EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Energy Market in California

Microturbine Applications Workshop

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Ellen Petrill

Director, Public/Private Partnerships

Overview

- California Energy Crisis
- Climate Change Policy
- CHP Market Study Results
- Looking Forward: Win-Win-Win in CA

California Energy Crisis - 2000

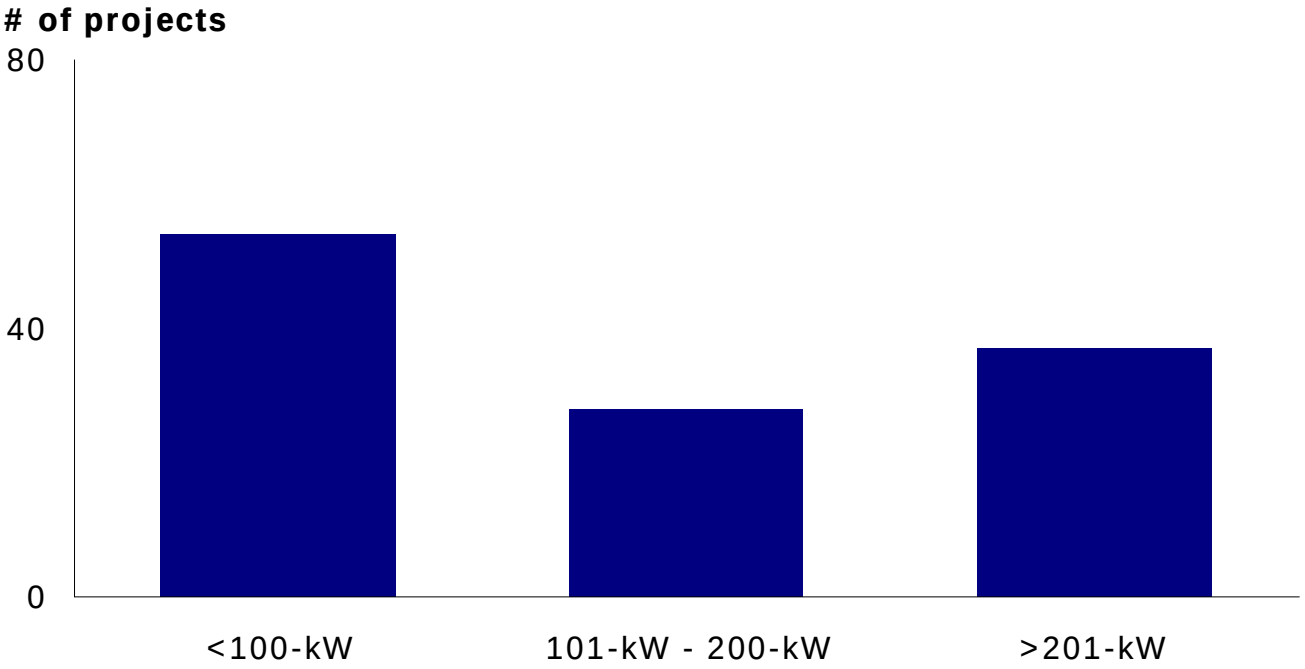
1. We need more power! Encourage self-generation

2. Natural market drivers
   - High spark spread (electricity vs. natural gas prices)
   - Electricity price and availability risk

SGIP Incentives- Past and Current

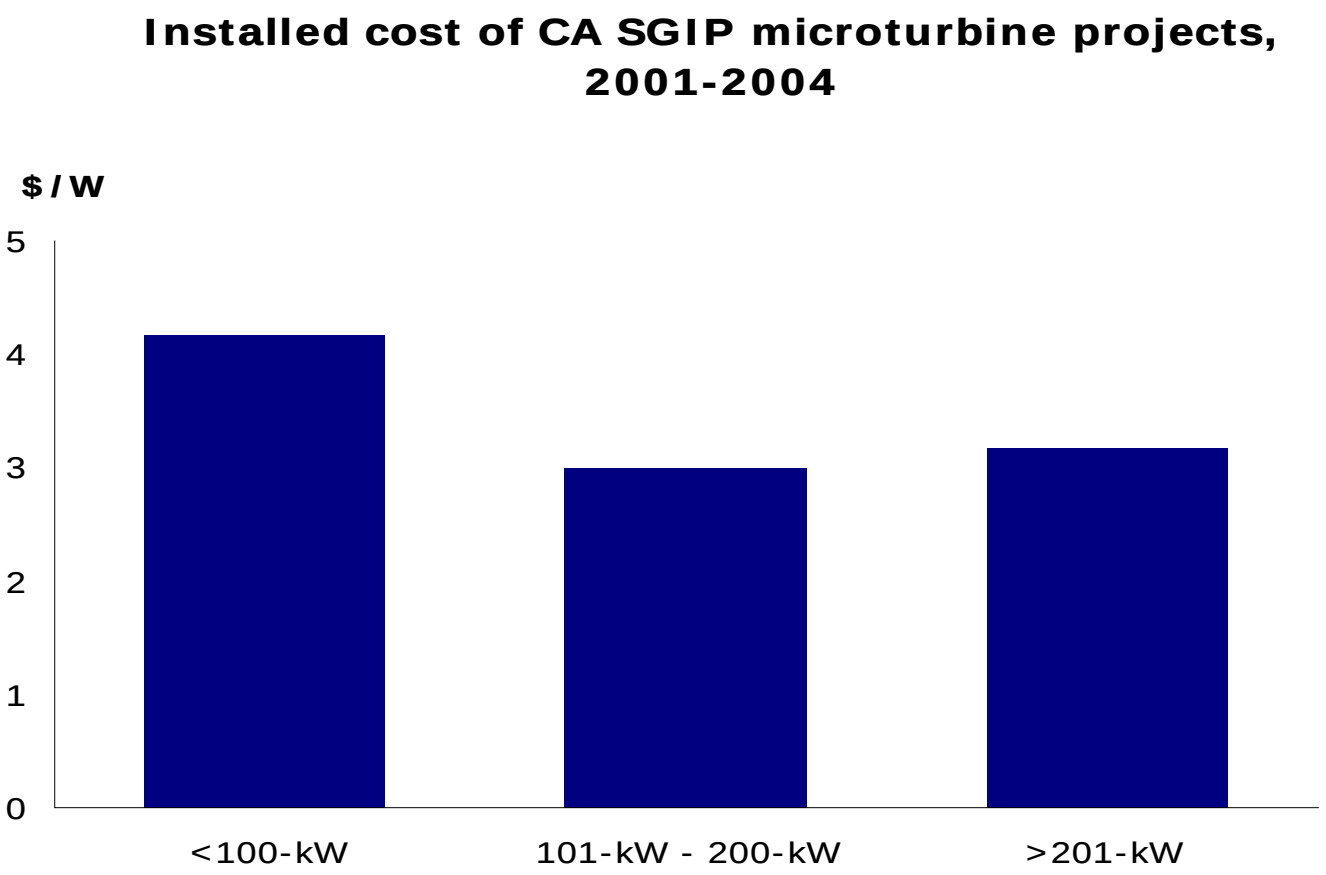
Level	Eligible Technologies	Incentive Offered, $/Watt		Max System Size, MW	
		Prior	Current	Prior	Current
3-R	Renewable Fuel Microturbines (<1 MW)	$1.50	$1.30	1.5 MW	5 MW
	Renewable Fuel ICE, Gas Turbines > 1 MW		$1.00		
3-N	Non-Renewable & Waste Gas Fuel Microturbines (<1 MW)	$1.00	$0.80		
	Non-Renewable & Waste Gas Fuel ICE, Gas Turbines > 1 MW		$0.60		

SGIP Results: Microturbine Projects 2001 - 2004



Source: *EPRI Solutions, based on California Self Generation Incentive Program data*

SGIP Results: Microturbine Project Costs



Source: *EPRI Solutions, based on California Self Generation Incentive Program data*

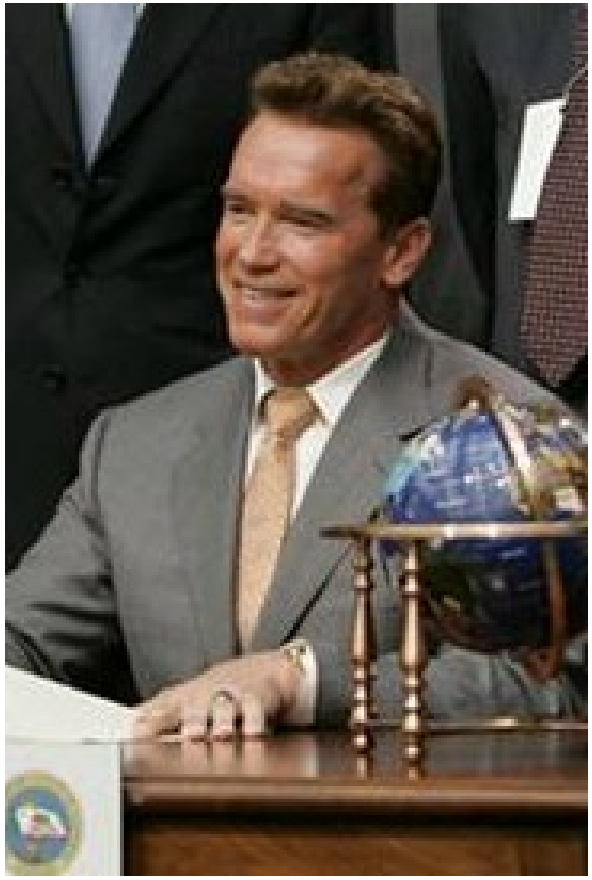
California Loading Order - 2003

1. Energy efficiency, demand response
2. Renewable energy
3. Distributed generation, CHP
4. Clean, efficient fossil-fired generation
5. Improve transmission, distribution; support interconnection

ENERGY COMMISSION

PUBLIC UTILITIES COMMISSION

Climate Change in California - 2005



"I say the debate is over. We know the science. We see the threat. And we know the time for action is now."

-- Arnold Schwarzenegger, June 1, 2005

Goals:

- By 2010, Reduce to 2000 Emission Levels
- By 2020, Reduce to 1990 Emission Levels
- By 2050, Reduce to 80 percent Below 1990 Levels

CALIFORNIA Climate ACTION TEAM

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California Greenhouse Gas Emissions Reduction Programs

CPUC Programs	GHG Savings (Million Tons CO_2) 2010	2020
Energy Efficiency Programs through 2013	5	11
Energy Efficiency Programs 2014 - 2020	0.4	3
33 % Renewable Portfolio Standard	4	8.8
California Solar Initiative	NA	2.6 – 5.1
Combined Heat and Power Initiative	0 – 1.1	0.7 – 4.5
Electricity Sector Carbon Policy	0 – 1.6	2.7
Total	12.1	28.8 – 35.1

California Greenhouse Gas Emissions Reduction Program Will Encourage CHP

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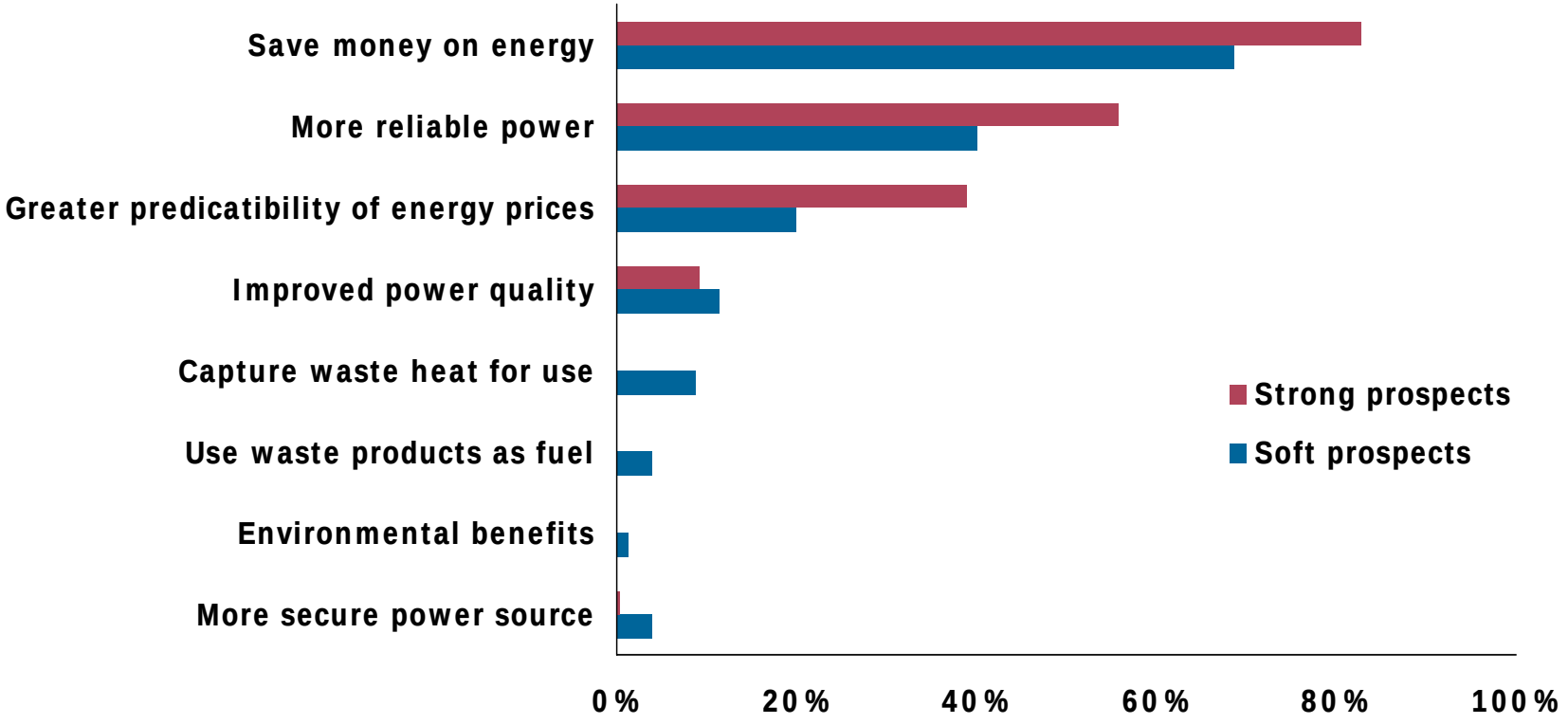
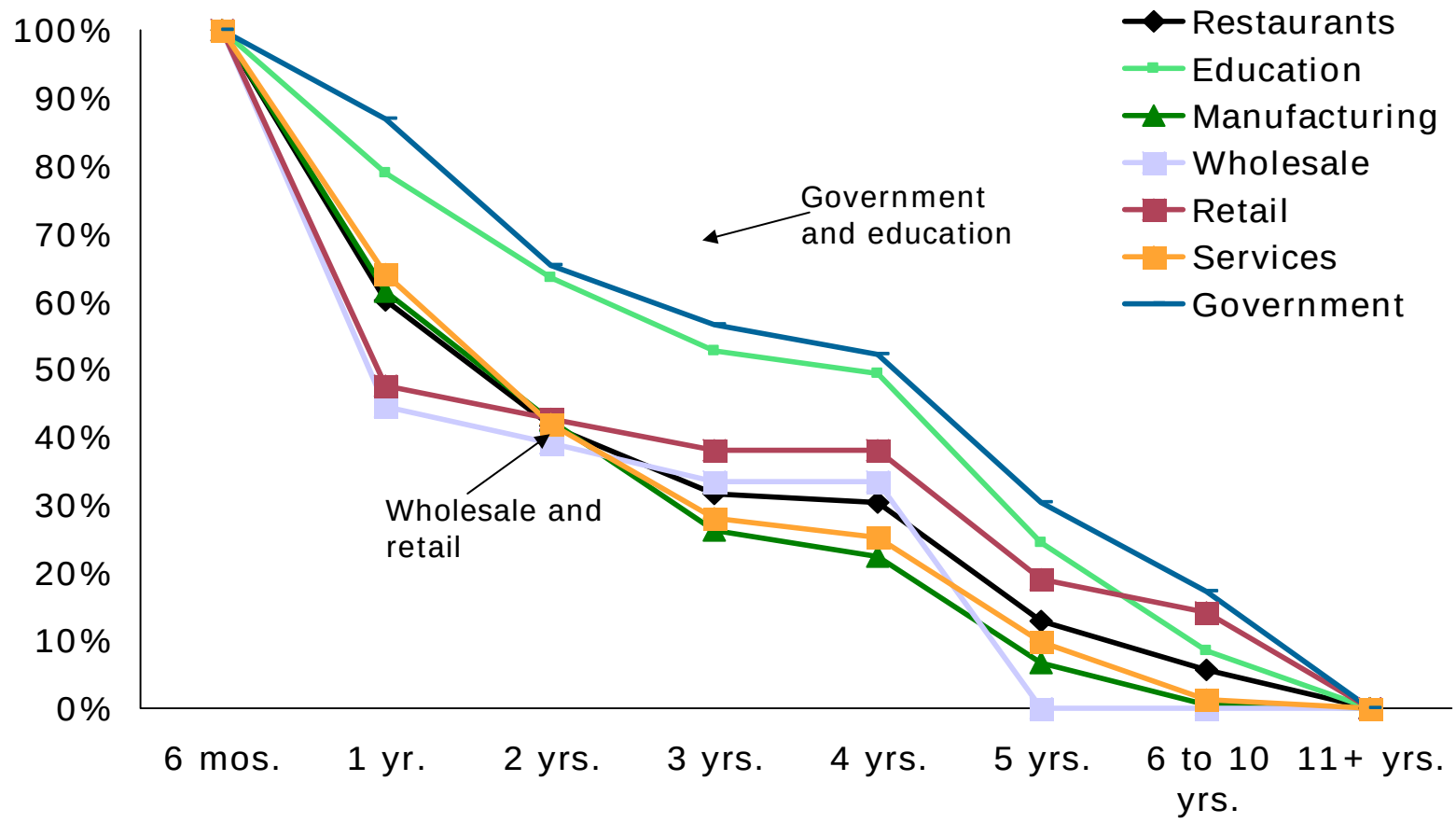
DER Customers Want Bottom Line and Reliability



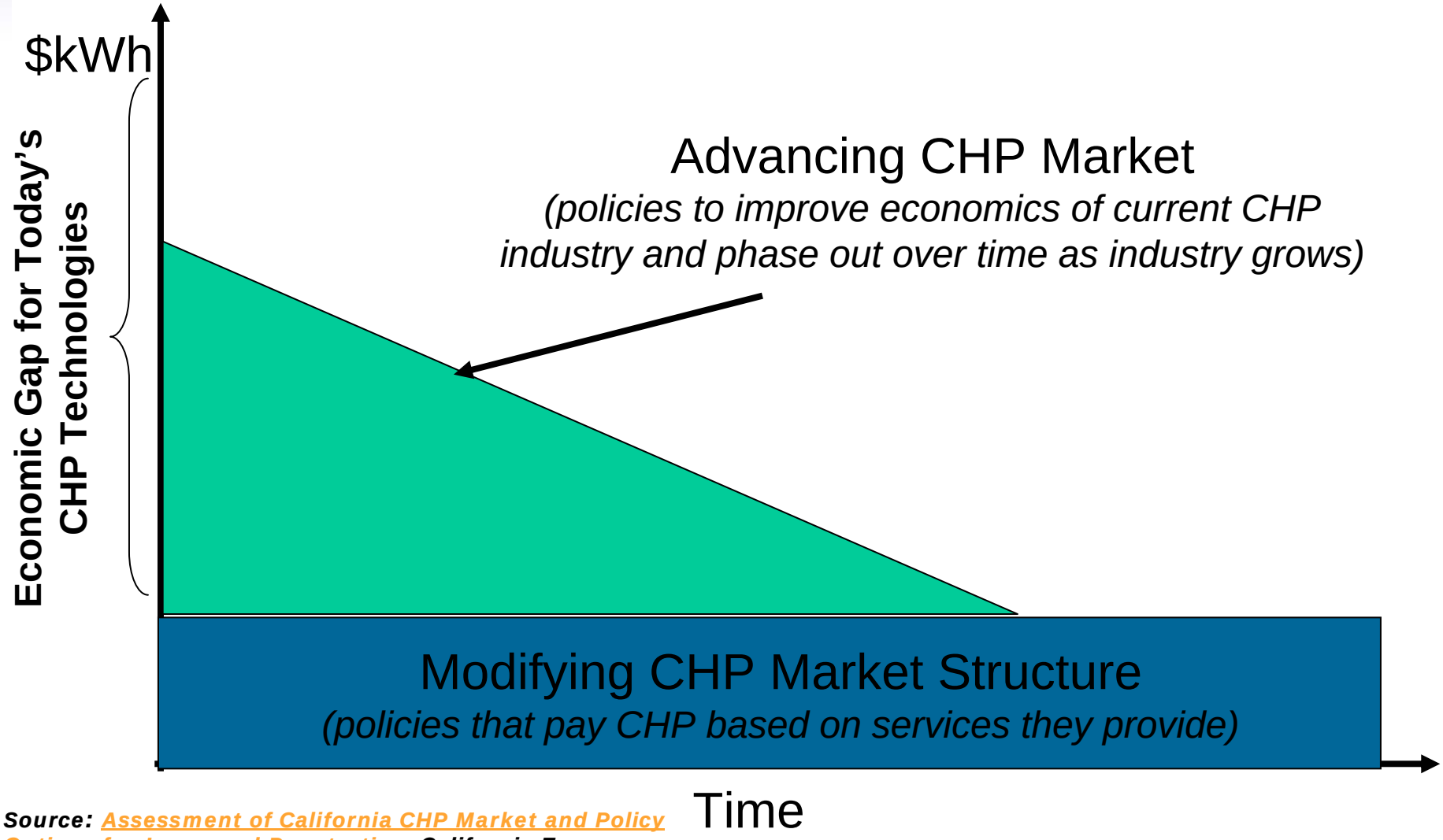
Source: *Primen's 2003 Distributed Energy Market Survey*

Barrier: Payback Acceptance



Source: *Primen's 2003 Distributed Energy Market Survey*

Exit Strategy for Subsidies



Source: ***Assessment of California CHP Market and Policy Options for Increased Penetration*****, California Energy Commission**

Win-Win-Win will Stimulate the Market

DER Customer

Win

DG Benefits

Public Incentives

Innovative Regulation

Utility Shareholder & Other Customers

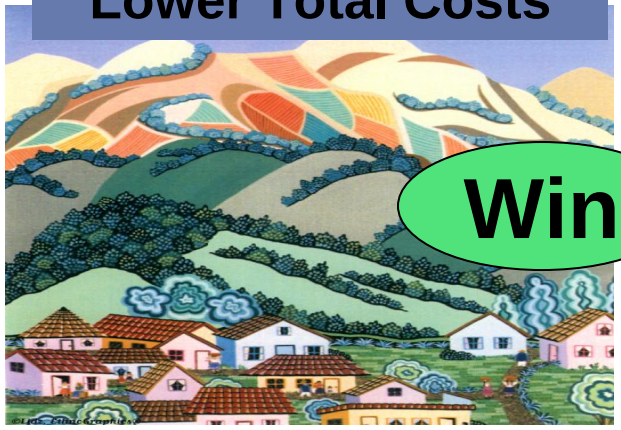
Win

Cost Savings

Shareholder Incentives

Cleaner Environment Lower Total Costs

Society

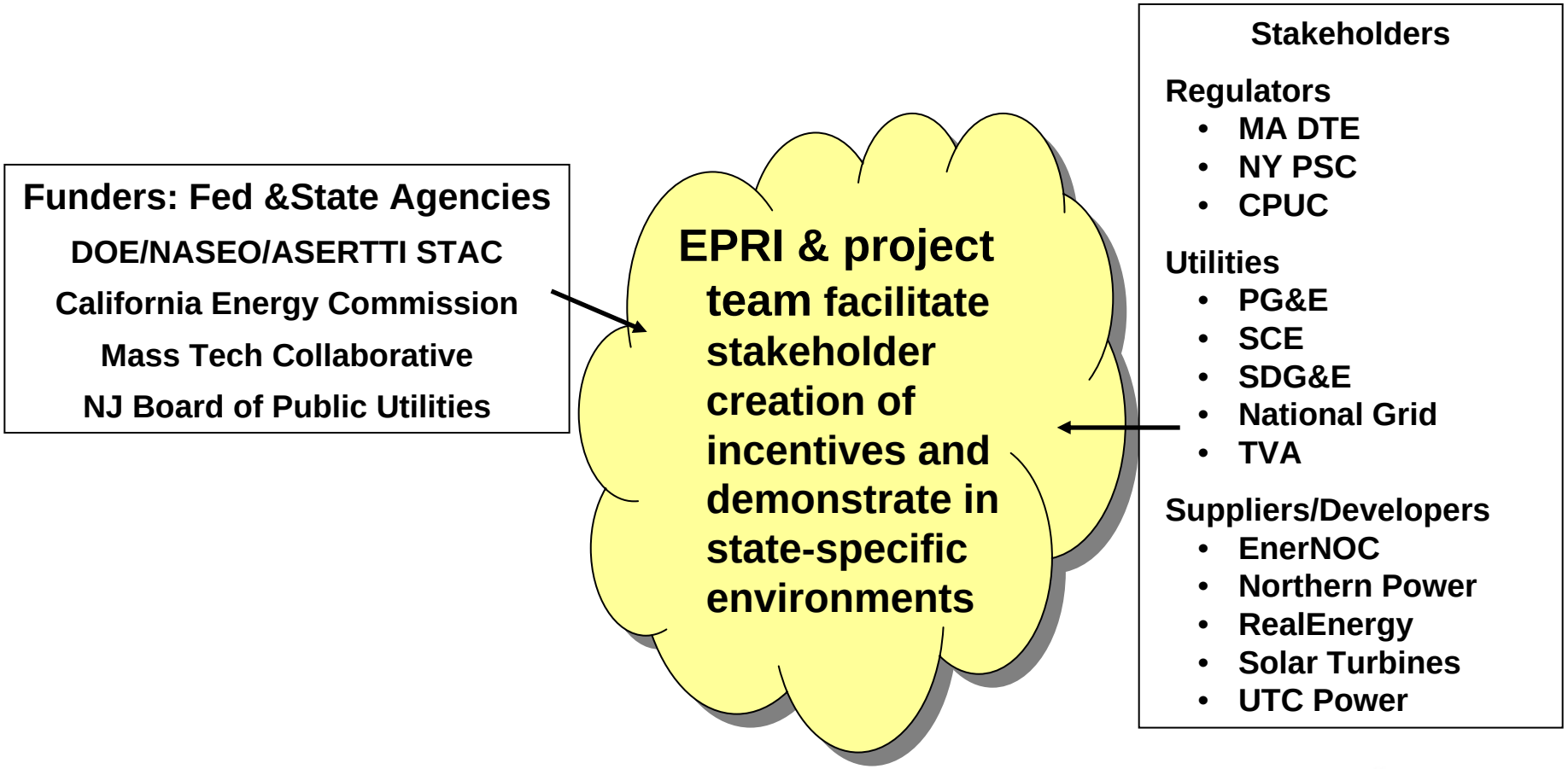


Win

Website http://www.epri.com/der-ppp/index.html

Stakeholder Collaboration to Create Incentives for Utilities to Integrate DER

DER Public/Private Partnership will change business and regulatory models to encourage DER where it brings value to the grid



Contact me:

Ellen Petrill

Director, Public/Private Partnerships

EPRI

650-855-8939

epetrill@epri.com