Barriers to Energy Efficiency & the Uptake of Green Revolving Funds in Ontario Hospitals

John Maiorano
Ph.D. Student, john.maiorano@utoronto.ca

Dr. Beth Savan
Senior Lecturer, Inaugural Sustainability Director, b.savan@utoronto.ca
Research Purpose & Methods

Funded by the Ontario Centers for Excellence

To investigate:

1. **barriers to energy efficiency** in Ontario Hospitals
2. the effectiveness of **green revolving funds** to confront barriers to energy efficiency in Ontario Hospitals

Methods:

- A review of the literature
- Interviews of senior administrators of 14 hospitals making use of both qualitative and quantitative methods
Findings: Barriers to Energy Efficiency at Ontario Hospitals

Average Measure

- Access to Capital
- Bounded Rationality
- Hidden Costs
- Imperfect Information
- Risk
- Split Incentives

(2) Strongly Agree
(1) Agree
(0) Neutral
(-1) Disagree
(-2) Strongly Disagree
(no score) Don’t Know
Qualitative Investigation of Barriers

Three major themes emerged as barriers to energy efficiency projects in Ontario hospitals:

1. Energy Efficiency has Low Priority
2. Balanced Budget Requirement
3. Risk Aversion
What is a Green Revolving Fund (GRF)?

- An investment vehicle providing financing to parties for implementing energy efficiency that generate cost-savings.

- Savings are tracked and used to replenish the fund for the next round of green investments.

- Establishes a sustainable funding cycle while cutting operating costs and reducing environmental impact.
Top 8 Benefits of Green Revolving Funds

1. Transforms Expenses into Investments
2. Alleviates pressure from tight budgets
3. Institutionalizes a mechanism for reinvesting
4. Knowledge Sharing
5. Scalability
6. Allow Full Impact Donations
7. Addresses Deferred Maintenance Costs
8. Hedging against rising energy prices
To conclude the interviews, participants were asked:

“If a revolving fund for Ontario hospitals were created, would you use it to complete energy efficiency projects? If so, why? If not, why not?”

Of the 13 respondents asked:
- 7 indicated they would use an established GRF
- 6 stated it depended on governance issues, the interest rate charged, or permission to borrow
Recommendations

- If the province hopes to garner energy related cost savings, it will have to take on a larger role. Reduction targets would spur hospitals to take on greater risk in pursuing energy efficiency projects, with the associated increase in urgency and expectation.

- For the province, or hospitals to formalize a process to address both capital and organizational barriers by introducing green revolving funds.
1) Energy Efficiency has Low Priority

Respondents indicated:

- Energy Efficiency is a **low priority when compared** to funding geared towards patient care
- **Limited ‘push’** from the senior level & the process to gain approval is arduous
- Individuals that make the commitment and **bear the risk** of the project, including absorption of cost, technical risk and even job security, **seldom reap any rewards** if it is successful
2) Balanced Budget Requirement

- Ontario's Excellent Care for All Act’, became law in June of 2010, requiring all Ontario hospitals to run a balanced budget

- Many respondents are reluctant to take on any expenses, perceiving it more difficult to balance their budget

- Sense of fragility with balancing the books, as the obligation to balance them creates excessive financial risk aversion or “increased variability in your books”
3) Risk Aversion

Who are the ultimate gatekeepers of energy efficiency in Ontario hospitals?

- From a provincial point of view, small-ish losses at chance hospitals would be worth the overall large gains.

AT TENSION WITH:

- From the personnel and hospital’s standpoint, the risk of the individual projects exceed the reward in many cases.
### University Revolving Fund Return on Investment (SEI, 2012)

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>FUND NAME</th>
<th>ESTABLISHED</th>
<th>FUND SIZE</th>
<th>PROJECTS</th>
<th>ROI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Michigan University</td>
<td>Quasi GRF</td>
<td>1980</td>
<td>$365,000**</td>
<td>101</td>
<td>47%</td>
</tr>
<tr>
<td>Harvard University</td>
<td>Green Loan Fund</td>
<td>2001</td>
<td>$12,000,000</td>
<td>185</td>
<td>30%</td>
</tr>
<tr>
<td>University of Utah</td>
<td>Energy Office Conservation Program</td>
<td>2007</td>
<td>$220,000</td>
<td>47</td>
<td>30%</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>Live Green Revolving Loan Fund</td>
<td>2008</td>
<td>$3,000,000</td>
<td>11</td>
<td>29%</td>
</tr>
<tr>
<td>Oberlin College</td>
<td>Green EDGE Fund</td>
<td>2008</td>
<td>$40,000</td>
<td>9</td>
<td>31%*</td>
</tr>
<tr>
<td>University of Colorado, Boulder</td>
<td>Energy and Climate Revolving Fund</td>
<td>2008</td>
<td>$500,000</td>
<td>5</td>
<td>38%</td>
</tr>
<tr>
<td>California Institute of Technology</td>
<td>Caltech Energy Conservation Investment Program</td>
<td>2009</td>
<td>$6,000,000</td>
<td>13</td>
<td>33%</td>
</tr>
<tr>
<td>University of Denver</td>
<td>Energy Reserve Fund</td>
<td>2009</td>
<td>$1,900,000</td>
<td>19</td>
<td>63%</td>
</tr>
</tbody>
</table>
Quantitative Results

Reluctance to formalize processes:
  o 14% have an energy policy
  o 36% have an energy manager
  o 23% have an energy committee

Weak ongoing financial commitment:
  o 38% have a portion of their annual budget dedicated to energy efficiency improvements
  o 10% invest energy savings into further energy efficiency projects.

Opportunities for Projects:
  o 6 of 9 agreed a wide range of projects could be implemented (<4 yr. payback)
  o 7 of 9 respondents interviewed disagreed (6) or strongly disagreed (1) they were running out of projects to implement