Exhibit to Agenda Item #2

Authorize the Chief Executive Officer and General Manager to:

a. Enter into a multi-year strategic collaboration with ESS Tech, Inc. (ESS) to accelerate adoption of long duration energy storage technology in SMUD’s service territory; and

b. Enter into an acquisition agreement for nonstock security (e.g., warrants) in ESS, subject to the requirements of California Public Utilities Code section 12773 (MUD Act).

Board Finance & Audit Committee and Special SMUD Board of Directors Meeting
Tuesday, September 13, 2022, scheduled to begin at 5:30 p.m.
Virtual Meeting (online)
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Overview

• Long Duration Energy Storage (LDES) is key to SMUD’s Zero Carbon ambitions

• Black and Veatch, an engineering and consulting firm, short listed 6 potential LDES companies, ESS has emerged as prime partnership candidate

• SMUD & ESS jointly developed a phased plan to pilot and ultimately deliver a multi-year partnership that will culminate in 200MW/2GWh of LDS by 2028

• Partnership will generate local jobs, education and training with academic partners, and culminate in an Assembly and Tech Support Center in Sacramento to serve the Southwestern United States

• This will be SMUD’s first nonstock equity deal under AB689
2030 Zero Carbon Plan Summary

Re-assess, adjust, prioritize, scale

2021 2023 2025 2027 2030

Reliability studies

McClellan Campbell Carson

5MW 100MW 250MW 91MW 100 MW

5MW 100MW 250MW 91MW 100 MW

VPP Pilots V2G Pilots Research game changing tech: Storage, biofuels, sequestration

Partnerships, grants, joint ventures

Identify internal savings

Assess & mitigate financial risks

Regulatory and legislative advocacy for zero carbon solutions

Scale investments, grants, ventures in new tech & business models

Natural gas generation repurposing

Proven clean tech

New tech & business models

Financial impact & options

Solar: 500-750MW Batteries: 50-250MW

300-500 MW 600-1,000 MW 100-220 MW

44-254 MW

G

Cosumnes

Procter & Gamble

September 13, 2022 Board Finance & Audit Committee and Special SMUD Board of Directors Meeting
Partnership Highlights

Multi-phased Partnership

Phase 1 (2022-2024)*
4 MW/24MWh

Phase 2 (2025-2026)
40MW/400MWh

Phase 3 (2027-2028)
156MW/1576MWh

*Note: at the end of each phase, there will be a “go/no go” decision for proceeding to next phase

Phase 1

Scope:
Establish a partnership with ESS
Execute pilot to deliver 4MW with 6-hr to 10-hr duration of LDES through flow battery technology.

Schedule:
Beginning 2022 with anticipated pilot results 2024

Budget:
$31M Gross, less $12M ITC (40%) $18M Net
Iron Flow Battery

Environmental Attributes

Electrolyte = water, salt and iron
• Non-toxic
• Secure, reliable supply chain with no reliance on critical minerals
• No need for fire suppression, containment or hazmat restrictions
• Battery components substantially recyclable at end-of-life

Operating Attributes

• Unlimited cycling
• Designed for 25-year operating life with minimal annual O&M requirements

Electrochemistry

- During charging iron collects (electroplates) on the negative electrode
- During discharging iron dissolves back into solution
- Passive design proton pump continuously refreshes electrolyte in closed-loop system
Product Deployment

Two distinct products will be deployed in Phase 1 including ESS’s *Energy Warehouse (EW)* and *Energy Center (EC)*.

Use Cases:
- Resiliency, demand charge management, energy cost management, EV charging mitigation
- Distribution capacity support, peak shifting, PV energy integration/optimization
Partnership Benefits

SMUD benefits

• SMUD’s first warrant deal under AB689
• Escalating product discounts over phases of partnership
• Increased storage capabilities for the grid
• Increased reliability & accessibility of green energy
• Local job creation and training opportunities

ESS benefits

• Additional data on flow battery technology
• Increased public awareness and brand enhancement
• Commercial benefits
Phase 1 Timeline

2022

Order Energy Warehouse
Finalize site selection
Construction and Site Readiness

4MW (targeting 6-10 hours duration)

2024

Energy Warehouse Installation
Startup and Commissioning Energy Warehouse

Order Energy Center

Energy Center Installation