Making the Shift: Lessons Learned in Moving from a Resource Acquisition Evaluation Framework to a Market Transformation Framework in Commercial Lighting

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BACKGROUND

- Hydro-Quebec invested over $900 M in EE from 2003-2015 in C&I sector with large investment in lighting

- Past evaluations indicated that market transformation savings resulted from HQ activities.

- Assignment: Evaluate market transformation savings for 2012-2016
OUR CHALLENGE

• Align with best practices…as much as possible
  o Need to investigate and demonstrate strategic intent for market transformation
  o Establish counterfactual

• Don’t double-count savings from past evaluations

• And…evaluate four products!
  o High performance ballasts, T5-HO and T8 fixtures, LED bulbs and tubes
EVALUATION APPROACH

- Validate strategic intent
- Assess state of market
- Estimate HQ contribution
- Estimate market size
- Estimate market transformation savings
LOGIC MODEL

Market Effects

- Training and Partnerships
- Tool Development
- Codes and Standards
- R&D and Demonstration
- Education and Awareness
- Programs
CONTRIBUTION OF HQ ON MARKET

• Identify which factors (e.g. cost, product availability) impacted the state of the market and their importance

• Estimate how much HQ efforts contributed to each factor

• Estimate the percentage of product sales that could be attributed to HQ efforts (HQ influence)
EVALUATION ACTIVITIES

- Web Survey with Market Experts
- Delphi Panel
WHICH FACTORS IMPACTED THE MARKET?

- Codes and Standards
- Product Availability
- Product Quality and Reliability
- Cost Reductions
- Customer and Market Actor Knowledge
- Environmental Awareness

Bar chart showing the percentage impact of each factor on the market.
HQ INFLUENCE

- T8 and T5-HO High Bay Fixtures
- High Performance Electronic Ballasts
- LED Bulbs
- LED Tubes
MARKET-LEVEL SAVINGS

- **T8 and T5-HO Fixtures**: The largest savings, with a significant bar exceeding 600 GWh.
- **High Performance Ballasts**: Moderate savings, with a bar of around 100 GWh.
- **LED Bulbs**: Moderate savings, with a bar of around 100 GWh.
- **LED Tubes**: Minimal savings, with a bar close to 0 GWh.

**Legend**:
- Market-Level Savings
- Previously Attributed Savings
LESSONS LEARNED

• Advantages of web survey – leverage secondary data

The following graph presents Electrical Equipment Manufacturers Association of Canada (EEMAC) sales data for all types of fluorescent fixtures in the Province of Quebec.

Sales data of fluorescent fixtures presented in this graph were drawn from EEMAC members. What portion of the market does the data from these members cover?

- Only numbers may be entered in this field.
- You must enter a value between 0 and 100.

EEMAC members cover [ ] % of the market

In the following table, please provide your best estimate of the portion (%) of total fluorescent fixture sales that were high bay T5-HO fixtures, high bay T8 fixtures, and other fluorescent fixtures for the year 2012 and 2016? Each row needs to total 100%.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2016</th>
</tr>
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<tbody>
<tr>
<td>Portion of high bay T5-HO (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion of high bay T8 (%)</td>
<td></td>
<td></td>
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<tr>
<td>Portion of all other fluorescent fixtures (e.g. low bay fixtures, strip lights, etc.) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don't know (%)</td>
<td></td>
<td></td>
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</tbody>
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Note:
High and low bay fluorescent fixtures included.
Residential, commercial and industrial sales included.
LESSONS LEARNED

• Limit scope to 1-2 products
  o Allow additional questions to further refine estimates

• Analysis to avoid double-counting
  o But not comparing apples to apples (products vs. projects)
THANK YOU!

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BACK-UP
MARKET TRANSFORMATION IMPACT

- Sold Units Influenced by HQ = Market Size * HQ Influence

- HQ Market Transformation Savings = (Sold Units Influenced by HQ - Sold Units Already Attributed in Past Evaluations) * Unitary Savings