

# Exhibit to Agenda Item #1

Brief the Board on SMUD's Electric Vehicle (EV) Strategy.

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

Tuesday, April 12, 2022, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# Why Electric Vehicles (EVs)?



**Electric Vehicles improve air quality, lower carbon emissions and support local economic/equity job growth**

- Transportation is the largest source of Criteria and GHG emissions in the state
- Clean electricity from SMUD's Zero Carbon Plan can create a zero-emission solution
- Better air quality will improve regional health



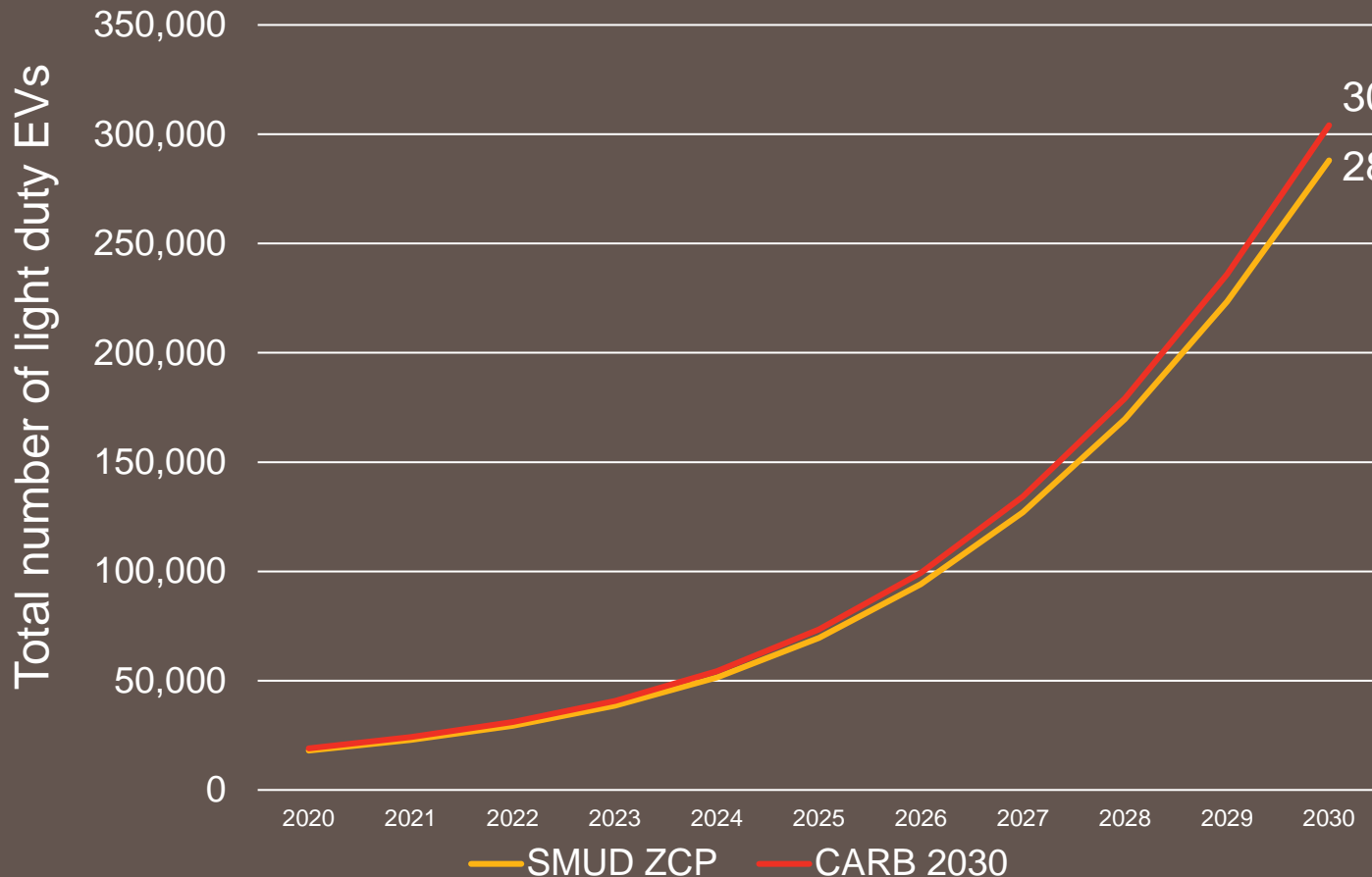
**Transportation electrification partnerships will bring new jobs and equity workforce development to support our community and improve quality of life**



**State and Federal policies support clean transportation, environmental and equity goals**  
– \$10B State and \$7.5B Federal policy

# Electric Vehicle Goals – Light Duty

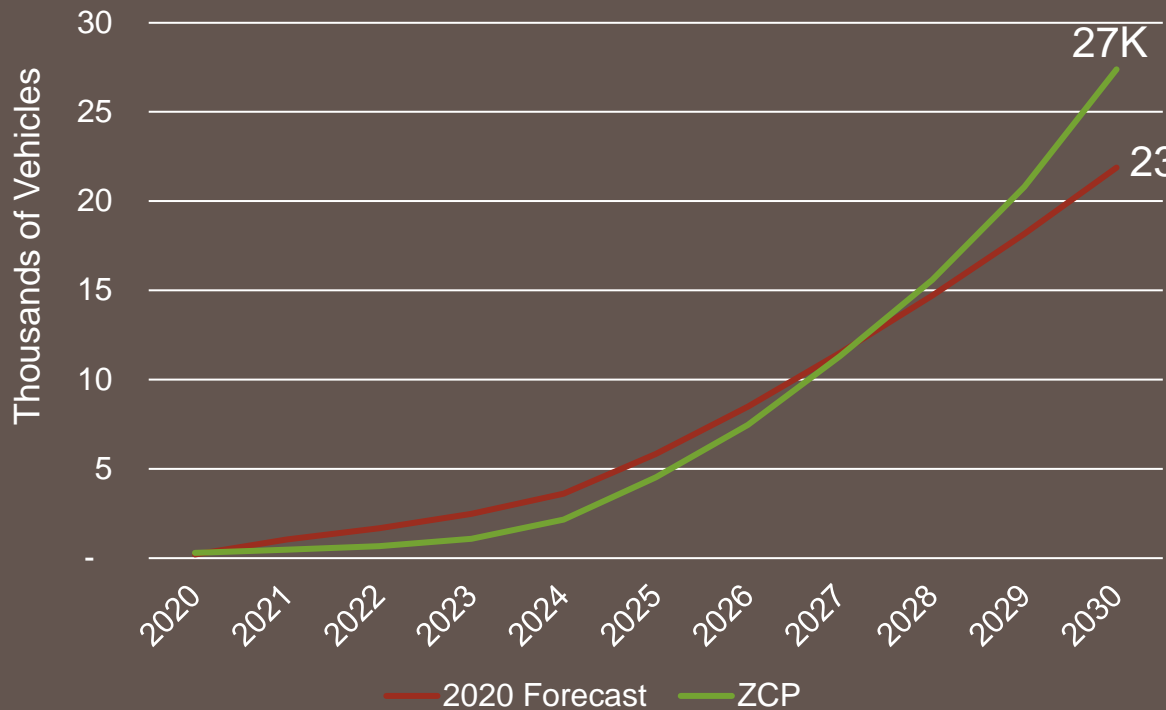
## Forecasted Light-duty EV Growth



- CARB 2030 Scoping Plan local estimate for 8,000,000 statewide cars by 2030
- SMUD zero carbon plan goal
- Actual population of Light-Duty EVs at end of 2021: **23,576**
- Goals represent a 12x increase in light duty vehicles by 2030
- CARB 2030 Scoping Plan is not a regulatory requirement

# Electric Vehicle Goals – Medium + Heavy Duty

Forecasted Medium/Heavy Duty  
EV Growth to 2030



- SMUD’s zero carbon plan goal
- Local estimate based on State policy goals
- Medium/Heavy Duty vehicles at the end of 2021: **117\* (estimated)**
- Goals represent about a 60x increase in Medium/Heavy Duty electric vehicles by 2030

\*Excludes forklifts and truck refrigeration units

# News Headlines

## Biden calls for half of new cars to be electric or plug-in hybrids by 2030

The executive order comes in a suite of new goals and mandates to cut climate-warming emissions from the auto sector

**Ford will spend \$30 billion on electric vehicles, a big increase from earlier plans.** *The New York Times*

### Daimler will invest more than \$47B in EVs by 2030

Mercedes ready to be all-electric by 2030; eight battery plants to be built

July 22, 2021 07:49 AM | UPDATED 24 MINUTES AGO

### Ford and PG&E partner on electric F-150 powering homes, grid

PUBLISHED FRI, MAR 11 2022-6:47 AM EST | UPDATED FRI, MAR 11 2022-7:17 AM EST

### Cities, public utilities flex municipal on EV projects

City-specific problems require city-centered solutions. That's why cities, often in partnership with utilities, play a key role in building infrastructure for EVs.

### 6 Utility Companies Team up to Build Massive EV Charging Network

### Gap Between EV Sales and Charging Stations

Will Utilities be Able to Fill the Void?

## Bottom Line

- The EVs are here and the market is accelerating
- Utilities must support mass adoption
- We expect more regulatory pressure on utilities to be prepared

# Electric Vehicle Strategy – 6 Objectives



## Grid & Charging Infrastructure

Accelerate grid and charging infrastructure to achieve 2030 electric vehicle goals



## Customer Education & Experience

Customers contact SMUD first as their trusted advisor and partner to seamlessly transition to electric mobility



## New Technology/Innovation

Embrace innovation to optimize customer investments that increase value for customers and the grid



## Equitable Access

Provide equitable access to affordable clean mobility



## Workforce

Robust workforce development supporting equity job creation



## Regional Collaboration & Investment

Work with regional partners to secure new investments and grants



# Grid & Charging Infrastructure

## Goals

**2022:** Support additional 5,800 light duty electric vehicles and 200 medium/heavy duty electric vehicles

**2030:** Support 288,000 light duty electric vehicles and 27,800 medium/heavy duty electric vehicles through 2030



## Strategic Outcome:

Accelerate grid and charging infrastructure to achieve 2030 electric vehicle goals



## Rationale:

*Infrastructure must be ready to meet market demand for charging*



## Key Activities:

- Analyze system capability/constraints and customer charging patterns to determine system infrastructure needs
- Expand incentives and full-service solutions to support customers charging solutions and grid development
- Build partnerships to create public charging stations/plazas
- Support expanded multi-level public charging with incentives



# Grid & Charging Infrastructure

## Activity Details



### Infrastructure Blueprint Project

- Regional collaborative funded by California Energy Commission grant
- Forecast commercial medium and heavy-duty fleet locations and grid impacts from charging and hydrogen infrastructure

### EV Impacts Analysis

- Updated assessment of vehicle usage patterns
- Distribution transformer loading and forecasted impacts
- Distribution transformer sizing analysis and standards recommendations

### Residential Charge@home<sup>(SM)</sup>

- Installation offering for residential customers through SMUD's contractor network
- Full program launch Q3 2022

### SMUD eFuel<sup>(SM)</sup>

- Commercial customer design support
- Turnkey installation services

### Power Inn Plaza

- EV charging mega-plaza
- Largest hub of DC Fast Chargers in the country
- Includes backup battery to support first responders charging in an outage

### California Electric Vehicle Infrastructure Project partner

- Partnership with California Energy Commission and Center for Sustainable Energy to distribute over \$15M in incentives
- Supporting deployment of over 100 DC Fast Chargers and 1,500 level 2
- Up to \$80K for DCFC, up to \$6,500 for L2





# Customer Education & Experience

## Goals

**2022:** Become the customer's trusted partner and influencer in their electric vehicle transition

**2030:** Partner with customers to seamlessly connect electric vehicles to maximize their value and minimize their impact



## Strategic Outcome:

Customers contact SMUD first as their trusted advisor and partner to seamlessly transition to electric mobility



## Rationale:

*Customers see electricity as more convenient, lower cost and partner with SMUD to interact with the grid*



## Key Activities:

- Improve the customer experience through expanded education, tools, advisory solutions, and multi-channel marketing
- Programs to bring down up-front costs and charging costs
- Engage partners including OEMs, dealers and local agencies to coordinate seamless handoff for customer charging solutions
- Demonstrate leadership and understand customer challenges by electrifying our own fleet and encouraging employees to electrify



# Customer Education & Experience

## Activity Details



### EV Support Program

- Provides one-on-one customer phone support through EV journey
- Includes FAQs and EV Buyers Guide
- Partnership with Plug in America

### Expanded public marketing and education

- Comprehensive website detailing rebates, vehicles, fuel savings
- EV educational classes
- Ride & Drive events
- Expanded marketing campaign

### Clean Fuel Rewards

- Statewide utility rebate program funded through Low Carbon Fuel Standard funding
- SMUD branded point of purchase instant rebate (now \$750 per vehicle)

### EV charging discount and pilot rates

- Residential discount of 1.5 cents per kWh from midnight to 6 am
- Commercial pilot launching Q4 2022 to mitigate demand charges

### Dealer Engagement Program

- Provides dealer sales team training on selling EVs
- Incentives to dealer & employees
- Awards to most successful dealers
- Partnerships with 22 dealers





# New Technologies & Innovation

## Goals

**2022:** 500 customers enrolled in managed charging pilot

**2030:** Vehicle to grid delivering 50-150 MW of virtual power plant capacity



## Strategic Outcome:

Embrace innovation to optimize customer investments that increase value for customers and the grid



## Rationale:

*Partner with customers to offer new options and value for customers to interact with the grid and reduce grid impacts*



## Key Activities

- Scale pilots for managed charging to validate technology, explore value propositions, and begin building the resource
- Accelerate vehicle to grid capability to support Zero Carbon Plan virtual power plants
- Explore options for user friendly multi-network access



# New Technologies & Innovation

## Activity Details



### Residential managed charging pilot

- Pilot program launching in 2022
- Aim to recruit 1,000 customers
- Demonstrate avoiding transformer overloading
- Improve use of surplus daytime solar energy

### Expand electric school bus program

- Vehicle to Grid school buses at three additional schools

### California Mobility Center grid partnership

- Demonstrate commercial EV fleet Vehicle to Grid technology

### Bi-directional charging research

- Planning to demonstrate residential Vehicle to Grid in 2023
- Position research to secure grant funding



# Equitable Access

## Goals

**2022:** Up to 250 EVSE via Clean Cars for All and launch first eMobility hub

**2030:** With partners, create equitable access within region for under-resourced communities



## Strategic Outcome:

Provide equitable access to affordable clean mobility



## Rationale:

*Ensure our most under-resourced community members share in the health and financial benefits of clean transportation*



## Key Activities:

- Execute Community Impact Strategy
- Partner with community-based organizations to expand charging in underserved communities (single and multi-family, commercial)
- Address charging deserts and expand access to electric transportation solutions
- Expand equity-targeted incentives



# Equitable Access

## Activity Details



### Partnerships with Habitat for Humanity, Grid Alternatives and Community Resource Project

- 30 EV ready homes in 2022
- Additional 115 EV ready homes by 2024
- Ensure these customers are ready to own an EV

### eMobility Hubs

- Expansion of eMobility Hubs by 3 additional sites
- Sites in early stages of planning

### Clean Cars 4 All

- Partnership with Sacramento Metro. Air Quality Management District
- Offer customers up to \$9,500 towards the purchase of an EV
- SMUD provides dealer engagement and install of 250 EVSEs in 2022

### SMUD Energy Saver Bundles

- Offering EV ready homes to income-eligible home-owners
- Estimated 100 EV ready installs in 2022

### Sacramento PEV Collaborative

- Local EV grassroots coordination
- Provide collaboration, awareness building of benefits, opportunities for EVs in under-resourced and disadvantaged communities



# Workforce

## Goals

**2022:** Partner with Community Based Organizations to offer workforce development programs, 70 trainees

**2030:** Equity workforce programs have a significant impact on regional EV workforce



### Strategic Outcome:

Robust workforce development supporting equity job creation



### Rationale:

*Focused job training within underserved communities will provide direct economic benefits and support equity*



### Key Activities:

- Partner with community-based organizations, regional agencies and educational institutions on outreach, education and training
- Partner with California Mobility Center to leverage workforce development and career pathways
- Include inclusive workforce development and job pipelines in project designs



# Workforce

## Activity Details



### Energy Career Pathways

- Partnership with Grid Alternatives
- Solar, battery storage, electrification, EV charging installation
- Includes 4 weeks paid hands-on instruction, job readiness training, employer interviews
- 2022 goal: 70 trainees and a minimum of 28 job placements

### High School Autonomous Vehicle Racing

- Electric mobility STEM competitions in title 1
- Students build and code their own autonomous vehicle
- Students learn about SMUD's 2030 vision and the benefits of electric transportation
- Teams race for fun/prizes at Golden One center in May

### California Mobility Center Workforce Partnership

- California Mobility Center aim to create entry points for tech careers
- Focus on advanced mobility and overall advanced manufacturing sector







# Regional Collaboration & Investment

## Goals

**2022:** Execute grant strategy to bring new investment into the region

**2030:** Electric vehicle portfolio supports 2030 zero carbon plan financial goals



## Strategic Outcome:

Work with regional partners to secure new investments and grants



## Rationale:

*Working together with partners to bring funding and investment to our region will increase regional prosperity and lower SMUD costs of electrification*



## Key Activities:

- Grant strategy drives project concepts for proactive grant pre-capture and capture
- Collaborate and partner with regional agencies & organizations to attract significant investment in the region
- Maximize SMUD access to Low Carbon Fuel Standard (LCFS) credits to offset SMUD costs



# Regional Collaboration & Investment

## Activity Details



### Federal Outreach

- Congressional testimony announcing 2030 Zero Carbon Plan
- Engaged with appointees at White House, Dept of Energy, Environmental Protection Agency, and SMUD congressional delegation

### Department of Energy Collaboration

- SMUD visit from Energy Secretary Jennifer Granholm
- Intelligence on Dept of Energy priorities for energy-related grants
- Invite for SMUD to join Dept of Energy Vehicle to X memo of understanding

### Local Outreach

- Coordination with local jurisdictions aligning local climate action initiatives with SMUD's 2030 Zero Carbon Plan
- Engagement of state officials offering SMUD assistance to achieve EV goals

### 4-Agency Partnership

- Collaborative effort with SMUD, Sacramento Area Council of Governments, Sacramento Metro Air Quality Management District, Regional Transit
- Consensus on regional priorities for joint pursuit of federal and state funds
- Over \$960M in investments identified in electric transit buses, regional charging plazas, disadvantaged community eMobility hubs and workforce development

### Renewable Energy

- SMUD providing 100% of energy consumed by EVs from renewable sources
- Enables an increase in value of 33% in Low Carbon Fuel Standard credits