

# Super Efficient Dryer Initiative

Super Efficient Clothes Dryer Industry Summit

September 29, 2011



# Who are we?

## ***SEDI Core Stakeholders***

**Michael Russom**  
*Efficiency Vermont*

**Jay Wrobel**  
*Midwest Energy Efficiency Alliance*

**Jeff Harris**  
*Northwest Energy Efficiency Alliance*

**Pedro Cabrera**  
*NJCEP*

**Kerry Hogan**  
*NYSERDA*

**Amanda Stevens / Peter Banwell**  
*US EPA E\_ERGY STAR*

**Kari Reid**  
*BC Hydro*

**Keith Miller**  
*National Grid*

## ***SEDI Team***

**Chris Granda**  
*Grasteu Associates*  
(802) 922 7005  
granda@grasteu.com  
[www.grasteu.com](http://www.grasteu.com)

**Chris Badger**  
*Vermont Energy Investment Corp.*  
(802) 658 6060 x1065  
cbagder@veic.org  
[www.veic.org](http://www.veic.org)



# SEDI Team Roles

- Coordinate and connect global efficient clothes dryer expertise
- Define agenda for planning SEDI implementation
- Serve as an honest brokers between stakeholders, manufacturers and others
- Plan for transition from planning to implementation administration structure



# SEDI Primary Goals

**2010**

**Industry, Efficiency Programs and ENERGY STAR Collaboration**

**2011**

**Product Development & Field Data**

**2012**

**Pilots in N. American Market of Super Efficient Clothes Dryers**

**2013**

**ENERGY STAR & Full Market Launch**

**2020**

**50% Energy Reduction in Clothes Dryer Usage**



# What Do We Know?

- New technologies can reduce total clothes drying energy consumption in North America by up to 50%
- Energy efficiency programs are interested, and have resources
- ENERGY STAR is ready
- New products are needed

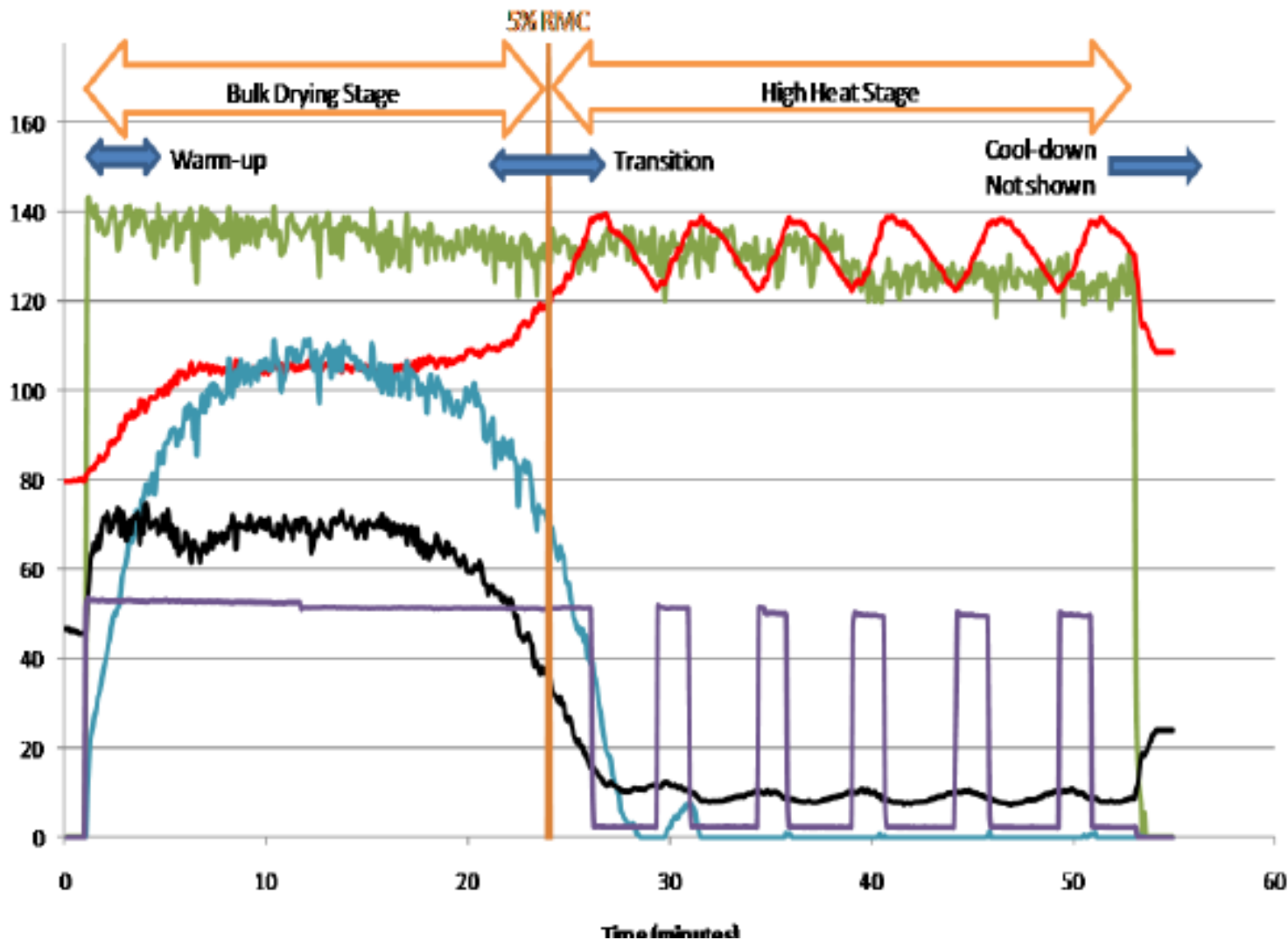


# Resources Available

- Annual sales of 6 mil units in US and Canada
- Around 46 mil households *now offered* clothes washer incentives
- Many more *were offered* washer incentives before market shift
- 2010 appliance budgets around \$35 mil



# Typical Drying Cycle



- Airflow (cfm)
- Temperature (F) at Exhaust
- Evaporation (gm/min)
- Relative Humidity (%) at Exhaust
- Power (W x 100)

Energy Consumed  
 Bulk-dry 1.990 kWh  
 High-heat 0.907 kWh  
 Total 2.897 kWh

Water evaporated  
 4.98 pounds

Air exhausted  
 6815 cf

Max Temperature  
 230 °F at Heater  
 139.5 °F at Exhaust



\* NRDC/Ecos 2010 Evaluation of Clothes Dryer Savings Potential



# From the EEPS perspective

## Screening Inputs

Primary Per Unit Savings	
Electric Dryer	
kW Base unit	5.00 kW
kWh Efficient Dryer	2.00 kWh
kWh Base unit	775 kWh
kWh Efficient Dryer	370 kWh

Other Assumptions	
Location	Middle Atlantic
Baseline cost	\$ 564.00
Efficient cost	\$ 969.00
Installed Measure Cost	\$ 405.00
Total Annual Cycles	283 cycles
Total Annual Hours	283 hours
Annual hours (heating)	187 hours
Annual hours (cooling)	96 hours
Measure Life	12 years

## Measure Screening Outputs

(Societal Test 2009\$)

<b>PV of Net Benefits</b>	\$297
<b>Benefit-Cost Ratio</b>	1.86
Measure Benefits	\$642
Measure Costs	\$346
Gross Electric Benefits	\$583
Fossil Fuel Benefits	\$21
Total Resource Benefits	\$604

**MEASURE SCREENS WELL**

Secondary Heating Savings	Jurisdiction Level Inputs																																
Heating MMBTU saved (from no venting) <input type="text" value="0.18"/> MMBtu	Domestic Heating Fuel Mix:																																
<table border="1"> <tbody> <tr><td>Electric</td><td>9.28</td><td>kWh</td></tr> <tr><td>Propane</td><td>0.007</td><td>MMBtu</td></tr> <tr><td>Natural Gas</td><td>0.111</td><td>MMBtu</td></tr> <tr><td>Oil</td><td>0.051</td><td>MMBtu</td></tr> <tr><td>Kerosene</td><td>0.005</td><td>MMBtu</td></tr> <tr><td>Wood</td><td>0.023</td><td>MMBtu</td></tr> </tbody> </table>	Electric	9.28	kWh	Propane	0.007	MMBtu	Natural Gas	0.111	MMBtu	Oil	0.051	MMBtu	Kerosene	0.005	MMBtu	Wood	0.023	MMBtu	<table border="1"> <tbody> <tr><td>Electric</td><td>17.00%</td></tr> <tr><td>Propane</td><td>3.00%</td></tr> <tr><td>Natural Gas</td><td>51.00%</td></tr> <tr><td>Oil</td><td>22.00%</td></tr> <tr><td>Kerosene</td><td>2.00%</td></tr> <tr><td>Wood</td><td>5.00%</td></tr> <tr><td></td><td>100.00%</td></tr> </tbody> </table>	Electric	17.00%	Propane	3.00%	Natural Gas	51.00%	Oil	22.00%	Kerosene	2.00%	Wood	5.00%		100.00%
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kW vent <input type="text" value="0.050"/> kW																																	
Secondary cooling savings	Jurisdiction Level Inputs																																
Per unit cooling savings (reduced waste heat) <input type="text" value="4.10"/> kWh	% homes with cooling? <input type="text" value="83.00%"/>																																
kW cool <input type="text" value="0.043"/> kW																																	
Total Savings																																	
Annual kWh Savings <input type="text" value="417.7"/> kWh	Annual MMBtu Savings <input type="text" value="0.196"/>																																
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Financial Assumptions				
Real Discount Rate	5.70%			
Future Inflation Rate	2.60%			
Base Yr for Discounting	2009			
Program year	2010			
Evaluation Period	12 yrs			
Avoided Costs				
	Winter Peak Energy	Winter Off-Peak Energy	Summer Peak Energy	Summer Off-Peak Energy
	\$/kWh	\$/kWh	\$/kWh	\$/kWh
2010	0.106	0.077	0.107	0.079

Loadshape					
Winter Peak Energy	Winter Off-Peak Energy	Summer Peak Energy	Summer Off-Peak Energy	Winter Coincident Peak	Summer Coincident Peak
42.0%	28.8%	16.9%	12.3%	4.4%	3.3%
<i>Winter Peak Energy:</i> 6AM - 10PM, weekdays, October to May; <i>Winter Off-Peak Energy:</i> 10PM - 6AM, weekdays, all weekend hours, October to May; <i>Summer Peak Energy:</i> 6AM - 10PM, weekdays, June to September; <i>Summer Off-Peak Energy:</i> 10PM - 6AM weekdays, all weekend hours, June to September.  <i>Summer Gen. Capacity:</i> 1PM-5PM, weekday, non-holiday, June-August <i>Winter Gen. Capacity:</i> 5PM-7PM, weekday, non-holiday, December-January					





# Why Can SEDI Do?

- Educate program providers about new super efficient clothes dryer technologies
- Help to perform cost-benefit analyses
- Share market research
- Help to coordinate program requirements and incentives



# SEDI So Far...

1. 2010/2011 Funding by NJCEP
2. Research followed by Market Potential Report
3. Draft program design
4. Stakeholder Coordination
  - 2010 Regional Stakeholder Meetings
  - 2010 ENERGY STAR Partner Meeting
  - 2011 Industry Summit
  - 2011 ENERGY STAR Partner Meeting



# Manufacturer Goals?

- Strong consumer demand for new products
- Recognition of SEDI compliant models through ENERGY STAR
- Consistent and sustained marketing and incentive support for SEDI-compliant dryer models
- Consistent technical specifications and test procedures across IEC, DOE, ENERGY STAR and NRCAn



# Manufacturer Roles

- Design SEDI implementation plan
  - Choose SEDI administration mechanism
  - Set efficiency targets
  - Choose incentive and marketing approaches
- Support SEDI Implementation
  - Support product pilot testing
  - Apply retail price incentives
  - Provide coordinated marketing
- Support SEDI Evaluation



# Short-term SEDI Project Goals

- A high efficiency bar for new clothes dryer technology (ENERGY Emerging Tech Award)
- Strong support from efficiency programs, manufacturers, government and others
- The SEDI implementation program plan written into efficiency program residential program budgets for 2011, and complying products available by 2012



# What Does Industry Want?

- Product financial incentives?
  - Upstream, retailer and customer
  - Dryer recycling campaign
- Marketing financial incentives?
  - Co-op marketing funds
  - Independent complementary campaign
- Marketing non-financial incentives?
  - Institutional co-marketing
  - Community-based social marketing
- Other?



# Next Steps

- Become a SEDI Industry Stakeholder
  - Help shape the SEDI efficiency target and program design
  - Research and pilot testing in 2011/2012
- Plan for 2012-2013
  - Retail price incentives
  - Marketing
  - Bulk purchase



# Contacts

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