

# ***Putting “Action” into your Climate Action Plan: Energy Master Planning***

SEEC Forum June 26, 2019

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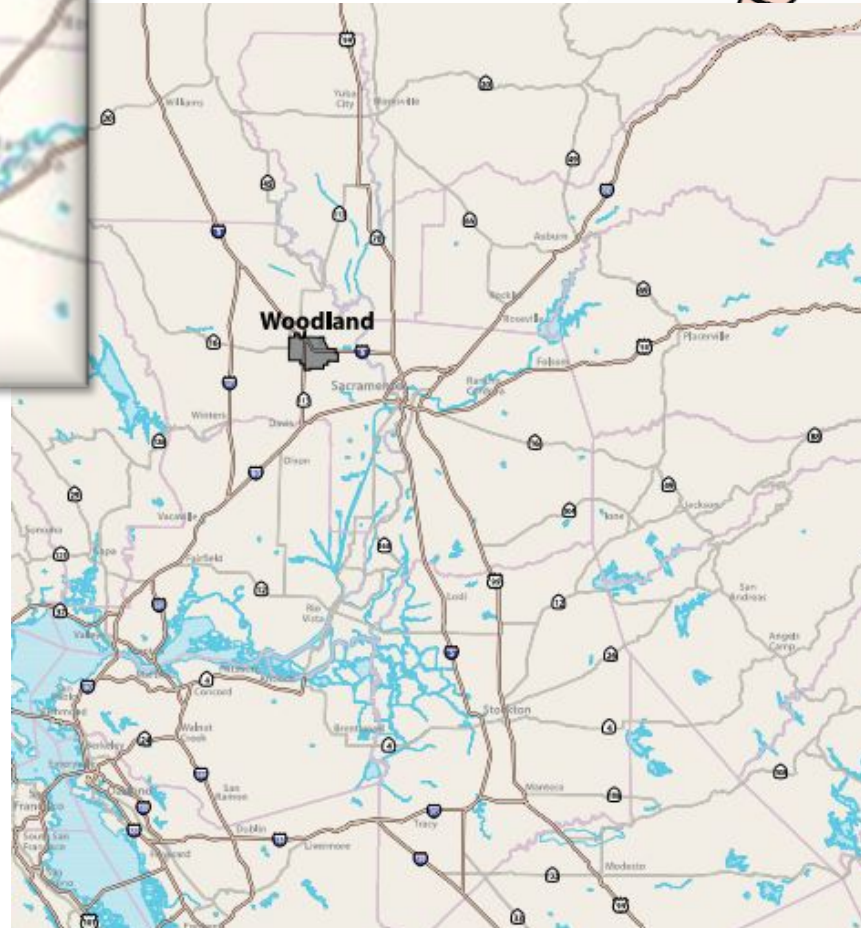
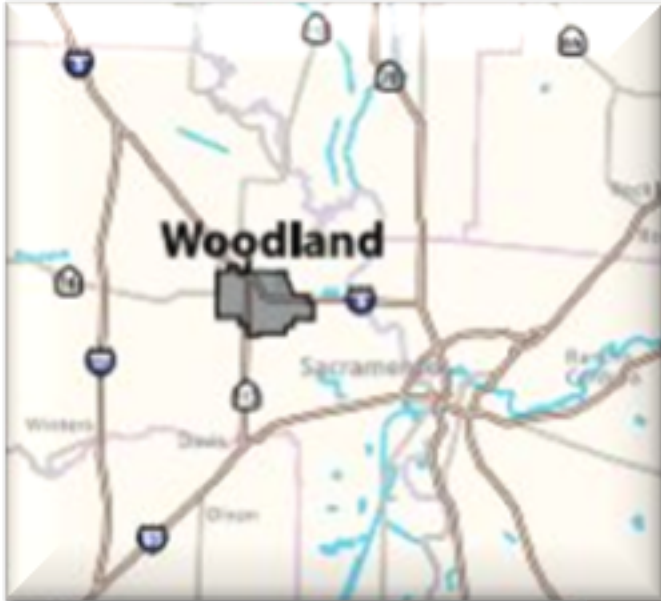


CITY OF WOODLAND



ENVIRONMENTAL  
SERVICES

# Where's Woodland?



# What We've Done

- ▶ Climate Action Plan
  - ▶ Preliminary CAP approved 2014
  - ▶ Final GPU/CAP approved 2017



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- ▶ Projects

- ▶ Street light replacement 90% (?)
- ▶ WPCF upgrade 2016
- ▶ Community Center Geothermal
- ▶ Solar Project Construction: 5/15 - 5/16 (except Meter 1, 6/17)

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- ▶ Valley Clean Energy

(Not strictly energy efficiency, but it's cool!)

# What Can We Do Next?

- ▶ ESCOs
- ▶ OBF
- ▶ Consultants
- ▶ WTF? (Wireless Transmission Facilities???)

Some issues:

- Energy Services Companies (ESCOs) and On-Bill Financing (OBF) tend to focus on clear ROI - so are appropriate only for some projects
- Some decisions are better at scale
- Maintenance & facilities' condition can affect project scope

# We Need a Plan!

- ▶ Must be portfolio scale  
(though our portfolio may be small)
- ▶ Must address sequencing issues
- ▶ Must address the stuff w/out visible ROI

# Framework for Conversation

- ▶ What Can We Do?
- ▶ How Can We Pay For It?
- ▶ Who is Successfully Doing It?



# Why All of This Matters...





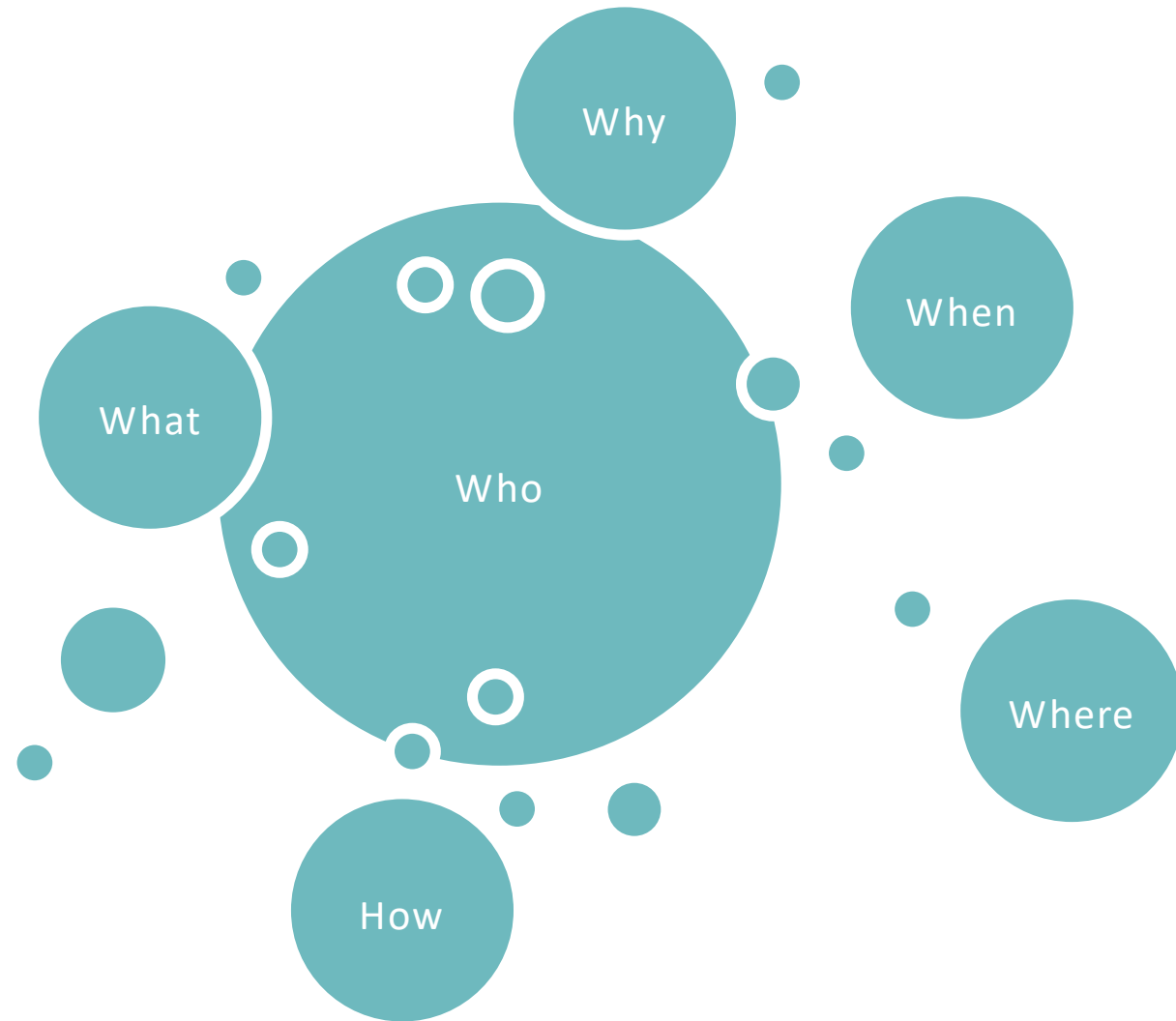
@EnviroWoodland

Or visit us at [EnviroWoodland.org](http://EnviroWoodland.org)

# Benchmarking Procurement

Brian Barnacle

June 26, 2019



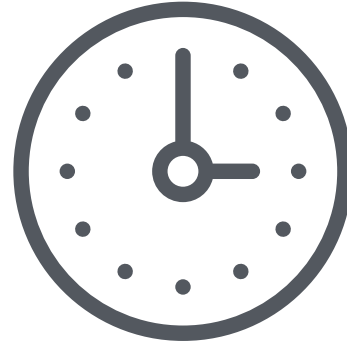


# The Challenge



## Diverse Roles

Buyers  
Facility Managers  
Building Owners  
Developers  
Architects  
Engineers  
Contractors  
IT Managers  
Asset Managers



## Time Consuming

Searching  
Comparing  
Analyzing  
Sourcing  
Documenting

*...per category*



## Billions Spent

Materials  
Labor  
Soft Costs  
Opportunity Cost

*and still...*



# Despite all that time, expertise and money...

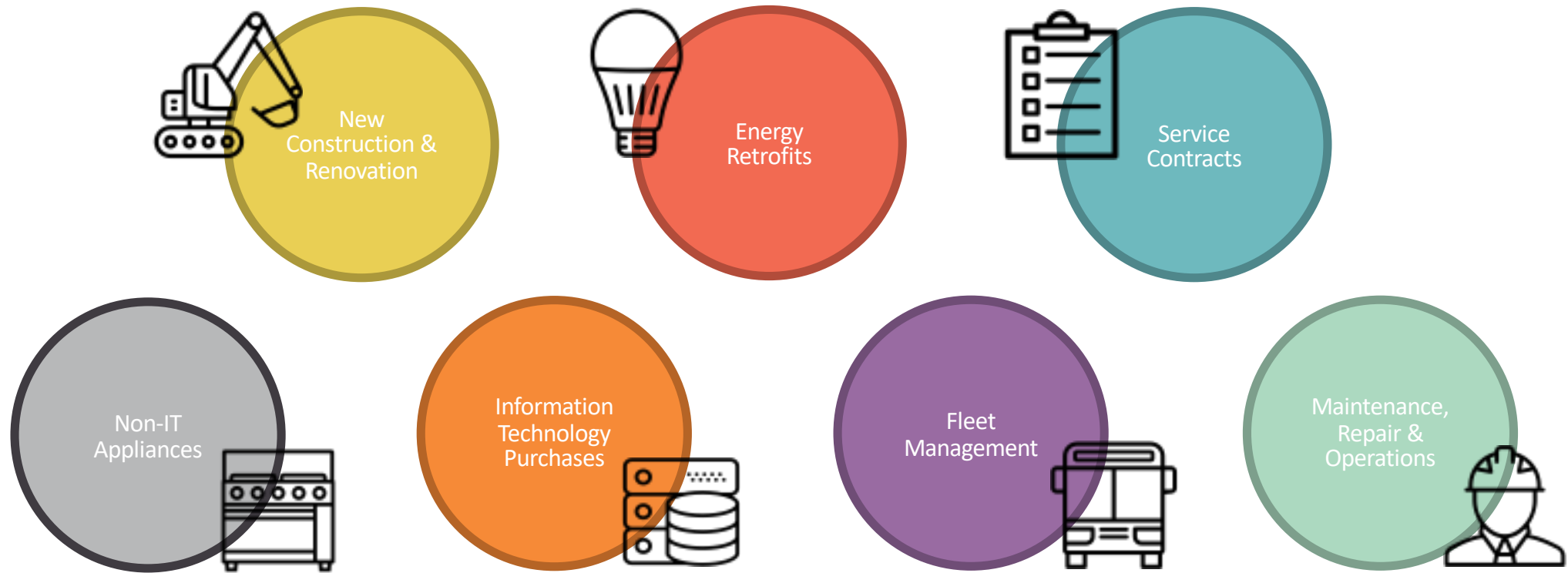
- Information is not widely available
- The best products aren't always bought
- There are low compliance rates
- Reporting is cumbersome and costly

In 2008, only 7% of examined federal procurement solicitations were compliant with federal energy procurement requirements.

- Source: Lawrence Berkeley National Laboratory, 2012



# Procurement Pathways



# Identifying Opportunities

## Suppliers

- Pull spend data from AP system by supplier
- Assess number of like suppliers and volume per supplier

## Products & Services

- Request 12-month spend report from suppliers
- Analyze purchase prices, compliance rates, etc.

## Performance Specifications

- Assess incremental cost and savings potential
- Characterize non-energy benefits

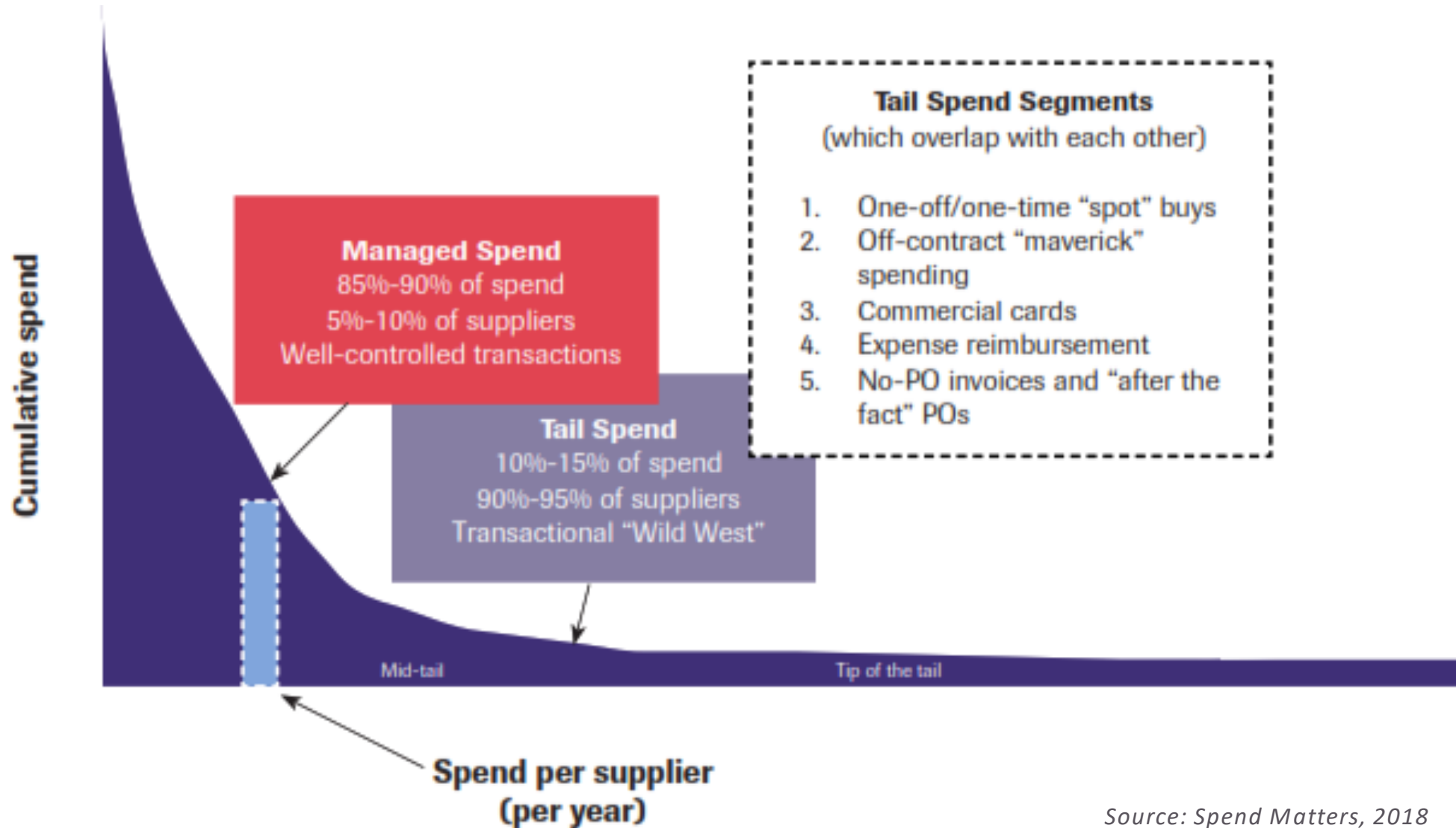
## Roles & Processes

- Audit archetypal purchases (time, roles, policies, systems, challenges, reporting, etc.)
- Compare with similar organizations





# Typical Spend Profile



# Thank You

**Brian Barnacle**

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# About Energy Solutions

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Mission:

Create large-scale environmental impacts through innovative market-based solutions.

Founded in 1995

Employee-owned

Market transformation programs and policies



**Energy Efficiency**

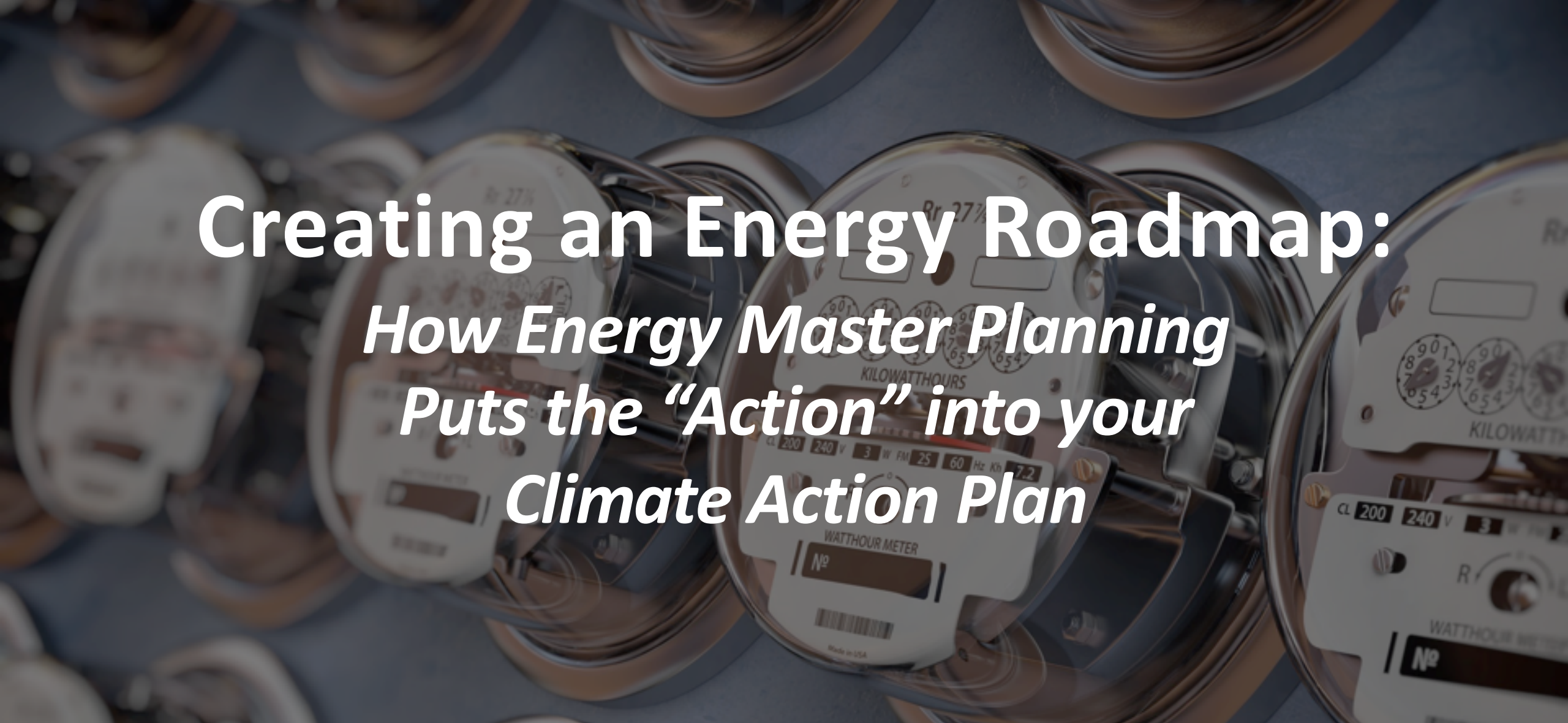


**Distributed Energy  
Resources**



**Policy & Ratings**





# Creating an Energy Roadmap: *How Energy Master Planning Puts the “Action” into your Climate Action Plan*

SEEC Forum  
Wednesday, June 26 2019

Karly Zimmerman Fogg  
Business Development Manager, TerraVerde Energy

**TerraVerde**  
ENERGY

# TerraVerde Energy



**TerraVerde Energy LLC (Est. 2009) is California's leading independent energy advisor for schools, cities, and other public agencies.**

- TerraVerde has provided energy plans for
  - 60 public agencies, resulting in the implementation of over
  - \$450 Million in energy projects, which are generating over
  - \$15 Million/year in energy cost savings
- We provide Energy Master Planning and project development support services, including Energy Conservation, Solar PV, Energy Storage, microgrid and EVSE projects

A close-up photograph of an electrical meter, likely a kilowatt-hour meter, with several analog dials and a digital display. The meter is white and mounted on a metal base. The dials are labeled with numbers 1 through 12. The digital display shows '7.2'. The text 'KILOWATTHOURS' is visible on the meter face. The background is a solid blue color.

# Strategic Energy Planning: Roadmap at a Glance

## Energy Master Planning Roadmap

Mapping your Climate Action Plan's emissions reduction goals onto clear and actionable implementation plans:

- ✓ Identify, plan, implement, monitor, and evaluate the impacts of high value energy projects.
- ✓ Control your energy costs
- ✓ Optimize your existing assets
- ✓ Hedge against energy risk
- ✓ Grow for the future sustainably

A close-up photograph of an electrical meter, likely a kilowatt-hour meter. It features several analog dials with numbers 0-9 and a digital display showing '7.2'. The meter is mounted on a metal base. The text 'Rr 27 7/8' is visible at the top. The text 'KILOWATTHOURS' is printed below the dials. The text 'WATT HOUR METER' is printed at the bottom. The text 'Made in USA' is visible at the very bottom.

## Energy Master Planning: **Hedging Risks**

### Utility Volatility: California's energy markets have rapidly evolving dynamics

- Planned outages: PG&E's Public Safety Power Shutoffs (PSPS Events)
  - Risk for reliability in power
  - Risk in liability for cities
- Continued Increases in Energy Costs
  - Time-Of-Use Period and Rate Shifts
  - Likely Outcomes of the PG&E Bankruptcy Proceedings





## Energy Master Planning: **Seizing Opportunities**

**The challenges are real:** Upfront costs; Opaque energy use dynamics;  
Aging buildings and equipment, shifts in operating profiles

**Energy is a recurring, long-term expense, so engage proactively!**

- Grow for the future sustainably: Strategic energy plans enable agencies to
  - Achieve CAP goals
  - Capitalize on new funding opportunities
  - Reinvest savings
  - Meet future energy demands
- Benefit from the emergence of Community Choice Aggregation Agencies (CCAs)
- Participate in Grid Services Markets

# 5 Steps of Effective Energy Planning



1. **Analyze Energy Data:** Usage and Costs; Inefficiencies; Future energy needs; Benchmarking
2. **Assess Opportunities:**
  - Demand-side: Replace inefficient systems
  - Supply-side: Install renewable energy generation; Participate in CCA and Utility Programs
3. **Assess Reliability Challenges**
4. **Develop an Implementation Plan:**
  - Prioritize based on CAP goals
  - Establish a Portfolio Approach: Bundle lower and higher payback projects; achieve economies of scale
  - Identify funding & financing
  - Create multi-year plan
5. **Monitor, Measure & Evaluate:** Verify whether projects are achieving energy, cost and GHG reduction goals; make the case for reinvestment of savings

# Current Funding & Policy Framework

1. **AB 32:** Local governments play an essential role in fighting climate change
2. **AB 1028 (Prop 39 V2):** Bill introduced to continue Prop 39 for schools
3. **AB 48:** The 2020 and 2022 State School Bond bill has been introduced and groups such as the School Energy Coalition is advocating that it includes an energy component on its own for up to \$1 billion in funding.
4. **AB 802:** Requires annual reporting on whole-building level energy use benchmarking. Must be disclosed to the California Energy Commission (CEC) for all commercial buildings over 50,000 sq. ft., or multiple buildings that are 50,000 ft. in aggregate, served by one meter.
5. **SB 350:** Improve building energy efficiency 50% by 2030
6. **SB 100:** Increases California's renewable electricity procurement goal from 33% by 2020 to 100% by 2045

# Energy Master Planning: Getting Started

1. **Have you benchmarked your facilities?**

Do you know which facilities and energy systems are least efficient?

2. **If you have solar projects, do you know how they're performing?**

<https://terraverde.energy/scorecards/>

3. **Find out what your electricity bill will look like when the Time Of Use shift occurs.**

4. **Find out if a Community Choice Aggregation Agency (CCA) is serving you or is in the process of being formed.**







THANK YOU

Questions?

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