



DRIVING RESILIENCY THROUGH SUSTAINABLE SOLUTIONS

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Topic for Discussion

- I. Technology and Trends
- II. Defining Risk
- III. Leading the Way, California Municipalities
- IV. Key Drivers and Opportunities
- V. Funding Options, and Features

TECHNOLOGY & TRENDS

Power Grid Increasing Unreliable

The American Society of Civil Engineers gave the [U.S. electrical grid a rating of D+, in its 2017 Infrastructure Report.](#)

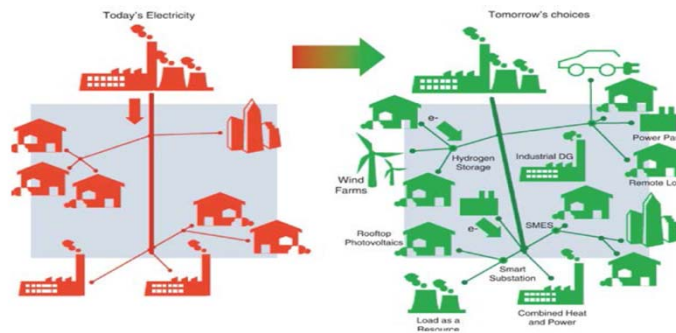


(Source: Navigant)

Additionally noted in the report, [California led the nation in power outages for 9 years in a row, totaling over 400 power outages.](#)

TECHNOLOGY & TRENDS

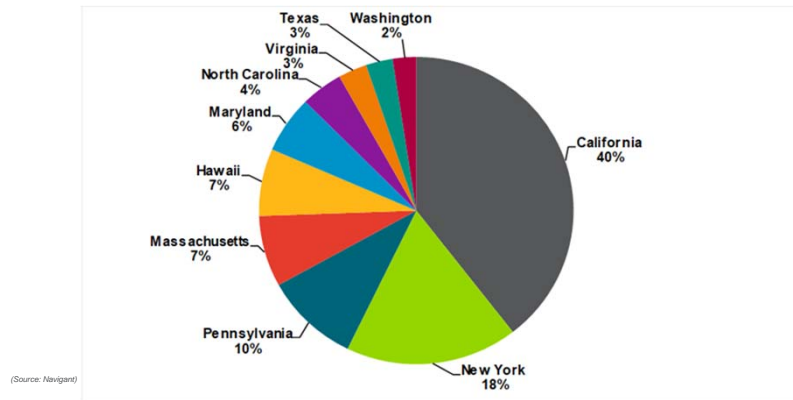
Moving Beyond the Current Centralized Grid



Moving towards a new local distributed energy cloud often leads to lower cost and a more sustainable and resilient grid.

LEADING THE WAY IN RESILIENCY, CALIFORNIA

Total Municipal Microgrid Capacity, US: 2018



Municipal microgrids are defined as serving local government critical facilities and services. They may or may not involve local utilities.

DEFINING RISK

- **What is a Microgrid?**

— A distribution network incorporating a variety of *Distributed Energy Resources (DER)* optimized and aggregated into a single system balancing loads/ generation and capable of *islanding from the utility power grid.*

- **What is a “Critical Facility”?**

— *“Buildings or structures where loss of electric service would result in the disruption of a critical public safety life sustaining function.”*

*Understanding your Organization’s **Mission, Risk** to that mission, considering current **Infrastructure**, and the organizations **Long-term Plans**.*

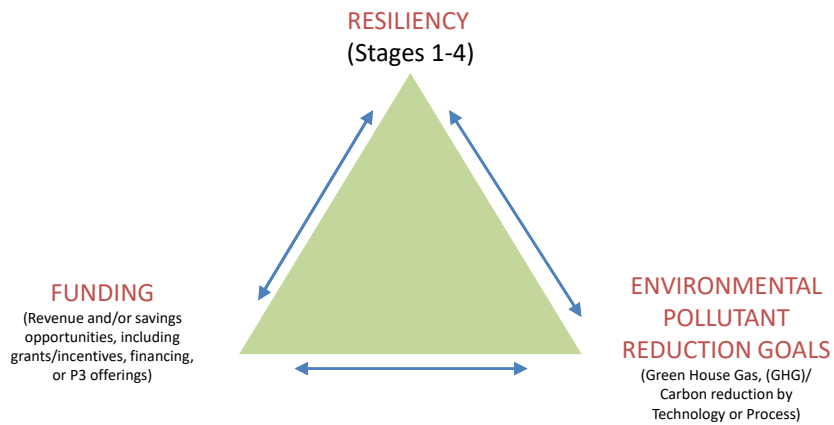
- *Mission*
- *Risk*
- *Current Infrastructure*
- *Long-Term Plans*

DEFINING RISK AND INVESTMENT - RESILIENCY

No Resiliency	Partially Resilient Not Seamless	Partially Resilient Seamless	Fully Resilient Seamless
1	2	3	4
<ul style="list-style-type: none"> Nearly full loss of power during LOU * Power does not return until utility connection restored 	<ul style="list-style-type: none"> Nearly full loss of power during LOU * On-site emergency generators support a portion of critical loads, but temporary outage until they can come online 	<ul style="list-style-type: none"> Microgrid provides seamless transition to critical facility loads during LOU Remainder of non-critical loads are not supported until utility connection restored, or stand-by generators come online 	<ul style="list-style-type: none"> Microgrid provides seamless transition to all facility loads during LOU Facility can seamlessly reconnect to utility when safe

Note: Stages 1-4: stage 1, (least risk), Stage 4, (most risk)

DEFINING RISK AND INVESTMENT – RESILIENCY



KEY DRIVERS AND OPPORTUNITIES:



Note: Department of Energy, (DOE), Energy Savings Performance Contract, (ESPC), Indefinite-Delivery, Indefinite-Quality, (IDIQ)



Parris Island



Portsmouth Naval Shipyard

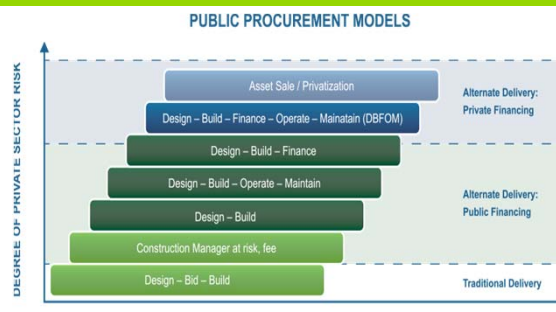


Philadelphia Navy Yard

FUNDING, PROJECT DELIVERY AND SERVICES

Enabling Procurement Legislation:
CA Government Code 4217: An act relating to Energy Conservation. [Approved by the Governor, September 15, 1983. Filed with the Secretary of State, September 16, 1983.]

ENCOURAGES PUBLIC AGENCIES TO CONTRACT FOR ENERGY CONSERVATION SERVICES, PROVIDING FLEXIBILITY IN PROCURING, SECTION 25008 OF THE PUBLIC RESOURCES CODE



- Energy Conservation, Generation and/or Infrastructure**
- Energy/Efficiency as a Service, (E/EaaS)
- Energy Generation**
- Power Purchase Agreement (PPA)
- Energy Conservation Generation and/or Infrastructure**
- Energy Service Agreement, (ESA)
 - Energy Performance Contracting, (EPC)

PROCUREMENT STEPS

- I. *Conceptual Presentations* _____
- II. *Feasibility Energy & Engineering Assessment* _____
3 Years Utility Data
 - *Operational Savings*
 - *Grants, Incentives & Rebates*
- III. *Acceptance of Procurement Process* _____
 - *California Gov't. Code 4217, (Energy Services enabling legislation)*
- IV. *Project Scope, Design & Financial Confirmation* _____
 - *Application of Grants and Incentive*
 - *Develop, Design, & Secure Pricing, by Task/Trade*
 - *Confirm Modeling & Calcs. of Measures (Performance/Savings)*
 - *Confirm Financial Feasibility, (Scope, Cost, Savings, Service, etc.)*
- V. *Delivery of Proposed Project, (Co-authored consensus)* _____
- VI. *Final Proposal & Contract Approval* _____

Thank you!

