

DSM for Dummies Beginners

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Agenda

- What is DSM?
- What led to utility involvement in DSM?
- What are the drivers behind DSM today?
- Balancing public policy and shareholder objectives – why ratemaking issues are so important
- The Circle of DSM
- Q&As

Today, you are guinea pigs 😊



What is Demand-Side Management (DSM)?

- DSM includes actions taken to change how a consumer uses energy.
- Focus is on the customer's side of the meter.
- Can include conservation, energy efficiency, load management, and other strategies that are focused on the efficient use of resources and minimizing long-term costs.

What led to utility involvement in DSM?

- Fuel supply disruptions in the '70s led to electric and gas price spikes
- “Least Cost Planning” or “Integrated Resource Planning” became a preferred approach to mitigate price volatility.
- DSM recognized as a strategy to increase “fuel diversity” and as a hedge against price volatility



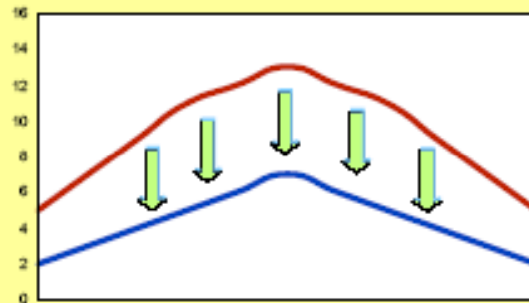


Why commit to DSM today?

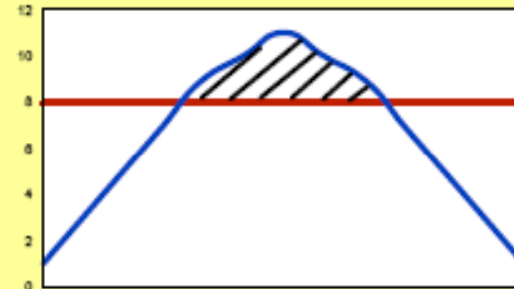
- Broader benefits of DSM are now recognized in many areas:
 - Environmental benefits/climate change mitigation
 - Economic development/job creation benefits
 - Reduced reliance on imported fuels – national security benefits
 - DSM costs are often lower than the costs required to construct new power plants

Types of DSM Activities

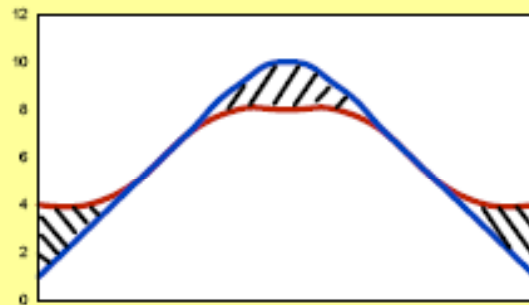
STRATEGIC CONSERVATION



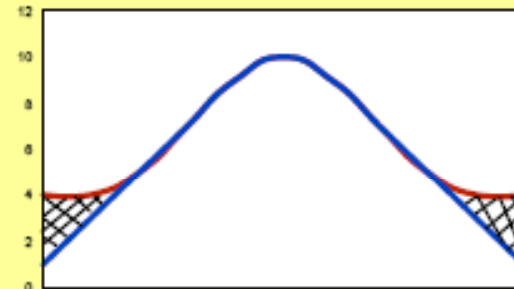
PEAK DEMAND CLIPPING



LOAD SHIFTING



VALLEY FILLING





DSM versus SSM – The Now Days

- DSM is part of supply mix
- Some consider it the resource of choice
- Some areas have a RPS or EPS standard requiring that certain percentage of the supply mix comes from DSM.



Regulatory Issues to Consider

- Where is the funding for DSM efforts coming from?
- What DSM investments will your regulator authorize?
- How can shareholder interests be balanced with public policy objectives?

Funding DSM

- Sometimes funded through a Systems Benefit Charge (SBC) – a fixed cost per unit of consumption.
- Sometimes costs recovered through base rates
 - DSM proposals are usually considered through a general rate case
- Some jurisdictions have a hybrid approach where proposals are considered through a general rate case with a true-up process in place between rate cases



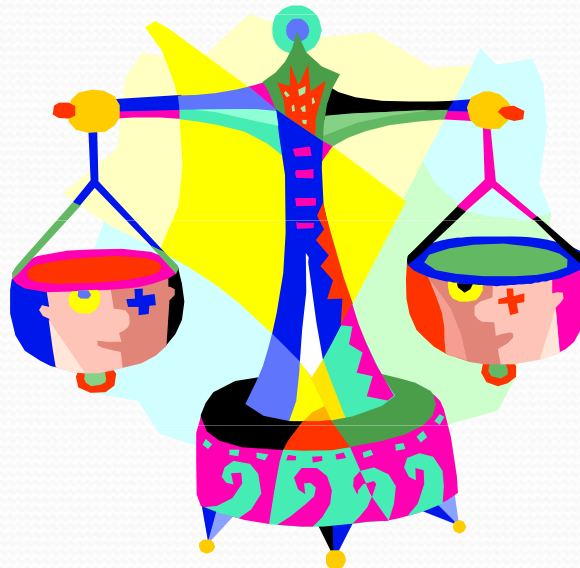
Criteria for DSM Approval Varies by Jurisdiction

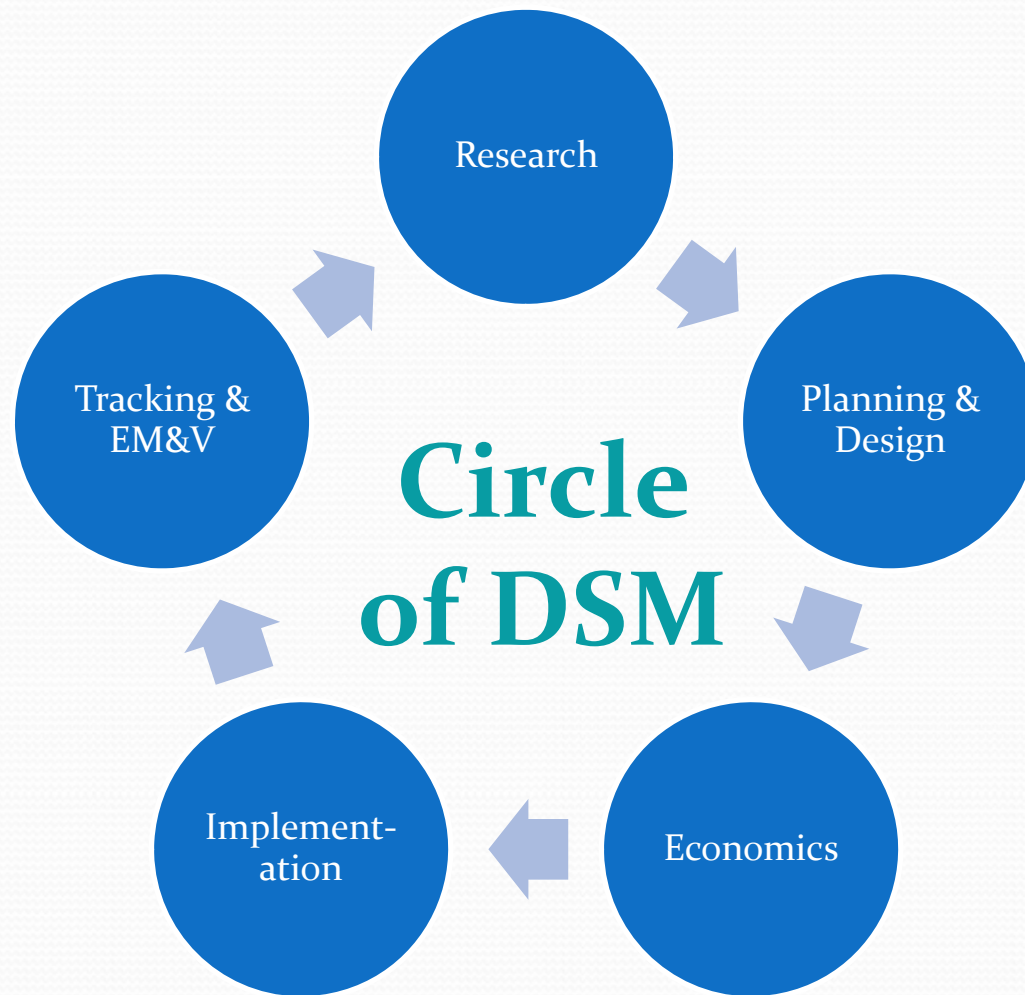
- Cost effectiveness
- Customer equity
- Short-term bill impacts
- Perceived risk of the proposed DSM investments
- Relative support for EE vs DR vs Renewable Energy resources
- Legislative requirements



Balancing Shareholder and Public Policy Objectives

- Revenue decoupling – eliminate the disincentive to actively reduce consumption
- Performance incentives
- Return on investment for shareholders







Informing Program Design

- Potential studies
- Appliance saturation studies
- Market assessments – understand current practices
- Customer segmentation studies – understand unique needs of segments of your customer base
- Secondary data – what others are doing successfully
- Findings from program evaluation studies
- Other market research about customer needs and attitudes about DSM



Designing the Program

- Know what you are trying to accomplish
- To run economics and get regulatory approval, you need info.
- Couple of things you should have a good idea about:
 - Will you use consultants for design?
 - How will you implement?
 - How will you market?
 - How will you evaluate?
- Are there stakeholders you want to involve at this point?



What you need for design/analysis:

- What is the baseline efficiency?
- What are the higher efficiencies?
- What are the savings from higher efficiency?
- Total and incremental cost of measure/activity
- Incentive?
- Measure life?
- Other costs – delivery, administration, evaluation, marketing, one time up front versus on-going
- Stay flexible



Is your program cost effective?

1. Participant cost test (PCT) – Comparison of benefits and costs anticipated by the participant
2. Program administrator cost test (PACT) – Comparison of PA costs to supply costs
3. Ratepayer impact measure test (RIM) – Comparison of administrator costs and utility bill reductions to supply costs
4. Total resource cost test (TRC) – Comparison of PA and participant costs to utility resource savings
5. Societal cost test (SCT) - Comparison of society's costs of energy efficiency to resource savings and non-cash costs and benefits

Source: <http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf>



Cost effectiveness issues

- Based on local requirements and the relevant tests and perspectives mentioned earlier, does your program pass regulatory muster?
- Which perspectives do you need to consider?
- Is it cost effective at the measure level? Program level? Sector level? Portfolio level?
- This will need to be submitted to regulators. Often, you have to also demonstrate how well you actually did after program deployment.



Implementation

- In-house or outsource? RFQ/RFI/RFP
- Don't be afraid to hold people accountable for methods as well as results
- Know the contractors AND their subs but contractor is responsible for sub; be clear on contracts!!!
- Have good annual plans with monthly/quarterly goals and reviews
- Incorporate good QA in processes; have QC plans
- Always represent the program and its owner



Implementation

- Develop good marketing plans/market with clear focus
- Use appropriate marketing medium for targeted market; use variety.
- Have a good evaluation partner and plan.
- Where do customers go for assistance? Call center? Are they well trained?
- Can you leverage other internal programs without confusion? External programs?



Tracking

- Develop and maintain systems that will help you to understand what is being done in each program, measures installed, costs, and where the customer is in the implementation process.
- Get input from program evaluators when systems and data collection needs are defined. Collect data that will be needed to support prudent program implementation and management efforts, regulatory reporting, and other anticipated needs.

Measurement & Verification

- Estimated savings from site specific installations
- Installations verified through post-inspections and other QA/QC activities





Evaluation

Study Type	Focus
Impact Evaluation	What savings are attributable to program efforts?
Process Evaluation	Is the program operating as expected? How can the delivery effort be improved?
Market Assessment	What are baseline practices? How is the market expected to change over time?



Phew ... we're almost done

- AESP offers a variety of training opportunities that go much deeper into each area. They are very reasonable, taught by those who have been in the industry for a long time, and often attached to a conference so you can kill several birds with one stone... not that we want you to kill birds
- Important to get your feedback for today
- Contact Carol or Sue for assistance or questions that come up later



Acronym Bibliography

- DSM - Demand Side Management
- EE - Energy Efficiency
- IDSM - Integrated DSM
- SSM - Supply Side Management
- LCP - Least Cost Planning
- IRP - Integrated Resource Planning
- PLM - Peak Load Management
- DR - Demand Response
- DLC - Direct Load Control
- SBC - System Benefit Charge
- RPS - Renewable Portfolio Standard
- EPS - Efficiency Portfolio Standard
- EEPS - Energy Efficiency Portfolio Standard
- PCT - Participant Cost Test
- PACT - Program Administrator Cost Test
- RIM - Ratepayer Impact Test
- TRC - Total Resource Cost Test
- SCT - Societal Test
- RFQ - Request for Qualifications
- RFI - Request for Information
- RFP - Request for Proposal
- M&V - Measurement & Verification
- EM&V - Evaluation, Measurement & Verification

Measurement Terms

Gas terms

- Therm = 100 cubic feet (CF) or 1 CCF
- DekaTherm (Dt) = 10 CCF
- 1 Dt = 1 MCF
- 1 MCF = 1 MMBTU*

* Roughly speaking because one CF of natural gas can have varying BTU content

Electric terms

- Watt – one unit of electric energy
- kW – Kilowatt (1,000 watts)
- kWh – kW x hours of use
- MW – megawatt (1,000 KWs)
- MWh – Megawatt hours
- Giga, then Tera

Handy References(1)

- National Action Plan for Energy Efficiency: <http://www.epa.gov/cleanenergy/energy-programs/suca/resources.html>
- California Measurement Advisory Council: <http://www.calmac.org/search.asp>
- American Council for an Energy Efficient Economy: <http://www.aceee.org/>
- Consortium for Energy Efficiency: <http://www.cee1.org/>
- Association of Energy Services Professionals: <http://www.aesp.org/>
- ENERGY STAR®: <http://www.energystar.gov/>
- International Energy Program Evaluation Conference: <http://www.iepec.org/>
- Regulatory Assistance Project: <http://www.raonline.org/>

(1) Some of these sites require a paid membership in order to access information.



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