

Energy Efficiency as a Resource

Chris James

Manager, Climate Change and Energy
Programs, Connecticut DEP

EPA Innovations Conference, Denver CO

Definition of a Resource

- ◆ “It’s all about hot showers and cold beer”- Amory Lovins



Resource Definition

Capacity	Ability to be available to provide energy	Potential revenue: \$/kw-month
Energy	Actual delivery	\$/kwh

Catalysts in New England for energy efficiency as a resource

Systems benefit charge funds; restoration of funds that were raided	CT's fund currently \$62 million/year; \$12 million restored starting 7/1/06	CT offsetting ~50 MW of load growth each year at \$50. Sustained commitment important for certainty, credibility
OTC peak demand day	Benefits of "traditional" control measures decreasing, cost per ton increasing	Demand side reductions less expensive, align with existing state programs, complement demand response programs
RGGI	Model rule suggests that at least 25% of allowances be auctioned	Conservative estimate of \$105 million/ year
FERC decision June 2006 on capacity	Approved ISO-NE LICAP settlement	Transition period 12/06-5/10. Forward 4 capacity market begins

Barriers and Their Effects

- ◆ Cream skimming
- ◆ Financial analytical methods
- ◆ Monitoring and verification
- ◆ Continued focus on measures with quick paybacks. Achieving 10-15% reduction v. 40-70% possible
- ◆ Use of same discount rate: underestimates EE and its cumulative benefits. Overestimates the value of fossil generation. Misses the high coefficient of risk caused by fuel price volatility
- ◆ EE performance discounted and/or subject to performance bonds, which are inefficient.

Solutions: time to apply them consistently and across regions and sectors

- ◆ EE first in loading order
 - ◆ ISO FCM
 - ◆ Whole buildings/ whole systems approach
 - ◆ Adjust discount rate to account for risk and benefit
 - ◆ Co-benefits
 - ◆ Monitoring and verification
- CA PUC order. CT investigating how to accomplish
Great opportunities for EE to flatten and decrease demand regionally
- ◆ 40-70% reduction in energy, smaller boilers, fans, etc used. Actual costs are lower
 - ◆ Use risk adjusted discounting to capture EE benefits, properly value risk of fuel price volatility, operating costs of generators
 - ◆ Build on tools like COBRA to show public health, criteria pollutant, other benefits
 - ◆ Refer to established protocols. Build EE portfolio from several buildings to dampen variability from singular building or measure

Connecticut's Plan

- ◆ Completed maximum EE potential study
- ◆ Go upstream
- ◆ Link EE to other programs
- ◆ Expand application of co-benefits, educate other agencies
- ◆ Results conclude that load growth can be completely offset through 2012 at an average cost of 2c/kwh
- ◆ Focus incentives at manufacturer level. Move from point of sale to point of mfr to push technology
- ◆ White tag program starting in 2007. Will require 4% EE/CHP as resource by 2010. Auction of RGGI allowances. EE as resource in SW CT to relieve congestion.
- ◆ Use co-benefits to educate policy makers, underscore rationale for actions today

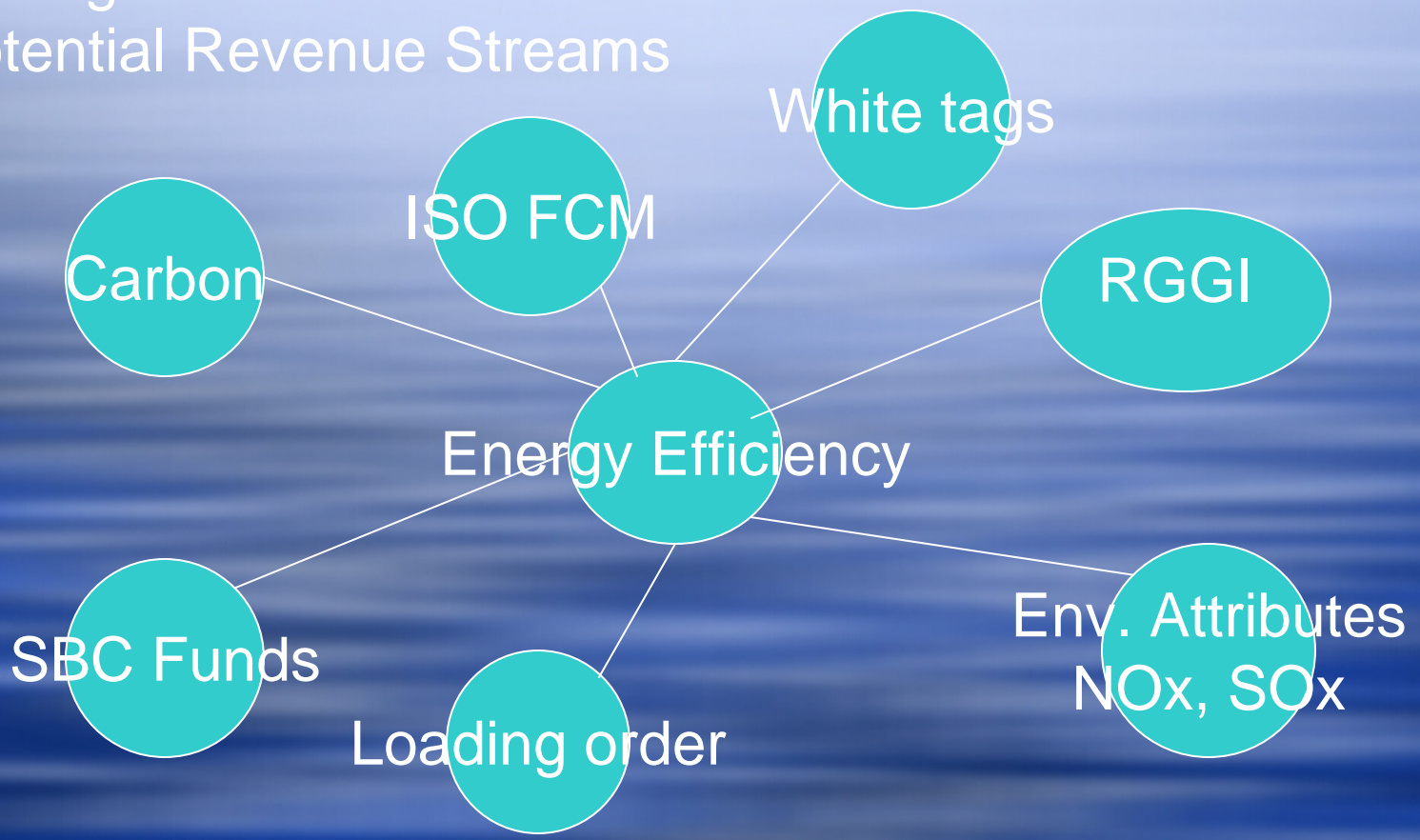
Potential new business lines to encourage even more EE

- ◆ Insurance-traditional (property and casualty)
- ◆ Insurance- new (risk reduction)
- ◆ Financial/banking
 - ◆ Guaranty EE performance. Example Energy Savings Insurance, performance audits
 - ◆ Co's work with EE programs that reduce risk and improve public safety. Example: torchiere turn-in
 - ◆ Redesign insurance rates based on energy usage
 - ◆ Private equity funds. Directly invest in EE. Sell attributes, generate revenue stream through savings, bid EE saved into ISO FCM

The Path Forward

- ◆ Capture all cost-effective EE
- ◆ Apply lessons from pilot studies store-wide, across state and region
- ◆ Complete technical research to fill gaps
- ◆ Implement National Action Plan for Energy Efficiency
- ◆ Require through PUC orders, codes/standards
- ◆ Integrate demand side measures into air SIPs
- ◆ If it works in one store, apply it to all, then replicate to apply to all in that sector
- ◆ Studies needed: 1] to determine price sensitivity of EE in capacity market; 2] debunk myth of EE and rate increases v. bill impacts, 3] true costs of EE across life of measure (last one done by LBL in early 1990s)
- ◆ NAPEE: outstanding effort. Maintain momentum through actions now.

Adding Value to EE:
Potential Revenue Streams



References/ contacts

- ◆ Chris.james@po.state.ct.us 860 424 3027
- ◆ www.rmi.org Natural Capitalism (tunneling through the cost barrier), Winning the Oil Endgame
- ◆ E. Mills, et al “From Volatility to Value”, Energy Policy, v. 34, 2006, pp 188-199
- ◆ E. Mills, From Risk to Opportunity, CERES report, released August 2006
- ◆ www.awerbuch.com/shimonpages/sajarticles.html (on risk adjusted discounting)
- ◆ Maximum Achievable Potential Study, Optimal Energy, 2004 (completed for Connecticut ECMB)
- ◆ www.ipmvp.org (M&V protocols for EE)