Community Motivations and Local Energy Planning

Behavior, Energy & Climate Change Conference
November 30, 2011, Washington, DC

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Energy Planning by Local Governments

- Why undertaken? (What is the vision?)
- What are the stated goals (& metrics)?
- How effectively are goals translated into implementation strategies?
- How can translation of the planning process into implementation be improved?
What is Energy Planning?

- Long-range view, leveraging strategic investments now for future benefits
- Locally it comes with many different framings – energy security, economic competitiveness, sustainability, climate change
- After ARRA, local gov’ts have more energy experience, but fewer funds
U.S. DOE Community Energy Strategic Planning Academy

- Series webinars: instructive and peer-exchange
- Step-by-step guidance materials developed
- Participants from 40 U.S. local gov’t applicants
ACEEE Review of Local Energy Planning Experiences

- Descriptive review of practices used in 30 existing local energy-focused plans
- Structured around 9-step planning cycle developed by NREL
Motivations Contained in Vision Statements (Step 3)

Primary Themes

- Energy, 10, 37%
- Sustainability, 5, 19%
- Climate Change, 10, 37%

Supporting Themes

- Environmental Quality/Resources, 2, 7%

Large variation: but focus on economy, environment, quality of life
Greenhouse gas metrics dominate (used as a combined energy metric). Energy metrics (EE or RE) are mostly secondary, if included.
Selecting and Prioritizing Implementation Options (Step 6)

- All 30 plans listed implementation options
- Many evaluated their potential impacts
- However, relatively few prioritized them systematically.
Example Prioritization Methods

Denver, CO - Multicriteria

Criteria and Recommendations

In analyzing the wide variety of options available to reduce greenhouse gases, the Mayor’s Greenprint Council applied the following criteria to their process of review and deliberation:

- Viability – Is the proposed action financially, technologically, and politically viable?
- Cost-effectiveness – Applying full-cost accounting principles, are the distributions of costs and benefits equitable and reasonable?
- Implementability – Is there a readiness to implement and are the potential barriers to implementation low?
- Achievement of goals – Does the proposed action contribute to short- and long-term reduction goals? Is there a cumulative impact over time?
- Engagement – How can the impact potential of the proposed action be balanced with the potential for public engagement and education?

With the above criteria in mind, the Mayor’s Greenprint Council recommendations are presented below, as:

- Primary Denver Strategies
- Suggested Regional and Statewide Initiatives

Burlington, VT - Cost of avoided emissions

Contribution to Denver’s 2012 Greenhouse Gas Reduction Goal
19%

Initial Cost per Metric Ton of CO₂e Mitigated
$10 – $26/m CO₂e

Total Participant Cost or Investment
- Cost of $845K/year for Windsource purchases
- Investment of $80M in DSM with a payback of 2 – 5 years

(Investment of $65M in DSM may occur through Xcel Energy’s current DSM efforts)

ACEEE
American Council for an Energy-Efficient Economy
Selecting Implementation Options that match Vision and Goals

- One of the largest gaps identified in practice of the energy planning cycle
- Need for greater guidance on prioritization method choices
  - Vision and goal appropriate
  - Cost-benefit for related metrics
  - Weightings for multiple metrics
- Simple Prioritization Tools Needed.
ACEEE Local Energy Efficiency Policy Calculator (LEEP-C)

- User-oriented, decision support tool
- Provides first-cut estimates of policy impacts: energy savings, costs, GHG, criteria pollutants, jobs.
- Inputs customizable to local energy, policy, and economic conditions
- Current public beta version includes seven policies in two sectors: public buildings, residential buildings
- aceee.org/portal/local-policy/calculator
# User Inputs of Community Priorities

How important are each of these issues to your community?

(choose a value from 0 to 10 for each, with 10 meaning extremely important and zero meaning not important at all. 5 is the default.)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Importance at Present</th>
<th>Importance in 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create and retain jobs</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Reduce Energy Bills</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Save Energy</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Reduce Greenhouse Gas emissions</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Reduce Criteria pollutants</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Keep upfront public costs low</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Keep upfront private costs low</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Relative impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs per dollar</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Energy bill savings per dollar</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Energy saved per dollar</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Criteria Pollutant reduction per dollar</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Greenhouse Gas reduction per dollar</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Minimize frequency of maintenance</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>How important is the present?</td>
<td>5 (must be greater than zero)</td>
<td></td>
</tr>
<tr>
<td>How important is the future?</td>
<td>5 (must be greater than zero)</td>
<td></td>
</tr>
</tbody>
</table>
Custom-Calibrated “Index of Attractiveness”

Attractiveness Based on Community Priorities (relative to a business as usual of "0")*

*Criteria include user rankings of public and private costs, Cost savings, Energy Savings, Criteria Pollutants, Greenhouse Gases, Employment, and Measure Life.
Attractiveness Compared, prioritizing...

**Total Energy Savings**

Attractiveness Based on Community Priorities (relative to a business as usual of "0")*

*Criteria include user rankings of public and private costs, Cost savings, Energy Savings, Criteria Pollutants, Greenhouse Gases, Employment, and Measure Life.

Run Results

**Total Employment**

Attractiveness Based on Community Priorities (relative to a business as usual of "0")*

*Criteria include user rankings of public and private costs, Cost savings, Energy Savings, Criteria Pollutants, Greenhouse Gases, Employment, and Measure Life.

Run Results

**Energy Savings/$**

Attractiveness Based on Community Priorities (relative to a business as usual of "0")*

*Criteria include user rankings of public and private costs, Cost savings, Energy Savings, Criteria Pollutants, Greenhouse Gases, Employment, and Measure Life.

Run Results

**Energy Savings/$ & Total Employment**

Attractiveness Based on Community Priorities (relative to a business as usual of "0")*

*Criteria include user rankings of public and private costs, Cost savings, Energy Savings, Criteria Pollutants, Greenhouse Gases, Employment, and Measure Life.

Run Results

Priority(ies) Ranked as 10, all others 0; other variables unchanged.
Conclusions

- Most energy-related plan visions focus on economic benefits, quality of life, environmental quality
- Economic benefits and quality of life are absent from many goals & metrics
- Most plans are without systematic methods for prioritizing implementation options
Conclusions

• Translating community visions into action can go wrong at many points
  • Budgets, leadership, vocal minorities, etc.
  • Prioritization analytics should be the least of these worries
• Custom, user-friendly, and accessible analysis can better align institutional actions with community motivations
Thank You

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Thanks to Partners

- CESP Academy – U.S. DOE, NREL, VEIC
- LEEP-C – U.S. DOE, NASEO, Kresge Foundation