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ENERGY SHOW
20–21 March 2024

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Energy Performance Contracting

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Energy Performance Contracting

- Introductions
- What is Energy Performance Contracting (EPC) and why choose it as a project delivery route?
- Case studies
- Procurement process
- SEAI Supports

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What is EPC and why do it?

Codema Team

- **Energy Advisers** to Dublin Local Authorities
- Founded in **1997** as **not-for-profit** organisation
- **32 staff** based in Temple Bar

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Codema Services

Codema
Dublin's Energy Agency

ENERGY MONITORING & MANAGEMENT

ENERGY AWARENESS

ENERGY POLICY & PLANNING

PROJECT MANAGEMENT

MATCH FUNDING

- **Facilitators** of Energy Performance Contracts (10 years' experience)
- Providing **Training** of EPC Project Facilitators

guarantEE
Building Energy Services in Europe

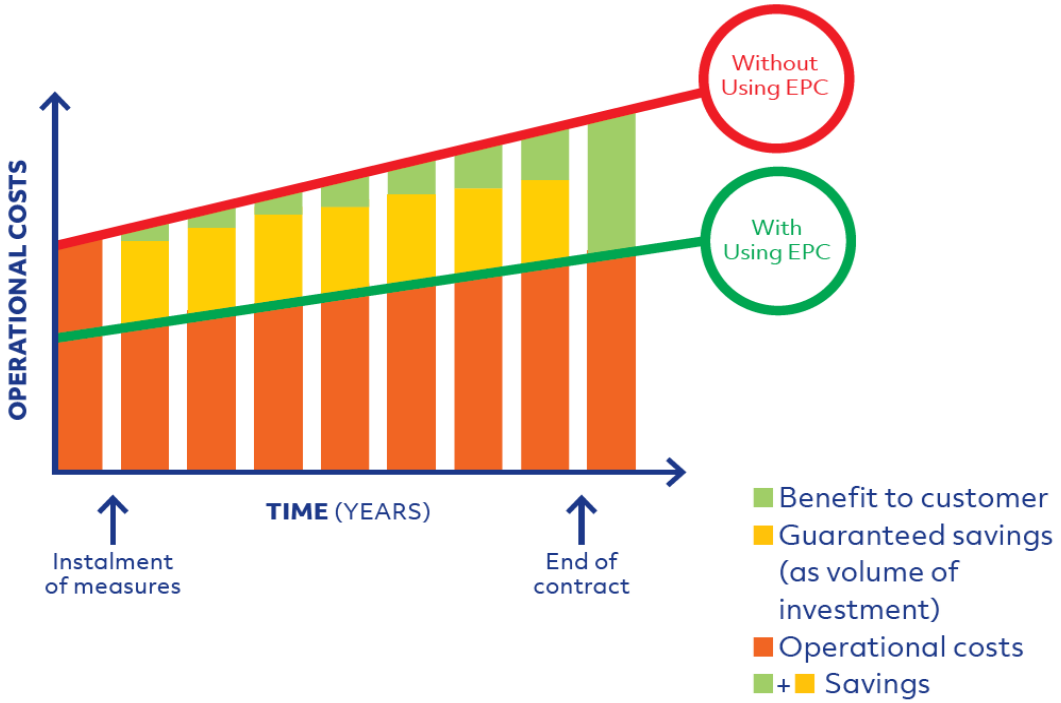
Interreg
North-West Europe
HeatNet NWE
European Regional Development Fund

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 696040.

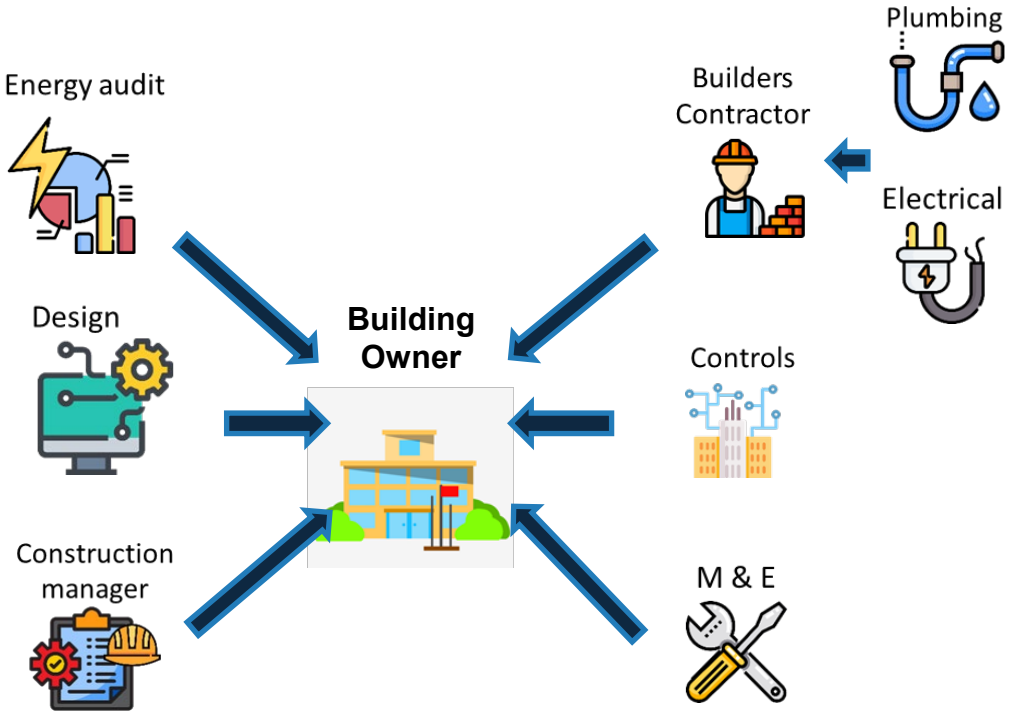
EESI 2020 european energy service initiative 2020

What is EPC?

Energy Performance Contracting is the provision of **energy services** with a **guaranteed outcome**



Traditional Contracting



Pros

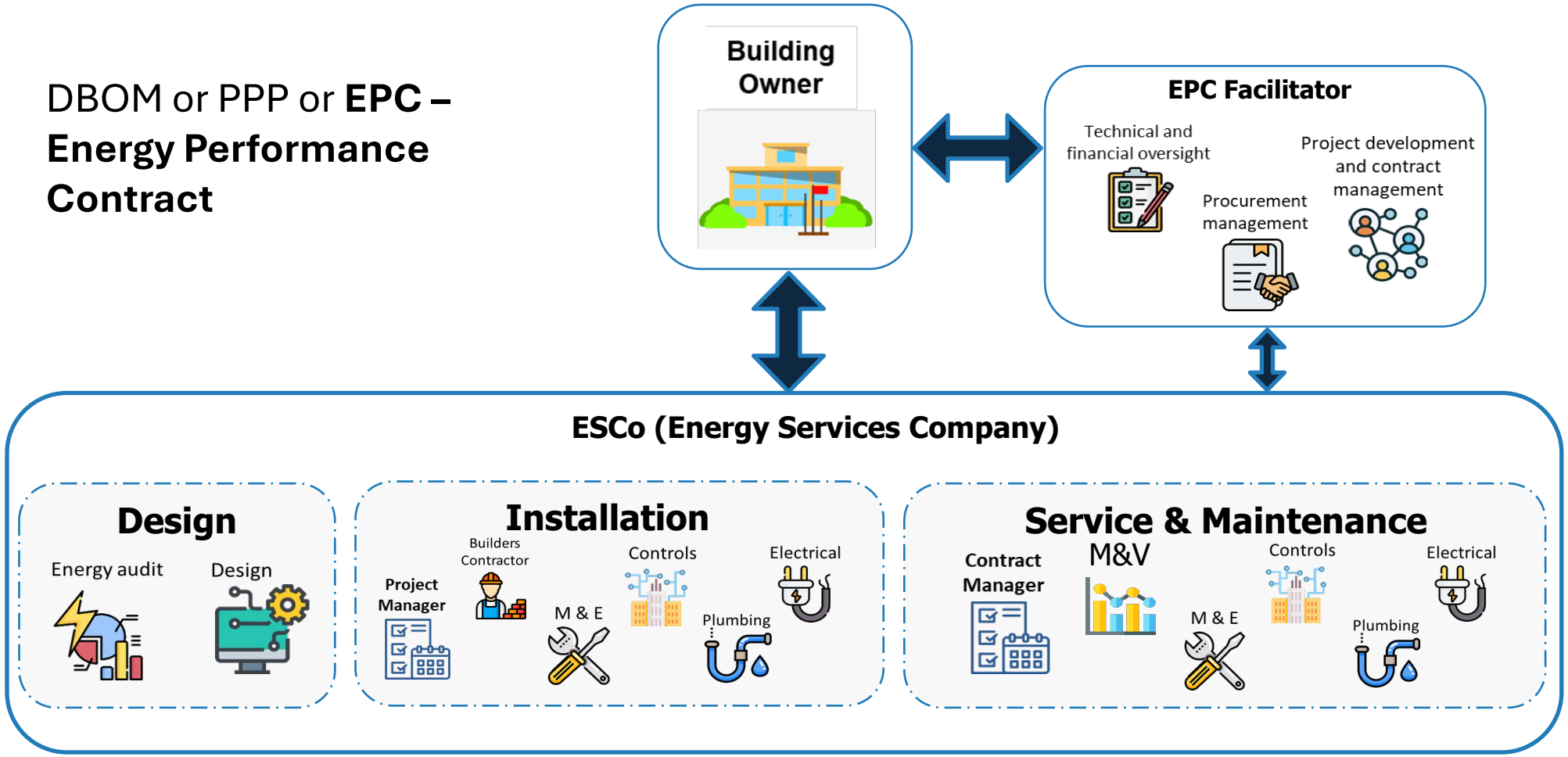
- Approach **every knows** well
- Building Owner is in **full control**, everyone answer to them

Cons

- Building Owner takes **all Risks**
  - **Increased cost** of works
  - Operational **performance** cost
  - **System integration** (old and new)
- **Inefficient** - does not consider the efficiency of the overall building energy system

Energy Performance Contracting

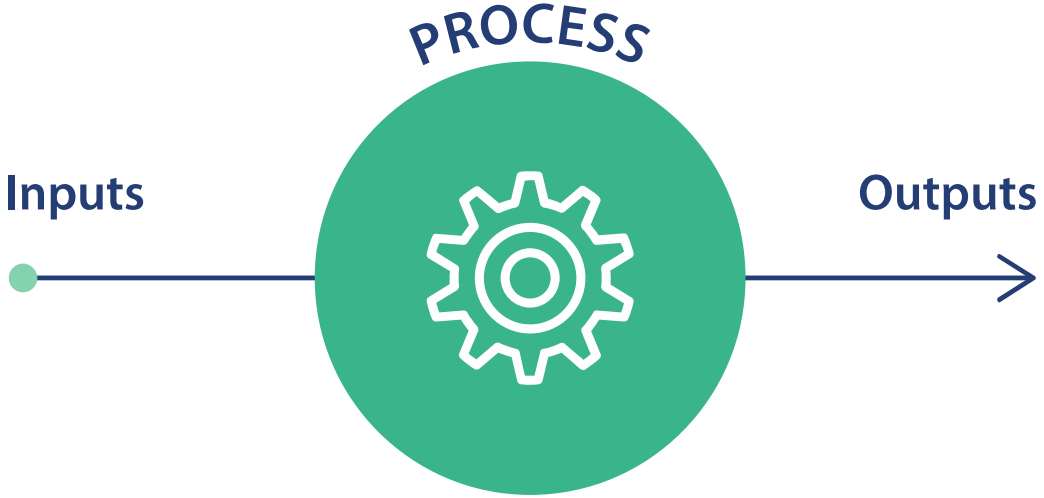
- DBOM or PPP or **EPC – Energy Performance Contract**



Why use an EPC?

Inputs:

- PV Panels
- LED Lighting
- Heat Pumps
- Biomass Boilers
- CHP
- BMS
- AHU
- Insulation
- Gas Boilers
- Windows
- Fuel Cells
- .....



Outputs:

- Low carbon
- Comfortable
- Safe
- Cost efficient
- Energy efficient

Buy the outputs not the inputs

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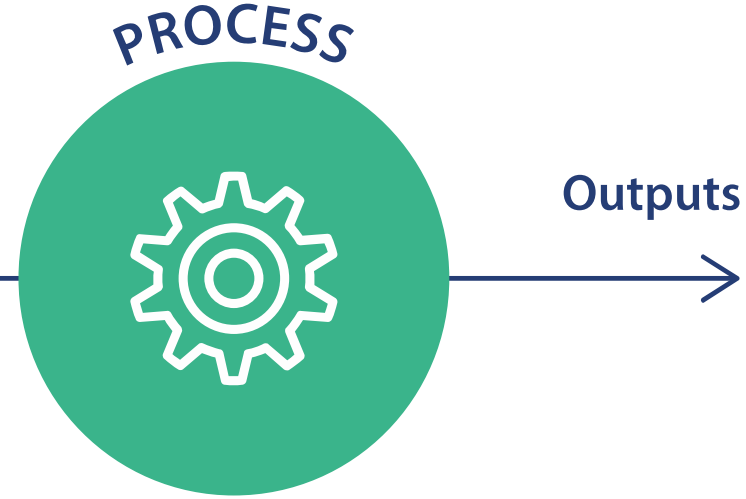
Traditional Contract

Works Only



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Why outputs?... Performance gap

https://www.gov.uk/government/publications/low-carbon-buildings-best-practices-and-what-to-avoid

- Building Performance Evaluation Programme over **five years**
- **50 low energy design buildings** funded by Innovate UK
- Performance **gap** averaging **3.5**

Performance Gap

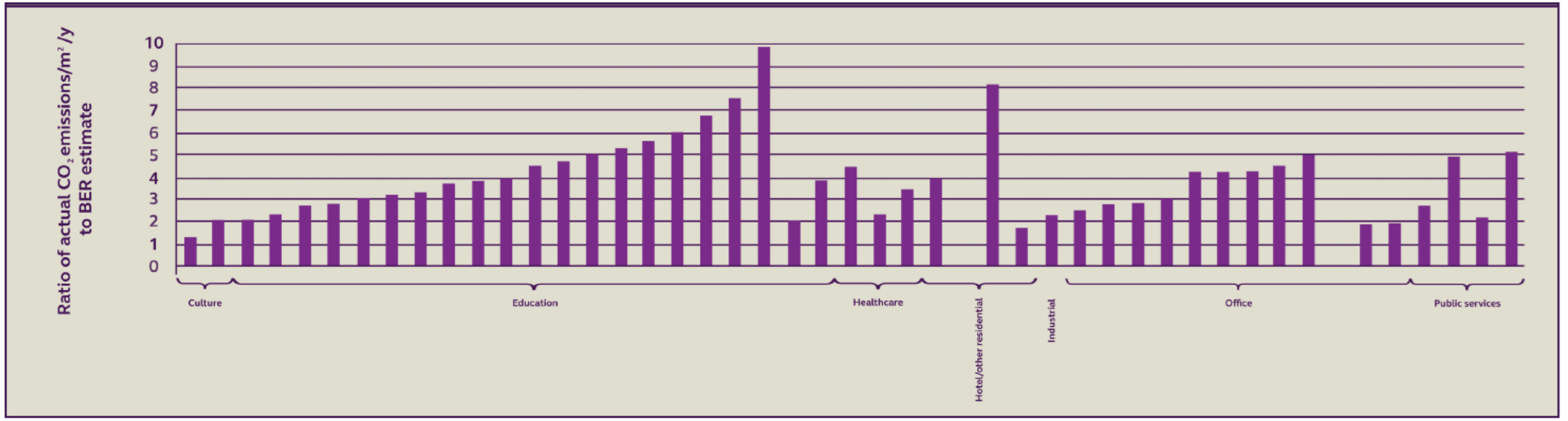


Fig. 2: Actual CO_2 emissions are almost always higher than the BER predicts (Carbon Factors: Electric 0.55kgCO_2/kWh, Gas 0.194kgCO_2/kWh, Oil 0.265kgCO_2/kWh, District heating 0.265kgCO_2/kWh, Biomass 0.025kgCO_2/kWh, from BRUKL). NB: Zero-rated buildings against one hotel and one office project are projects with CO_2 data but no BER.

https://www.gov.uk/government/publications/low-carbon-buildings-best-practices-and-what-to-avoid

Why use EPC?

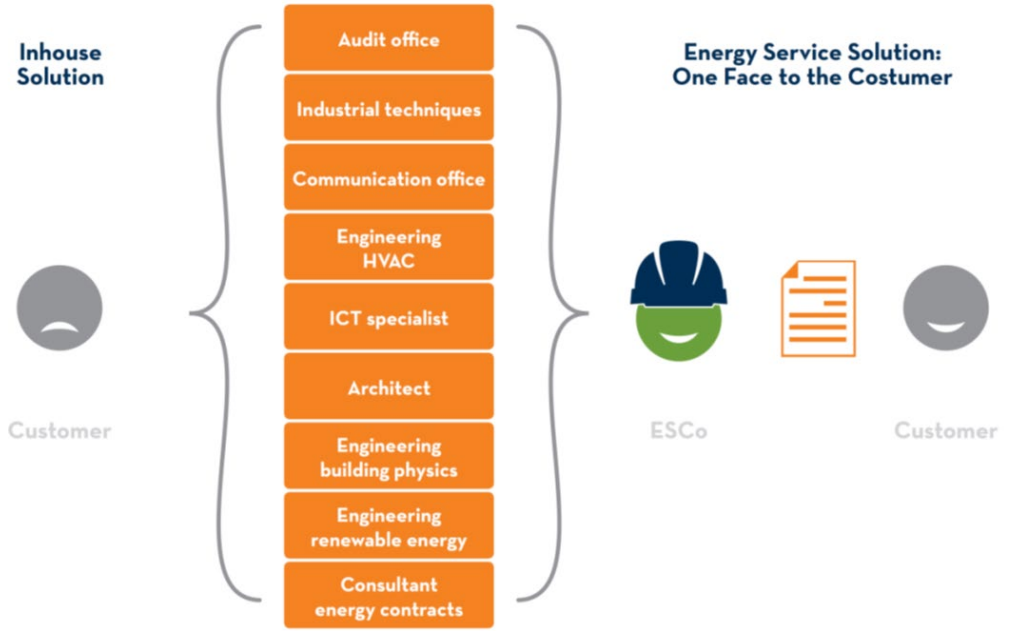
The most common answer to why use EPC is:

- Its an **Alternative Financing Mechanism**

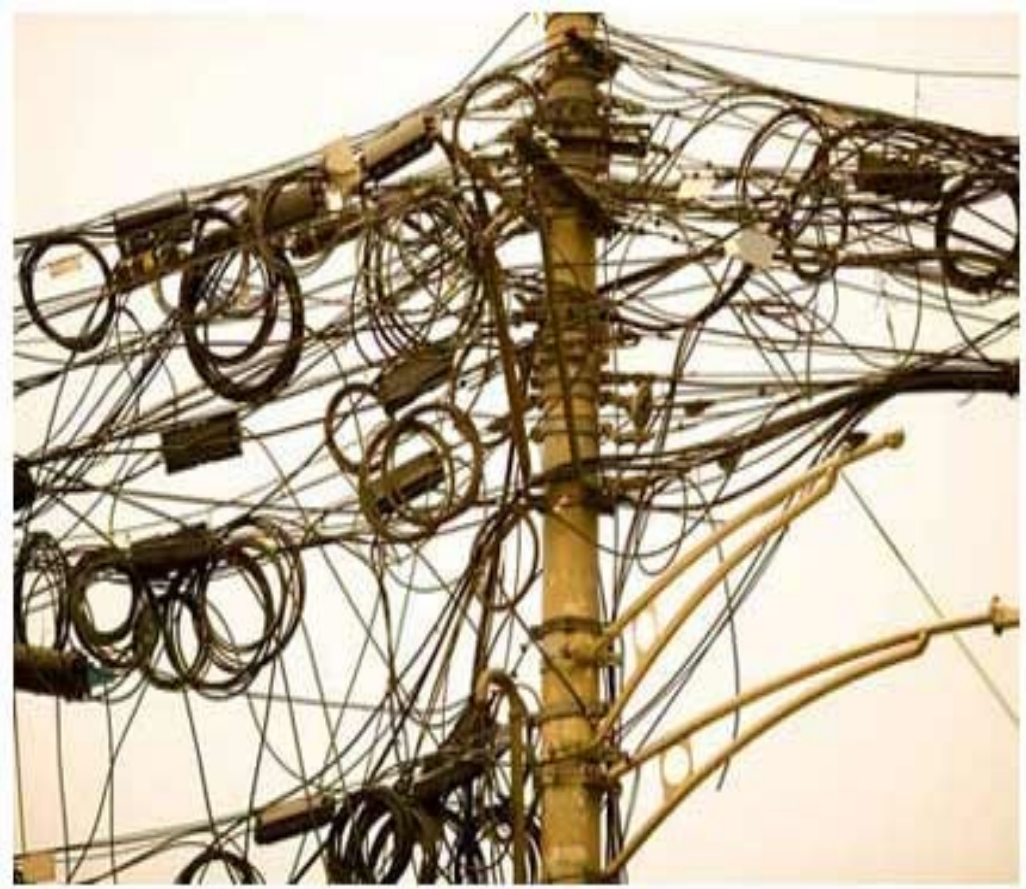
1. Is this the only reason to use EPC? **NO**
2. Is this the main reason? **NO**
3. If you have funding is EPC redundant? **NO**

Benefits of EPC

1. Contracted Pathway to Net Zero, a renovation roadmap (EPBD Article10)
2. One Face to the Client
3. Guaranteed Performance (value for money)
4. Risk sharing (the party most qualified to manage it)
5. Maintenance (in the ESCos best interest)
6. Alternative Financing Mechanism

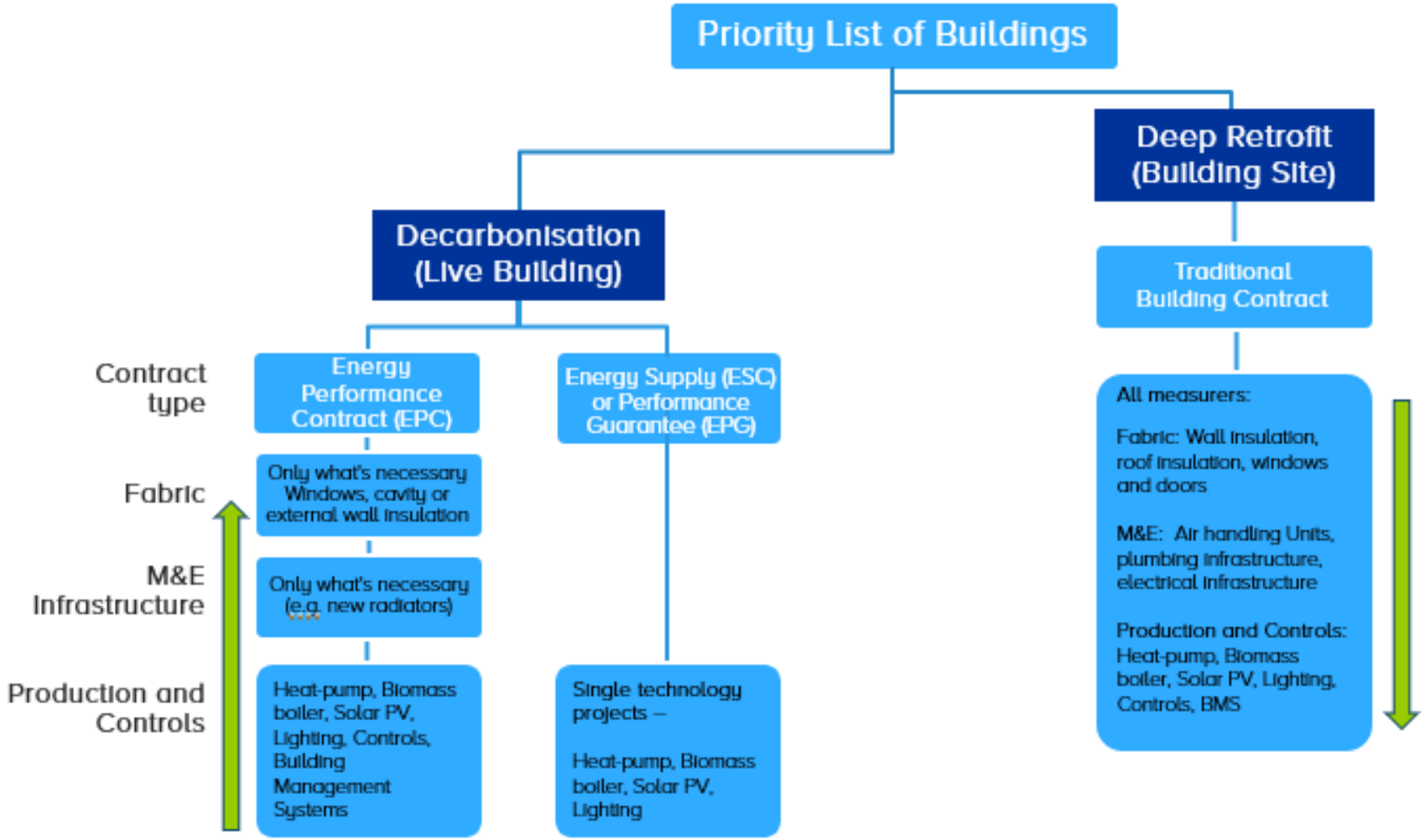


When to use EPC



- **When is EPC** the right solution?
- Existing buildings are a **mess of different systems**
- **Core function** is what's **most important,** everything else comes second
- **Buildings** have a **cycle** which will determine the **most suitable retrofit approach**
- **Deep Retrofit or Decarbonization**

When to use EPC



Why is EPC important now?

- **Climate Action Plan Targets:**
  - We must **decarbonize our buildings** to **achieve** our **targets** (electrification, biomass, district heating)
  - Focus is on the **decarbonization of heat** (no more oil or gas)
  - We have two choices:
    1. **Individual measures** – focus on the technology
    2. **Whole Building** - holistic decarbonization

Individual decarbonisation works

Pros:

- **Traditional** contracting and procurement
- **Familiar, trusted** approach, what we know best
- Can use **performance guarantee**
- **Shorter** procurement
- Best for **small buildings / single technology** projects

Cons:

- **Not holistic** – energy savings **opportunity** will be **missed**
- **Only** address **new** systems
- Higher **upfront** costs
- **Limited** performance **guarantee**
- Design and cost **risk with building owner**
- **Repeated** procurement, again and again……with every measure

Whole building decarbonisation (EPC)

Pros:

- **Holistic** – optimises systems, new and existing
- **Guaranteed** CO2 savings
- Contracted **pathway to zero** carbon
- **Once off** procurement (for contract duration)
- Best for **large complex buildings**
- Allows **for pooling** of buildings
- **Lower** upfront costs
- Can bring **finance**

Cons:

- **Longer** procurement (but doing years at once)
- Contractor takes a **share of the cost savings**
- **Long** contracts
- Contract **must be managed** over a long period of time

EPC – Pathway to zero carbon

An **Energy Performance Contract**:

- Provides the **contract structure** for a **planned**, phased **decarbonization** of our buildings
- This allows for the **phasing out of existing assets** (boilers, CHPs, etc.) that may be relatively recent installations and have a structured plan for replacement
- **EPC contractor** (or ESCo) can prepare **an implementation plan** with the building owner so that a **structured investment plan** put in place
- Single **procurement** competition!

EPC – Pathway to zero carbon

Why use an **Energy Performance Contract**?

- A **structured pathway** to zero carbon
- A **Decarbonization Partnership**
- Contract and **guaranteed CO2 reduction**
- **Simplify and de-risk** a complex and dynamic process

DCC Leisure Centres EPC

- Started with a request to help develop a specification for a CHP
- Finished as an EPC for three Leisure Centres
- **Now in <u>year 8</u> of an 8 year contract**

DCC Leisure Centres EPC

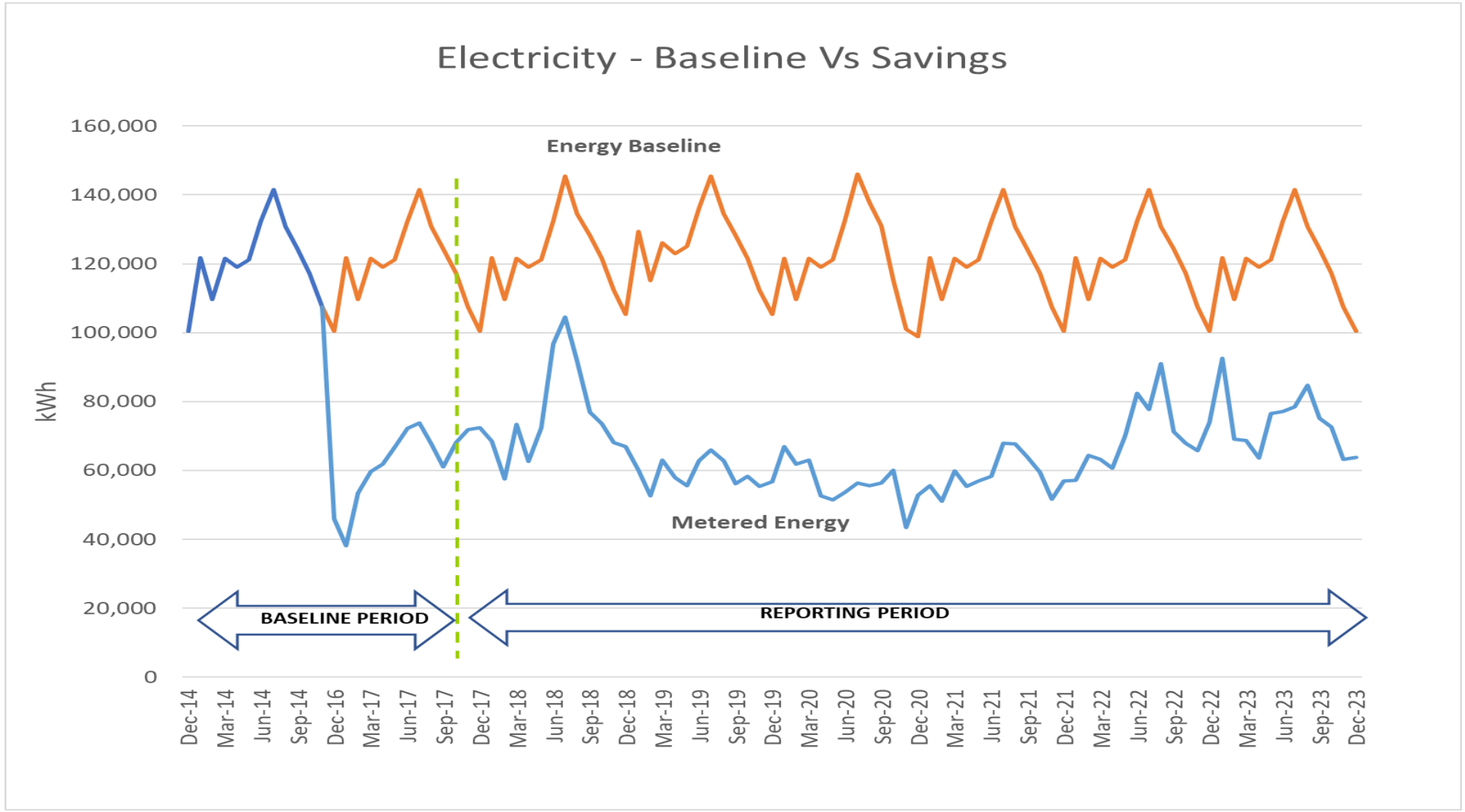
MAIN CONTRACT TERMS

• Contract Duration	**8 years**
• Capital Investment	**€670,230**
• Potential Cost Savings (€/year)	**€164,568**
• Potential Annual Energy Savings (%)	**38%**
• Guaranteed Energy Savings by ESCo (%)	**7%**
• Guaranteed Cost Savings by ESCo (€)	**€33,000**
• Reduction of CO_2 emissions (tCO_2/year)	**639 tCO_2**

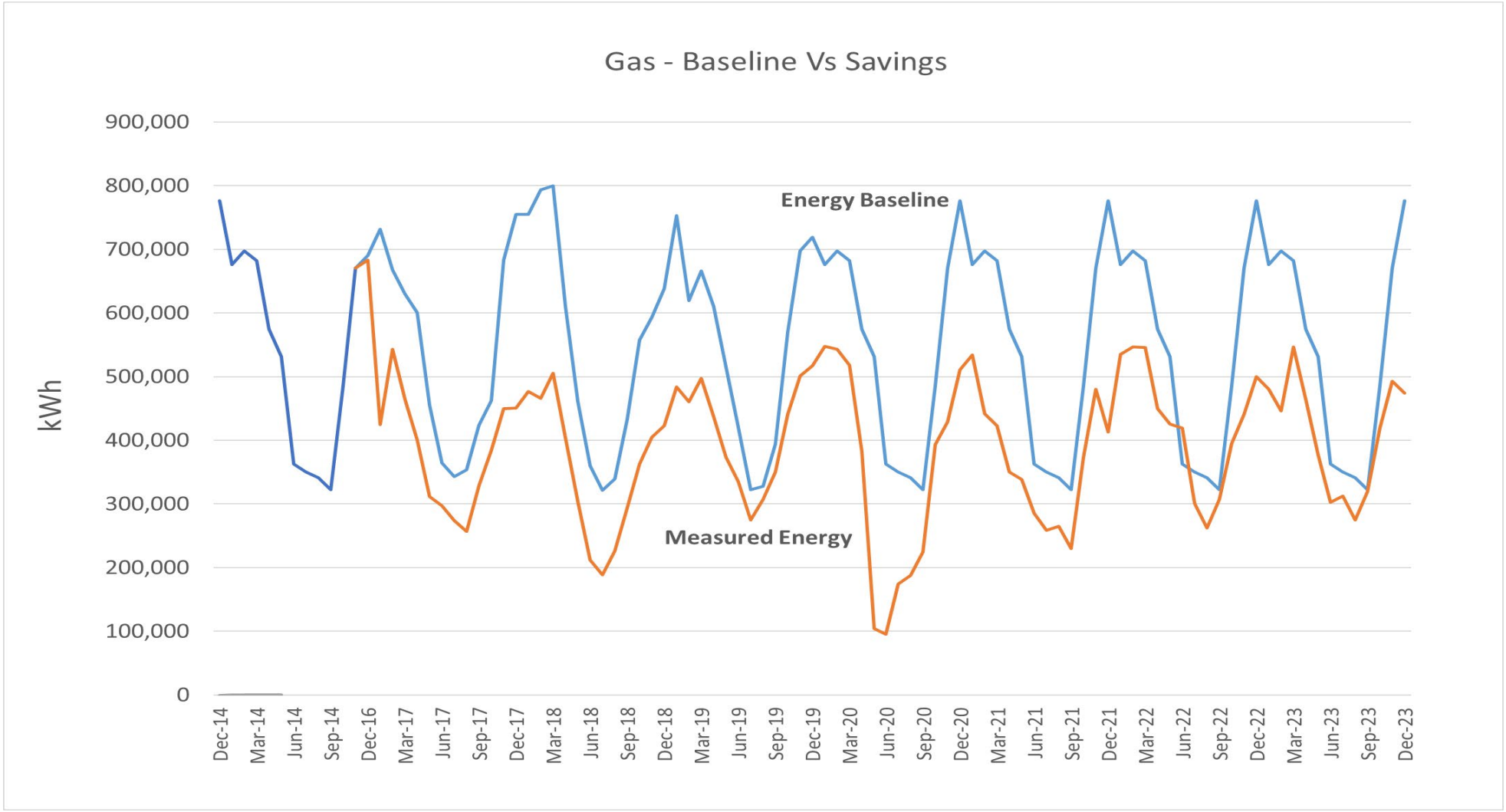
Installed measures

- New CHP & existing CHP overhaul
- Some new gas boilers
- LED lighting
- BMS, controls and invertors
- Pumps / speed controls / transducers on constant temperature pumps
- Install dampers on AHUs and bypass for Pool and Changing Village AHUs
- Remove redundant DX coils from Pool AHU
- Remove / isolate 3 port valves and re-commission constant temp circuits for variable volume
- Install Heat Recovery on AC installation
- LPHW integration of CHP plant

Project before & after



Project before & after



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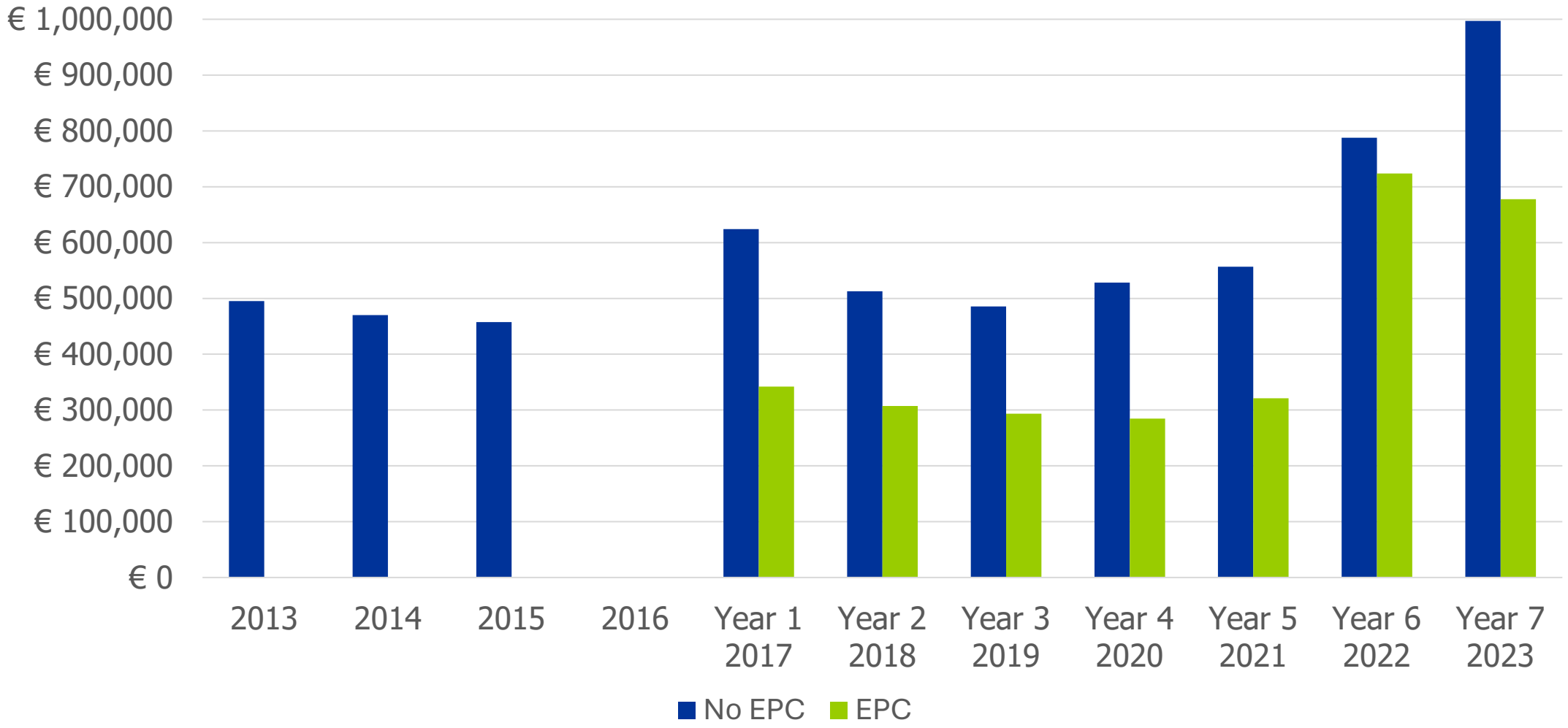
Project before & after

Codema
Dublin's Energy Agency



Business as usual vs EPC

Business as usual – No EnPC project	Total over 8 years
Energy costs (electricity and gas)	€5,489,732
Maintenance & Repair (excluding replacement costs)	€1,024,078
Total spend	**€6,513,810**

EnPC Project Implemented	Total over 8 years
Energy costs (electricity and gas)	€3,627,785
EPC Service Payment (Performance based payments to ESCo)	€1,007,642
Routine Repair Costs	€272,840
Total spend	**€4,908,267**

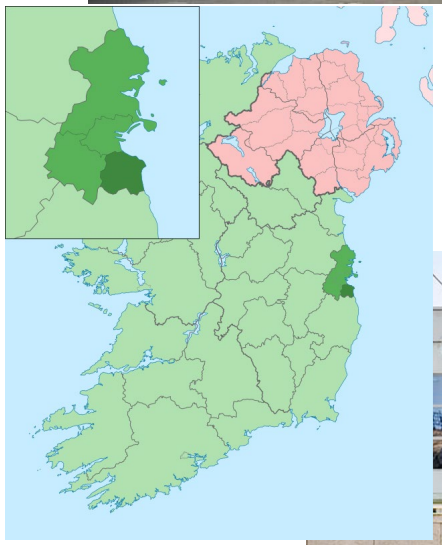
Current EU Project

DeliveREE

1. Create a **Project Implementation Unit** and **scalable delivery model** that can be replicated across Ireland and Europe
2. Deliver **9 signed** Energy Performance Contracts:
   - Value **€20.4m** (**€10.2** from **private finance**)
   - **3.8 ktCO2** and 24GWh **savings**
   - Involving over **140** Local Authority Buildings

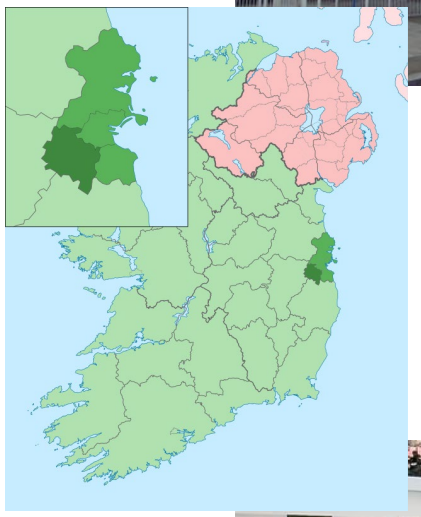
Projects – DLR EPC

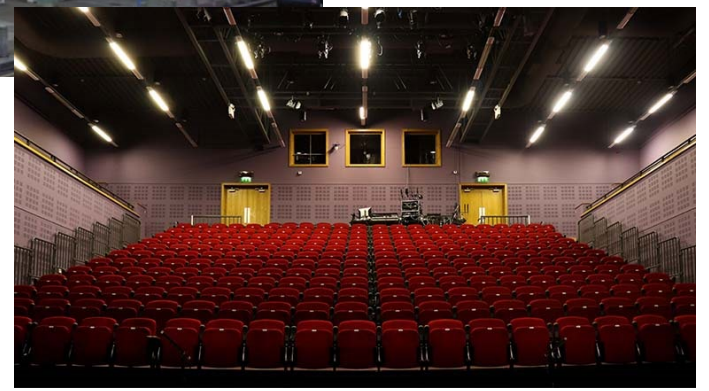
- **Project Type:** Energy Performance Contract
- **Client:** Dún Laoghaire-Rathdown County Council
- **Project value:** €3.1 million
- **Project scope:**
  - 3 buildings: County Hall, large library, theatre
  - Holistic upgrades including building fabric, heat pump, BMS, LED, Solar PV etc.
- **Current status:**
  - Preferred bidder selected
  - Detailed audits and design in progress



Projects – SDCC EPC

- **Project Type:** Energy Performance Contract
- **Client:** South Dublin County Council
- **Project value:** €2.5 million
- **Project scope:**
  - 5 buildings: Civic Offices, smaller offices, theatre, 2 leisure centres
  - Holistic upgrades including building fabric, heat pump, BMS, LED, Solar PV etc.
- **Current status:**
  - Currently on etenders
  - PQQ return date – 4th April





Projects – Arthurstown Landfill

Small Scale Solar PV

- **Project Type:** Energy Performance Related Payment (works contract + guarantee clause)
- **Client:** South Dublin County Council
- **Project value:** €275,000 +€27,500
- **Project scope:** ~200kW Small Scale Solar PV
- **Current Status:**
  - Tender documents prepared
  - Planning application in preparation

Large Scale Solar PV

- **Project Type:** Feasibility Study
- **Client:** South Dublin County Council
- **Project value:** TBC (approx. €6 mill)
- **Project scope:** ~5 MW Large Scale Solar PV
- **Current Status:**
  - Feasibility complete, waiting on final report

Projects – FCC Supply Contracts

Solar PV

- **Project Type:** Energy Supply Contract
- **Client:** Fingal County Council
- **Project value:** approx. €460k
- **Project scope:** ~320kW of solar PV on three buildings
- **Current Status:**
  - Tender documents finalized
  - Approved for publication on etenders

Biomass Boiler

- **Project Type:** Energy Supply Contract
- **Client:** Fingal County Council
- **Project value:** approx. €500k
- **Project scope:** Biomass boilers for 4 buildings
- **Current Status:** Feasibility

Projects – Mid East Energy Unit Leisure Centre upgrade

- **Project Type:** Energy Performance Contract
- **Client:** Meath, Kildare, Louth and Wicklow County Councils
- **Project value:** €5 million
- **Project scope:**
  - 9 Leisure Centres (with Swimming Pools)
  - Holistic upgrades including some fabric, heat pump, BMS, LED, Solar PV, etc
- **Current Status:**
  - Tender documents drafted
  - Finalizing procurement strategy

New Procurement

- 1. **Pre-Qualification** (short list to 3)
- **2. Invitation to Competitive Dialogue** – the 3 shortlisted contractors are invited to
  - audit the buildings and propose solutions.
  - present these via an **Outline Solutions Report** and presentations to the client.

- **3. Invitation to Tender** - Based on the outcome of the dialogue phase:
  - the client issues **their final set of output requirements** for the project
  - the contractors bid based on their audit and proposed solutions.
  - **No detailed design has been completed at this stage, the costs are high level (with risk premium built in)**

New Procurement

- 4. **Preferred Bidder and Project Development Agreement (PDA)**
  - A **Preferred Bidder** is selected on the agreement that the final costs cannot be greater than the tendered costs (costs should reduce as the risk premium is reduced by the final design)
  - A **PDA** is signed with the Preferred Bidder under which they complete the final design for a fixed cost and a fixed set of outputs.
- 5. **Contract Award** (or relationship ends)
- 6. **Works** phase
- 7. **Service and Operation** phase

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Energy Contracting Support Scheme

ECSS aims to assist organisations who wish to achieve energy savings / decarbonisation via the implementation of EPCs.

Grant aims to assist organisations with **external consultancy costs** associated with delivery of an EPC, e.g. financial, legal or technical expertise. Capital costs not covered.

Available to Public Sector and Private business. Not available to the residential sector.

SEAI are open to applications all year round.

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Energy Contracting Support Scheme

Types of Projects

- **Energy efficiency / decarbonisation projects** that set organisations on a trajectory to net zero.
- Work packages comprising **multiple facilities** (bundling) and/or **multiple technologies**
- Projects that contribute positively to the energy contracting **knowledge base** and support the energy contracting **supply chain**.

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Energy Contracting Support Scheme

Types of Contract

- Energy Performance Contracts (EPCs). Sample contract available here
- Energy Performance Guarantees (EPGs) - Traditional contract with **energy savings clause** included (e.g. as Liquidated & Ascertained Damages) if agreed savings not delivered.
- Local Energy Supply Contracts (LESCs) – ESCo owns plant equipment and is paid by client for provision of energy (e.g. heat).

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Energy Contracting Support Scheme

Eligible Activities

- Energy audits
- Feasibility studies / EPC suitability testing
- Specialist reports
- Business case development
- Evaluation of procurement options

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Energy Contracting Support Scheme

Funding Amounts

Successful applicants will receive up to **75% of eligible costs**, to a maximum of

- **€50,000** for Energy Performance Contracts (EPCs) / Local Energy Supply Contracts (LESCs)
- **€25,000** for Energy Performance Guarantees (EPGs)

Costs up to contract award only.

Two milestone payments – MS1 pre-tender documentation / MS2 at point of contractor appointment.

Energy Contracting Support Scheme

Application Documents

- Completed ECSS application form
- Completed Declarations re. De Minimus, Eligibility and Financial Resources

All forms can be downloaded from SEAI's ECSS webpage

Completed application documents should be uploaded to online portal via link provided on webpage.

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Energy Contracting Support Scheme

Assessment Criteria

- **EPC delivery route** - demonstrated commitment & capability to progressing the project via pay-for-performance type contract
- **Programme** - commitment to release an invitation to tender, select a preferred bidder or award a contract for the project within **15 months** of Letter of Offer
- **Quality & ambition** - project scope, objectives and technical elements
- **Magnitude of savings** - expected energy/carbon savings
- **Innovation & capacity building** – contribution to EPC knowledge base, capacity building for energy contracting and development of the supply chain

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EPC Facilitator Training

EPC Facilitators

- Initial assessment of **project suitability** for EPC
- Initial assessment of **potential energy savings** and investment required
- Initial technical analyses
- Client support client during **procurement** process
- Provide **advice & guidance** up to contract award

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EPC Facilitator Training

SEAI's free two-day **EPC Facilitator training course** available to all energy professionals.

Training dates scheduled for May and October 2024.

Forthcoming **SEAI Register** of EPC Facilitators. Appointment of registered facilitator to become pre-requisite for ECSS eligibility.

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EPC Facilitator Training

Course Overview

Module 1	Identifying EPC project opportunities
Module 2	Selling the added value of EPC & presenting the business case to EPC Clients
Module 3	Evaluating and managing risk
Module 4	Project financing & Financial Evaluation
Module 5	Legal and contractual requirements for EPC and guaranteed savings
Module 6	Procurement of EPC
Module 7	Measurement and Verification
Module 8	Conclusion and Register of EPC facilitators

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Thank You

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