Embracing and Thriving in a Distributed Energy Future

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Powering forward. Together.
The Big Picture

<table>
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<th>Challenges</th>
<th>Opportunities</th>
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<td>• Flat or declining load growth</td>
<td>• Building and transportation electrification that grow load while decarbonizing the energy system</td>
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<td>• Uncertainty regarding future business model and revenue generation</td>
<td>• Business Model innovation to create new revenue opportunities</td>
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<td>• Advancements in emerging technologies that are becoming exceedingly more price competitive</td>
<td>• New cost-effective technologies to enable the transactive grid of the future</td>
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<td>• Increasing regulatory pressure for a distributed, efficient energy future</td>
<td>• Use regulatory support for DERs to improve grid reliability at lower cost</td>
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<td>• Rising customer expectations and competition threatening customer relationship</td>
<td>• Strengthen our customer relationships by advising and providing them with intelligent solutions</td>
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DER Strategic Outcomes

The DER Strategy paves the way forward for SMUD to successfully deliver future value to our customers and community, in alignment with our corporate values and business model.

- **Be Preferred Energy Services Provider/Advisor**
  - Engages customers with new products, services, and advice to help them reach their energy goals

- **Provide Outstanding Reliability & Power Quality**
  - Promotes grid reliability and power quality through the strategic deployment of DERs

- **Reduce Pressure on Rates**
  - Creates new value streams while reducing commodity costs and long-term grid investments

- **Contribute to Regional Carbon Reduction**
  - Delivers SMUD’s share of a low carbon energy future

- **Extends Access for All Customers**
  - Enables all customers to share in the value that more DERs on the grid would yield
Focal Points for DER Strategy

SolarShares for Homes & Businesses
- 2 programs launched, 3 offerings under development
- Scaling from 11 MW in 2016 to goal of 100 MW by 2020

Free fuel for 2 years Promotion
- Workplace & Multifamily Charger Incentive offerings
- DCFC ‘Safety Net’ Network Incentives

Fuel Switching Pilots for:
- Heat Pump Water Heaters
- All Electric New Homes, and
- Commercial Building retrofits
- Pay for Performance Efficiency Programs
Integrating with the Grid

Distribution Management System (DMS) & Distributed Energy Resource Management System (DERMS)
- Operations Visibility, forecasting, and dispatch of DERs to enhance grid reliability under high levels of DER adoption

DER Planning Tool – Customer Adoption Model
- Forecasted Customer-level adoption of combinations of DERS under various potential future rate structures
- Allow tighter planning for optimizing capital investments and getting rate structures and location-based incentives right