

Exhibit to Agenda Item #3

Accept the monitoring report for **Strategic Direction SD-10, Innovation.**

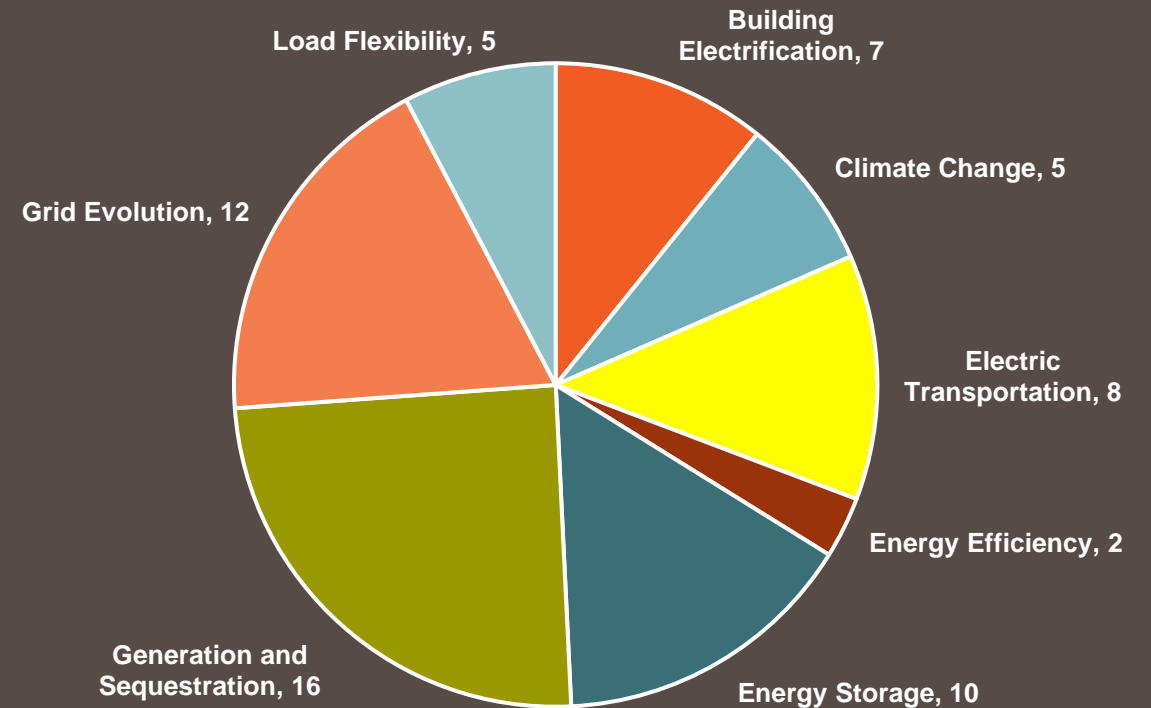
Board Policy Committee and Special SMUD Board of Directors Meeting
Wednesday, September 8, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

SD-10 Innovation

Delivering innovative solutions, products and services to our customers is a core value. To assure our long-term competitiveness, SMUD shall invest in research and development projects that support its core and key values, and integrate emerging technologies and new business models into SMUD's customer offerings in a way that balances risk and opportunity and benefits our customers and community.

2021 ESR&D PORTFOLIO
TOTAL PROJECTS: 65



Research portfolio moving forward to focus on supporting 2030 Zero Carbon Plan

Energy Storage

- Deployed SMUD's first utility-scale battery storage project at Hedge substation
- Procured 9.03 MW of energy storage exceeding SMUD's commitment to the CEC under AB 2514



Hedge Battery Storage Units on site

Climate Change

- Established multi-year research partnership with UC Davis Wild Energy Lab and Electric Power Research Institute to evaluate opportunities for soil carbon storage and pollinator habitat restoration at Rancho Seco II Solar project
- Completed Monarch Habitat Suitability and Solar-Pollinator Cost Benefit Assessments
- Assessed Year 1 of Natural Refrigerant Incentive Program



Electric Transportation

Public EV Charging

- Del Paso Mobility Hub began construction to provide mobility benefits to an underserved community
- Five Zeus Medium Duty EV Chassis ordered
- Charging-as-a-Service RFP for Services issued



SMUD Board Members Kerth and Sanborn break ground at Del Paso Mobility Hub



Charging-as-a-Service



Zeus Chassis Medium-Duty EV with SMUD Wrap

- Awarded the CEC Blueprints Grant for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure Grant
- Awarded CEC BESTFIT Innovative Charging Solutions Grant for Twin Rivers Commercial Managed Charging
- Won EPRI Technology Transfer Award collaborating on modeling benefits from EV programs on EV adoption

Generation



LCFS Credits and biofuels storage from dairy digesters

- Expanded LCFS certification to wind energy pathways creating monetized value of ~\$1 Million
- Expanding DER planning tool to include PV and storage to assess carbon reduction/savings, budgeting, portfolio optimization, cost effectiveness and load forecasting

- Value of Solar Study enabled development of new solar+storage successor rate
- Completed market and technology assessments of clean fuel & carbon capture options for 2030 ZCP
- SMUD partnering with NREL for hydrogen blending research funded by DOE



Load Flexibility

- Developed 10-year resource plan for customer DERs
- Launched RFQ for aggregator to add 10 MW of peak load reduction per year via price signals to residential customer DERs as part of 2030 ZCP
- PowerMinder pilot results informed how HPWHs can support 2030 ZCP for load flexibility.



IoT Heat Pump Water Heater

Energy Efficiency & Electric Buildings

- Supported City in adopting all-electric new construction ordinance
- Analyzed technical options to help customers adopt efficient electric technology without requiring grid service upgrades
- Led development of the “Building Demand for Unitary Heat Pump Water Heaters” report as sponsor of the Advanced Water Heater Initiative



Enterprise-Wide Innovations

Economic and Workforce Innovation: California Mobility Center

Improving Reliability with 360 View of the Grid

- Advanced Distribution Management System (ADMS)
- Distributed Energy Resource Management System DERMS

Future of SMUD

- Virtual Energy Audits
- Internet of Things Platform
- Innovation Team



SD-10 Innovation: Request the Board accept the SD-10 Monitoring Report.