

DOE Smart Grid Peer Review

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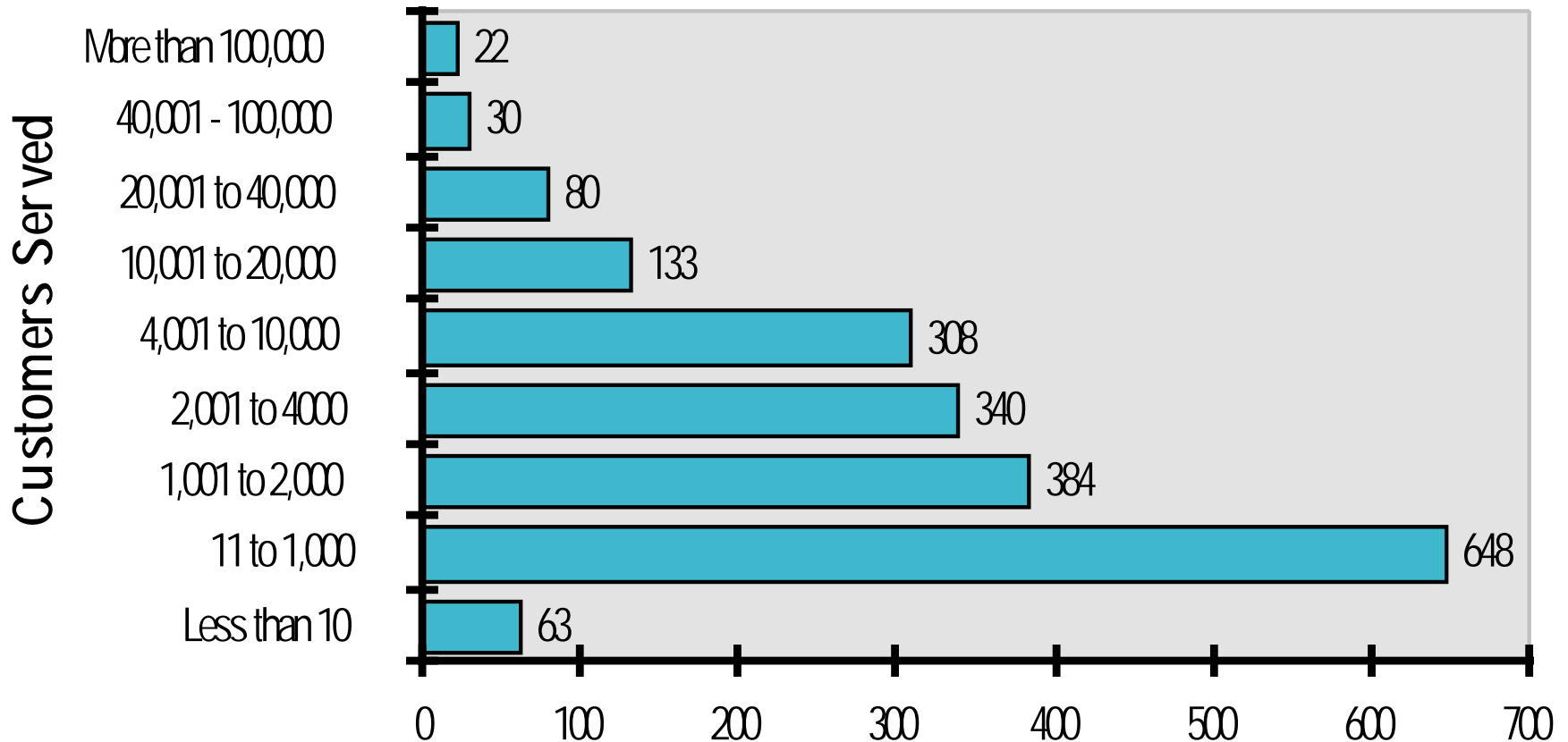
Public Power and APPA

- Public power: operated by local governments; reliable, responsive, not-for-profit
- 2,000 community-owned electric utilities, 46 million people
- Non-profit, non-partisan organization, est. 1940
 - Public policy interests
 - Member services
 - Reliable electricity at reasonable prices
 - Proper protection of the environment

Public Power in the US



Public Power by Number of Customers Served



DEED

- Demonstration of Energy Efficient Developments
- Created in 1980
 - 100 members
 - Less than \$100k per year
- DEED today
 - 660+ public power utility members
 - Almost \$600k per year
- Given out \$7M year to date
- Joined Distribution Systems Testing, Application, and Research (D-STAR)



Projects Funded

- Utility-led projects (Smart Grid focus)
 - Field Measurement of Plug in Electric Vehicle (PEV) Grid Impacts - **SMUD**
 - Carnegie Mellon's Smart Grid Maturity Model application to public Monitoring Voltage of the Distribution System in Real Time Using Smart Grid AMI – **Concord, Mass.**
 - Cost-Effective Decentralized Volt/VAR Control on Distribution Feeders – **Fayetteville, NC**
 - Customer Perceptions of Exceptional Service and Smart Grid
 - 1-MW Battery Energy Storage Project for Peak-Shaving at Long Island Bus – **NYPA**
 - Etc. etc.

Projects Funded

- Student-led projects:
 - Wind energy penetration
 - Implementing HAN technology with AMI
 - Wireless Access Technologies for Low Cost Cap Bank Controllers
 - Grid-independent electricity generation for remote access based on unitized regenerative hydroxide exchange membrane fuel cell system

DOE Smart Grid Grants

- The American Recovery and Reinvestment Act of 2009 (ARRA 2009):
 - 33 public power utilities received grants, \$550M
 - California: City of Anaheim, Burbank, Glendale, Los Angeles, Modesto Irrigation District, Sacramento Municipal Utility District
 - Amount awarded ranged from \$400,000 to \$128M



Smart Grid

- DOE funded projects focus:
 - Smart meter installation
 - Distribution Automation
 - Demand response & energy efficiency
 - Dynamic pricing
 - Development of customer portals
 - Upgrading IT and communications infrastructures
 - EV charging stations



Photo credit: Sacramento Municipal Utility District

Looking to the future

- Developing strong business cases
 - Understanding what's important to each community
- Integration of renewables
 - Energy storage, demand response
- Interoperability
 - Standards and technologies
- Educate customers
 - Let them crawl before asking them to walk
- Continued R&D
 - Safety, reliability, and cost should be baselines

Thank you

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