

REPORT

on status quo of EPC markets in the city of Dublin

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Conditions of EPC implementation

Potential of EPC implementation in respective city/region

Energy Performance Contracting is currently very high on the Irish political agenda. The Department of Communications, Energy and Natural Resources (DCENR) together with SEAI (Sustainable Energy Authority of Ireland) has developed a National Energy Services Framework to help develop the energy efficiency market in the non-domestic sector throughout Ireland. Following the commitment in the National Energy Efficiency Action Plan (NEEAP) and the Programme for Government 2011-2016, this National Energy Services Framework sets out the current roadmap through which energy efficiency projects and an Energy Performance Contracting process will be developed.

Historically the EPC market in Ireland has been relatively small and underdeveloped. A report into the potential for ESCOs in Ireland produced by SEAI in 2005 found that the existing Irish market for ESCOs is minimal with only two organizations classifying themselves as ESCOs, however it did find that there were a significant number of companies acting as energy service providers without any energy performance contracting element.

The 2005 SEAI report also estimated the cost effective potential market size for ESCOs in Ireland to be €49 - €110 million per annum by 2020. To support the development of this market the Department of Communications, Energy and Natural Resources (DCENR) recently announced the Energy Efficiency Fund and the Energy Performance Contracting (EPC) Framework.

The aim of this fund is to enhance the level of finance available in the market to support the clear opportunity that exists in the public and commercial sectors. The Government has committed €35 million as seed capital for the National Energy Efficiency Fund with a view to establishing a fund of over €70 million in 2013 when matched with investment from the private sector. It is envisaged that the Fund, when established, will finance two main types of energy efficiency projects in public and commercial sectors, Energy Performance Contracts (EPCs) where funding is lent to an Energy Services Company ("ESCO") and direct lending to the client company.

Existing Energy Efficiency Documents for the city/region

There are many documents in Ireland and Dublin relating to energy conservation and the development of the EPC and ESCO market. The main national document in relation to energy efficiency is The National Energy Efficiency Action Plan (NEEAP). NEEAP outlines how Ireland will deliver the national 2020 energy saving target of 20% which will save Ireland €2.4 billion in energy costs and carbon emissions of 7.7mt. A key focus of the second Action Plan is for the public sector to

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act as an exemplar in how it uses and procures energy. It is in response to this plan that the Energy Efficiency Fund and the Energy Performance Contracting (EPC) Framework has been established.

On a local level two of the four Dublin Local Authorities have produced energy efficiency action plans, both of these plans were adopted under the Covenant of Mayors. Dublin City Council, one of the first signatories of the COM developed the Dublin City Sustainable Energy Action Plan 2010 to 2020, this document is currently under review with an updated version to be produced by the end of 2013. South Dublin County Council recently adopted the South Dublin Sustainable Energy Action Plan. Both documents are aligned and supportive of the national plan.

Other policy documents that may have a direct influence on the development of the EPC market are the Medium Term Exchequer Investment Framework, published in November 2011 envisages assisting the development of the ESCO concept as a model to fund energy retrofit projects in the public sector and introduce innovative and sustainable financing mechanisms. The use of EPC models is also encouraged in "Green Tenders: An Action Plan on Green Public Procurement".

Potential target groups and buildings for EPC implementation

The EPC market in Ireland is still very much underdeveloped, so therefore medium to large building owners are a potential target. The public sector is particularly suited to EPC for a number of reasons, primarily due to a lack of funds, local expertise (e.g. expertise among building owners and facilities managers) and a mix of aging building with poor fabric insulation and poorly performing modern buildings.

The initial target group for this project will be the Dublin Local Authorities whose main buildings consist of leisure centers, swimming pools, public offices, fresh and waste water treatment plants and fire stations.

Attitude of the local/regional authorities to EPC

Energy Performance Contracting is currently very high on the Irish national political agenda, as demonstrated by the creation of the Efficiency Fund and the Energy Performance Contracting (EPC) Framework. However at a local level the market is still very much under development.

The SEAI report into the potential for ESCOs in Ireland (2005) concluded that the slow uptake of ESCOs in Ireland is due largely to a lack of awareness of the ESCO concept, a lack of regulatory targets/incentives for energy efficiency, reluctance to risk outsourcing energy services and possibly a lack of attention from international ESCOs who have been focused on larger markets.

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Barriers in EPC implementation

The main barriers are:

- A lack of customer knowledge and awareness
- The transaction costs of implementing energy service contracts, particularly in the public sector
- Reluctance from organisations to enter into long term contracts
- A perceived fear or unwillingness to outsource energy services
- The quantum and structure of funding / finance available in the market.
- Energy savings are not a priority due to a lack of targets regarding energy reduction/efficiency

The final two points have recently been addressed on a national and European level with the creation of the energy efficiency fund and the establishment of clear energy reduction targets for the public sector. However this message will still need to be communicated at a local level. The availability of this fund and the efficiency targets will not achieve its aim if the customers are not knowledgeable or aware of the issue.

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Position of the EPC implementation

Existence of basic instruments for EPC

SEAI on behalf of the Department of Communications, Energy and Natural Resources (DCENR) has developed a National Energy Services Framework to help develop the energy efficiency market in the non-domestic sector throughout Ireland.

As part of this framework a number of draft EPC template documents have been produced, these documents are still under development:

1. Project Development Brief Stage 1
2. Project Development Brief Stage 2
3. EPC Assessment
4. Project Development Brief Stage 3
5. Prequalification Questionnaire
6. Invitation to Participate in Competitive Dialogue
7. Invitation to tender (ITT)
8. EPC Contract
9. EPC Payment Mechanism - a paper to explain in more detail the payment mechanism
10. EPC Technical File and Baseline Data Template

Existence of EPC (Energy Services Companies)

Survey of existing ESCOs

As stated earlier the ESCO market is currently both small and underdeveloped. But with recent developments a number of case study examples of ESCO projects have emerged, these projects include companies such as:

- Longship
- Candelas Ltd
- Aramark
- Dalkia

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Ability to compete

There are currently only a small number of ESCOs currently active in the Irish market and these are almost all international, non-indigenous companies. With recent market developments and the development of the Energy Efficiency Fund more established companies, particularly from the construction sector, are becoming interested in the ESCO model. However it will take some time before these companies are in a position to compete with the more established ESCO companies.

ESCO associations or other institutions

Although ESCOs clearly have a very important role in helping Ireland meet its energy efficiency targets an ESCO Association has yet to be established. This is likely to change with the development of the Irish market.

Financing and banking sector in relation to EPC projects

Access to financing has been identified as a barrier to the development of EPCs in Ireland. In response to this the government has established the Energy Efficiency Fund. The aim of this fund is to kick start the EPC market in Ireland and generate competition and raise awareness of the EPC market within the financial sector, with the intention of winding down the fund within a number of years as it becomes redundant. The fund will amount to €70m, with €35m seed capital provided by the government and the remainder coming from the market.

Existence of programs for support of EPC

The key programme of support for the development of EPC in Ireland is the National Energy Services Framework. The aim of this Framework is to develop robust projects which are investment-ready for financing entities (such as the National Energy Efficiency Fund). This will in turn stimulate the development of an Energy Services Company (ESCO) market. The Framework also aims to provide best-practice guidance to public and private sector client organisations when procuring energy services and engaging ESCOs. The Framework will focus initially on providing guidance and tools to support developing projects suitable for Energy Performance Contracting (EPC) and Energy Performance-Related Payments (EPRP). Later editions will add Local Energy Supply Contracts (LESCs) and Handbooks on Energy Performance Contracts (EPCs) for Public Lighting and for Water Services. Guidance will also be developed for the public sector on nominating a Participating Energy Supplier (PES) to EPC and EPRP projects.

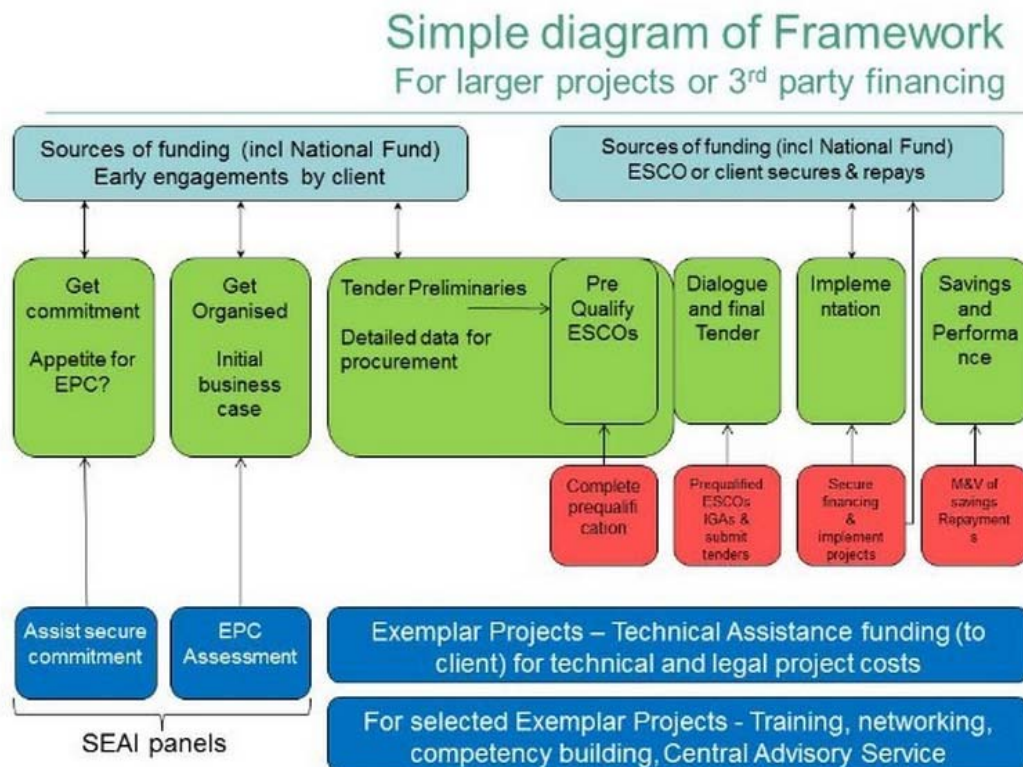
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Framework Details and Documents

An overview of the EPC Framework is provided below and comprises four streams; Funding through the National Energy Efficiency Fund and other Funds (Light Blue), the Project Development Process (Green), and input from ESCOs and procurement requirements (Red) and Technical Assistance available from SEAI (Dark Blue).



The EPC Project Development Process

This process is typically for larger sized projects that need access to non-client financing. The DCENR and SEAI have developed a step by step process to assist organisations through the initial 3 stages of the project development process.

Each section (“stage”) matches a step in the process:

- Stage 1 – Get Commitment (common to all three approaches)
- Stage 2 – Get Organised
- Stage 3 – Tender Preliminaries

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The key objectives of the 3-stage process are to: decide, which is the best project development route to take depending on the objectives of the client and to avoid projects spending extensive time and money before it is determined that the project route won't work for one reason or another.

Stage 1 – Getting Commitment

This stage is common to all approaches. A decision about which project development route to take is made following Stage 1.

The project development route should be reviewed after each stage as the organisation may conclude that an EPC is not the appropriate solution and may select EPRP or the traditional project process.

SEAI DRAFT Documents:

1. Project Development Brief Stage 1

If it is determined that EPC is the right route for the organisation, the project progresses to stage 2.

Stage 2 – Business Case

This stage is concerned with getting organised by identifying the human resource requirements for the EPC project development process, preparing a plan, gathering baseline energy data (which may involve installing additional metering) and procuring external professional support if it is required. This stage is also concerned with establishing if there is a business case for EPC, i.e. if there is a financially viable project, which may consist of a mix of projects of long and short paybacks, which would be attractive to ESCOs to develop and deliver value to the organisation. An EPC Assessment helps bring facts and figures to the analysis.

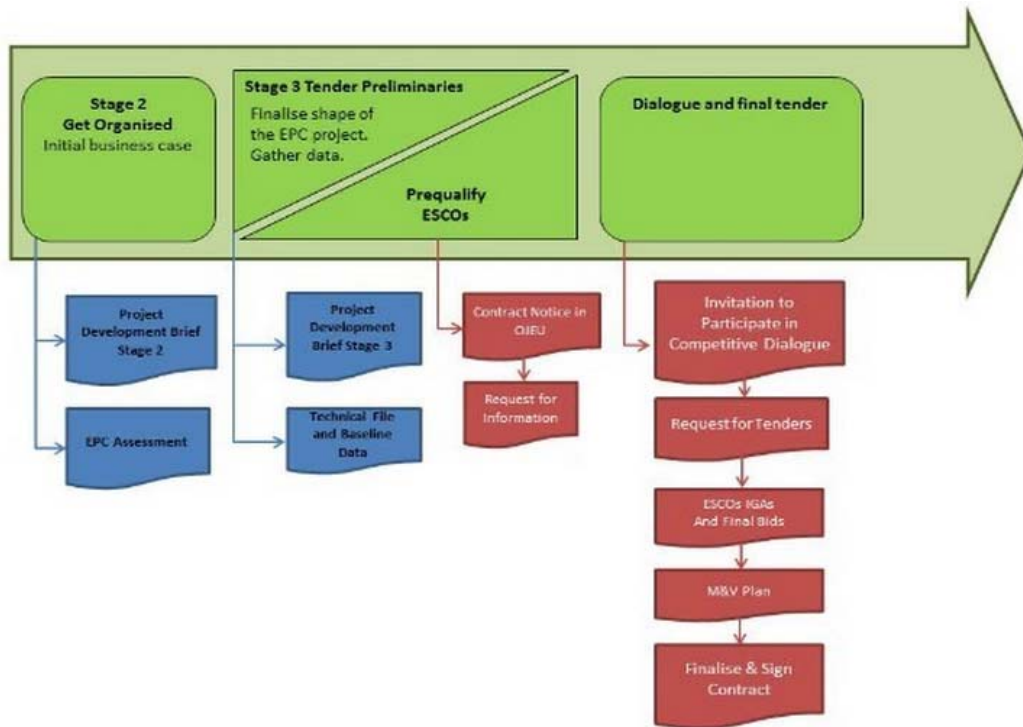
SEAI DRAFT Documents:

1. Project Development Brief Stage 2
2. EPC Assessment

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Stage 3 - Tender Preliminaries

This stage is where the hard work begins. From the two prior stages you have determined what EPC 'solution' you require. Stage 3 is about putting together the detailed data and tender documentation needed to procure the solution.

Summary of Legal Procurement Documentation

Contract Notice: This is a very short document setting out the basic project description and proposed term of contract (the clients “needs and requirements”) which is posted by the Client on the etenders website. It puts the market on notice of an upcoming project.

This will determine the choice of procurement procedure namely, open, restricted, competitive dialogue or negotiated procedure. It is envisaged that the competitive dialogue procedure will be the procurement of choice for EPC contracts. The use of the competitive dialogue is envisaged when the market in question is “particularly complex” and this includes where contracting authorities are not objectively able to define the technical means of meeting its needs or not able to specify the legal and financial makeup of a project.

The competitive dialogue procedure is prescribed by Article 29 of the Public Procurement Directive 2004/18/EC for the award of public contracts as transposed into domestic Irish law by the European Communities (Award of Public Authorities’ Contracts) Regulations, 2006 to explore the most appropriate solutions to provide energy performance contracting solutions.

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Pre-qualification Questionnaire (PQQ): This is also known as a Request for Information and is posted to the etenders website by the Client. It invites ESCOs to submit expressions of interest which are then assessed based on a set of evaluation criteria such as financial standing, technical capacity and the proposed ESCO team. The PQQ will specify the evidence required from the ESCO to support its expression of interest on the basis of such evaluation criteria. The Client will then assess the expressions of interest and will pre-qualify a set number (most likely 3) of ESCOs to proceed to the dialogue stage.

Invitation to Participate in Competitive Dialogue (ITPCD): This document is issued by the Client to the ESCOs that have prequalified based on the PQQ. The document will be accompanied by a draft contract and the technical file and baseline data which has been prepared by the Client. It will also set out the initial Client requirements (if any) and will invite the ESCOs to visit and assess the subject site for the purposes of preparing the investment grade audit and to participate in dialogue meetings (which may be over one or more stages). The document will also contain the high level view of the proposed award criteria. The award criteria may not change though the weightings can be refined after the initial dialogue. The aim of the dialogue is to identify and define the means best suited to satisfy the client's needs. During the dialogue the client and the bidders may discuss all aspects of the contract. The dialogue may therefore relate not only to technical aspects but, also to economic aspects (prices, costs and revenue etc.) or legal aspects (limitation of risks, creation of SPV's etc.). During the course of dialogue, the client may ask the participants to specify their proposals in writing, possibly in the form of progressively completed/refined tenderers.

Request For Tender (RFT): Following the dialogue meetings and site visits carried out on foot of the ITPCD the Client will declare the dialogue stage closed and will proceed to issue the RFT to the ESCOs. The RFT invites the ESCOs to submit final tenders and is accompanied by the finalised draft contract and finalised Client requirements which will have developed from the dialogue stage. The RFT will also contain the award criteria (both qualitative and quantitative) upon which the ESCOs' bids will be evaluated by the Client. The ESCOs' bids will contain a finalised investment grade audit for the project which sets out their proposals and energy saving guarantees for the project. Once final tenders have been received, the client may, ask for them to be "clarified, specified and fine-tuned". However, such clarification, specification, fine-tuning or additional information may not involve changes to the basic features of the tender or the call for tender, variations in which are likely to distort competition or have a discriminatory affect.

Contract Award Notice: The Client will assess the ESCOs' bids received on foot of the RFT and will determine the winning submission based on the award criteria. The Client will publish a contract award notice stating which ESCO has been successful in their bid and will at the same time provide written debriefings to the unsuccessful ESCOs.

SEAI DRAFT Documents:

1. Project Development Brief Stage 3
2. Prequalification Questionnaire
3. Invitation to Participate in Competitive Dialogue
4. Invitation to tender (ITT)

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EPC projects

Realized projects

The following case study examples are taken from the SEAI document *Aguide to Energy Performance Contracts and Guarantees*

Case Study of Energy Management with Performance-Based Payment

Customer

Port of Cork.

ESCO

Longship.

Measures

The ESCO undertook lighting, heating and insulation upgrades to buildings, water saving projects and specific works to dockside cargo handling equipment such as straddle carriers and mobile cranes which are used to move containers around the facility. Local energy metering is also being installed.

Contract

The project was financed and is owned by the customer (with grant assistance from SEAI). There is a gain share agreement between the customer and the ESCO, whereby if actual savings are 4-6% of overall energy use, then the ESCO will be paid their fees in full. If savings are less than 4%, then the customer may claw back a percentage of the fees paid to the ESCO. If savings are greater than 6%, the ESCO will be paid bonus. Savings will be monitored and the final fee paid at the end of 2012.

Benefits

The ESCO is motivated to remain involved until energy savings meet or exceed projections.

Investment

€270,000.

Savings

It was calculated that these projects would result in a 5% overall reduction in energy use by the Port in 2012 relative to 2011. This will kick start the Port of Cork's journey to implementing the ISO50001 energy management standard and achieving their target of a 33% energy efficiency improvement by 2020.

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Case Study of Equipment Supply & Installation with Energy Performance Guarantee

Customer

44 poultry broiler sheds across 22 sites in six counties.

ESCO

Candelas Ltd.

Measures

Lighting only retrofit involving the removal of existing incandescent lighting and replacing it with dimmable fluorescent T5 corrosion proof fittings, including dimming systems and waterproof distribution boards. The lights were hung using a catenary wire suspension system, and wired using seven-core cable for maximum dimming flexibility.

Contract

The ESCO assembled a group of farmers, and applied for co-funding from SEAI. The ESCO guaranteed energy savings of 65% (typical, depending on each farm's existing installation) based on a direct reduction in lighting load. Further savings associated with the use of dimming were not included in the guarantee due to the added complexity of verifying savings.

Cost meters also installed on lighting circuits and farmers trained in their use.

The farmers paid 50% to the ESCO up front, and 50% on installation and verification of energy savings.

The reduction in lighting load was verified by measuring the power drawn by the lighting circuits before and after the installation. Lux levels were also measured before and after to demonstrate light levels were the same or better. The ESCO's guarantee is that if the energy savings are less than those guaranteed, the ESCO refunds the difference between actual and guaranteed savings

The SEAI grant, once received by the ESCO, was returned to the farmers as a rebate.

Benefits

The ESCO assembled a group of farmers with a common need to create a viable project of sufficient scale to justify its management time. The farmers' risk was reduced by the performance guarantee. The new lights have a longer life, and associated lower maintenance costs. The dimming feature has saved energy and improved light management; anecdotal evidence suggests bird weights, mortality rates and bedding costs have improved (currently the subject of further research).

Investment

€200,000.

Savings

€75,000 / 538,000kWh.

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Case study of Energy Performance Contract with Shared Savings

Customer

Royal Victoria Eye and Ear Hospital.

ESCO

ARAMARK.

Measures

The ESCO carried out an investment grade audit and assessed the feasibility of upgrading equipment in the hospital to provide energy savings. The equipment was selected, installed and commissioned including a 70KWe combined heat and power plant, building management system, efficient lighting, insulation and a remote energy monitoring system.

Contract

The project was financed by the ESCO and the customer (with grant assistance from SEAI). The customer receives a quarterly report and invoice detailing the savings. The costs on the invoice are fully financed by the savings in the utility bills. This is a shared savings agreement over 10 years with future savings going directly to the hospital. There is an incentive for both the customer and the ESCO to work together to achieve additional savings.

A full structured ongoing energy management service is provided as part of the contract including staff awareness campaign and routine audits, outlining further opportunities for savings. There is also remote measuring of plant

performance, energy usage and optimisation of plant control based on continuous tariff analysis. Measurement and verification of savings is being conducted independently by an obligated party.

Benefits

This project resulted in guaranteed electrical and fuel savings for the client combined with improved comfort conditions for both staff and patients. All operational and maintenance risks are the responsibility of the contractor.

Investment

€300,000 – financed by the ESCO and the customer (with grant assistance from SEAI).

Savings

Circa €60,000 per annum.

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Case Study of Integrated Energy Contract with Shared Savings

Customer

Stewarts Hospital.

ESCO

Dalkia.

Measures

Fuel conversion from oil to gas. New energy centre and district heating system incorporating 2no. 1 tonne steam boilers, 700kW heating boiler, and 140kWe CHP. New main distribution board and emergency generator. Controls to optimise the boilers and provide 55no. heating zones. Energy monitoring system. Energy efficient lighting. Second 140kWe CHP at leisure centre.

Contract

The project was financed and is owned by the ESCO (with grant assistance from SEAI). ESCO invoices monthly to cover cost of energy supply, financing, operation, maintenance and energy management, replacement guarantee on failure. Shared savings agreement. Lower energy costs help offset financing costs. 15 years.

Benefits

New, reliable plant with no upfront capital cost. Energy savings, arising from supply side and demand side efficiencies, help offset monthly payment cost. Operational and maintenance risks transferred to contractor. Greenhouse gas reduction.

Investment

€1.5 million, financed by Dalkia (with grant assistance from SEAI).

Savings

Circa €100,000 per annum.

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Prospective projects

As part of the framework process 22 organisations have been selected to complete EPC projects in 2013/2014.

Exemplar Energy Projects 2013



The following organisations will work with the Sustainable Energy Authority of Ireland in the delivery of their projects to road-test innovative contracting methods outlined in the National Energy Services Framework

Boliden Tara Mines

Boliden Tara Mines is Europe's largest zinc mine. This project is a combination of Variable Speed Drives and state of the art controls systems to optimise the operation of their large ventilation fan system and will be funded through a third party financed Energy Performance Contract solution (EPC).



Fingal County Council

Following extensive trials which have been undertaken for new public lighting technology by Fingal County Council they propose a retrofit of up to 70% of their public lighting stock (20,250 public lights). This project will be delivered through a fully financed EPC solution.



Carbery Group

The Carbery exemplar project is centred on the installation of a new independently operated energy centre and switching the generation of base load (shared with CHP) to renewable energy. The project involves replacing five existing antiquated boilers on site with two new high efficiency boilers. One of the new boilers will be a biomass boiler (potential cash injection of €1.6 m into the local economy for fuel supply) and the second is a modern natural gas fired boiler to replace technology which is over 40 years old. This is to be delivered using a Local Energy Supply Contract (LESC).



Four Seasons Hotel

The Four Seasons is a luxury 5 star hotel in Dublin. This project involves a comprehensive retrofit of lighting, heating, controls and ventilations systems, whilst also retrofitting the building fabric. It will be delivered through an EPC solution.



GE Healthcare

Against a background of rising output and likely energy consumption and cost increases, GE Healthcare hopes to minimise the impact through outsourcing a number of energy efficiency upgrades through an ESCO. Areas targeted include boiler output optimisation, heat pump technology to utilise waste heat from production process, steam generation efficiency improvements, chilled water efficiency improvements, heat recovery from compressors and control and monitoring systems.



Carton Bros

Carton Brothers, an Irish family-run business, are proposing a project focused on upgrading of their processing plant and provender feed mill likely to include electrical and thermal system upgrades, fabric improvements, and process control system improvements and delivered through an EPC.



Health Service Executive West

Two projects are proposed for HSE North West where potential has been identified. The first project is to retrofit the boiler plant, controls and reduce the heating demand in Roscommon Hospital. The second project is to retrofit the heating plant, district heating network, BMS and reduce heating demand across the campus at Aras Attracta, Mayo. Both projects will be delivered through a combined LESL and EPC solution.



DIMPSCO

DIMPSCO are a part of the Irish owned Glen Dimplex company who manufacture a wide range of energy saving equipment. Dimpco in this instance will act as an aggregator as well as ESCO for the delivery of heating retrofits across six pig farms. The solution will have a robust Energy Performance Related Payments (EPRP) structure in the contract.



Institute of Technology Tralee

IT Tralee has pursued energy efficiency improvements over recent years reducing their overall heating demand. This project will focus on retrofitting the heating generation plant for the campus installing biomass boilers and heating controls through a LESL solution.



Dublin City Council

This Dublin City Council project is a deep retrofit of four leisure centres, including CHP to be delivered through a fully financed EPC solution.



Dublin City University

Dublin City University have two ESCO projects planned, starting with a single technology retrofit of the lighting in their multi-storey car park through an EPC solution. The next project is to retrofit the buildings in their Green Innovation campus, through a combined Local Energy Supply and Energy Performance Contract.



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Irish Prison Service

The IPS has analysed various ESCO opportunities as a strategic option to retrofit their facilities, many of which date from the turn of the century. The first project is to retrofit the heating systems in the Wheatfield and Cloverhill prisons delivered through a combined EPC and LESC solution.



Radisson Blu

The Radisson Blu Hotel, Sligo is a 4-star 160 room luxury hotel and has a full range of leisure facilities. The proposed project involves the replacement of the existing heating system with a modern biomass fuelled boiler and is a priority for the organisation. The installation is being sourced through an combined EPC and LESC.



Kerry County Council

Kerry County Council has a strong record of implementing energy saving projects reducing energy costs for both the local authority and homeowners within the county. For this project, Kerry County Council plans to retrofit the entire 11,500 public lights in the county through a fully financed solution.



Roadstone Wood Ltd

Roadstone Wood Ltd is a subsidiary of CRH plc and is Ireland's leading supplier of building materials. Motors, water pumping and compressed air systems are all significant energy users and with ESCO support it is planned to assess and install more efficient equipment. Variable Speed Drives and control systems will be upgraded in a number of sites across the country, delivered through an EPC solution.



Kildare and Wicklow VEC

This project focuses on a retrofit of 17 schools within the expanded organisation of Kildare and Wicklow proposing a mix of measures bespoke to each school involving fabric insulation, heating plant and controls, lighting, BMS and benchmarking of schools to be delivered through an Energy Performance Contracting solution.



St. John of God Hospital

St John of God are at an advanced stage of assessing their Stillorgan site for a deep energy retrofit. The mechanical and electrical services across the campus will be upgraded and heating plant retrofitted. This retrofit is to be delivered through a combination of an EPC and LESC.



Letterkenny Institute of Technology

Following a number of energy efficiency projects which have successfully reduced the energy demand on the Institute's campus, the proposed project is a biomass and heating plant retrofit to be delivered through a LESC.



Tesco

Tesco Ireland is on track to reduce the carbon footprint from its operations by at least 50% before 2020 (compared to a 2006 baseline). They are investing in low energy technologies in their stores and continue to use innovative financing models such as energy performance contracting to retrofit these technologies across the estate.



Liffey Meats

Liffey Meats is one of Ireland's largest and progressive meat processing firms. They are upgrading processing and services at three facilities to include heat recovery from refrigeration systems, pipe and equipment insulation, new high efficiency steam generation plant, low energy effluent treatment plant and lighting. This is to be delivered using an EPC.



University College Cork

UCC, one of the first public bodies in the world to achieve ISO 50001 certification, has an on-going programme to retrofit their facilities. The specific exemplar project aims to utilise the ESCO model to strategically retrofit the electrical and mechanical facilities in a number of campus buildings.



Mayo County Council

Following successful implementation of a pilot street lighting project for Crossmolina in 2012 through an ESCO contract, this project proposes to retrofit all public lights in the county (12,000) through a fully financed EPC solution.



Building Fabric

Biomass Heating

Electrical Services

Mechanical Services

Public Lighting

More Information: www.seai.ie/Your_Business/Energy_Performance_Contracting/Exemplar_Projects/

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