

Planning and Evaluating Energy Efficiency Programs in the US

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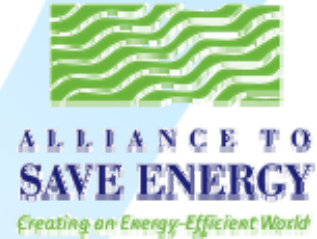
ALLIANCE TO
SAVE ENERGY
Creating an Energy-Efficient World

Context



- Energy efficiency programs: Large, complex, multiple actors – and growing!
 - Federal programs (including R&D): >\$1.5 B/yr
 - States, utilities, other (municipal): >\$3 B/yr
 - Carbon cap-and-trade could add \$30-50 B/yr (not all energy efficiency)
- Main drivers for evaluation:
 - Utility DSM regulatory review
 - State “resource/portfolio requirements” (white tags)
 - ESCO performance contracts
 - Carbon credits (green tags)
 - “Good government” (e.g., Presidential Management Initiative)

Planning Energy Efficiency Programs



- No shortage of energy [efficiency] plans:
 - National Energy Policy (2001) <http://www.doe.gov/about/nationalenergypolicy.htm>
 - DOE Strategic Plan (2006) <http://www.doe.gov/about/strategicplan.htm>
 - National Action Plan for Energy Efficiency (2005) <http://www.epa.gov/cleanenergy/energy-programs/napee/index.html>
 - National Commission on Energy Policy (2007) <http://www.energycommission.org/>
 - State Energy Plans http://www.eere.energy.gov/state_energy_program/publications_by_topic.cfm/topic=509
 - Energy Efficiency “Potentials” Studies –
 - McKinsey Global Institute (2007) http://www.mckinsey.com/mgi/publications/wasted_energy/index.asp
 - ACEEE studies <http://www.aceee.org/energy/eemra/eeassess.htm>
- No common methods to identify market interventions
- Utility “resource acquisition” vs market transformation
- Energy savings (kWh) vs peak demand management (kW)

Energy Savings Evaluation, Measurement, & Verification (EM&V)



- Project M&V vs program evaluation
 - “Process” vs “impact” evaluation
- Baseline issues
 - Apply to project level and program level
 - Harder for efficiency than for energy supply (including renewables)
- “Additionality” (what would have happened?)
 - Program level only
 - Especially important for regulatory programs (carbon, utility DSM)
- “Attribution” (sorting out multiple market & non-market influences)
- “Closing the loop”: Feedback from evaluation to planning
- Designing programs to be easily evaluated
 - Building in data collection
 - Baseline data
 - Control groups

Standard Methods for EM&V

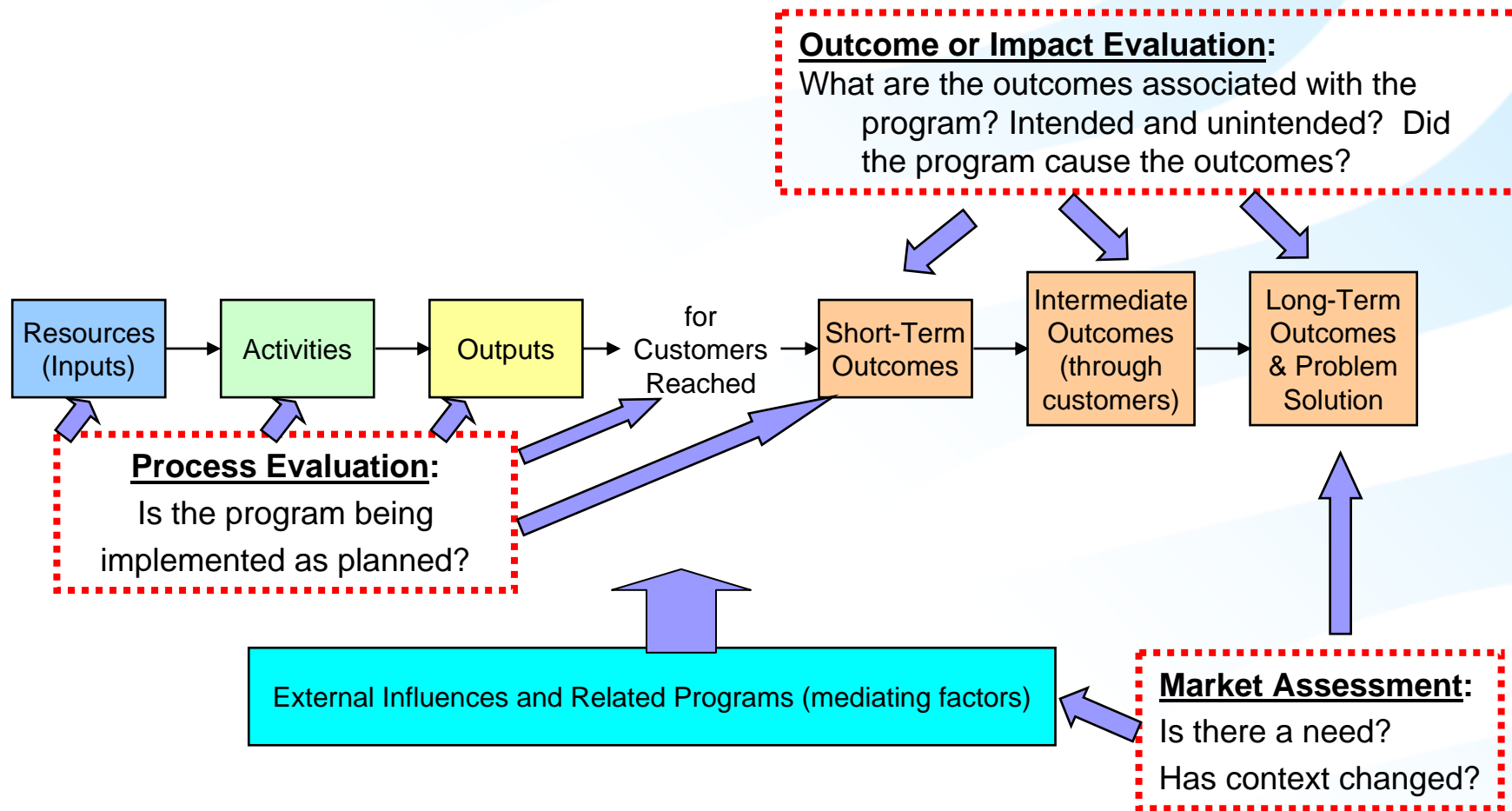


- **ESCO projects:** International Program Measurement & Verification Protocol (IPMVP)
<http://shop.omnipress.com/index.asp?PageAction=VIEWPROD&ProdID=107>
- **Utility DSM programs:** California Energy Efficiency Evaluation Protocols
http://www.calmac.org/events/EvaluatorsProtocols_Final_AdoptedviaRuling_06-19-2006.pdf
- **Carbon targets (credits):** ???
- **Guide to Program Evaluation Guides**
<http://www.cee1.org/eval/eval-res.php3>
- **DOE evaluation methods**
http://www1.eere.energy.gov/ba/pba/program_evaluation/publications.html#logic
- **DOE evaluation example: State energy programs (2003)**
http://www.eere.energy.gov/state_energy_program/feature_detail_info.cfm/fid=22

Sharing Evaluation Results

- International Energy Program Evaluation Conference (IEPEC) – Portland, Oregon 8/09
<http://www.iepec.org/>
- California Measurement Advisory Council (CalMAC) data base <http://www.calmac.org/>
- Consortium for Energy Efficiency Measurement and Program Evaluation (MAPE) clearinghouse
<http://www.cee1.org/search/search.php>
- Evaluation tracks at other conferences
<http://aceee.org/pubsmeetings/index.htm>

Linking Planning and Evaluation: Program Logic Models



Sources: Gretchen B. Jordan, Sandia National Laboratories; and adapted from Wisconsin Extension Service website (<http://www.uwex.edu/ces/pdande/evaluation/>). Also see <http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>

Challenges



- Harmonizing different EM&V requirements
 - To avoid costs of meeting multiple, differing requirements
 - To allow wider markets (e.g., international carbon credit trading)
- Controlling total costs
 - EM&V may add 5-10% to program/project costs, vs
 - Carbon credits add ~10% to the value of energy savings
- Excessive “Accountability”
 - Some things worth doing are difficult to count (“It takes more than beans to make a good soup!”)
- Opportunity to link project-level EM&V with performance tracking & benchmarking, “continuous commissioning”