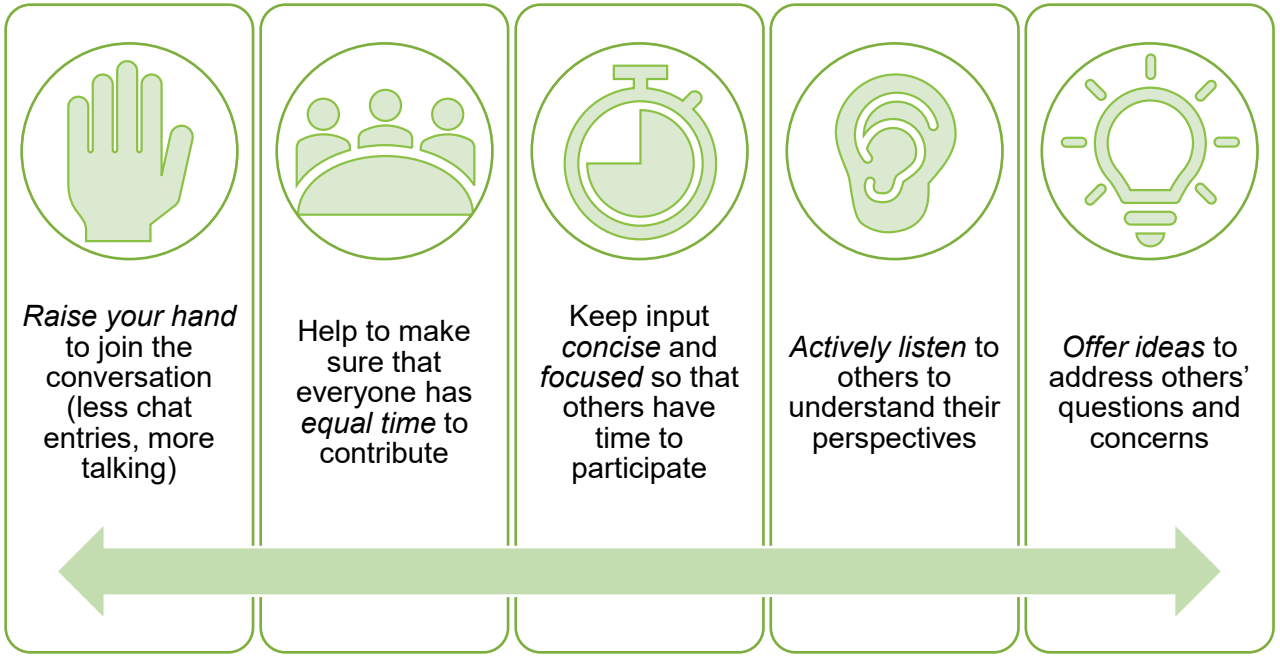
Agenda

Start Time	Item
10:00 a.m.	Welcome
10:05 a.m.	Meeting Purpose and Agenda Overview
10:10 a.m.	Steering Committee Check In and Spotlight: Climate Resolve
10:30 a.m.	Report on Themes from Steering Committee Check Ins
10:40 a.m.	LADWP Equity, Diversity and Inclusion Overview
11:10 a.m.	Community Listening Sessions Update
11:20 a.m.	Air Quality and Health: Update on Medium- and Heavy-Duty Vehicle Emissions Impact Modeling
11:50 a.m.	How LADWP Will Use the Output Metrics
11:55 a.m.	Wrap Up and Next Steps

Our Guide for Productive Meetings



Steering Committee Roster

Organization	Representative
Alliance of River Communities (ARC)	Vincent Montalvo
City of LA Climate Emergency Mobilization Office (CEMO)	Marta Segura, Rebecca Guerra
Climate Resolve	Jonathan Parfrey, Bryn Lindblad
Community Build, Inc.	Robert Sausedo
DWP-NC MOU Oversight Committee	Tony Wilkinson, Jack Humphreville
Enterprise Community Partners	Jimar Wilson, Michael Claproth
Esperanza Community Housing Corporation	Nancy Halpern Ibrahim
Los Angeles Alliance for a New Economy (LAANE)	Kameron Hurt, Estuardo Mazariegos
Move LA	Denny Zane, Eli Lipmen
Pacific Asian Consortium in Employment (PACE)	Celia Andrade, Susan Apeles
Pacoima Beautiful	Veronica Padilla Campos, Melisa Walk
RePower LA	Michele Hasson, Roselyn Tovar
The South Los Angeles Transit Empowerment Zone (SLATE-Z)	Zahirah Mann, April Sandifer
South LA Alliance of Neighborhood Councils	Thryeris Mason
Strategic Concepts in Organizing and Policy Education (SCOPE)	Agustín Cabrera, Tiffany Wong

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Including Future Agenda Items

Tentative Schedule

This Meeting

Project Metrics

- Steering Committee member check-in, spotlight, and conversation summary
- LADWP diversity, equity, & inclusion
- Listening session update
- Air quality and health

October 19, 2022

- Steering Committee member check-in
- Household energy modeling approach
- Shared solar siting
- Energy Atlas

Future Meetings

- Transportation EV and charging infrastructure
- Rate analysis and affordability
- Workforce development
- Reliability and resilience
- Listening sessions

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Check-in:

In 10 words or less, what is your observation of the recent heat wave and energy use?

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Steering Committee Members Spotlight

Climate Resolve

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Climate Resolve

LA100 Equity Strategies
September 21, 2022

Social Equity is at the heart of our work. Everything we do is viewed with a social justice / equity lens.

- **Founded in 2010**
- **Staff of 25**
- **Offices at LA Cleantech Incubator**

Best known for:

- **Urban cooling advocacy and implementation projects**
- **Inclusive project development**
- **Public transportation advocacy**
- **Stopping sprawl**
- **Ambitious — as in taking risks for good things**

Resilience Hub at the Boyle Heights Arts Conservatory

Resilience Plan for Baldwin Hills Parklands

Resilience Plan for Baldwin Hills Parklands

Cool Roofs

Cool Streets

PRE

POST

15

Cool Streets

PRE

POST

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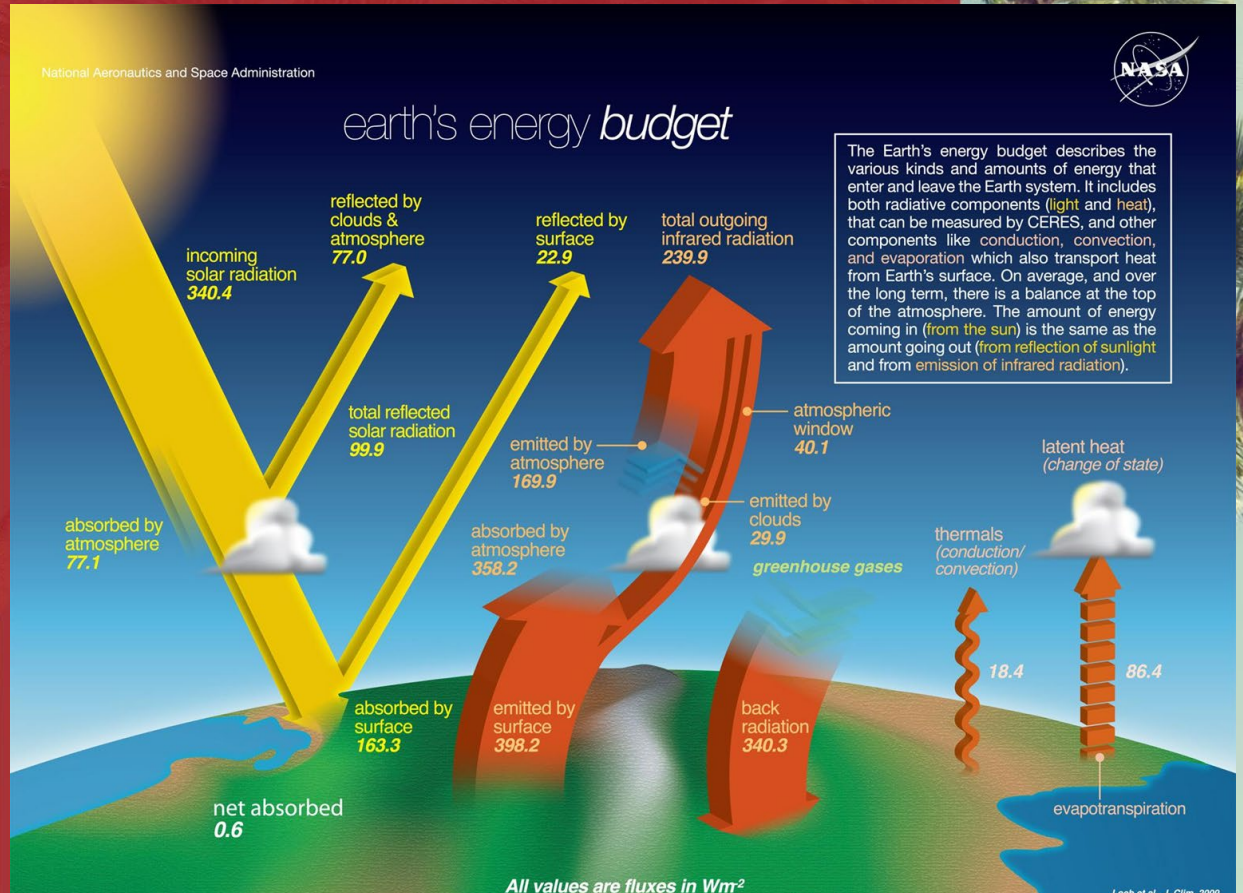
Bouncing Sunlight Back into Space



Loads more:

- Advocate on state laws & regs
- Climate Action & Adaptation Plans
- Lawsuits: HDC & Tejon
- Zero emission transit to Dodger Stadium
- Tree planting
- Public engagement on energy efficiency & water conservation
- Manage GHG mitigation projects
- Research assistance
- Communications

Report on Themes from Steering Committee Member Check-Ins

Joan Isaacson, Facilitator, Kearns & West

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Major Themes from Check-Ins with Steering Committee Members

- **Overall Impressions of Steering Committee Process**
  - General positive feedback
  - Opportunities for more substantive involvement
- **Expectations**
  - Relevant
  - Action vs information
  - More focus on existing challenges
- **Process**
  - Process roadmap and more info on outcomes needed
  - Overrepresentation of dominant voices
  - Subgroups suggestion
  - Repetitive discussions sometimes
  - Meeting lengths ok
  - More pre-read materials
  - Meeting follow-up

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Major Themes from Check-Ins with Steering Committee Members

- **Meeting Format**
  - Breakout rooms are productive
  - More discussion and co-creation
  - More participation tools
  - Need set of community agreements
  - Mix in in-person/hybrid meetings
- **Technical Level of Meeting Discussions**
  - Becoming increasingly technical
  - Technical level can create barriers to participation
  - Unpack technical info more

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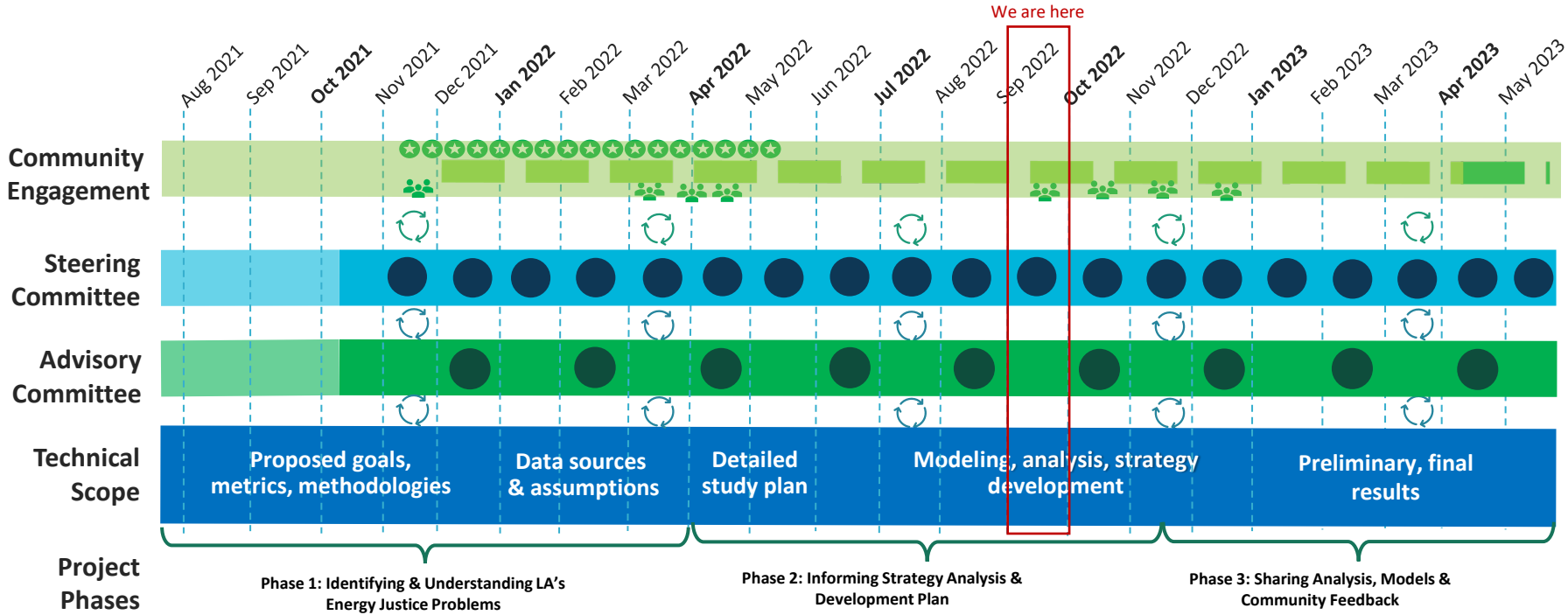
Where are we in the process?

LA100 EQUITY STRATEGIES: TIMELINE & FRAMEWORK



Legend

Key connections
- Feedback loops

Engagement
- Community Engagement
- Steering Committee
- Advisory Committee

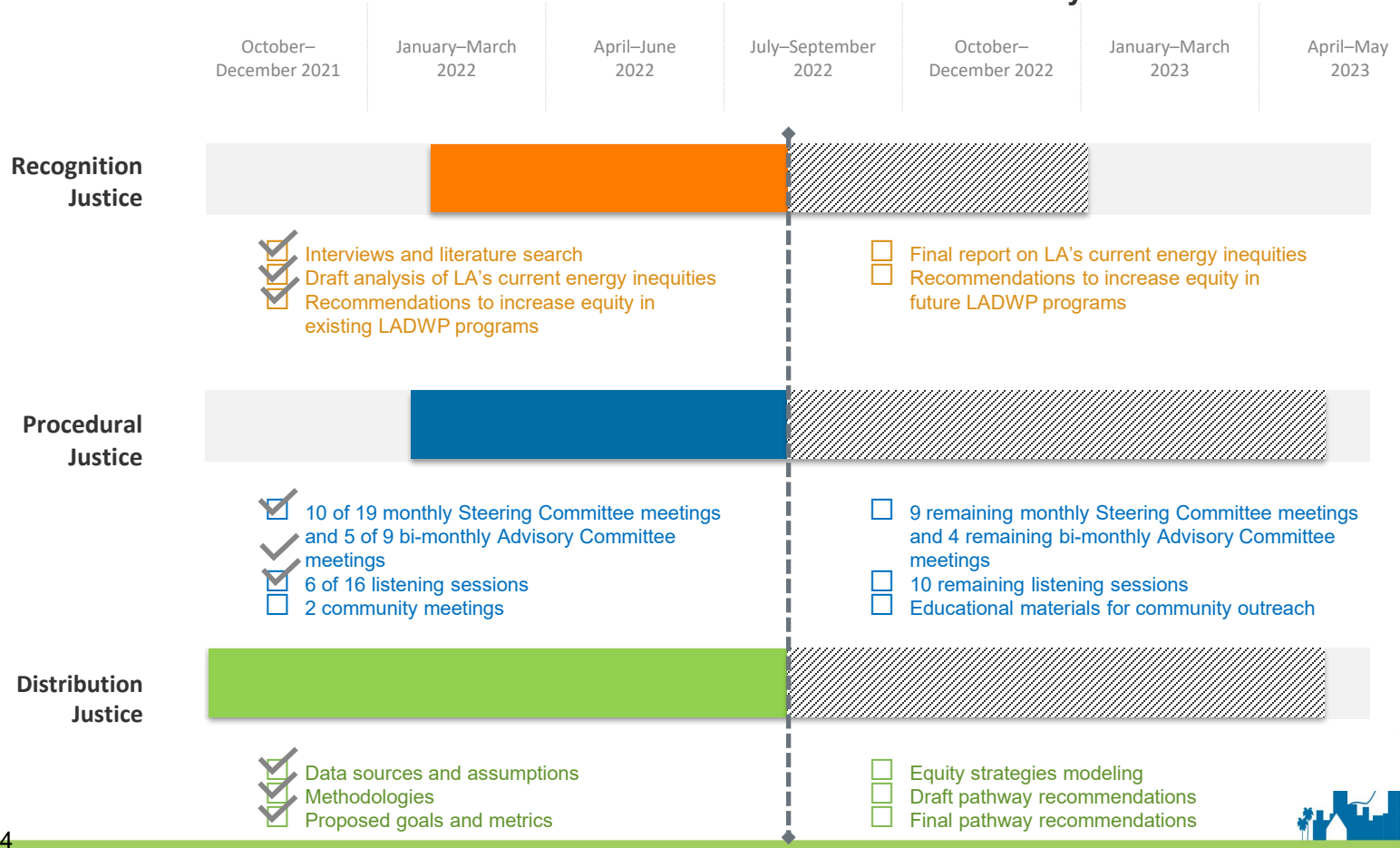
Digital Engagement Phases
- LA100 ES Digital Engagement
- Post-LA100 ES Engagement

Meetings
- Steering Committee
- Advisory Committee

Interviews
- One on One
- Listening Sessions

LA100 Equity Strategies Progress Dashboard

What Has Been Done and Where Are We Today?



LA100 Equity Strategies: Where Are We Going?

Developing Energy Justice Strategies

LA100 Equity Strategies *will co-develop* ***practical, implementation-ready strategies*** *intended to increase* ***energy equity outcomes*** *on* ***LA's road to 100% clean energy.***

Technical Scope

- Proposed goals, metrics, methodologies
- Data sources & assumptions
- Detailed study plan
- Modeling, analysis, strategy development
- Preliminary, final results

Project Phases

- Phase 1: Identifying & Understanding LA's Energy Justice Problems
- Phase 2: Informing Strategy Analysis & Development Plan
- Phase 3: Sharing Analysis, Models & Community Feedback

Community Priorities

- **Affordability & Burdens**
- **Access & Use**
- **Health, Safety, & Resilience**
- **Jobs**

Strategy Development Pathways

- Energy bill stability
- Energy burdens
- Universal home cooling
- Solar, storage, energy efficiency (multifamily, renter-occupied buildings)
- Community solar
- Light-duty electric vehicles & charging
- Mitigation of heavier-duty vehicle health impacts
- Building weatherization and resilience
- Resilience through solar-plus-storage siting
- Support electric reliability through distribution grid upgrades
- Clean energy jobs and workforce development

Topics

- Rates and affordability
- Buildings
- Local solar & storage
- Transportation
- Reliability and resilience
- Air quality and health
- Jobs and workforce development

LADWP Diversity, Equity and Inclusion Overview

Robert Meteau, Andrew Kwok, Mudia Aimiuwu,
LADWP

LADWP Leadership

Robert J. Meteau
Deputy Chief
Diversity, Equity & Inclusion Officer

Andrew Kwok
Assistant
Diversity, Equity & Inclusion Officer

Mudia Aimiuwu
Data Analyst
Diversity, Equity & Inclusion Office

Equity Metrics Data Initiative

Equity Core Category	Metrics
Water & Power Infrastructure Investment	1. Water Quality Complaints 2. Water System Probability of Failure & Planned Replacements 3. System Average Interruption Frequency Index (SAIFI) & System Average Interruption Duration Index (SAIDI) 4. Power System Reliability Program (PSRP) – Pole, Transformer, Cable Replacements
Customer Incentive Programs/Services	5. Rain Barrel/Cistern/Water Tank Rebates 6. Turf Removal Rebates 7. Tree Canopy Program 8. Commercial Direct Install Program 9. Home Energy Improvement Program 10. Refrigerator Exchange Program 11. Consumer Rebate Program 12. Electric Vehicle Infrastructure 13. Low Income & Lifeline Programs
Procurement	14. LADWP SBE/DVBE Program
Employment	15. New Hire/Promotion Demographics

Community Listening Sessions Update

Paty Romero-Lankao, NREL

Listening Sessions: Spaces of Collaboration with Community Participants

From the *What* to the *How*

The What

First Round :

We asked five small groups of Angelenos ***what*** **energy justice means to them**, including their:

(1) vision for a just energy future in their community;

(2) understandings of factors influencing energy inequities in their community; and

(3) suggested energy strategies to redress these inequities.

The How

Second Round :

The next 10 listening sessions aim to **understand *how* to:**

(1) rectify the challenges shared in our last sessions and

(2) achieve the energy equity goals community members have outlined.

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Listening Sessions

Space of Collaboration

Continuing the Community Feedback Loop

- Content co-development
- Recruitment (8-10 local residents will participate each community-specific session)
- In-Person Hosting

Partnering with SC Members to Co-Develop each Session

- Continue our feedback loop with community members
- Create a collaborative space where participants can workshop our understanding of past feedback

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Listening Sessions

Round Two

10 In-Person Listening Sessions

- Two sessions in September 2022
  - —Communities of Focus: San Fernando Valley, South LA #1
- Three sessions in October 2022
  - —Communities of Focus: South LA #2, East LA, Harbor
- Three Sessions in November 2022
  - —Communities of Focus: South LA #1, South LA #2, San Fernando Valley
- Two Sessions in December 2022
  - —Communities of Focus: East LA, Harbor

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Air Quality and Health

Update on medium- and heavy-duty vehicle emissions impact modeling and output metrics

Garvin Heath, NREL
Yifang Zhu, UCLA

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Air Quality & Health Modeling Overview

Questions to Be Answered with NREL and UCLA collaboration:

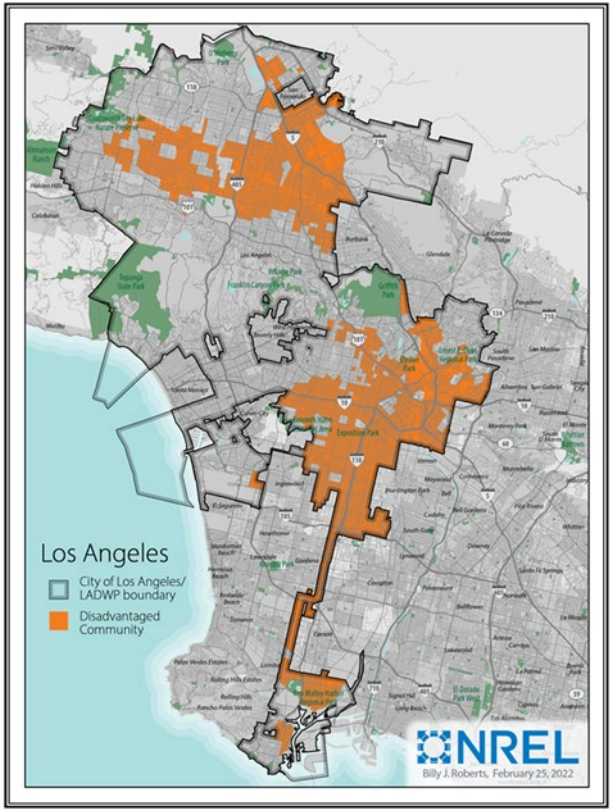
- Electrification of *which types of vehicles (light-, medium-, and heavy-duty)* and *where* would provide the greatest health benefits in disadvantaged communities?
- Will *vehicle electrification* provide greater air quality and health improvements in disadvantaged communities?

Outcomes:

- Answers will inform vehicle electrification incentives and program targeting, and infrastructure investment locations and sequencing.

Steering Committee Guidance:

- Which neighborhoods and roads should be prioritized?
  - Feedback from Steering Committee meeting #5: major freeways, Ports/LAX corridors, Wilmington, Pacoima, South LA



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Air Quality & Health Modeling Overview

UCLA Scenarios

- Zero-Emission Vehicle disparity scenario
- Zero-Emission Vehicle equity scenario
  - Light-duty
  - Light-, medium-, & heavy-duty

Air Quality Modeling

- Model ambient PM2.5 and O3 in 2035 using WRF-Chem (high resolution of about 1 km by 1 km)

NREL Scenarios

- UCLA-developed scenarios
- Medium- and heavy-duty vehicle classes at different electrification levels across a wide range
- Each scenario in many different LA neighborhoods,

Air Quality Modeling

- Near-roadway air quality model (<100 m spatial resolution)

Health Assessment

- Racial/ethnic specific baseline mortality rates
- Mortality due to $PM_{2.5}$, due to O_3
- Monetized health benefits at a community level

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Goal of today's presentation

Discuss:

- Which disadvantaged community (DAC) census tracts to use for sampling and analysis
  - Some DAC tracts are affected by traffic related pollution more than others
  - Develop a "Traffic-Air Quality DAC" (TAQ-DAC) definition based on subset of CalEnviroScreen indicators and Steering Committee feedback
- NREL update
  - Traffic activity and emission rates in the modeling year (2035)
  - Air quality modeling and equity analysis methods
- UCLA update
  - Electric Vehicle Miles Travelled (eVMT) in 2035
  - Emissions projection in 2035

Traffic-Air Quality Disadvantaged Communities (TAQ-DAC)

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Current set of indicators used in CalEnviroScreen 4.0 or its derivatives

Pollution Burden		Population Characteristics	
Exposure	• Ozone and particulate matter ($PM_{2.5}$) concentration • Diesel particulate matter (PM) emissions • Drinking water contamination • Children's lead risk from housing • Pesticide use • Toxic release from facilities • Traffic impacts	**Sensitive population**	• Asthma emergency department visits • Cardiovascular disease • Low birth-weight infants
Environmental effects	• Cleanup sites • Groundwater threats • Hazardous waste • Impaired water bodies • Solid waste sites and facilities	**Socioeconomic factors**	• Educational attainment • Housing-burdened low-income households • Linguistic isolation • Poverty • Unemployment

Only some indicators (marked here in red) are traffic related

Which DAC tracts are more affected by traffic-related air pollution?

Pollution Burden		Population Characteristics	
Exposure	• Ozone concentration • $PM_{2.5}$ concentration • Diesel PM emissions • Traffic impacts	Sensitive population	• Asthma emergency department visits • Cardiovascular disease • Low birth-weight infants

- How do we select which of these indicators to analyze for traffic-related air quality-specific benefits?
- Two obvious choices: “traffic impacts” and “diesel PM emissions”
- Does including other indicators provide more insight?

How do we identify tracts most affected by traffic air pollution? (1)

IDENTIFY

- Consider all traffic/air quality-related indicators in CalEnviroScreen (7)
- Fix two indicators
  - traffic impacts
  - diesel PM emissions
- Combine with other *population* and *pollution* indicators in all combinations

MODEL

- Using CalEnviroScreen 4.0 methodology, calculate score for each tract in California
- Derive a traffic/AQ-affected disadvantaged community classification for each combination

ANALYZE and SELECT

- Analyze tracts (intersecting with CalEnviroScreen 4.0) for all 32 combinations for their scores
- **Select the combination that yields highest median CalEnviroScreen percentile score**

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How do we identify tracts most affected by traffic air pollution? (2)

Fixed Indicators
- Traffic impacts
- Diesel particulate matter emissions

Varied Indicators
- Ozone (O_3) concentration
- $PM_{2.5}$ concentration
- Asthma emergency department visits
- Cardiovascular disease
- Low birth-weight infants

Analyze each combination

Indicator combination	Total tracts with percentile >75 Tracts	Tracts common w/CalEnviro Screen
Traffic, Diesel	486	260
…..	…..	…..
Traffic, Diesel, $PM_{2.5}$, O_3	705	397
…..	…..	…..
…..	…..	…..
Traffic, Diesel, $PM_{2.5}$, O_3, Asthma, Cardio., LBW	567	481

Lower number of tracts is beneficial so we can focus sampling

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How do we identify tracts most affected by traffic air pollution? (2)

Fixed Indicators
- Traffic impacts
- Diesel particulate matter emissions

Varied Indicators
- Ozone (O_3) concentration
- $PM_{2.5}$ concentration
- Asthma emergency department visits
- Cardiovascular disease
- Low birth-weight infants

Analyze each combination

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…..	…..	…..
…..	…..	…..
Traffic, Diesel, $PM_{2.5}$, O_3, Asthma, Cardio., LBW	567	481

Lower number of tracts is beneficial so we can focus sampling

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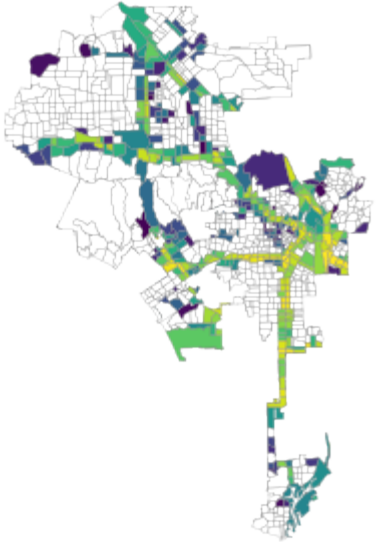
Traffic-affected DACs for sampling and analysis

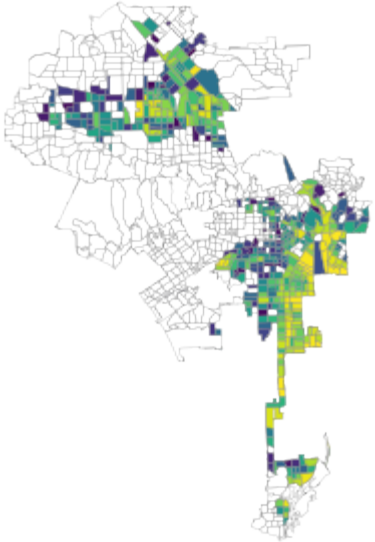
Traffic-DAC



Identify traffic/AQ-affected tracts

select only from

CES4-DAC



Overlay with DAC tracts

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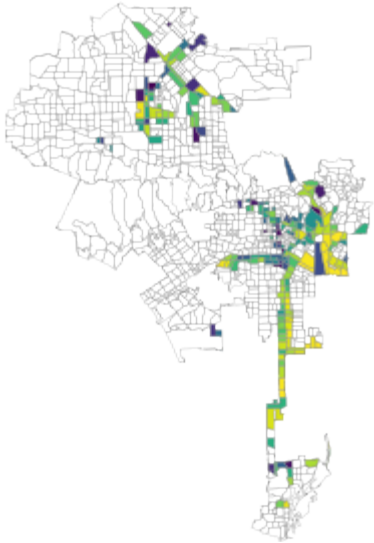
Intersection-DAC



Sample from subset of TAQ-DAC tracts

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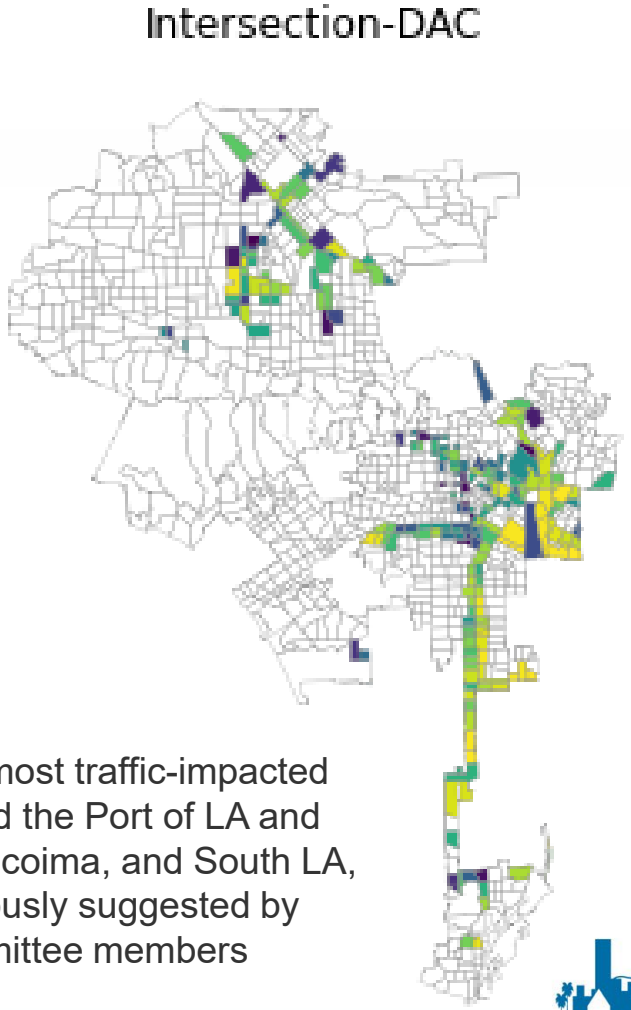
Feedback on traffic/AQ-affected DAC analysis approach



Note: Includes the most traffic-impacted areas near LAX and the Port of LA and within Wilmington, Pacoima, and South LA, which were previously suggested by Steering Committee members

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NREL updates

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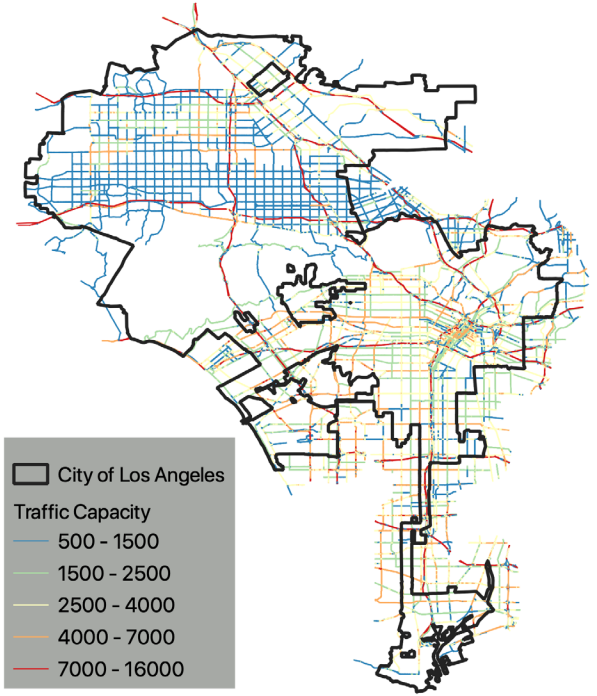
Traffic Activity Data

- We are expecting to use vehicle activity projection data based on UCLA Mobility Lab travel demand modeling.
- Vehicle types included:
  - light heavy-duty trucks (LHDT)
  - medium heavy-duty trucks (MHDT)
  - heavy-heavy duty trucks (HHDT)
  - Light duty vehicles (LDVs)
- UCLA's dynamic model is likely better than Sothern California Association of Governments model which is static modeling
  - Can affect parameters such as speed and congestion which can affect emissions



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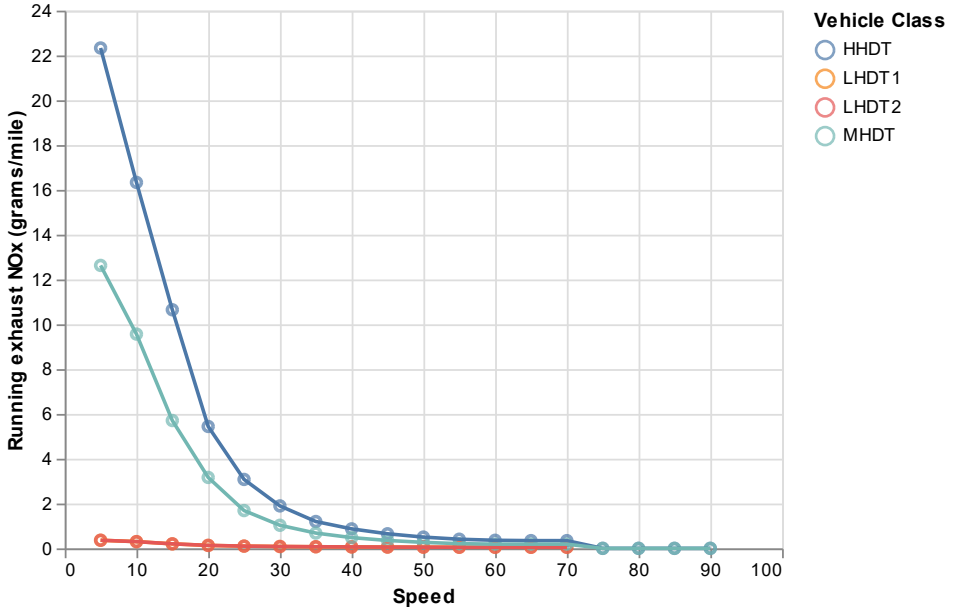
Emission rates for different vehicles in LA region

- Emission rates will be based on the most recent version of California Air Resources Board (CARB)'s EMFAC model
- Emission rates depends on factors such as these which are included in the UCLA model:
  - Vehicle type,
  - Fuel type,
  - Speed
- Emission factors for various pollutants such as nitrogen oxides (NOx), particulate matter ($PM_{2.5}$) (including brake and tire wear)



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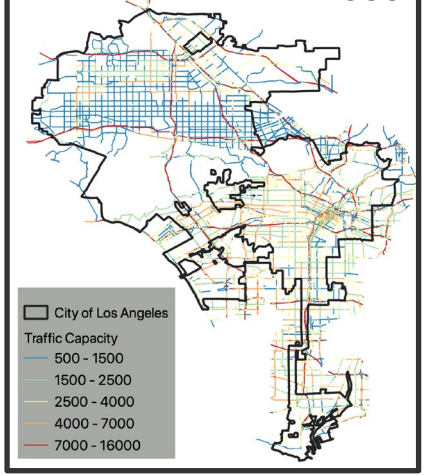
Putting it all together: strategic insights from health and EJ analysis

Test wide range of potential electrification proportions (HHDT, MHDT, LHDT)

Emission rates (EMFAC2021)

Traffic data in 2035



Near-road air quality modeling on sample of road segments in and out of TAQ-DACs

Health impacts assessment using USEPA's BenMAP

Environmental justice analysis (DAC vs. non-DAC)

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UCLA Updates

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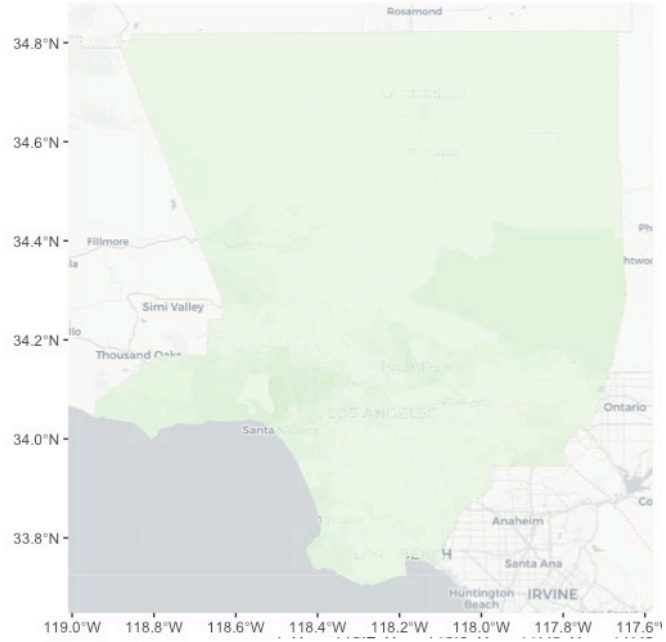
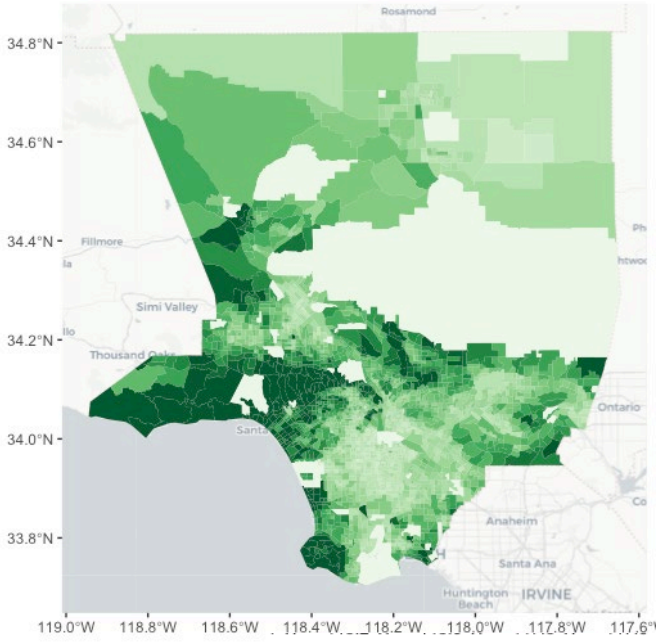
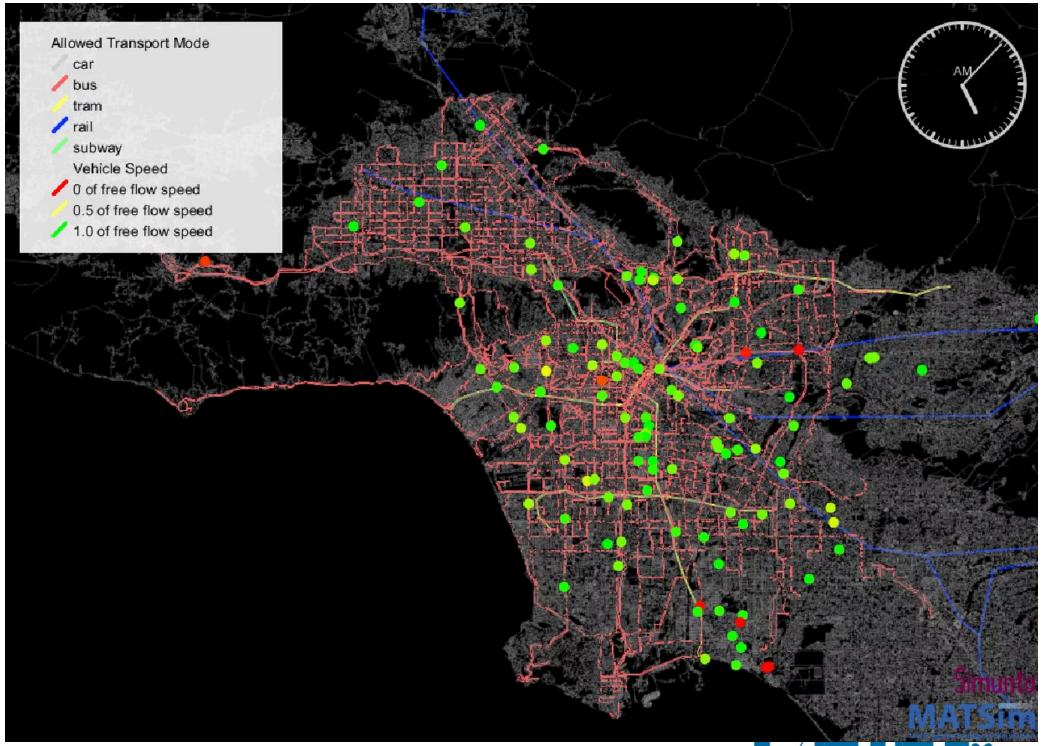
Zero Emissions Vehicles (ZEV) Percentage Map in 2017 and 2035



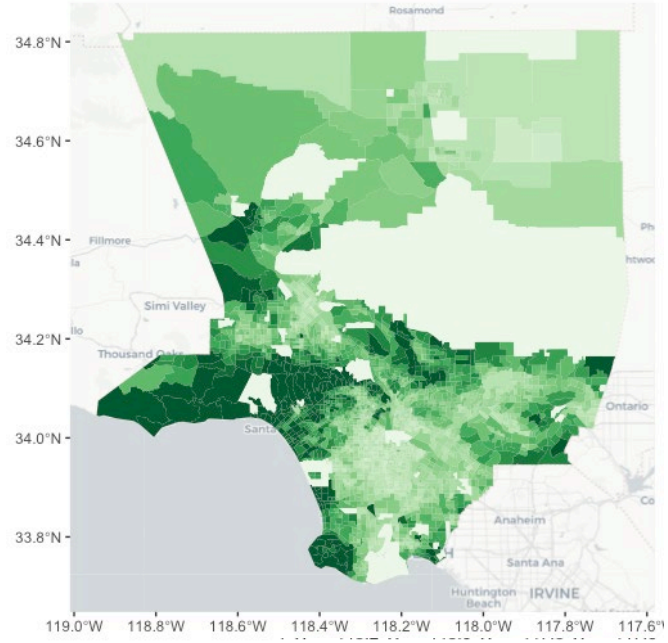


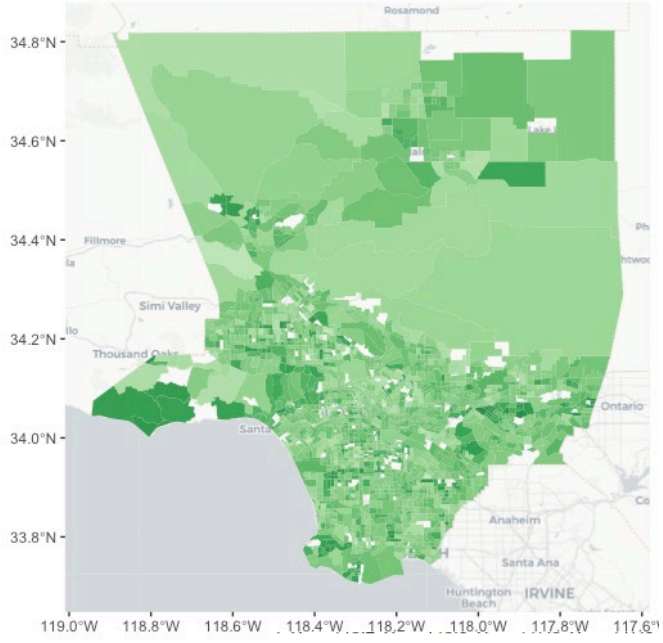
Integrated Transportation Model

- Simulating explicit vehicle movement in a multimodal network with the congestion impact
- Incorporating all types of vehicle
  - Passenger cars
  - Light/Medium/Heavy duty trucks
  - Transit vehicles



Zero Emissions Vehicle Ownership vs. Electric Vehicle Miles Traveled (eVMT)% in 2035





Scenarios

	Scenario 1	Scenario 2	Scenario 3
Name	2035 ZEV Disparity	2035 ZEV Equity	2035 ZEV Equity (more MD-HD) (MSS)
Energy Profile	LA100 Early & No Biofuel – 100% Clean Energy		
	On-road Transportation Electrification Profile		
Light-duty	50%	50%	50%
Medium-duty	19%	19%	22%
Heavy-duty	10%	10%	39%
School and urban buses	100%	100%	100%
	On-road Transportation Emission Spatial Distribution		
Passenger Vehicle Medium-duty Heavy-duty School and urban buses	Emission reduction map based on (1) ZEV ownership and (2) the MATSim simulated trips	Equally distributed	Equally distributed
	ZEV Fleet Profile (LDV / MDV / HDV)		
PHEV	25% / 0% / 0%		
BEV	67% / 100% / 100%		
FCEV	8% / 100% / 100%		
	Off-road Transportation		
	EMFAC 2035 Original	EMFAC 2035 Original	MSS
	Oil & Gas Industry		
Demand Reduction	Scale down based on ZEV population		

MSS: Mobile Source Strategy
PHEV: Plug-in Hybrid Electric Vehicle
BEV: Battery Electric Vehicle
FCEV: Fuel-cell Electric Vehicle
LDV: Light-duty Vehicle
MDV: Medium-duty Vehicle
HDV: Heavy-duty Vehicle

LA County Emission Inventory Change (2017 vs. 2035)

Scenarios	CO	NH_3	NOx	PM_{10}	$PM_{2.5}$	ROG	SOx
BASE - 2017 (tons / day)	1000	46	270	89	34	303	13
ZEV – 2035 (tons / day)	452	47	143	89	32	217	12
MSS - 2035 (tons / day)	431	46	101	89	31	216	12
Scenario Comparison							
(ZEV-BASE)/BASE	-55%	1.5%	-47%	0.6%	-5.7%	-28%	-4.0%
(MSS-ZEV)/ZEV	-4.5%	-1.3%	-29%	-0.3%	-1.6%	-0.4%	-0.8%

Q&A

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Air Quality & Health Equity Strategies Development

Megan Day, NREL
Simon Zewdu, LADWP

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Output Metrics and Enabled Equity Strategy Analysis – Air Quality and Health

Medium- & Heavy-Duty Vehicle (MHDV) Sector Output Metric	Example of Enabled Equity Strategies

Changes to concentration of air pollutants ($PM_{2.5}$ and NOx) in different parts of the city under different truck electrification strategies
 	
Impact of pollutant changes in different parts of the city on mortality and morbidity
	• Identification of MHDV electrification strategies that result in pollutant concentration/health changes that benefit traffic-impacted disadvantaged communities, including
	  • Vehicle type (e.g., would electrifying delivery trucks lead to greater air pollutant/health reduction than garbage trucks?)
	  • Targeted MHDV charging infrastructure locations
	• Potential implementation partners
	• Comparison to benefits from electrification of light-duty vehicles to inform investment and program prioritization

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Going Forward

Tentative

Steering Committee Meetings

October 19, 2022
Virtual

- Steering Committee member check-in and spotlight
- Household energy modeling approach
- Shared solar siting analysis
- Energy Atlas

Subsequent Meetings

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

What would you like to discuss in upcoming meetings?
Drop your agenda suggestions in the chat!

Thank you!