

THE ECONOLER SERIES

SUPER ESCO

An Innovative Approach
to Unlock
Energy Efficiency Potential



**ENERGY
EXPERTISE
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Introduction

The Super ESCO concept was developed in the 1990s as a potential solution to address not only the limitations of the Energy Performance Contracting (EPC) scheme, but also the Energy Service Company (ESCO) sector's lack of capacity, willingness, or interest to get involved in project financing.

It is well known that, although ESCOs have developed an offer to address many of the well-known barriers to enable the implementation of energy efficiency projects (EE), many are not addressed by the different EPC models. Such main barriers include:

- Project size too small to support development and transaction costs.
- Limited interest and/or capacity of ESCOs to structure and offer adapted financing.
- Bias perception related to the development and implementation of Measurement and Verification (M&V) of generated energy savings by ESCOs themselves.

The Super ESCO concept was therefore developed to enable the EPC scheme to achieve its full potential. Although this concept was put forward in the 1990s, no action was taken to create and operate any Super ESCO until the mid-2010s.

Econoler is in a unique position to fully appreciate the value of the Super ESCO concept because it was one of the most important ESCOs in the world in the 1980s and has significantly contributed since then to developing the EPC concept through its work as a consulting firm around the world for international clients. Econoler has indeed been one of the world's most active promoters of this concept and has been involved in designing, supporting, and even operating the first Super ESCOs created to date.

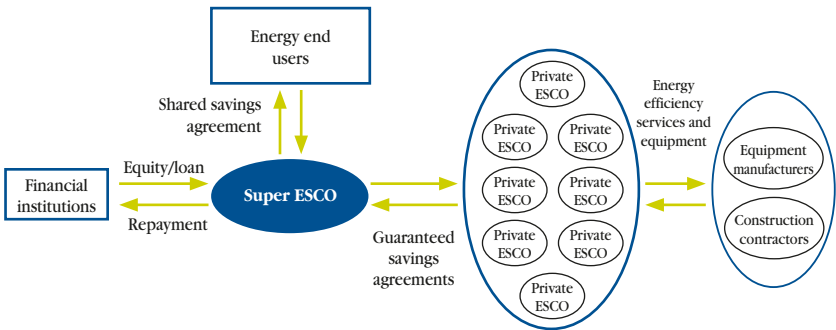
This booklet introduces the Super ESCO concept and the main principles to be followed to put this concept into action. It also provides informative and helpful insights gained from the experiences of designing and operating the Dubai and Canadian Super ESCOs.

Concept

A Super ESCO can be described as an entity set up by public and/or private investors and that offers full EPC services, including adapted financing, to its clients, and subcontracts project implementation to private-sector ESCOs that guarantee the expected savings to be realized. Given their unique status in the location where they operate, Super ESCOs often reinforce capacity in existing private-sector ESCOs and may also help set up new ESCOs while helping grow the EPC market.

As a specialized organization, a Super ESCO must possess all necessary capacities to develop adapted EPC concepts and produce complete sets of documentation (client proposals, procurement and contract templates, M&V plans, etc.). It must have a strong capacity to identify business opportunities in markets based on the current energy rates, available technologies, project development and implementation costs, etc., in a specific environment. This means Super ESCOs make it easier to identify untapped opportunities for using EPCs in target markets and are perceived not as competitors of ESCOs but as facilitators that help develop and grow the market.

Conceptual Model of a Super ESCO



Public Super ESCOs

Public Super ESCOs have a very special focus. Indeed, the government capitalizes Super ESCOs through sufficient funds to carry out public projects under the EPC approach and often tries to leverage commercial financing, which means Super ESCOs are one of the mechanisms used to overcome barriers hindering the large-scale implementation of public-sector EE projects. As such, a public Super ESCO carries out the following activities on top of offering adapted financing mechanisms:

- Helping overcome barriers to launching calls for tenders for public projects under the EPC approach due to the special nature of the concept and expertise needed to use the approved adapted procurement process.
- Leveraging its technical capacities to launch calls for tenders, evaluate proposals, and negotiate contracts for projects to be implemented under the shared savings EPC approach.
- Supporting market information dissemination and training activities to enable the development of the EPC market, for either potential beneficiaries or ESCOs interested in developing more capacities to benefit from the market.
- Efficiently managing small-scale projects and bundling them to launch larger tenders to attract ESCOs and reduce transaction costs.

Public Super ESCOs are particularly well positioned to circumvent a series of obstacles very specific to the public sector. Although EE potential in the public sector is significant, several factors complicate the implementation of EE projects, including a lack of business direction in public agencies, limited incentives to enable lower energy costs, stringent and complex budgeting and procurement procedures, and limited access to budgetary or commercial project financing. The long-term payback periods associated with deep retrofit

initiatives can also be an important barrier in the launch of such initiatives using traditional approaches and government funds at any level (federal, provincial, municipal, as well as in specific sectors such as health and education). Regardless of the country, many public agencies face severe budgetary constraints and must focus on upfront costs out of necessity. Over time, this trend results in mounting operating cost liabilities, which in turn place added pressure on budgets and fuel a vicious circle. The challenge of overcoming obstacles applies to both developing and developed countries. Consequently, public Super ESCOs can be structured in a manner that meets the needs of public agencies and unlocks both the EE potential and greenhouse gas emission reduction potential that would otherwise remain untapped.

Private Super ESCOs

Private Super ESCOs play a leading role in developing and implementing private sector projects by being in a unique position to offer adapted financing to end users while entering into an EPC with them.

It should be noted that private Super ESCOs do not act as a credit facility that buys from an ESCO's future contracting receivables and do not make a one-time payment at a discounted present value directly to the ESCO. In fact, Super ESCOs finance projects implemented by ESCOs and take on the commercial risks through a shared savings agreement with energy end users while leaving the technical risks to subcontracted ESCOs. Hence, private Super ESCOs initiate and develop projects, sign contracts, and maintain a global relationship with energy end users for the whole duration of projects.

Private Super ESCOs therefore act in the same way as public Super ESCOs but normally focus only on private-sector energy end users since they are not allowed to work on sole source agreements with public-sector entities due to restrictive procurement laws. There are exceptions based

on local and regulatory frameworks, especially when a Super ESCO has public-sector investors.

Potential Issues

A potential issue with the Super ESCO concept is the possible conflict of interest between the Super ESCO and the emerging commercial ESCOs that need to access projects to spur their growth and development. This issue can be resolved if the Super ESCO model is based on subcontracting ESCOs as implementing agents. As an example, the Indian Energy Efficiency Services Limited (EESL) initially triggered interest from certain private-sector ESCOs that were interested in acting as implementation partners for the development of EE projects, but it ended up implementing many projects (including street lighting projects) itself. Although many projects have been implemented under this concept, which would not have been otherwise, the EPC market did not see significant development in the country and, to the contrary, the private-sector ESCO market did not benefit from this growth.

Case Studies of Super ESCO Models

This section discusses the valuable experience and insights gained from designing, supporting, and managing Super ESCOs over the years.

Two examples of Super ESCOs are presented below. Econoler played a key role in their development by helping design business plans, providing support in launching operations or operating the entity in the case of the Canadian Super ESCO.

The information presented in this section has been collected from publicly available sources. Econoler experts' personal insights on how to best develop and implement a Super ESCO¹ are also presented.

Etiihad ESCO, Dubai, the United Arab Emirates



Etiihad ESCO² is an official Super ESCO established in 2013 as an initiative by the Dubai Electricity and Water Authority (DEWA) under the leadership of the Dubai Supreme Council of Energy to help foster an EPC market in Dubai so that building owners can improve EE in their buildings. Etiihad ESCO started operating in the third quarter of 2013 under the umbrella of the Dubai Supreme Council of Energy.

As a Super ESCO, Etiihad ESCO aims to jump-start the creation of a viable EPC market for ESCOs by performing building retrofits, increasing the penetration of district cooling, building the capacities of local ESCOs in the private sector, and facilitating access to project financing. The Dubai ESCO market is expected to provide new business opportunities for

1. No confidential information that Econoler received while carrying out assignments for its clients is disclosed in this section.

2. <https://etiheadesco.ae/>

joint ventures and international partnerships as well as engage UAE national entrepreneurs in a diversified supply chain comprised of financial institutions, technology providers, equipment manufacturers, and service providers throughout the project development, management, and reporting stages.

Market Study

Etihad ESCO owns the Dubai Buildings Retrofit Program as part of its Demand-Side Management (DSM) strategy and has clear goals and objectives. An estimate was established as part of a DSM strategy study, revealing that out of the more than 120,000 buildings in Dubai, 30,000 would qualify for an energy retrofit. Those 30,000 buildings are of all sorts and sizes and they are comprised of residential and non-residential buildings as well as government and other privately-owned facilities. By 2030, the DSM strategy estimates that 1.7 GWh of electricity and 5.6 billion imperial gallons of water can be saved on an annual basis. These savings would result in a carbon dioxide abatement of one million tonnes each year. These values have been set as the 2030 targets for Etihad ESCO to achieve and, although they are ambitious, Etihad ESCO believes they can be reached. To ensure that these targets are met, yearly objectives until 2030 have also been set for Etihad ESCO. Possible savings in Dubai buildings typically vary from 20% to 50% of energy costs, depending on the age of equipment, state of buildings, and how maintenance is performed. Overall, these savings are significant and can help attain a balanced budget.

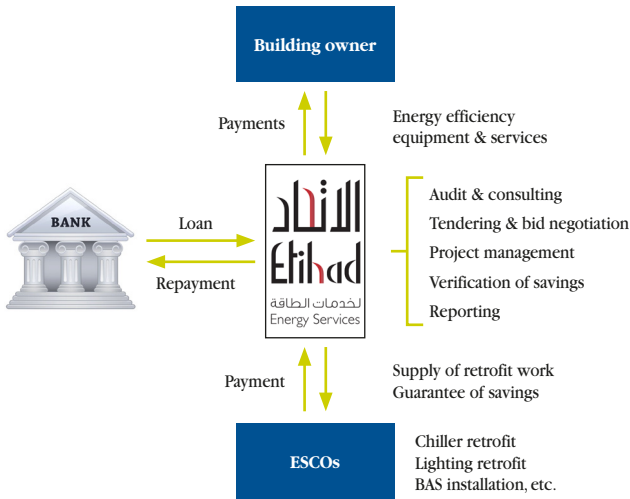
Etihad ESCO has also developed an ambitious business plan to reach these targets. The focus is on inefficient buildings and initially those owned by government entities. Over 40 government entities in Dubai own and occupy several thousands of buildings.

Concept

The business model that Etihad ESCO is deploying in Dubai is to be the middleman between facility owners, ESCOs, and

financial institutions in order to act as an effective facilitator to remove market barriers so that energy retrofits are carried out effectively. A visual representation of the business model is illustrated below.

Conceptual Model of a Super ESCO



As a Super ESCO, Etihad ESCO does not compete with ESCOs but is, on the contrary, organizes and establishes a market for ESCOs. On this basis, Etihad ESCO takes on the following roles.

1. Prequalifying buildings in owners' portfolios:
 - Perform data analysis and benchmarking;
 - Conduct site surveys;
 - Establish project feasibility.
2. Organizing tendering on behalf of owners:
 - Manage the tendering process as per applicable regulations and rules;
 - Negotiate with ESCOs;

- Select the best bids and award the projects.
- 3. Securing financing if projects fall outside of owners' budgets:
 - Negotiate with financial institutions;
 - Support credit risk.
- 4. Following up on project execution with ESCOs:
 - Facilitate relations with owners;
 - Verify commissioning.
- 5. Following up during the guarantee phase:
 - Verify savings provided by ESCOs;
 - Liaise with owners in case of issues;
 - Manage contracts.

Since comprehensive EE projects can be complex to set up, Etihad ESCO manages all activities as turnkey services to the benefit of all market stakeholders, as follows:

- Etihad ESCO encourages ESCOs to participate in calls for tenders that are published regularly on its website. ESCOs need to be accredited through the ESCO Accreditation Scheme of the Dubai Regulatory and Supervisory Bureau for Electricity and Water (RSB)³ to participate more easily in projects being launched.
- Etihad ESCO strongly recommends that product or equipment suppliers improve the electricity and water efficiency of existing buildings to promote solutions to ESCOs participating in the calls for tenders so they can include them in their service offerings.
- For banks or financial institutions interested in financing projects tendered to ESCOs, Etihad ESCO provides a secure project pipeline.

3. <https://rsbdubai.gov.ae/services/esco-accreditation/>

Development Framework

While developing the DSM strategy and the Buildings Retrofit Program, some market barriers were identified as potential issues preventing (1) ESCOs from flourishing and (2) building retrofits from happening on a larger scale. Trust and confidence among building owners are seen as key factors to ensure that they are ready to implement energy retrofits in their buildings.

Among other measures, it was decided that Dubai needed a regulatory framework for its ESCO market. The Dubai RSB was tasked with developing the framework. In February 2014, the Dubai ESCO framework was officially released and published. It comprises four main elements that were developed in 2013⁴ in cooperation with market stakeholders:

- ESCO accreditation scheme;
- Standard contracts for EPC;
- M&V guidelines;
- Dispute resolution mechanism.

ESCOs with the necessary capacities and that willing to participate in the Buildings Retrofit Program must become accredited through the RSB ESCO accreditation scheme. Details on the *Guide to Energy Services Companies (ESCOs) on How to Participate in the Dubai Buildings Retrofit Program*, the accreditation scheme, the procedures to go through, and the required documentation are available on the RSB website (<http://www.rsbdubai.gov.ae>). On 1 April 2014, the first ESCO was accredited through the RSB accreditation scheme and many other ESCOs were accredited throughout 2014.

To participate in the Buildings Retrofit Program managed by Etihad ESCO, ESCOs first need to ensure they have all the required capacities. Etihad ESCO is looking for companies capable of providing comprehensive turnkey projects.

4. The scheme was updated in January 2019

Therefore, these companies need to be able to:

- Audit buildings to identify energy and water saving opportunities;
- Identify the energy conservation measures (ECMs) that will reduce energy and water usage;
- Design the ECMs, implementation plans, project plans, M&V plans and prepare drawings and energy savings calculations;
- Implement ECMs through a comprehensive work plan;
- Commission the work;
- Develop an M&V plan in accordance with Dubai RSB M&V guidelines and the International Performance Measurement and Verification Protocol (IPMVP);
- Provide services and maintain the installed ECMs for the whole duration of the EPC;
- Measure savings and submit savings reports on a regular basis during the savings guarantee period;
- Guarantee savings contractually over the whole duration of the contract and be prepared to provide financial compensation if savings do not materialize as promised.

At this stage, ESCOs should be capable of identifying ECMs for both electricity and water usage in buildings. Since natural drinking water is almost inexistent in the UAE and mostly produced from seawater through an energy-intensive desalinization process, water in the UAE is as valuable as energy – any water savings are considered as important as any electricity savings.

The Dubai ESCO framework released by the RSB includes M&V guidelines based on the internationally recognized IPMVP that was developed and is maintained by the non-profit Efficiency Valuation Organization (EVO). EVO also provides training and certification services through approved

partners. Energy professionals can become CMVPs (Certified Measurement and Verification Professionals) by successfully completing EVO training and achieving EVO certification. A first CMVP training session was delivered in Dubai in March 2014 and additional training sessions have been organized since then to help ESCOs get their people IPMVP certified.

Etihad ESCO now only works on projects with ESCOs that are accredited through the RSB accreditation scheme. It is therefore highly recommended for a company wishing to participate in the program to obtain accreditation through the RSB.

Growth and Impact

After the first four years of operation (as of the end of 2017), the following impressive results were obtained by Etihad ESCO.

Table 1: Retrofit Savings and Investments

	2014	2015	2016	2017
Cumulative investment (AED million)	4.5	109	194	452
Annual achieved energy savings (kWh million)	4.4	12.1	86	194
Annual achieved water savings (MIG)	2.2	2.5	246	132

Overall Results After Four Years of Operation:

- 135 implemented projects
- CAD 165 million invested (CAD 1.2 million/project)
- Savings of 194 million kWh (1.4 million kWh/project)

SOFIAC, Canada



The Société de financement et d'accompagnement en performance énergétique (SOFIAC), (www.sofiac.ca) was launched in the fall of 2020 as the first Super ESCO in Canada and likely one of the first, if not the first, in North America.

Initiated based on a study conducted by Econoler for the Government of Quebec on the lack of adapted financing mechanisms to address market needs in the private sector, SOFIAC was structured and is operated by Econoler (www.econoler.com) and Fondation (www.fondaction.com) with the support of the Ministry of Energy and Natural Resources of Quebec.

A pioneer for more than 25 years, Fondation is a labour fund managing net assets totalling 2.5 billion dollars invested in hundreds of businesses and financial markets by favouring investments that generate positive economic, social, and environmental impacts on top of financial returns. Fondation helps maintain and create jobs, reduce social and economic inequalities, and fight against climate change. They were significantly interested in investing and getting involved in the creation of the first Super ESCO in Canada.

The Government of Quebec has granted a subsidy to SOFIAC, which enabled it to develop a complete service offer. This subsidy enabled SOFIAC service beneficiaries to reduce the costs associated with project implementation, including savings M&V costs, by having access to services from a third-party firm throughout the contract period.

SOFIAC aims to offer a unique window to implement turnkey EE projects 100% financed through a shared savings approach proposed to its clients.

The objectives of SOFIAC are to:

- Carry out innovative energy efficiency projects through long-term agreements (10 to 15 years) to foster deep retrofits and significant decarbonization;
- Foster an efficient, profitable, and inclusive energy transition for the benefit of Quebec enterprises, the government, and the economy;
- Increase the profitability and competitiveness of Quebec private-sector commercial and industrial enterprises by lowering energy costs.

The main features of SOFIAC are the following:

- Initial available financing capacity of CAD 150 M;
- Financial debt/equity leverage of: 4 to 1;
- Risk spread over a portfolio of projects ranging from CAD 1 M to CAD 20 M in investment needs;
- Projects bundled as necessary into calls for tenders to enable economies of scale.

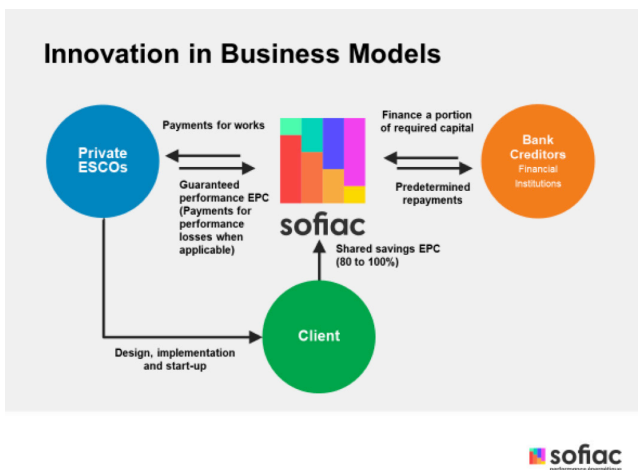
The target market of SOFIAC is:

- Commercial and industrial sector businesses and multi-unit residential building owners;
- Businesses whose annual energy expenses are \$1,000,000 or more for a portfolio of buildings and/or plants;
- Businesses interested in reducing their energy consumption and environmental footprint.

Structured through an independent fund initially capitalized by Fondation, SOFIAC is managed under a 20-year agreement by Ecofunds (<https://econoler.com/en/ecofunds/>), a joint venture between Econoler and Fondation, which subcontracts all technical aspects of operations to Econoler.

An Innovative Business Model

SOFIAC Business Model



The SOFIAC service offer is quite unique and addresses all the barriers that prevent long-term investments in the needed energy transition and decarbonization efforts.

- Turnkey projects with minimal client involvement implemented by qualified ESCOs;
- 100% non-recourse financing adapted to EE projects in shared savings mode (without impact on the financing capacity of clients);
- Long-term agreements of up to 15 years;
- Subsidy request management and optimization;
- Open-book approach for cost optimization;
- Independent M&V management.

Since it is a Super ESCO, SOFIAC counts on various service providers involved in its overall service offer. These suppliers are preselected based on their proven, cutting-edge expertise and substantial experience in precise activities. These resources compete on the basis of their creativity, innovative

spirit, and professional vigour in managing EE projects. More specifically:

- Each service provider must follow a structured approach developed by SOFIAC and commit to respecting the high level of quality required. Standardizing the processes developed by SOFIAC serves to reduce the costs of each service offered and ensure rapid and flawless execution.
- Each expert works independently, which ensures a plurality of ideas and enables SOFIAC to offer both solutions that maximize benefits for clients in each project and the most profitable solutions without any investment on their part.

After the first six months of operation, SOFIAC already developed a project pipeline of nearly CAD 100 M mostly in the industrial sector. However, there were also some interesting projects in the commercial sector whose market actors welcomed the SOFIAC service offer and long-term vision of implementing financially viable retrofits and decarbonizing their operations.

Through this initiative, Econoler developed and participated in the management of the first and only Super ESCO initiative in Canada and as one of the first in the world. The firm demonstrated its capacity to innovate in the field of EE financing and to use energy performance contracting as one of the main tools to address the market barriers related to the development of EE as the first fuel in all types of markets, including in countries with developed economies.

About Econoler

Econoler is a world-renowned consulting firm specialized in the design, implementation, evaluation, and financing of energy efficiency projects and programs. From its creation in 1981 by Hydro-Quebec as the first Energy Service Company (ESCO) in Canada (the first utility-based ESCO in the world), the firm rapidly acquired a high level of expertise in the design and implementation of energy efficiency projects under the Energy Performance Contracting (EPC) approach. Shifting permanently to consultancy work as of the mid-1990s with a major focus on international activities, Econoler also developed its expertise in all other aspects of demand-side energy efficiency as well as in small-scale renewable energy, climate and carbon finance, and energy access projects.

Since becoming a fully fledged consulting firm 25 years ago, Econoler has carried out more than 4,000 assignments around the world in 150 industrialized, emerging, and developing countries in all regions of the world. Our clients include national and local governments, public utilities, corporate sector organizations, leading UN agencies, multilateral and bilateral development banks, as well as a host of other international organizations, foundations, and non-governmental organizations involved in fostering energy efficiency and sustainable energy.

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