

New Hampshire Independent Study of Energy Policy Issues



Mobilizing Markets:

Key Attributes of Developing Markets &

What we Look for When Assessing EE & SE Programs





Presentation for the NH EESE Board

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Agenda

1. Introductions and Purpose

Christine

2. EE Program Assessment

Jim

3. SE Program Assessment

David

4. Future EESE Board Engagement

Christine

Discussion Facilitator Throughout: **Jeff Taylor**

Desired End Result

An effective approach to transforming EE and SE markets that

- ... reflects what is unique about NH and

- ... applies learning from other states & jurisdiction

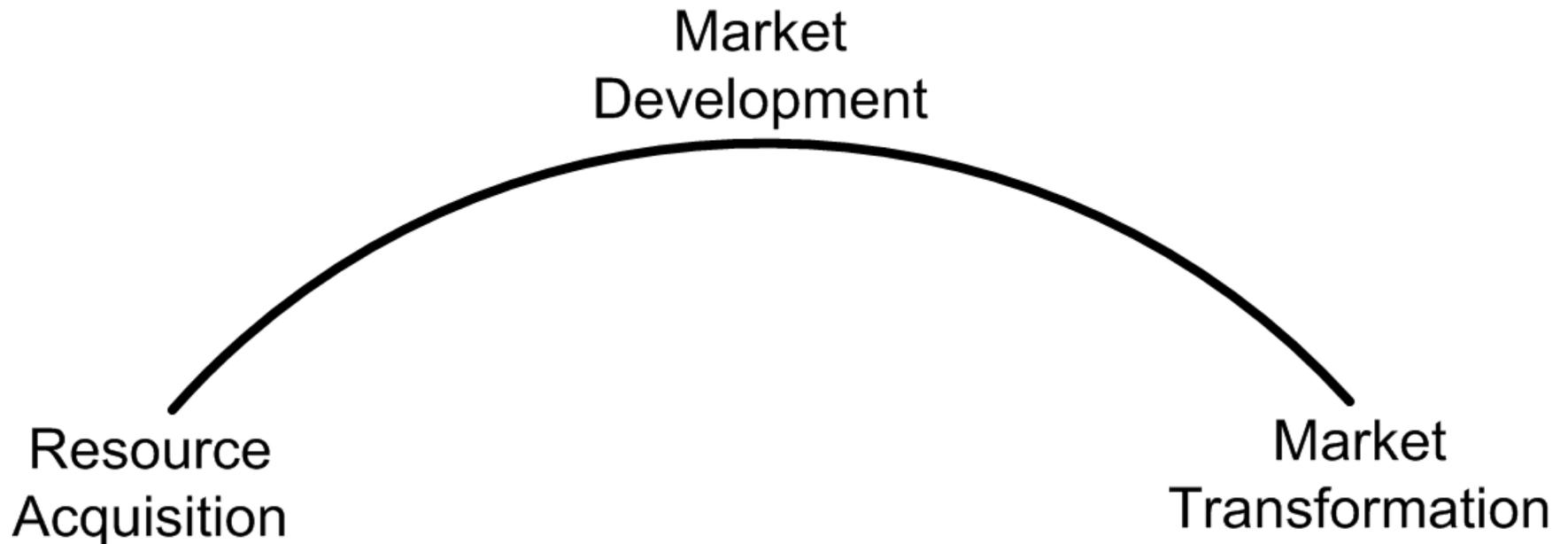
- ... when helpful for achieving NH's goals.

1. EE Market Assessment



Energy Efficiency Markets

What is the desired outcome?



Market Development

- Captures cost-effective savings while supporting market growth:
 - Enhancing market drivers that already exist
 - Leveraging private investment
 - Engaging market players
 - No dead ends- allows for and encourages future market growth
 - Scale
 - Efficiency impact

Key Ingredients

- Clear, stable message to market players
 - Ease of finding information
 - Contractors, retailers, manufacturers, business and home owners all drive to one result
 - Consistent market presence
- Optimized incentive structures
- Ease of participation

Savings Acquisition

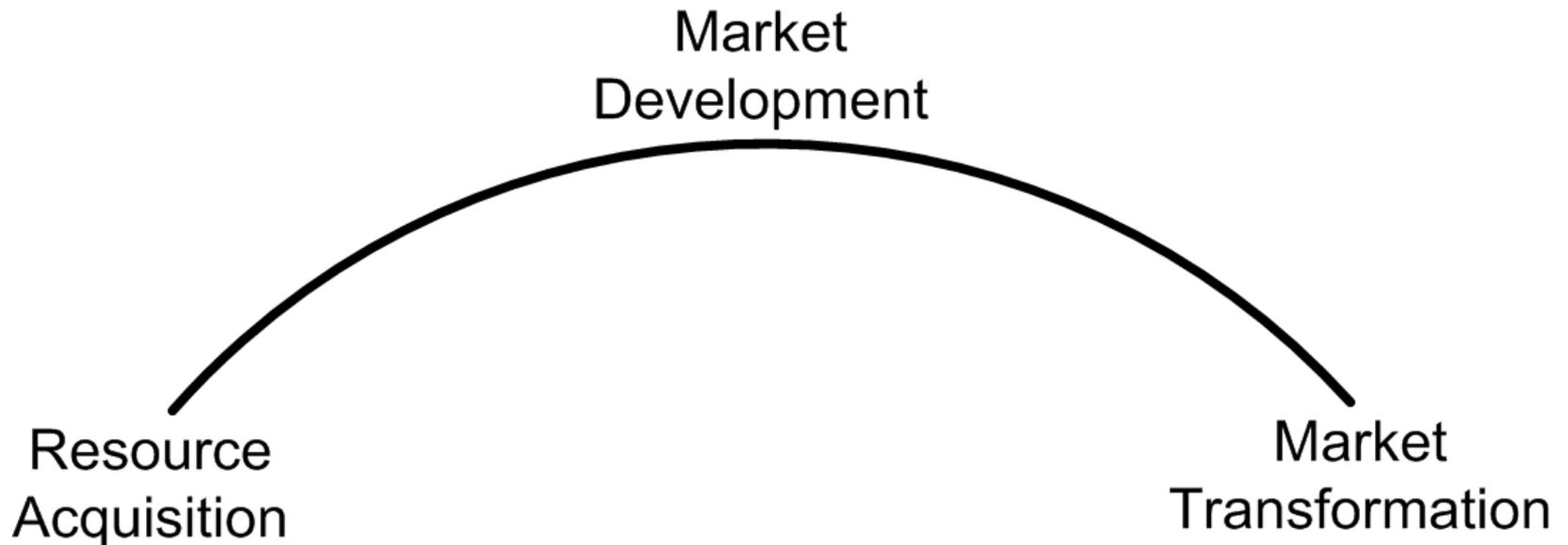
- Are results in-line with leading programs?
- Are best-practice approaches used?
- Are there market opportunities are not addressed?
- Is there innovation that addresses market-specific barriers?
- Are savings values defensible?
- Are investments strategically targeted to maximize benefits?

2. SE Market Assessment



Sustainable Energy Markets

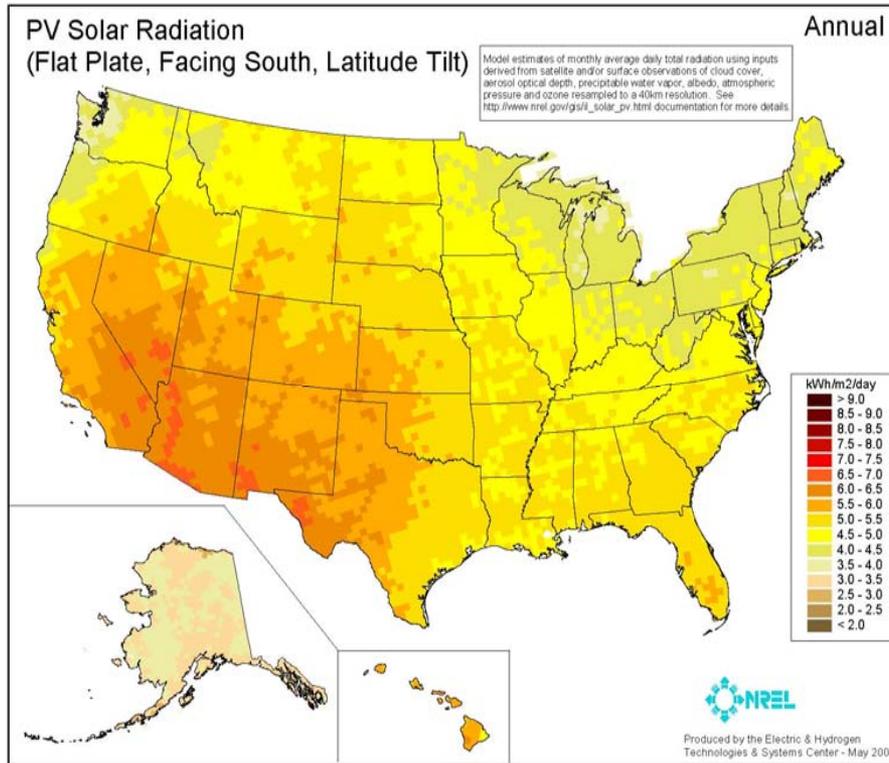
What is the desired outcome?



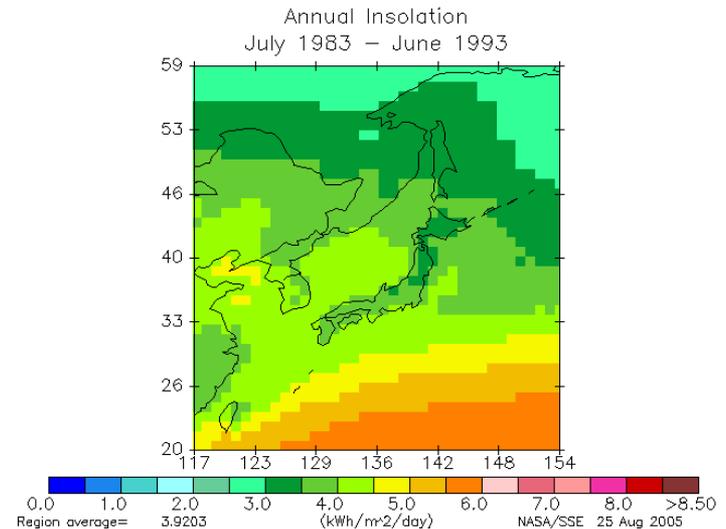
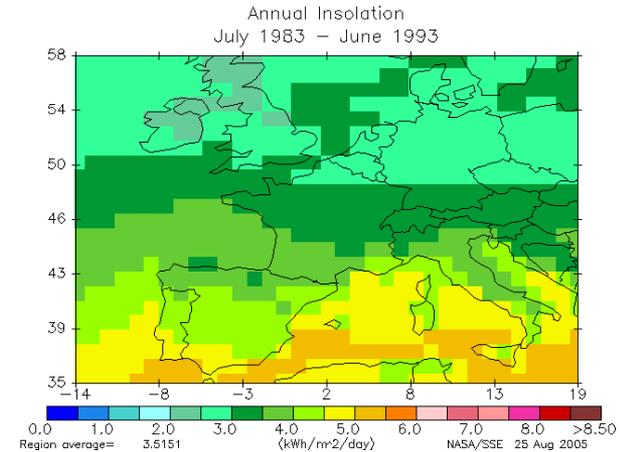
Sustained Orderly Market Development

- Ideally:
 - Multi year commitments
 - Market responsive and catalyzing
 - Market pace based incentive declines
 - Training and workforce development
 - Competitive pressure
 - Good communications
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New Hampshire's Solar Resource Is Better than Germany and Japan's

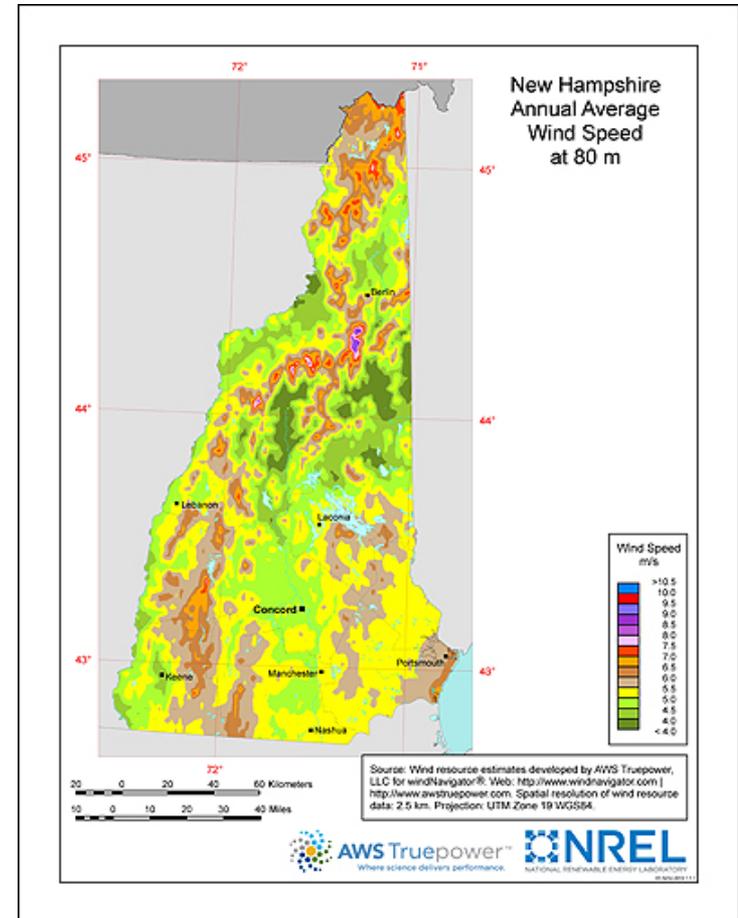
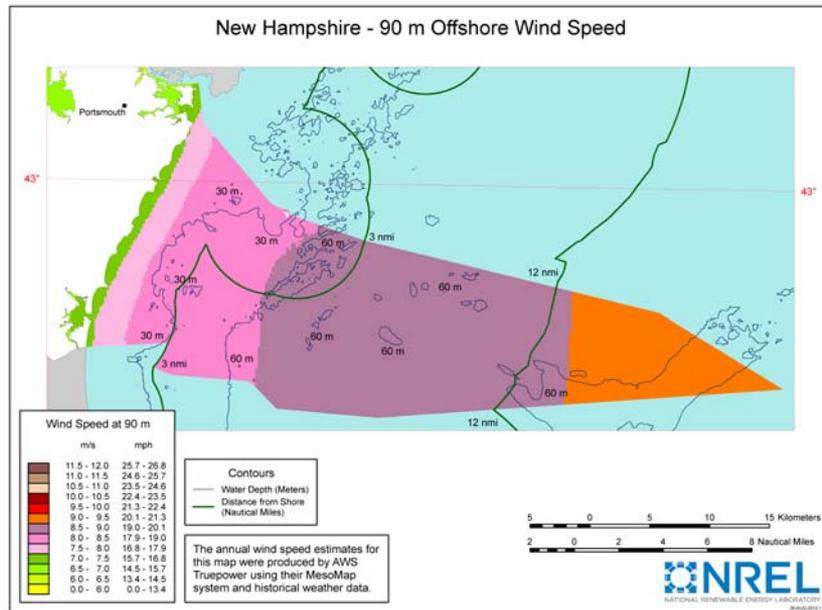


New Hampshire 4.0-4.5 kWh/m²/day



Germany & Japan < 4.0 kWh/m²/day

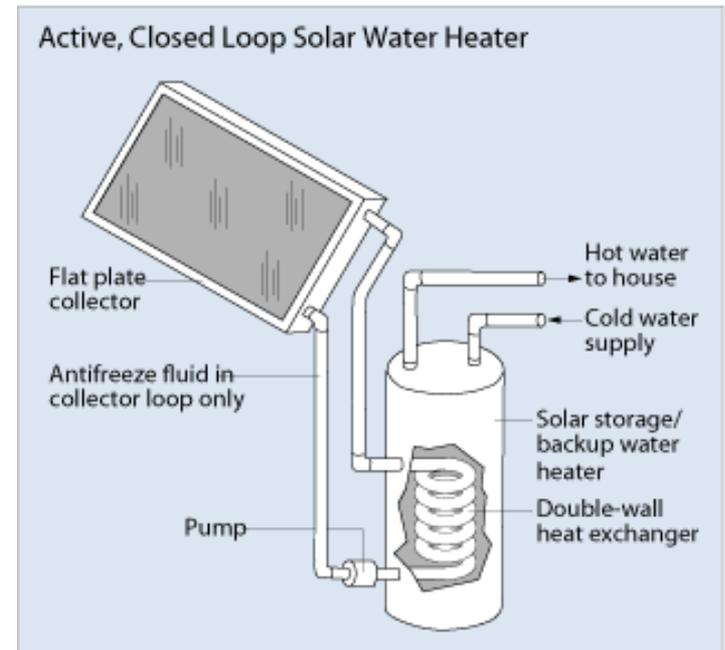
New Hampshire's Wind Resource is Significant On Shore & Off Shore



Source: NREL Wind Powering America

Solar Domestic Hot Water

- Solar domestic hot water can meet a substantial portion of hot water needs (typical systems deliver 60%-70% annual load)
 - Maintain back up water heating source
 - Don't want to oversize due to summer overheating
- Proven technology
- Established product quality control –
- Solar Rating & Certification Corp.
- Leverages Federal and state tax credits
- Local solar installers are interested – helps build sustainable business models



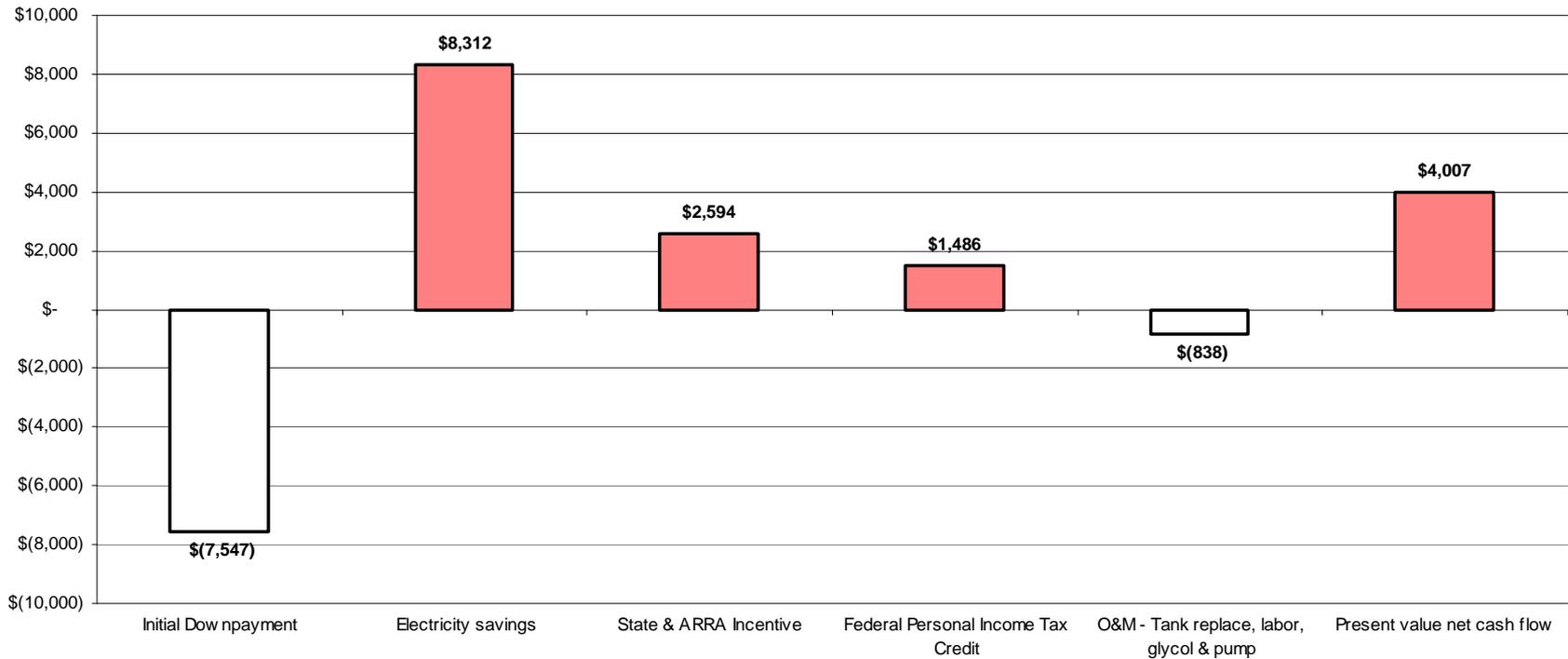
NH Solar Hot Water Example

Capacity: kBTU/day		64.00
Household Size (persons)		4
Installed Cost	\$	8,000
State and ARRA Incentive	\$	2,750
Year 1 kWh savings		3,900
Year 1 \$ savings	\$	620
Customer NPV 20 years	\$	4,007



Solar Hot Water Customer Economics

Customer Economics Comparison - 20 year NPV
Residential 2-panel (64 sq. ft.) System, Current New Hampshire and ARRA Incentive



Small Wind

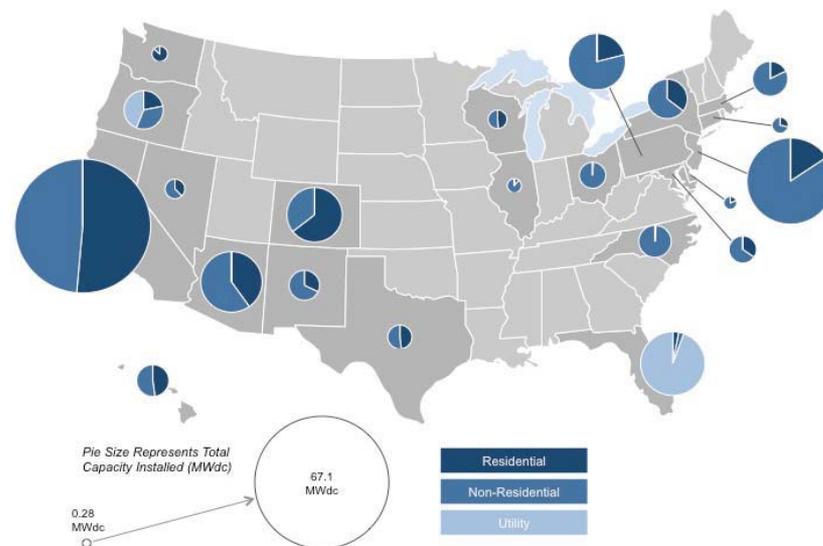
- Limited Residential Scale Market in NH and most states
- Consider Possible medium scale >10 kW initiative
 - Expected Performance Based Incentives (Target Good Sites)
 - Providing Customer Education and Information
 - Sponsoring Contractor Training Seminars



US Photovoltaic Markets

TOP TEN STATES Ranked by Grid-Connected PV Capacity Installed in 2009

	2009	2008	Growth	mkt%	2008 rank
1. California	212.1	197.6	7%	49%	1
2. New Jersey	57.3	22.5	155%	13%	2
3. Florida	35.7	0.9	3668%	8%	16
4. Colorado	23.4	21.7	8%	5%	4
5. Arizona	21.1	6.2	243%	5%	8
6. Hawaii	12.7	8.6	48%	3%	5
7. New York	12.1	7.0	72%	3%	7
8. Massachusetts	9.5	3.5	174%	2%	11
9. Connecticut	8.7	7.5	16%	2%	6
10. North Carolina	7.8	4.0	96%	2%	10
All Other States	34.2	24.6	41%	7%	--
Total	434.6	311.3	40%	--	--



2008 and 2009 columns include installations completed in those years. “2009 Market Share” means share of 2009 installations. “2008 Rank” is the state ranking for installations completed in 2008.

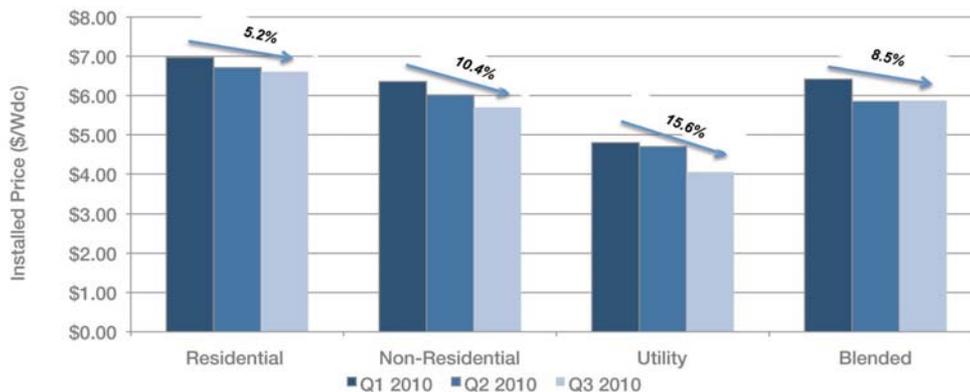
Source: IREC US Solar Market Trends and Greentech Media US Solar Market Insight 3Q 2010.

PV Observations

- Markets are developing and prices are coming down
- Incentives can be less expensive and need to be designed to continue progress towards lower installed costs as markets develop

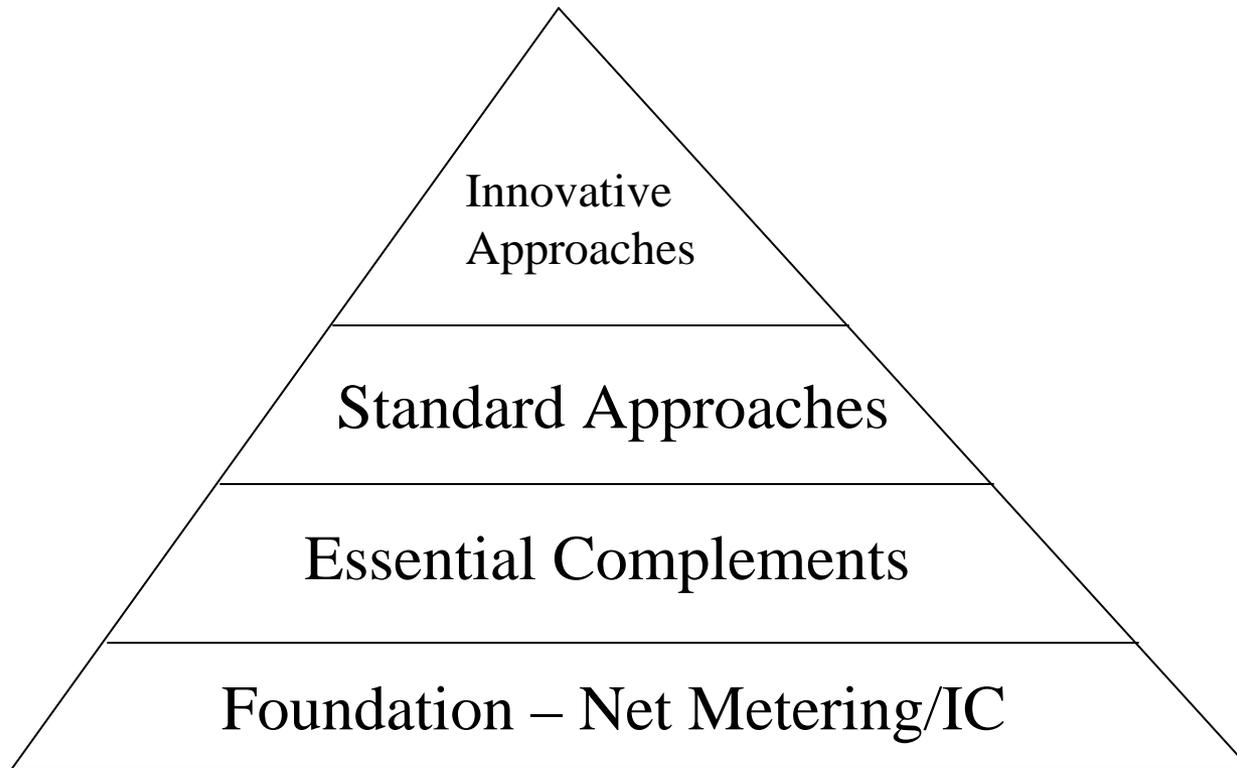


National Weighted Average System Prices, Q1 2010 Through Q3 2010



Source: Greentech Media US Solar Market Insight 3Q 2010.

Market Development Strategies



Foundations

- Net Metering and Interconnection

Essential Complements

- Workforce development
 - Customer education and outreach
 - Financial Incentives (pick one or more of the following)
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Standard Approaches

- Rebates
 - RPS and RPS with Solar Set Aside
 - Feed In Tariffs
 - Tax Incentives
-

Standard Approaches

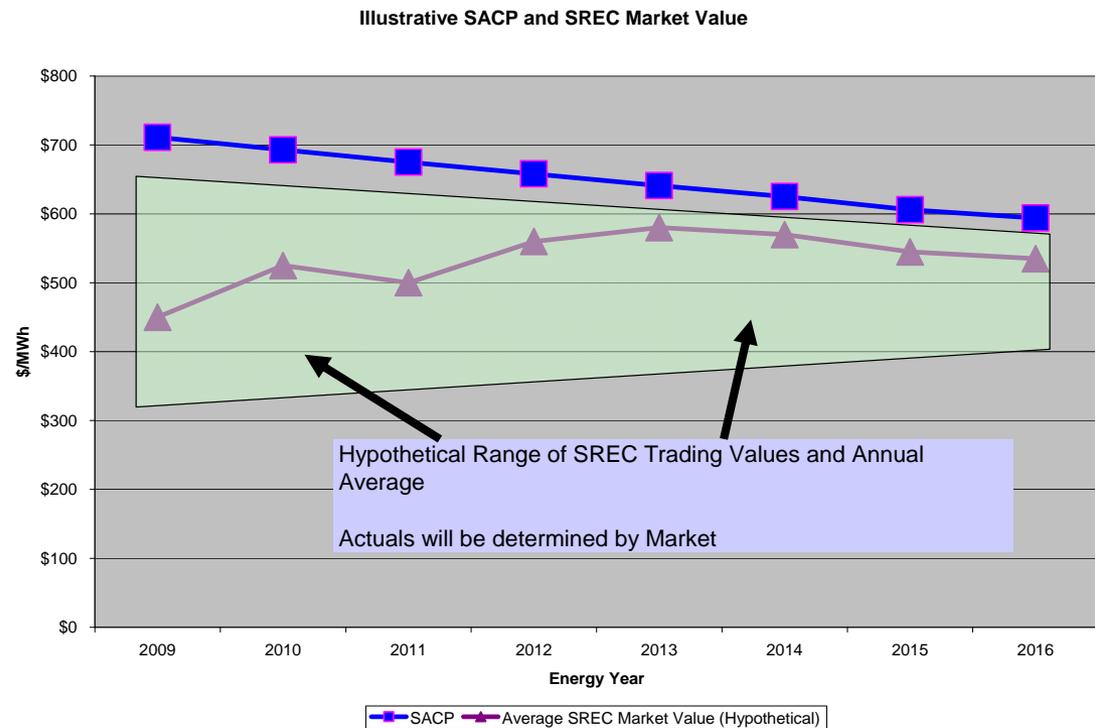
- Rebates

- Capacity based
 - Performance based
 - Dynamic (capacity block)
 - Steadily declining
 - Multi-year
 - Most States including CA and NJ
-

Standard Approaches

■ RPS and RPS with Solar Set Aside

- ❑ 29 states
- ❑ 14 states with solar set asides
- ❑ 56% of electric retail sales
- ❑ Market driven
- ❑ Needs to have ACP



Standard Approaches

■ RPS and RPS with Solar Set Aside

- Early indicators of relatively modest rate impacts
- Future will depend on market forces and continuing price declines

Table 7. Estimated Retail Rate Impact of Solar/DG Set-Asides in 2009

State	Solar/DG Target (% of retail sales)	Retail Rate Impact (% of total retail costs)
Arizona	0.30%	1.15%*
Delaware	0.01%	0.03%
Maryland	0.01%	0.04%
New Jersey	0.20%	0.96%
New York	0.10%	0.01%*
Ohio	0.004%	0.04%
Pennsylvania	0.01%	0.04%
Washington D.C.	0.02%	(Unknown data)
Colorado	0.20%	data
Nevada	0.72%	not available)

Source: Lawrence Berkeley National Laboratory, Supporting Solar Power in Renewable Portfolio Standards.

Standard Approaches

■ RPS and RPS with Solar Set Aside

- SREC spot market prices in NJ have trended upwards
- Greater reliance on non-spot market trades
- Capacity coming on line expected to put significant downward pressure on prices

Current SREC Trading Statistics Reporting Year 2010

For SRECs from electricity produced June 1, 2009- May 31, 2010. Includes transactions during the true-up period through September 30, 2010.

Month	Year	Active kW DC	SREC Quantity		Monthly		Cumulative	
			Issued in Month	Traded in Month	High (\$/MWh)	Low (\$/MWh)	# of SRECs Traded	Weighted Avg Price (\$/MWh)
Sept	2010	168,254	2,978	63,249	\$693	\$215	248,030	\$615.50
Aug	2010	157,129	1,107	49,872	\$693	\$175	184,781	\$617.01
Jul	2010	151,850	5,024	43,358	\$691	\$170	134,909	\$605.97
Jun	2010	140,709	26,275	15,636	\$690	\$170	91,551	\$588.96
May	2010	132,956	16,504	8,737	\$700	\$170	75,915	\$578.80
Apr	2010	123,892	12,546	6,773	\$700	\$170	67,178	\$573.95
Mar	2010	119,829	5,814	9,522	\$700	\$209	60,405	\$568.66
Feb	2010	113,770	6,784	9,720	\$685	\$170	50,883	\$552.69
Jan	2010	103,857	5,249	11,731	\$675	\$110	41,163	\$533.15
Dec	2009	100,086	7,862	7,582	\$700	\$195	29,432	\$566.91
Nov	2009	97,491	6,191	7,292	\$688	\$170	21,850	\$559.45
Oct	2009	93,412	8,085	7,004	\$680	\$170	14,558	\$549.84
Sept	2009	92,032	8,796	5,119	\$700	\$170	7,554	\$524.90
Aug	2009	89,660	10,320	2,435	\$685	\$170	2,435	\$492.18
Jul	2009	83,807	6,626	Due to low trade volume, the July trades are reported with the cumulative pricing data starting in August.				
Total			130,161	248,030				

Source: NJCEP.

Standard Approaches

■ Feed In Tariffs

- ❑ Challenged by FERC and PURPA jurisdiction
 - ❑ More popular in European markets
 - ❑ Federal commerce issues
 - ❑ High Priced and over-subscribed
 - ❑ Better to let market set price
 - ❑ Vermont biomass and PV substantially oversubscribed in first day – need to run a lottery
 - ❑ Drove rapid development of high visibility projects but at a price
-

Standard Approaches

- Tax Incentives

- Federal
- Grant in lieu of credit drove market in 2010 available for projects starting before 12/31/11
- Includes accelerated depreciation
- Significant leverage to state and program investments

- State Tax Credits

- Sales and Property Tax Exemptions

Innovative Approaches

- Less Experience and Track Record
 - Can help to create more attention for a state market initiative.
 - Community scale
 - Customer aggregation (including govt. procurement)
 - Utility geo-targeting – high value installations
 - Integrated RE/EE deep retrofit
 - Pace with loan loss reserve fund
 - Manufacturing and economic development (partnerships with academic and IP communities)
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3. Future EESE Board Engagement



Next Steps

- EESE Board Presentation - Preview of Findings – May
- EESE Board Presentation - Draft Report – June
- EESE Board Presentation – Final Report – August
- 2 Public Presentation Days - Fall 2011 & Winter 2012

We welcome your insights and ideas!



For More Information

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