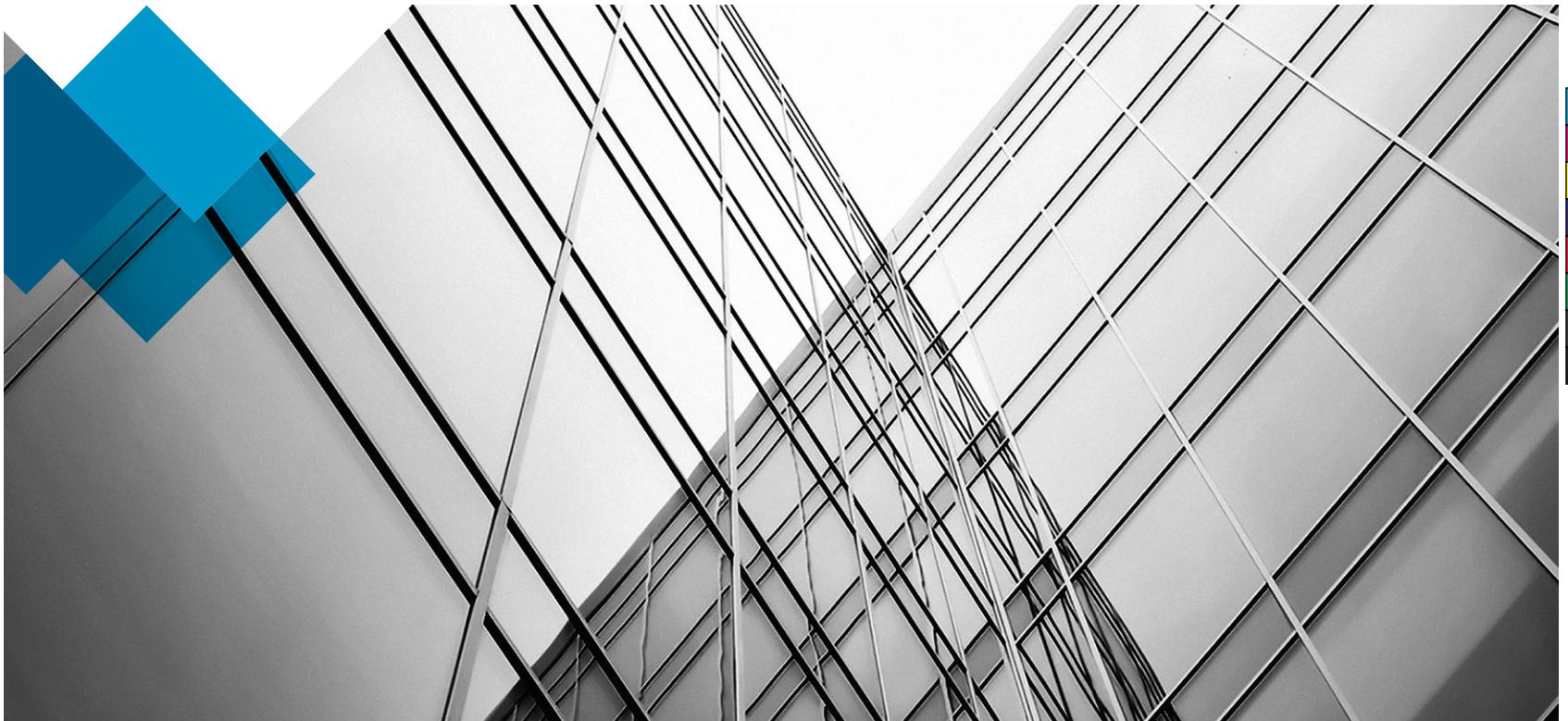


Canadian Consulting Engineering Awards 2016

Category: Special Projects

Management of the Hydro-Quebec's Buildings Program



Q1 Innovation

Owing to its unique and dynamic approach, a team of more than 60 professionals successfully managed Hydro-Québec's Buildings Program for three years (January 2011-December 2013). The aim of this program was to support energy efficiency projects in commercial, institutional and multi-unit residential buildings (four storeys and higher). It was an integral part of programs dedicated to integrated energy efficiency offerings for buildings (OIEÉ – *Offres intégrées en efficacité énergétique pour les bâtiments*).

The team also implemented and managed the “LED Public Lighting” component of the Buildings Program and a pilot project on the Magdalen Islands, which offered financial support for implementing energy reduction measures.

In three years, the team dedicated not only respected the requirements of the contract with Hydro-Québec in its entirety, but also honoured Hydro-Québec's vision by succeeding in improving the level of efficiency products offered by a large array of companies. In total, more than 7,000 projects with over 925 GWh in energy savings at varying stages of progress were acknowledged by Hydro-Québec. When the mandate was completed in 2013, close to 3,200 projects had received \$53 million in subsidies totalling almost \$250 million in energy efficiency investments. 3,800 other projects were still underway. Further to this success, it is with great pleasure and pride that SNC-Lavalin is putting forth this project in the Special Projects category of the Canadian Engineering Awards 2016.

Innovative nature of the project:

- Generally speaking, the program management separated the marketing stage from the technical processing stage. The marketing program remained in the hands of the utility company or agency responsible for energy efficiency programs. Private consulting or another operational unit from the utility company typically provided services for technical review or payment. In this particular case, Hydro-Québec boldly decided to bring together these facets and required an integrated management approach. In grouping all parts of the program—from technical services and on-site review to marketing and customer service—the team developed greater synergy and became very responsive to market and client needs.
- A second distinction owes to SNC-Lavalin's unique set of diversified resources. The team provided the services by making use of internal resources without the need to join forces with marketing or public relations firms, or firms specializing in customer service.
- Despite very strict ethical guidelines, Hydro-Québec provided a great deal of flexibility. The team was able to remodel the entire financial approach—with a tailor-made grid—which was both easy to understand and could be used to make an immediate and sound estimate of the eligible subsidy, therefore increasing participants' ability to undertake projects.
- Finally, by creating and distributing simplified and free computational tools, ÉnerCible increased the number of customized projects that in the past would have called for the use of complex simulation software.

Q2 Complexity

Energy efficiency programs generally encounter the same constraints and paradigms vis-à-vis their popularity and success as outlined below.

- These programs are usually controlled by legislative and regulatory frameworks governed by energy jurisdictions or energy distribution companies. The processes for obtaining and managing financial support for these programs are typically burdensome with long processing times.
- As a result, the end client requires support from experienced professionals for these processes. This type of entry barrier significantly limits access to a subsidy for the majority of building owners or property managers who are in reality the exact target participants.
- The marketplace is very segmented with each segment reacting differently based on: the client, the professional who will implement the energy efficiency measures, and the construction type (e.g., minor, major or new construction).

In brief, the complex nature of the project was largely linked to successfully adapting the product to all target market segments and simplifying the processes, all while ensuring development and support from all stakeholders.

The challenge consisted in three parts and our strategy was as follows:

- The implementation of a dynamic organization bringing together technical and business expertise capable of generating change in the marketplace;
- A market segmentation strategy to adapt marketing and terminology to the various segments of the market and client types;
- The use of a network of energy professionals to create partnerships and indirect market facilitators.

Alignment strategy no. 1 – Dynamic organizational structure

To integrate the change requested by Hydro-Québec, ÉnerCible focused on the idea of efficient and credible organization in view of market presentation. This credibility was achieved by adapting the administrative approach (speed, proximity and customer support) and an offering based on market segments. In addition, personalized support was developed along two axes: a specialized account manager per segment and a technical manager dedicated to each participant.

The account manager's objective was to develop an area of speciality, understand the expectations of his/her market and specifically improve the administrative and financial terms of these segments.

The mentoring of participants by a technical manager encouraged the following: clarification of specific content, potential improvements, simplification and customization of each particular

request. This approach, a mirror image of engineering-consulting, lent credibility to the development of specific projects in the various markets and the ability to constantly remain up-to-date with the latest technology in engineering sectors.

Owing to this approach, ÉnerCible acquired a distinct corporate image evoking quality, efficiency and contribution to the development of energy efficiency in the province of Quebec.

Alignment strategy no. 2 – Segmentation strategy

To respond to a dramatic increase in the objectives, ÉnerCible adopted a strategic approach focusing on all segments (versus a niche market approach). This type of strategy implied an excellent level of understanding of the overall market and accurate identification of market segments. This strategy was developed based on two market segments and administrative approaches for presenting the files:

- 1) Prescriptive and customized components for the commercial market;
- 2) Customized approach component for the institutional market

The segmentation of clients and differences in approach were similarly organized and were associated with market facilitators. It was clearly established that such clients would be supported individually by the market facilitators according to type of activity, building, square footage and the measures presented. ÉnerCible had to understand the specifics of the projects' development in these sectors in order to launch the Buildings Program in a decisive and pertinent manner in the Quebec market.

Strategic alignment no. 3 – commercialization through a network of market facilitators

Having set up a flexible and dynamic team (SA1) and after adapting the offer according to the various market segments (SA2), the next step was to communicate this to the stakeholders. The energy efficiency market is greatly influenced by the sector's practitioners: engineers, architects, distributors of specialized products, manufacturers, and others, who act as prescribers. Therefore, such market representatives were the first ones who were addressed (ÉnerCible considered them as partners and distributors) to ensure that focus on the Building Program was then properly directed to market.

Through this approach, a clear message was able to be sent to market representatives, as summarized below:

Hydro-Québec values the requests you made in the past.

The program has changed. It is now simple, adaptable and accessible.

Hydro-Québec and ÉnerCible aim to increase the participation in the program.

ÉnerCible will be there to support and coach you.

Examples of action based on the 3 strategic alignments

a) Composition of the team

As previously mentioned, the ÉnerCible team adapted to the needs of its participants.

b) Adapting the offering based on market segments – Financial support to implement measures

Financial support to implement measures called for a “customized” grid, which was easy to understand and use for greater eligibility for financial support based on project activities and energy impact. In fact, prior to this, support was modulated based on energy saving percentages, which is a rather abstract notion and difficult to assess when the project is in its preliminary stages. The market facilitator is typically aware of the number of kWh saved based on the measures that will be implemented. These grids simplified their approach and boosted their ability to encourage clients to enroll in the program.

c) Adapting the offering based on market segments – Financial support

The financial support for pre-feasibility studies or explorative engineering were reviewed with respect to Hydro-Québec’s previous program. Instead of preset project support (fixed fee/project) to cover the studies, specific support adapted to a projects’ portfolio was implemented, offering several advantages:

- Transfer of payments only for entirely completed projects, thereby connecting a subsidy transfer with concrete results - energy savings (instead of paying whatever the results);
- Mitigation of risks for consulting cost overruns by grouping projects instead of relying on the fee from a single project;
- Partners had to disclose their planned forecasts, which were disclosed at the beginning of each year. This was also an excellent way for Hydro-Québec to gauge the program’s possible evolution;
- It also encouraged the development of facilitator teams. By planning projects to come, partners knew their potential financial supports in advance and were able to hire accordingly and limit their risk related to additional overhead.

Other financial support initiatives emphasized the following:

- Financial support of associations to encourage their industry’s support;
- Financial support to participating companies to develop projects offering with greater energy savings than those initially anticipated.

d) Adapting the offering based on market segments – technical skills development

One of ÉnerCible's major roles was to make a customized approach accessible, which in the past called for complex simulation software. The technical team, together with Hydro-Québec, developed numerous computational tools making simulation tasks easier. These tools, which substantially simplified complex calculations, **fit perfectly with the role of the engineer** as proponent of technical solutions. In this respect, ÉnerCible produced an easy-to-use lighting and an envelope computational tool integrating fenestration calculations. Also, since Leadership in Energy and Environmental Design® (LEED) projects require software meeting ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) criteria for their application, ÉnerCible made a thorough Proof of Concept and convinced Hydro-Québec to use this simulator software instead of the mandatory Hydro-Québec's, thus avoiding duplicate simulations.

e) Visibility campaign focused on market facilitators

Our approach also set itself apart through its marketing campaign aimed at key persons who had a marked interest in the program. In accordance with the above, original advertizing campaigns were aimed at market facilitators emphasizing the program efficiency and performance. Examples of these campaigns can be found in the appendices.

Q3 Social and/or Financial Benefits

Financial and Social

With Hydro-Québec's support, the team succeeded in developing and supporting the business environment to facilitate the development of companies dedicated to energy efficiency and sustainable development. By simplifying the review process, all participants within this market experienced increased added value for their products. The companies hired personnel, invested in their inventory and benefited from volume discounts. The program's impact on the Quebec economy over three years is estimated at \$250 million.

Several elements were accomplished through this project on an industry level:

- ÉnerCible succeeded in demonstrating that an engineering firm's level of excellence is not limited to engineering services alone and that engineering consulting can be part of a broader consulting vision.
- ÉnerCible implemented numerous computational tools and gave over a hundred training sessions resulting in greater precision on the part of professionals in terms of the calculation of measures' and in mastering energy efficiency terminology and principles. These training sessions also highlighted the key role of the engineering-consulting firm in making applied sciences accessible.
- Owing to the nature of this program a large number of intern students and new graduates were hired. Through the number of projects and quality of technical supervision, the project quickly became for SNC-Lavalin, and indirectly for many

companies, an excellent opportunity to develop new qualified engineers in state-of-the-art building technology.

Q4 Environmental Benefits

Without a doubt, this project created a great sense of pride for the team with regard to sustainable development. The team was convinced that all the technical, financial and social inputs within this project have a positive impact on sustainable development.

Certification and accreditation

By encouraging energy efficiency measures, the Buildings Program also enabled or facilitated new equipment installation in order to obtain accreditation from Leadership in Energy and Environmental Design® (LEED) or BOMA (Building Owners and Managers Association). All projects that aimed to achieve credits were awarded “bonus” subsidies.

Moreover, many members of the ÉnerCible team were and are still actively involved today in organizations, such as BOMA, AQME (*Association québécoise de la maîtrise de l'énergie*) and the Canada Green Building Council (CaGBC). They have provided both technical and financial support for conferences, training sessions and tools for good practices that are focused on sustainable development and energy efficiency.

Environment

Any reduction in energy consumption has a positive effect on the environment. Energy reduction helps lessen our reliance on auxiliary production plants that operate using fossil fuels. The need to invest in new electrical substations can also be postponed. The results of the project have contributed to this outcome.

In addition, all training and support provided during the three-year period offered participants' new high-performance equipment options to consider, thus contributing to more reduction in energy consumption and, in the end, an understanding that these options are possible when we work collectively.

Q5 Client Needs Satisfaction

- **Requirement 1:** Reduction in electricity consumption
 - Condition: 200–300% increase over previous GWh energy efficiency averages.
Results: Hydro-Québec's cumulative objectives were slightly surpassed: 925 GWh versus the objective of 900 GWh.
- **Requirement 2:**
 - Condition: Bring about a 45% reduction in the average ¢/kWh cost.
Results: 50% reduction in average cost of financial supports vis-à-vis previous averages.

- **Requirement 3:**

- Condition: High Ethics and Business conduct standards and very strict technical records management guidelines. Amongst them, two were of particular interest as follows:

Specific provisions for transaction transparency: the management system implemented by ÉnerCible governed and guided the eligible technical and commercial activities, for example:

- All projects submitted were inspected to ensure that the measures included in the request were indeed implemented. This thorough inspection went above and beyond Hydro-Québec's sampling requirement;
- Commercial support agreements were drawn up according to standardized models, which were all previously approved by Hydro-Québec;
- All of ÉnerCible's technical and commercial activities were audited twice a year, in addition to an audit by Hydro-Québec's control unit, by the financial auditor from Hydro-Québec and by the financial auditor from SNC-Lavalin, for a total of approximately seven annual audits. All of these audits have shown a very high level of compliance for these activities.

Specific provisions for conflict of interest: in addition to the contractual requirements outlining that each request for financial support originating from an SNC-Lavalin corporate unit was to be previously approved by Hydro-Québec and audited by a third party, the management framework included requirements with regard to the outside business activities of all ÉnerCible employees.

Results: 100% ethics compliance; Technical Analysis requirements met or exceeded

- **Requirement 4:** Market stimulation, impact on market training for participants.

Results:

- A notable improvement in clients' perception of the program;
- Considerable stimulation of all markets including equipment distributors and small-scale contractors. The program represents added-value integrated into their commercial offerings and enabled them to stand out from their competition;
- An increased number of requests and stimulation of the institutional market for small building projects;
- Training provided to hundreds of participants.

APPENDIX

Examples of advertizing distributed in specialized magazines and newspapers

Example 1: Statement: *Municipalities have a role and can use the program*



 **Bâtiments**
PROGRAMME DE SOUTIEN AUX PROJETS
D'EFFICACITÉ ÉNERGÉTIQUE

VIRAGE VERT DANS LES BÂTIMENTS MUNICIPAUX!

Les bâtiments appartenant aux municipalités de moins de 5 000 habitants sont maintenant admissibles au programme Bâtiments d'Hydro-Québec. Celui-ci couvre dorénavant l'ensemble du parc municipal québécois, et ce, peu importe la superficie des bâtiments. Une approche simplifiée a été élaborée pour les municipalités.

Profitez de l'appui financier du programme Bâtiments pour réaliser vos projets avec l'aide de nos partenaires!

Réalisez vos projets d'efficacité énergétique avec leur participation et bénéficiez de multiples avantages :

- Économies d'électricité récurrentes
- Réduction des coûts d'exploitation
- Diminution de la période de récupération de l'investissement

Consultez notre site Web pour connaître nos principaux partenaires au www.programmebatiments.com.



Example 2: A project
Statement: *ÉnerCible and the market professional are together to support final client*



Le Roc Fleuri est un des plus récents immeubles résidentiels de prestige de la métropole. Pourtant, le syndicat de copropriété tenait à l'améliorer.

LE PROJET

Réaliser des économies d'énergie dans les aires communes énergivores de l'immeuble résidentiel de 24 étages.

LA SOLUTION

La combinaison de plusieurs mesures – installation d'une commande centralisée, ajout d'entraînements à fréquence variable sur la ventilation et les pompes, remplacement de l'éclairage traditionnel par de l'éclairage à DEL – a permis des économies d'électricité importantes.

LES RÉSULTATS

L'équipe de Fusion Énergie, qui surveille à distance les installations énergétiques à l'aide d'un système interactif et intelligent, a réussi à réaliser des économies annuelles d'électricité de 756 448 kWh.

Économies annuelles : 756 448 kWh

Mesures : Installation d'éclairage à DEL, commande centralisée, ajout d'entraînement à fréquence variable sur la ventilation et les pompes.
Appui financier : 162 636 \$

LA CONTRIBUTION DU PROGRAMME BÂTIMENTS

Pour son premier projet avec ÉnerCible, Fusion Énergie a obtenu pour son client un appui financier de 162 636 \$, ce qui a fait passer la période de récupération de l'investissement de 2,5 à 1,1 année.

En participant au programme Bâtiments, Le Roc Fleuri réduit son empreinte carbone et ses coûts d'électricité de façon récurrente tout en augmentant la valeur du bâtiment.

UN PROGRAMME D'HYDRO-QUÉBEC GÉRÉ PAR ÉNERCIBLE

Pour nous joindre, composez sans frais le **1 855 817-1433** ou visitez le www.programmebatiments.com.



Example 3: Key stakeholder.
Statement: "I use the program, I believe in it and so should you"



Louis Vincent
Président
TST Système Énergie

JE LE RECOMMANDE !

« Mon travail, c'est de conseiller les entreprises en matière d'efficacité énergétique. Grâce à l'appui financier offert dans le cadre du programme Bâtiments d'Hydro-Québec, les entreprises améliorent le rendement global de leur immeuble moyennant un coût d'investissement très raisonnable.

Le programme Bâtiments est un complément indispensable à tout projet d'amélioration de la consommation d'énergie. »

 **Bâtiments**
PROGRAMME DE SOUTIEN AUX PROJETS
D'EFFICACITÉ ÉNERGÉTIQUE

Informez-vous. Composez le **1 855 817-1433**
ou visitez le **www.programmebatiments.com**.

Un programme d'Hydro-Québec géré par EnerCible

 **Hydro Québec**

o



SNC • LAVALIN

455, René-Lévesque Blvd. West
Montréal (Québec) H2Z 1Z3
Telephone: 514.393.1000 - Fax: 514.861.5349

   snclavalin.com

