DeliveREE
Energising Change

FREE WEBINAR

HOW TO DEVELOP AN ENERGY PERFORMANCE CONTRACT (EPC) PROJECT

11:00 AM – 12 PM
MONDAY 7TH APRIL, 2025

Codema
Dublin's Energy Agency

DeliveREE
Energising Change

Energy Performance Contracting for Public buildings in Ireland

Joe Hayden, Executive Manager

April 2025

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101032833

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Dublin's Energy Agency

CODEMA TEAM

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

OUR SERVICES

Codema
Dublin's Energy Agency

ENERGY MONITORING & MANAGEMENT

ENERGY AWARENESS

ENERGY POLICY & PLANNING

PROJECT MANAGEMENT

MATCH FUNDING

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.

EasyPro

european energy service initiative 2020

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

PROJECT IMPLEMENTATION EXPERIENCE

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- Codema has facilitated:
  - **4 signed Energy Performance Contracts**
  - Include **15** public buildings
  - **8-year** contracts
  - **€3,066,000** Capital investment
- *Tallaght District Heating System using an* **Energy Supply Contract**
  - **€ 7,972,000** Capital investment (**10 year** contract)
- Current Pipeline:
  - **1 EPC contracts** currently **at Tender stage** (8 buildings)
  - **6 EPC projects** planned to go to **tender in 2025** (13 buildings, mainly leisure centers)

DeliveREE

guarantEE
Building Energy Services in Europe

Interreg
North-West Europe
HeatNet NWE
European Regional Development Fund

EESI 2020
european energy service initiative 2020

PROJECT FUNDING

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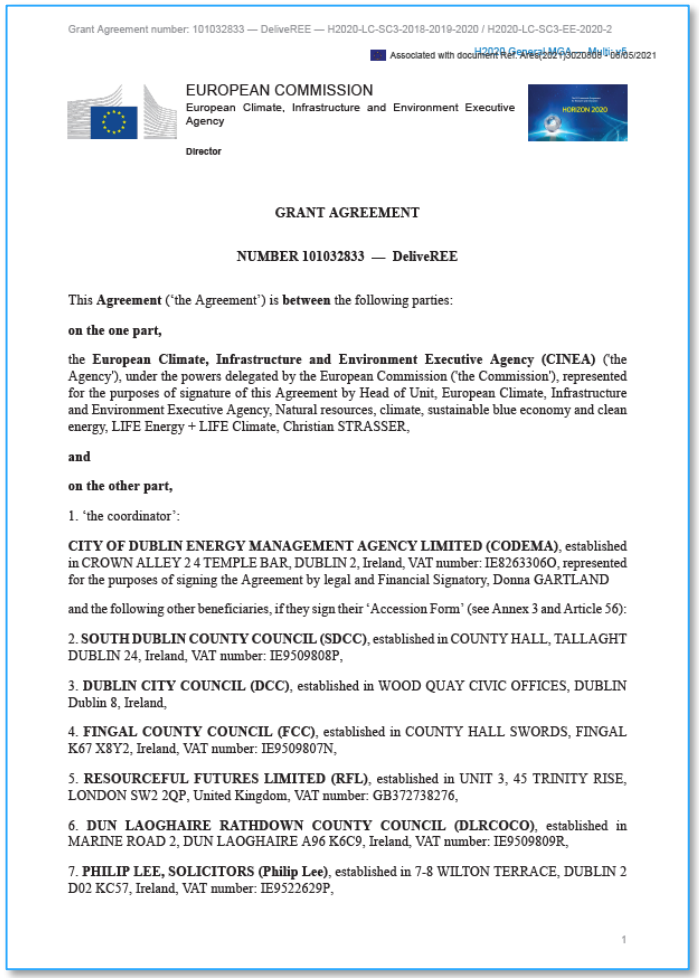
guarantEE
Building Energy Services in Europe

Interreg
North-West Europe
HeatNet NWE
European Regional Development Fund

EESI 2020 european energy service initiative 2020

- **Funding** for **these projects** was:
  - ✓ €4.3m **(38%)** from the **Private** sector via ESCos
  - ✓ €5.5m **(48%)** from **grants**
  - ✓ €1.6m **(14%)** from the **Local Authority**
- Funding arrangement made possible by Energy Performance Contracting

DeliveREE PROJECT



Grant Agreement number: 101032833 — DeliveREE — H2020-LC-SC3-2018-2019-2020 / H2020-LC-SC3-EE-2020-2

Associated with document Ref. Ares(2021)3020809 - 06/05/2021

EUROPEAN COMMISSION

European Climate, Infrastructure and Environment Executive Agency

Director

GRANT AGREEMENT

NUMBER 101032833 — DeliveREE

This **Agreement** ('the Agreement') is **between** the following parties:

on the one part,

the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('the Agency'), under the powers delegated by the European Commission ('the Commission'), represented for the purposes of signature of this Agreement by Head of Unit, European Climate, Infrastructure and Environment Executive Agency, Natural resources, climate, sustainable blue economy and clean energy, LIFE Energy + LIFE Climate, Christian STRASSER,

and

on the other part,

1. 'the coordinator':

CITY OF DUBLIN ENERGY MANAGEMENT AGENCY LIMITED (CODEMA), established in CROWN ALLEY 2 4 TEMPLE BAR, DUBLIN 2, Ireland, VAT number: IE8263306O, represented for the purposes of signing the Agreement by legal and Financial Signatory, Donna GARTLAND

and the following other beneficiaries, if they sign their 'Accession Form' (see Annex 3 and Article 56):

2. **SOUTH DUBLIN COUNTY COUNCIL (SDCC)**, established in COUNTY HALL, TALLAGHT DUBLIN 24, Ireland, VAT number: IE9509808P,

3. **DUBLIN CITY COUNCIL (DCC)**, established in WOOD QUAY CIVIC OFFICES, DUBLIN Dublin 8, Ireland,

4. **FINGAL COUNTY COUNCIL (FCC)**, established in COUNTY HALL SWORDS, FINGAL K67 X8Y2, Ireland, VAT number: IE9509807N,

5. **RESOURCEFUL FUTURES LIMITED (RFL)**, established in UNIT 3, 45 TRINITY RISE, LONDON SW2 2QP, United Kingdom, VAT number: GB372738276,

6. **DUN LAOGHAIRE RATHDOWN COUNTY COUNCIL (DLRCOCO)**, established in MARINE ROAD 2, DUN LAOGHAIRE A96 K6C9, Ireland, VAT number: IE9509809R,

7. **PHILIP LEE, SOLICITORS (Philip Lee)**, established in 7-8 WILTON TERRACE, DUBLIN 2 D02 KC57, Ireland, VAT number: IE9522629P,

1

- We developed the concept, **prepared the application** and assembled the consortium
- Successful application for H2020 **Project Development Assistance** funding **(€1.17m)**
- Only 5 projects in Europe funded
- **DeliveREE** - Delivery of Renewable and Energy Efficiency projects across the Dublin region

Our Solution – DeliveREE

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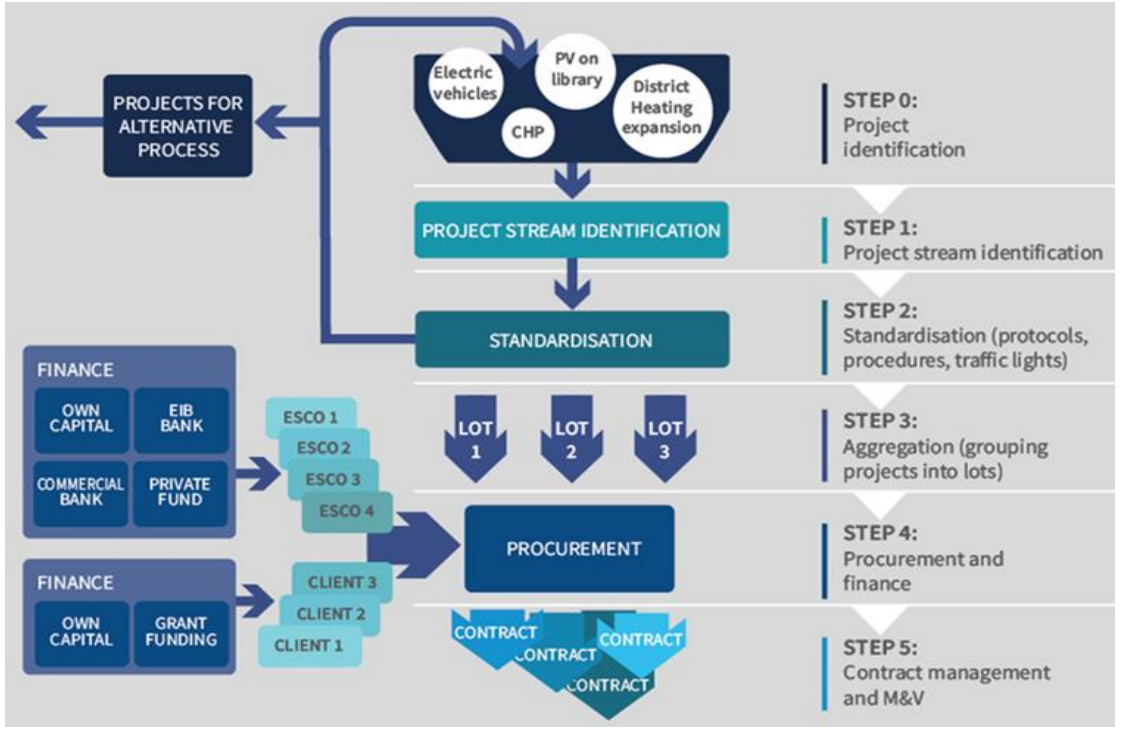
DeliveREE

1. Create a Project Implementation Unit and scalable delivery model that can be replicated across Ireland and Europe **(WP3)**
2. Deliver 9 signed Energy Performance Contracts **(WP4)**

Our Solution – DeliveREE

- Systematic approach to building retrofits
- ‘One stop shop’ Project Implementation Unit
- Standardises project development
- Aggregates Projects (holistic building decarbonization)
- Only uses Energy Performance Contracts
- Facilitates Private Finance

DeliveREE



DeliveREE – The Aim

Initial Project Pipeline:

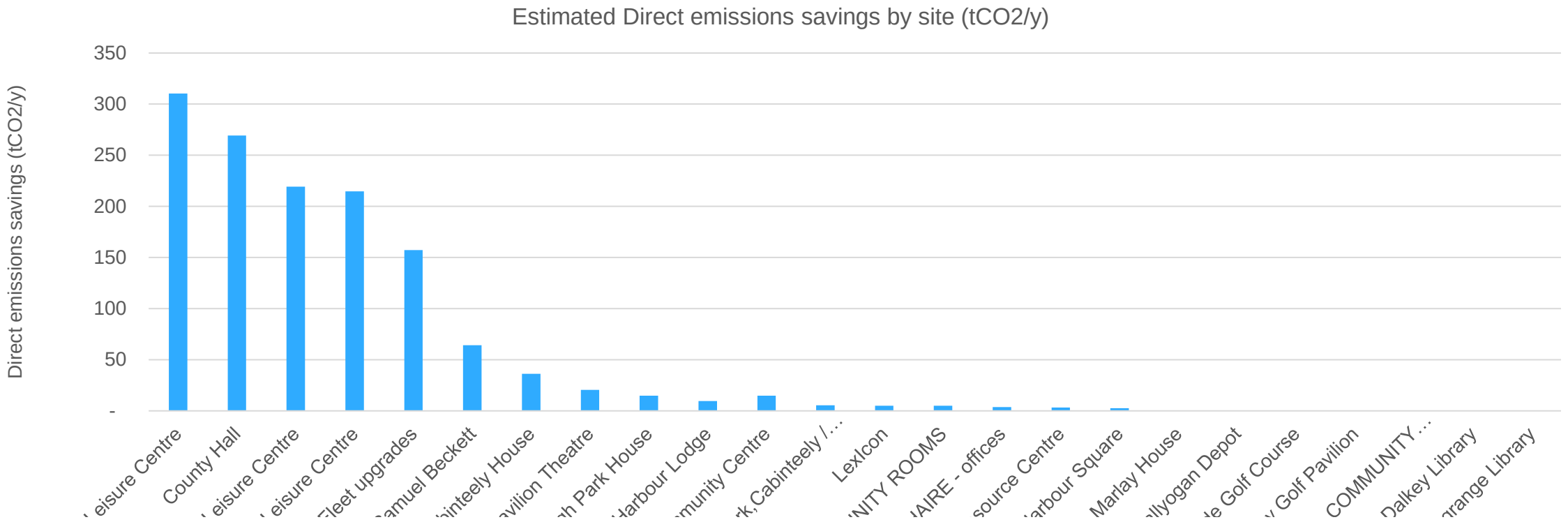
1. We identified pipeline of **19 projects**.
2. Included **140 Local Authority buildings**
3. Estimates CAPEX **- €20.4m**
4. Estimates savings – **29%** (3,977 tCO_2)
5. **Funding** structure: 10-20% project owner, 40-50% grant and 40-50% private financing

Location (area, town...)	Type of investment[1]	Description of the investment	Quanti-fication [Buildings]	Current energy consump-	Energy savings (%)	Renewable energy production	Energy investment costs
DCC	Building Energy Efficiency	1 building for new CHP and LED lighting - Civic Offices	1	10,620,529	22%	-	€730,540
DCC	Building Energy Efficiency	Swan Leisure Centre for energy efficiency measures	1	4,330,476	26%	-	€367,450
DCC	Building Energy Efficiency	30 buildings for energy efficiency measures (LED, HP, PV)	30	6,446,617	20%	-	€1,630,000
DCC	Building Energy Efficiency	6 Fire Stations for energy efficiency	6	3,390,166	25%	-	€500,386
DCC	Building Energy Efficiency	2 Swimming Pool for Energy Efficient measures - Sean McDermot and	2	2,752,757	25%	-	€245,794
DLR	Building Energy Efficiency	4 buildings for energy efficiency measures - County Hall, Ballyogan depot, Harbour Square and	4	7,000,000	45%	-	€1,835,683
DLR	Building Energy Efficiency	3 Leisure Centres for Energy Efficient refurbishment - Meadowbrook, Loughlinstown and Monkstown	3	6,996,140	36%	-	€600,000
DLR	Building Energy Efficiency	50 buildings for energy efficiency measures (LED, HP, PV)	50	4,704,711	16%	-	€2,024,311
FCC	Building Energy Efficiency	3 buildings for energy efficiency measures - Swords County Hall, Droichet A Library Building, Grove Road	3	6,245,421	30%	-	€1,714,576
FCC	Building Energy Efficiency	13 buildings for energy efficiency measures (LED, HP, PV)	13	4,070,240	20%	-	€750,000
FCC	Building Energy Efficiency	6 Heritage buildings for energy efficient Refurbishment	6	2,106,363	17%	-	€416,116
FCC	Electrical Vehical Charging	EV charging hubs installed at 3 of the depots in Fingal (2 no 50kW DC fast chargers and 16 no 22kW AC chargers)	2	-	-	-	€100,000
SDCC	Building Energy Efficiency	2 Leisure Centres for Energy Efficient refurbishment - Clondalkin and	2	6,416,025	29%	-	€495,000
SDCC	Building Energy Efficiency	2 community buildings for energy efficiency measures including a theatre and one	2	674,085	25%	-	€166,351
SDCC	Building Energy Efficiency	2 Office buildings for energy efficient measures including County Hall and Clondalkin offices	2	5,667,651	13%	-	€718,225
SDCC	Building Energy Efficiency	13 buildings for energy efficiency measures (LED, HP, PV)	13	2,144,262	30%	-	€230,000
SDCC	Renewable Energy	Arthurstown landfill renewable energy project - 75kW zero-export project to cover the base load of the leachate	1	1,465,000	12%	-	€105,000
SDCC	Renewable Energy	Arthurstown landfill - 5MW commercial PV farm, developed as a Community-led	0	-	-	4,440	€6,000,000
SDCC	Electrical Vehical Charging	EV charging hubs installed at 3 of the depots	1	-	-	-	€100,000
SDCC	District Heating	SDDH Extension - to connect Civic Theatre and FM Group to DH system	2	960,000	72%	-	€605,271
Total/average			146	85,500,000	29%	4,440	€19,503,262

DeliveREE – Where we are Today!

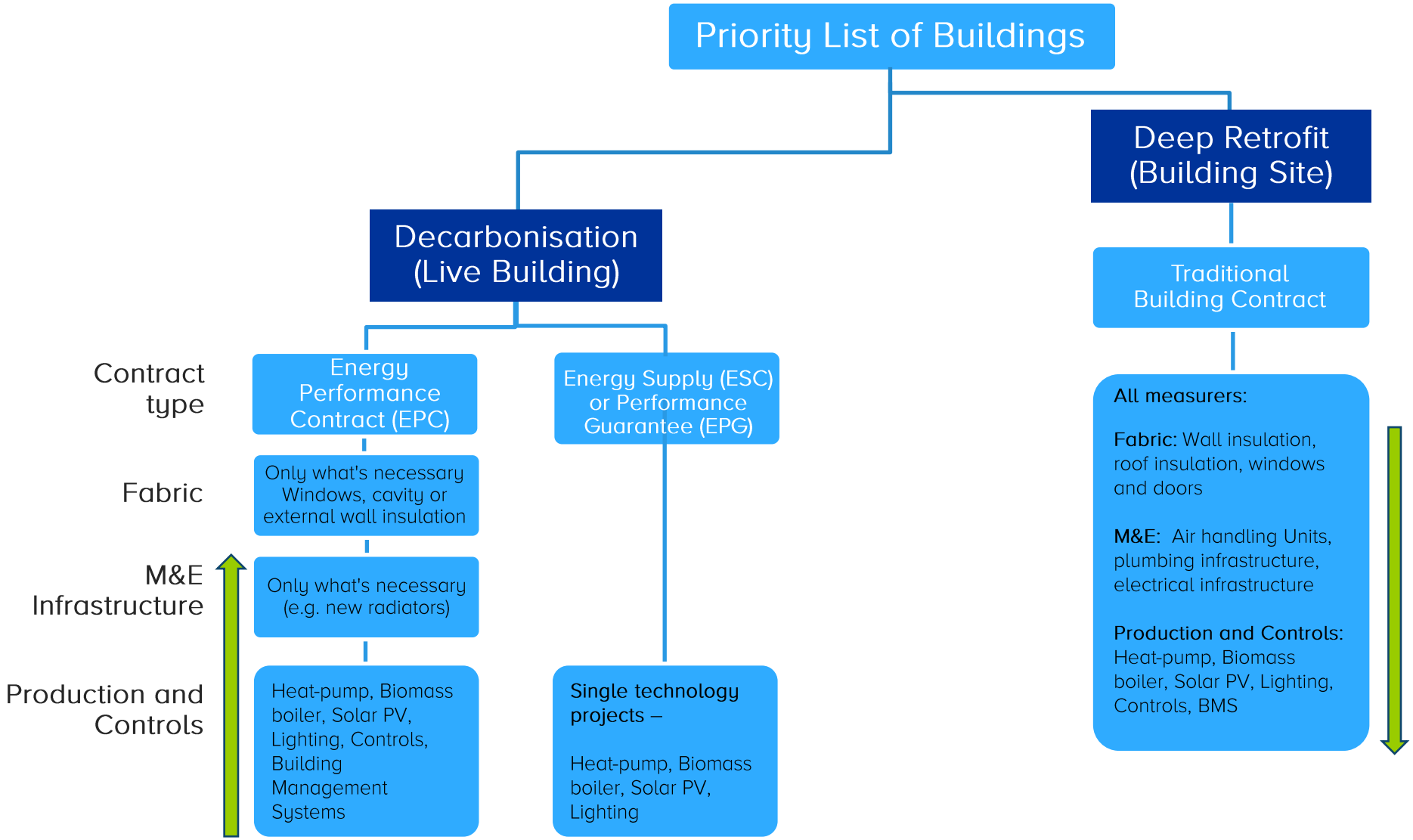
- When we prepared the proposal, our thinking was:
  - **energy efficiency** and decarbonization by association
- Today, the approach is:
  - **decarbonization** and energy efficiency by association
- The **consequence** is we **sacrifice cost savings**

Learning 1: Redefine The Project Pipeline



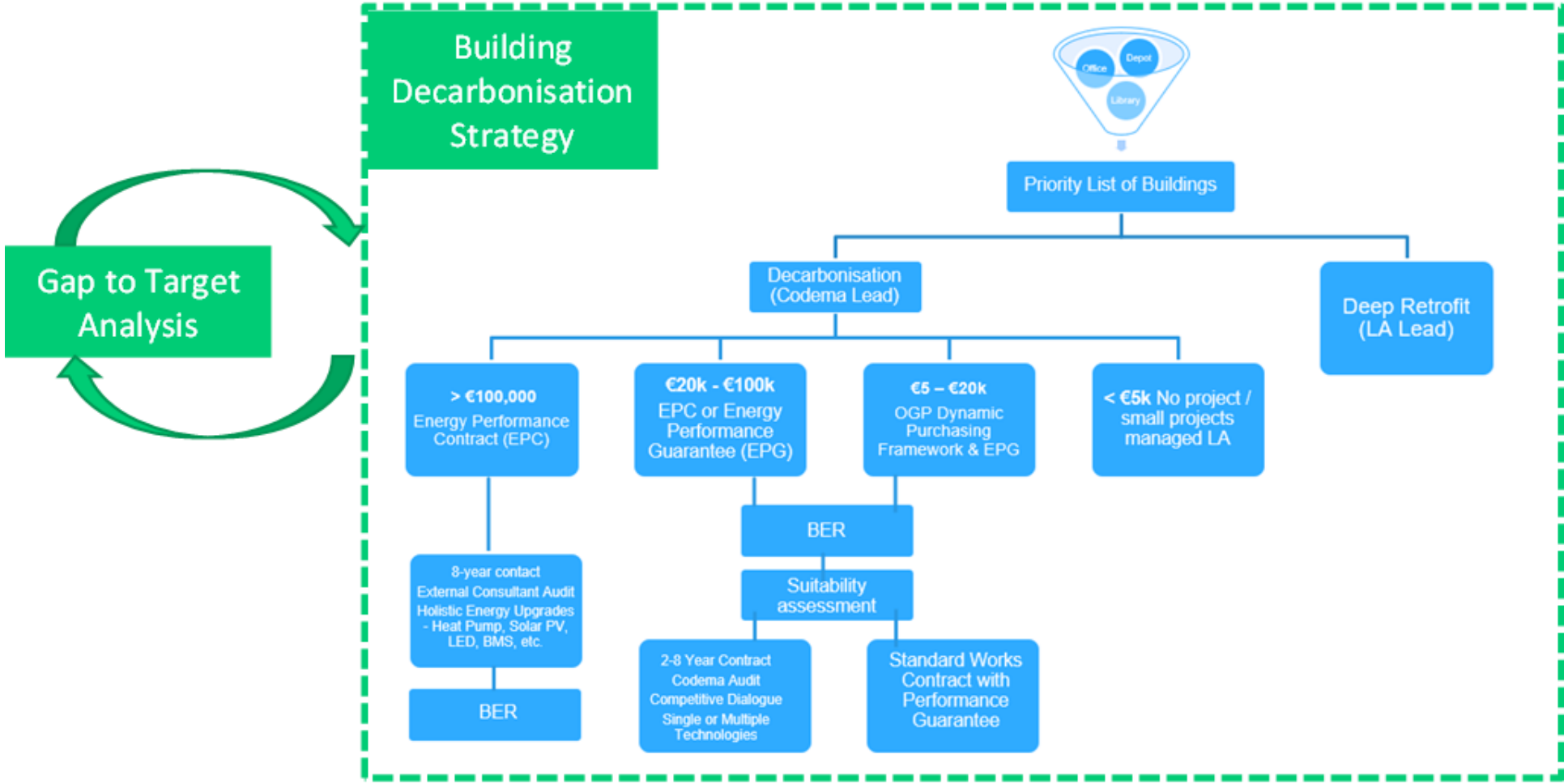
- This reshaped our pipeline from 140 buildings **to approximately 40**
- But **deeper measures** with the aim of **full decarbonization**

Learning 2: Communication – Decarbonization Or Deep Retrofit



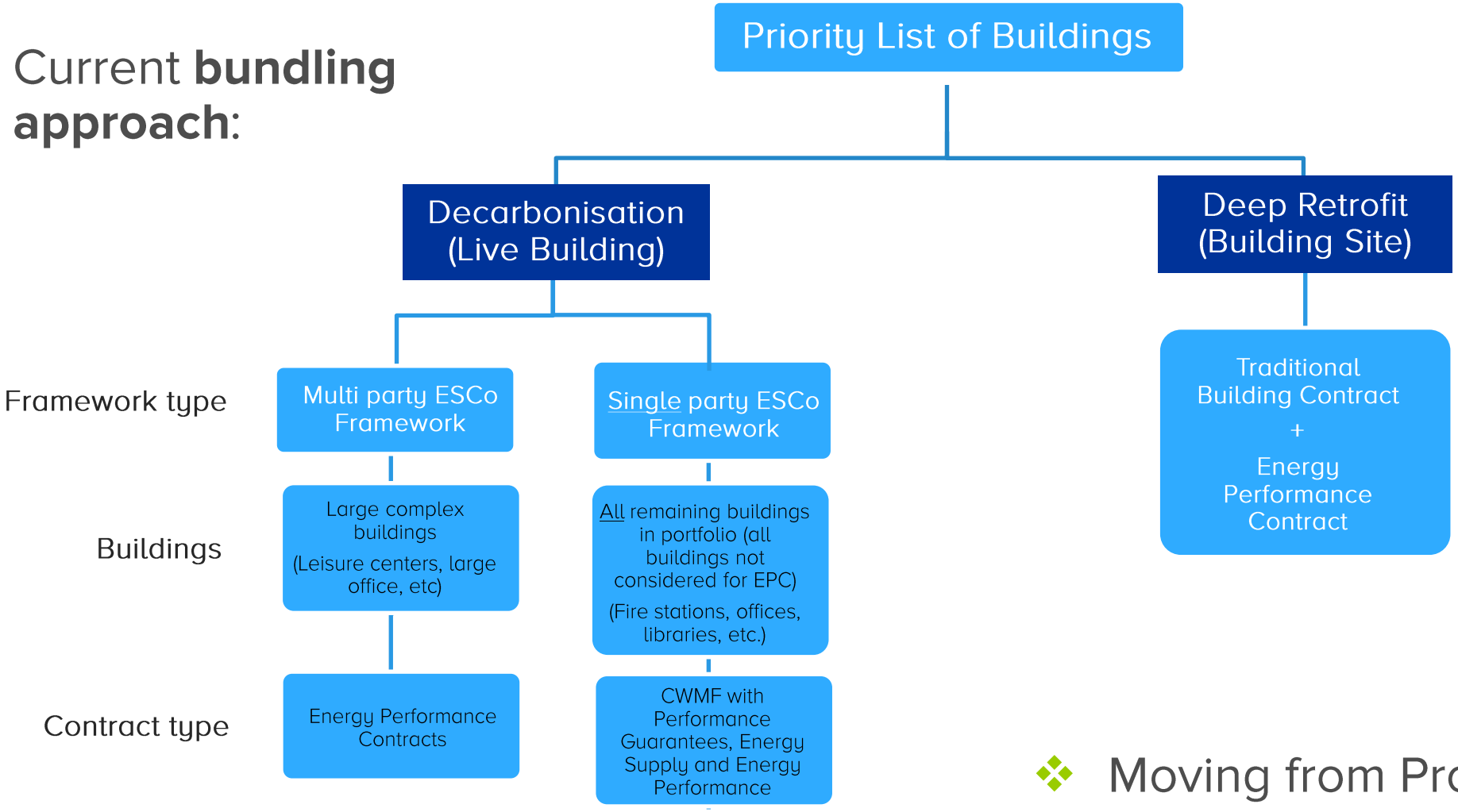
Learning 3: Project Bundling

- This is where we started:



Learning 3: Project Bundling

- Current **bundling approach**:



- Moving from Projects to a **Programme of Works**

Learning 4: Procurement – Presenting Projects to the Market

- We **assumed we could repeat** what we had done before – **first competition** tendered under DeliveREE **collapsed,** why?
- Shift in focus from Energy Efficiency to **Decarbonization means:**
  - Higher project **capital cost** (heat pumps)
  - Higher project **risk** (technical and financial)
  - This results in a higher **bid cost** for the ESCo (design costs)
  - ESCOs **not willing** to take on this cost risk

DeliveREE – Project Development Matrix

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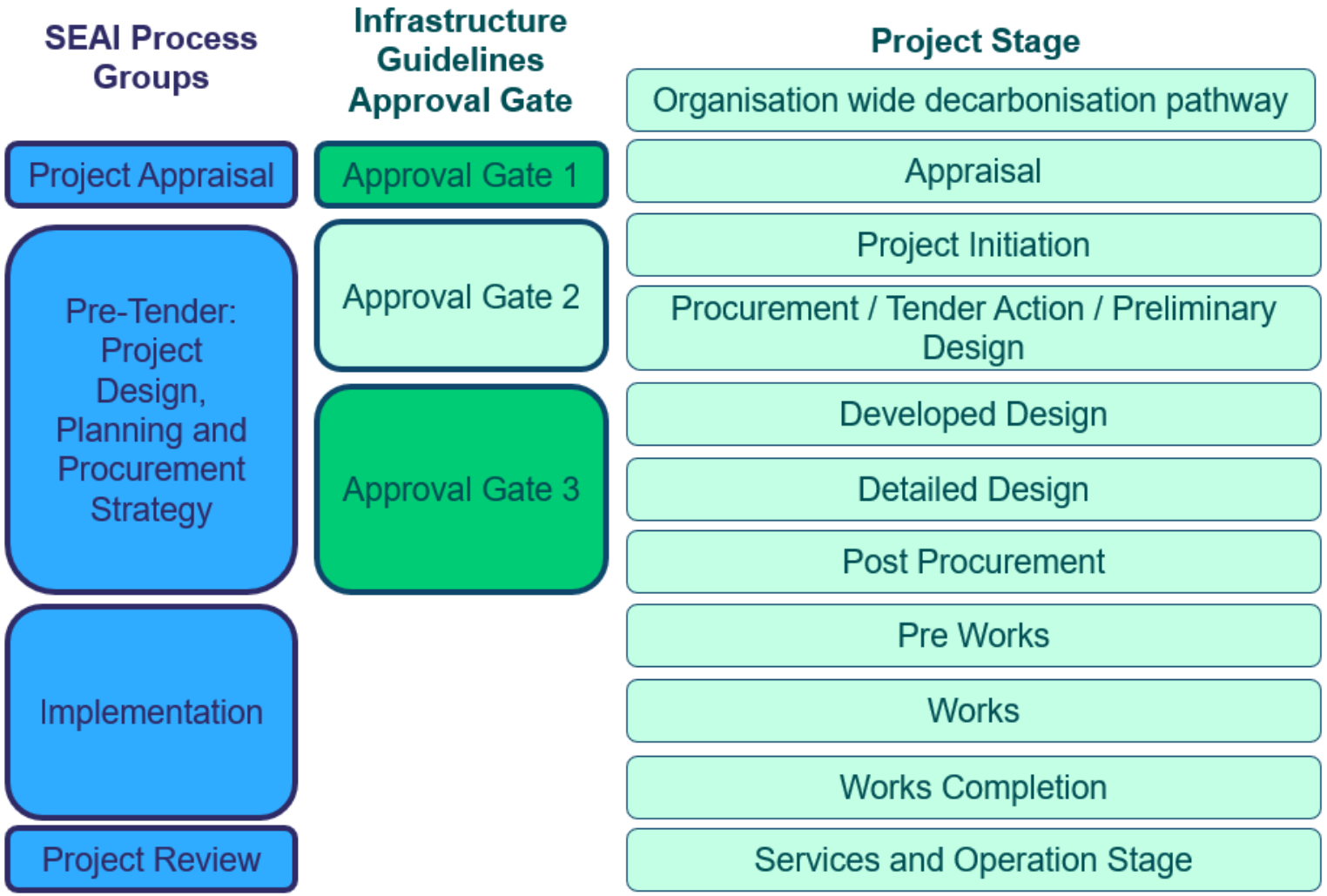

New procurement strategy (to reduce ESCo bid cost):

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1. **Pre-Qualification** (short list to 3)
2. **Invitation to Competitive Dialogue** – the 3 shortlisted contractors - Outline Solutions Report.
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 – Preliminary Design
4. **Selection of Preferred Bidder**
5. **Contract Award**
    - Contract has three phased:
        1. Detailed design (PDA)
        2. Works
        3. Services
    - final costs cannot be greater than the tendered costs
    - Costs expected to reduce as risk margin is designed out
    - Open book design process reviewed by client QS and Technical Advisor.
    - Contract can end at the end of the design phase

The Most Common Question?

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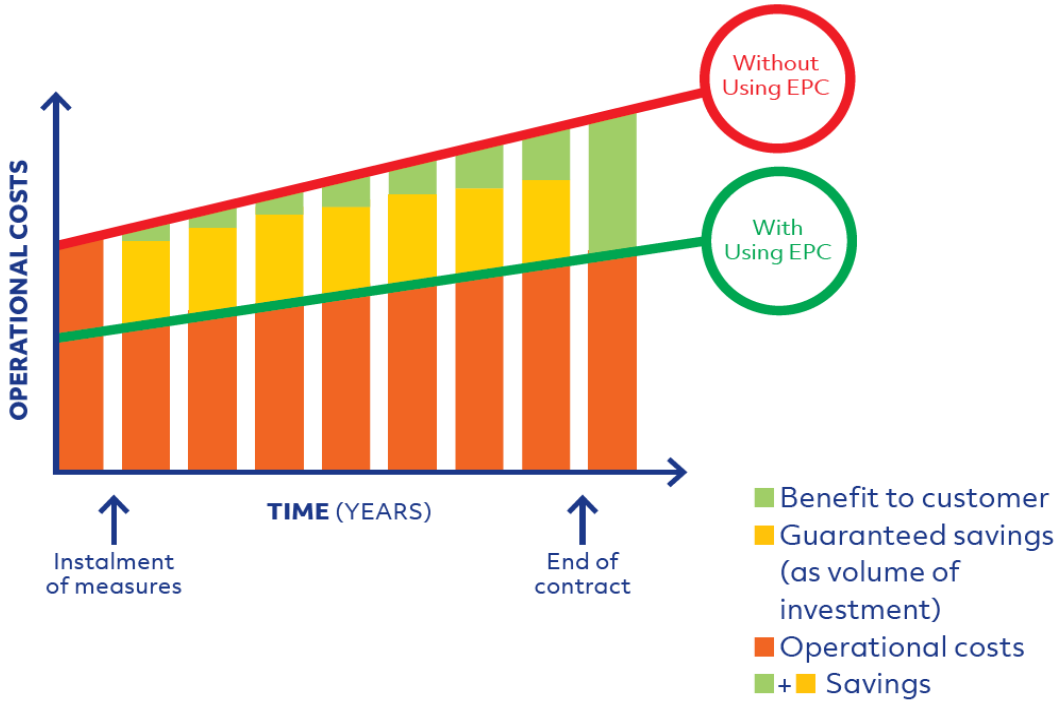
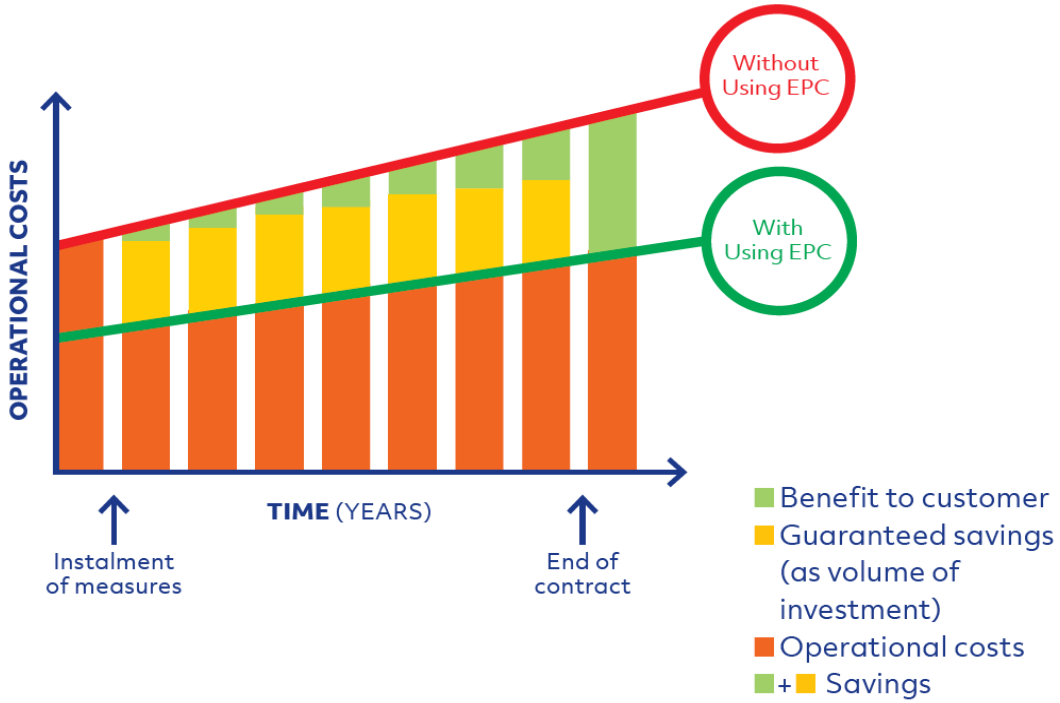
Why use Energy Performance Contracting?

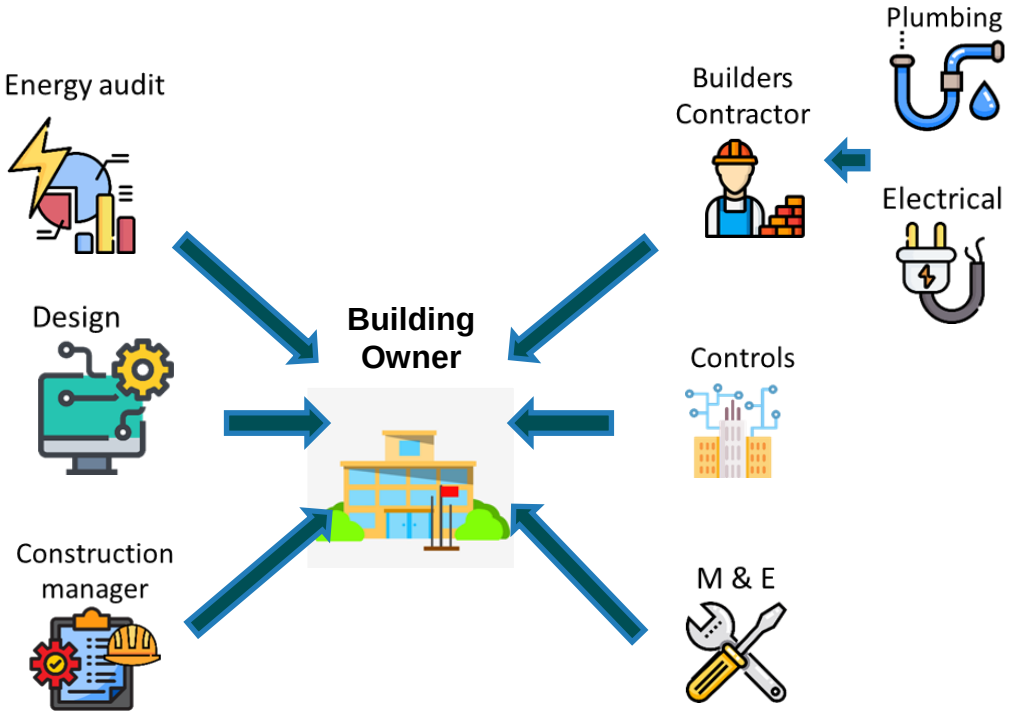


WHAT EXACTLY IS EPC?

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



TRADITIONAL CONTRACTING



Pros

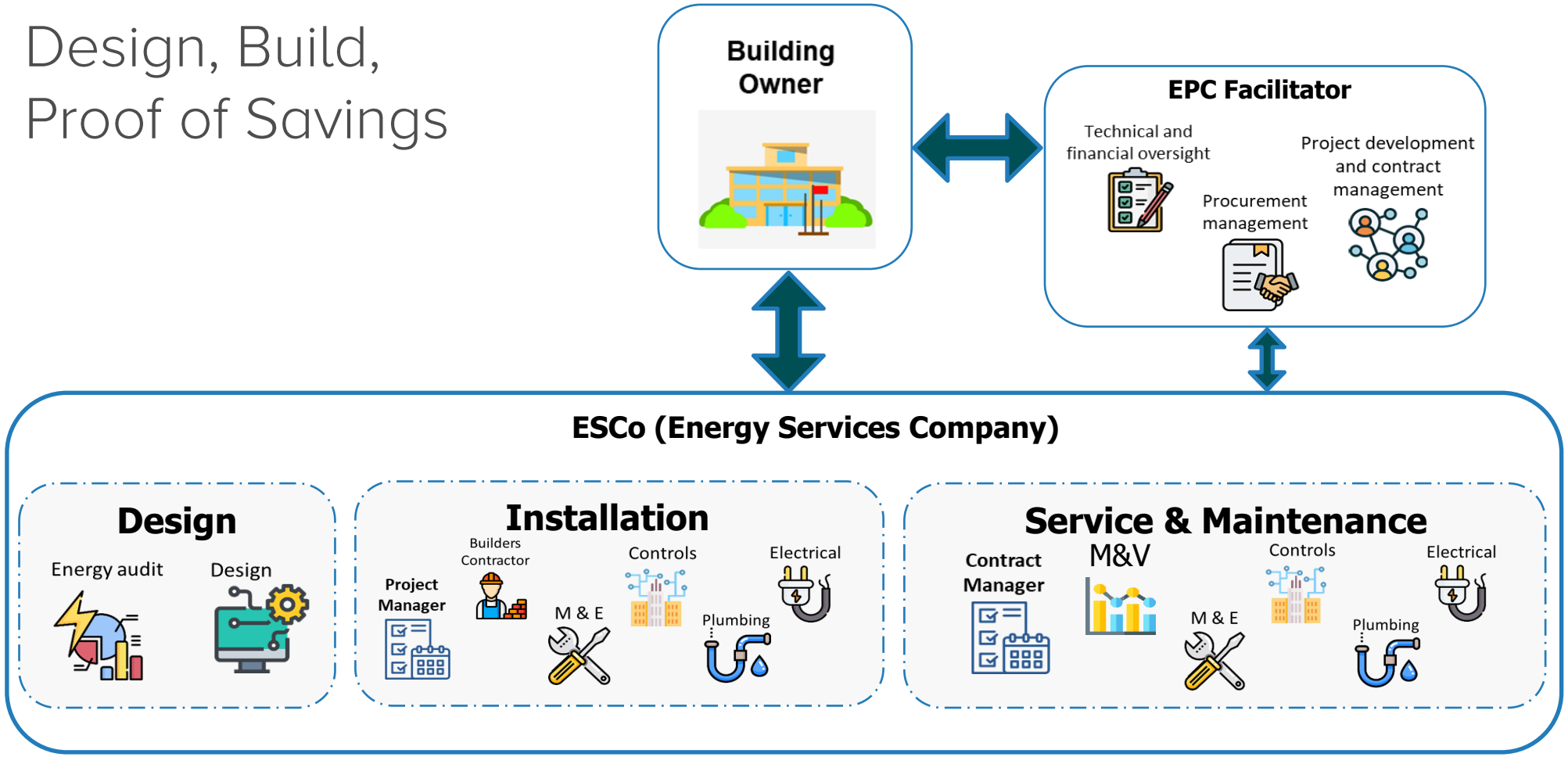
- Approach **every knows** well
- Building Owner is in **full control**, everyone answer to them

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

- Design, Build, Proof of Savings

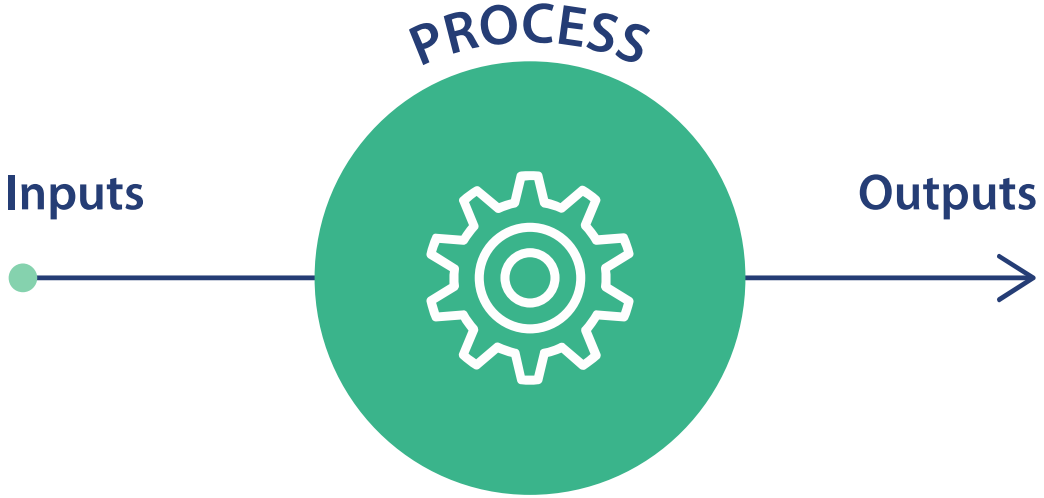


WHY USE EnPC?

Buy the outputs not the inputs

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

Inputs:

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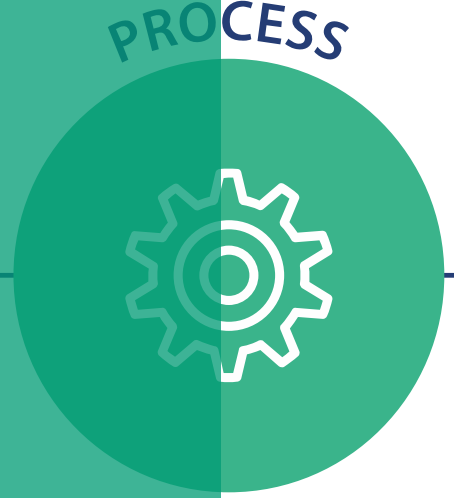
- Fuel Cells
- ……

Inputs

Traditional Contract

Works Only



Outputs

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Inputs:

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- ……

Outputs:

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- Comfortable
- Safe
- Cost efficient
- Energy efficient

Payment & Profit

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

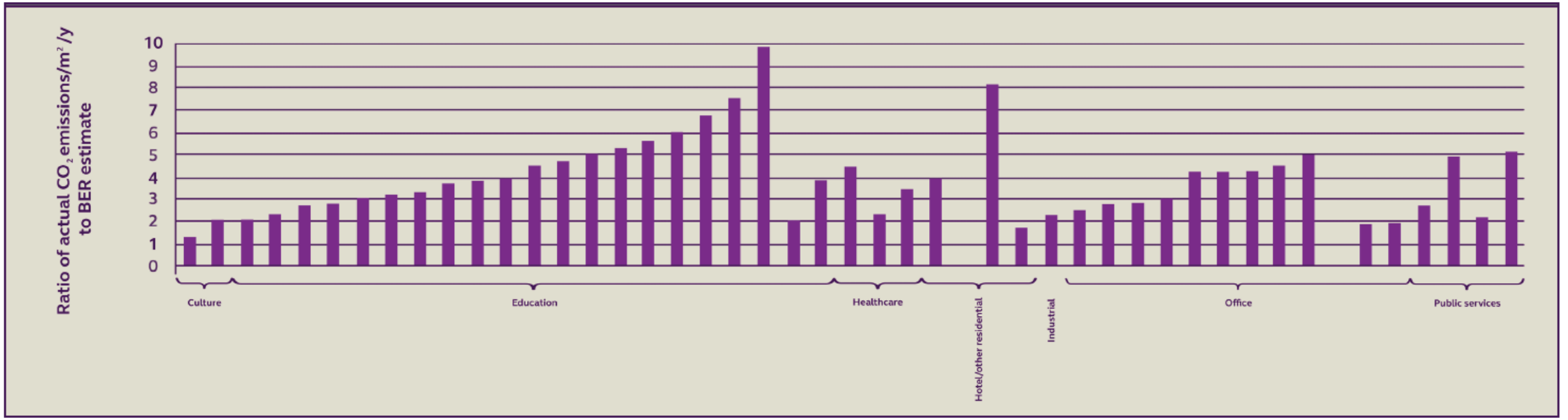

Fig. 2: Actual CO_2 emissions are almost always higher than the BER predicts (Carbon Factors: Electric 0.55kgCO_2/kWh, Gas 0.194kgCO_2/kWh, Oil 0.265kgCO_2/kWh, District heating 0.265kgCO_2/kWh, Biomass 0.025kgCO_2/kWh, from BRUKL). NB: Zero-rated buildings against one hotel and one office project are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

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

EPC – PATHWAY TO ZERO CARBON

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Performance Contracts (EPC, ESC and Performance Guarantees):

- 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
- **Reduces decision-making uncertainty** and **complexity** for Building Owner
- A Decarbonization Partnership

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How to develop a Decarbonisation Partnership

Emily Clarke, Energy Engineer

April 2025

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101032833

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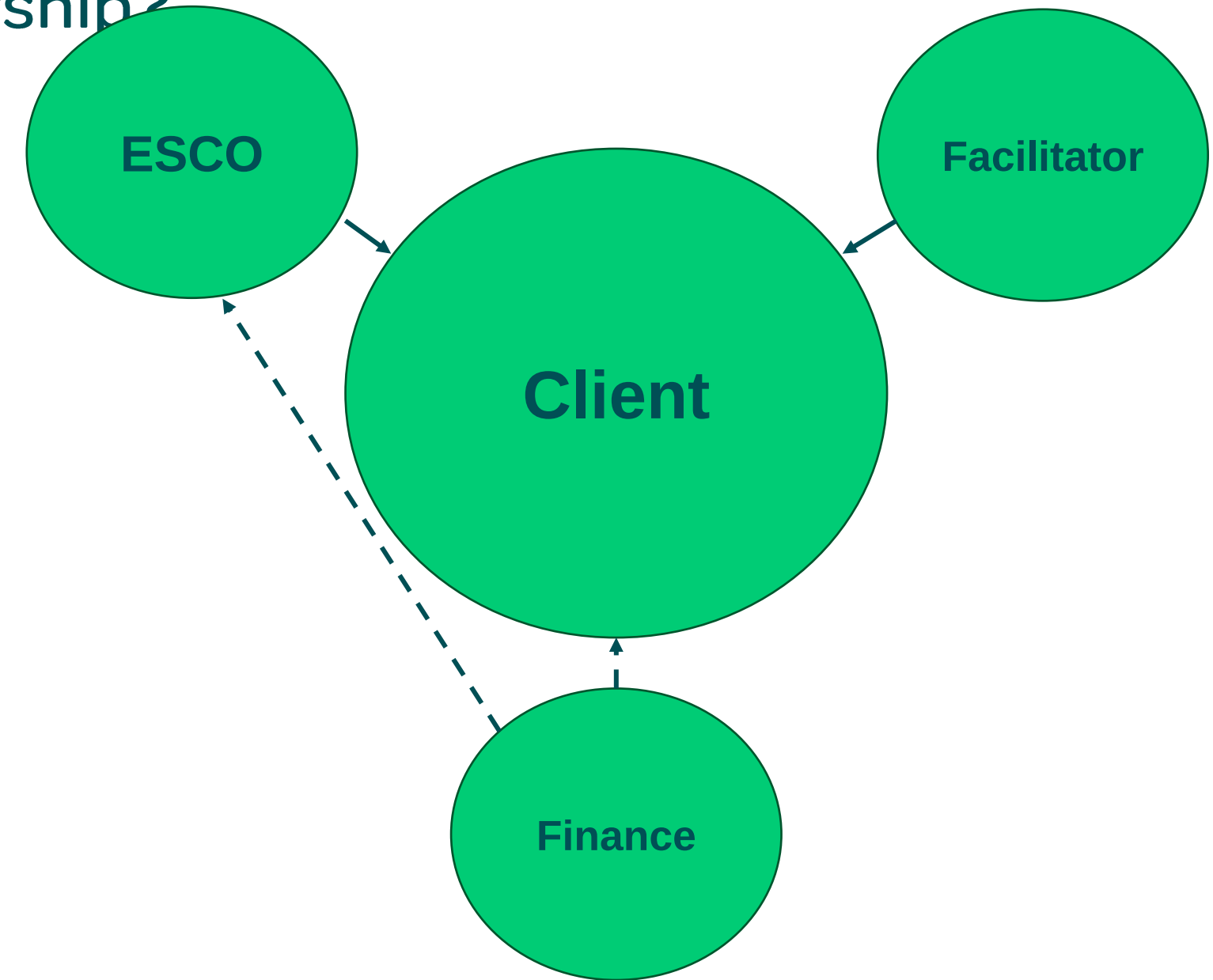
Why consider a Decarbonisation Partnership?



Why consider a Decarbonisation Partnership?

- DeliveREE project facilitates Decarbonisation Partnerships through the Project Implementation Unit (PIU)
- PIU uses a structured, standardised Project Development Process

- **Quality control**
- **Best practice project development methods**
- **Consistent product to market**

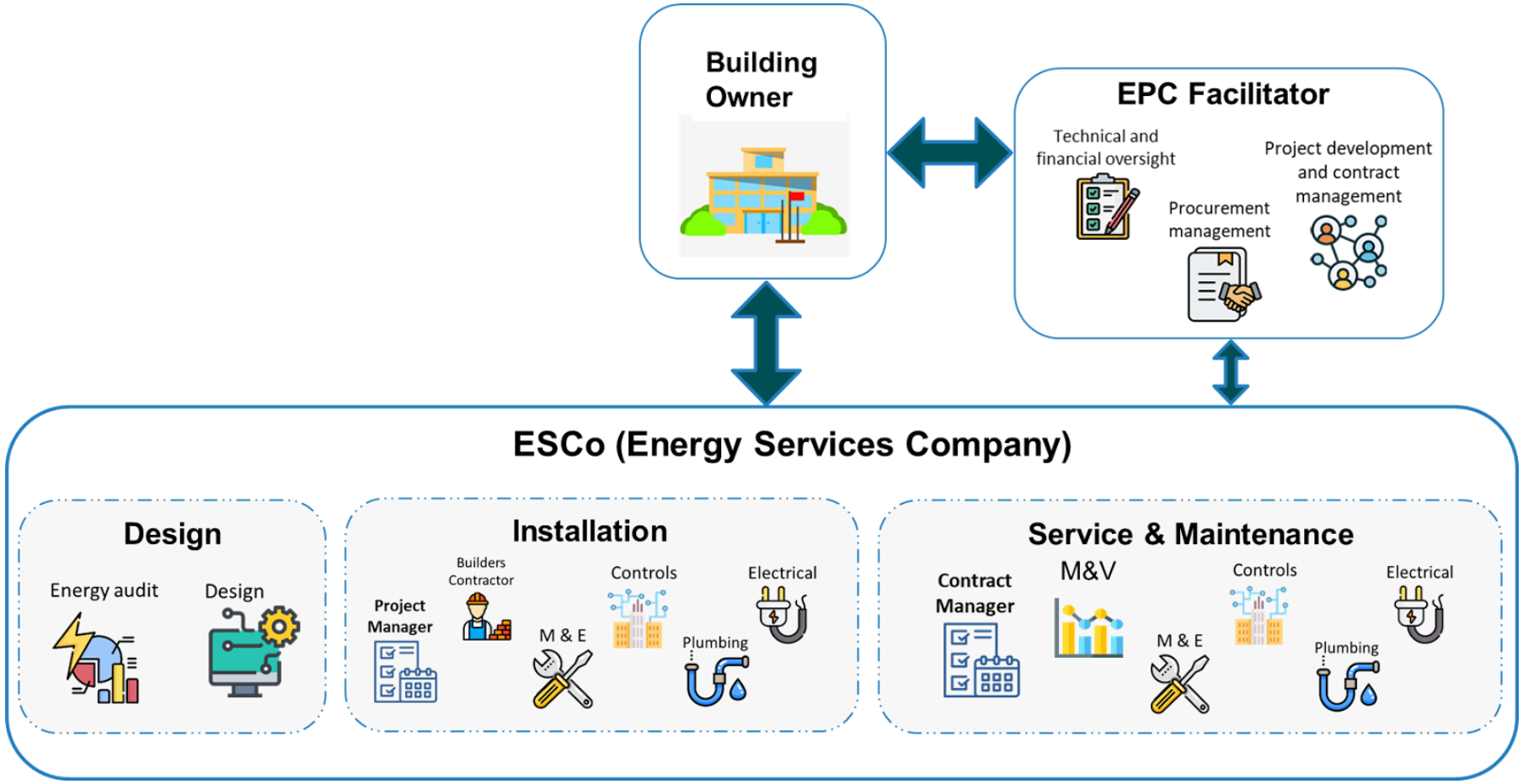
How do I procure a Decarbonisation Partnership?

- Decarbonisation Partnerships use performance contracting to deliver energy upgrades

- **Energy Performance Contracts**
- **Energy Guarantees**
- **Energy Supply Contracts**

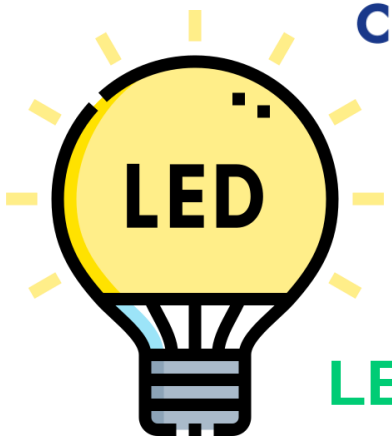
Who is involved the Decarbonisation Partnership?

- **Energy Services Companies (ESCOs)**



What type of upgrades are involved?

Active Energy Measures

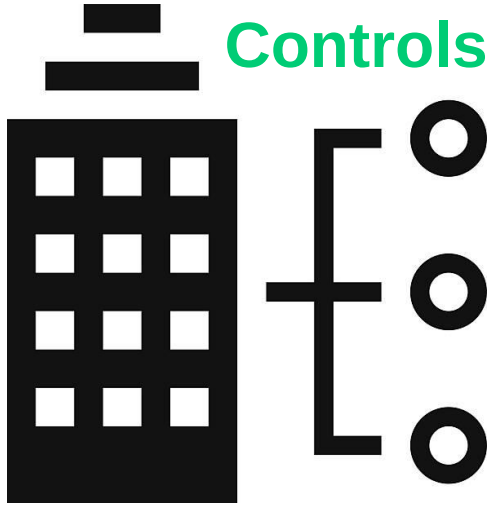


LEDs

Solar PV

Heat Pumps

BMS/ Controls



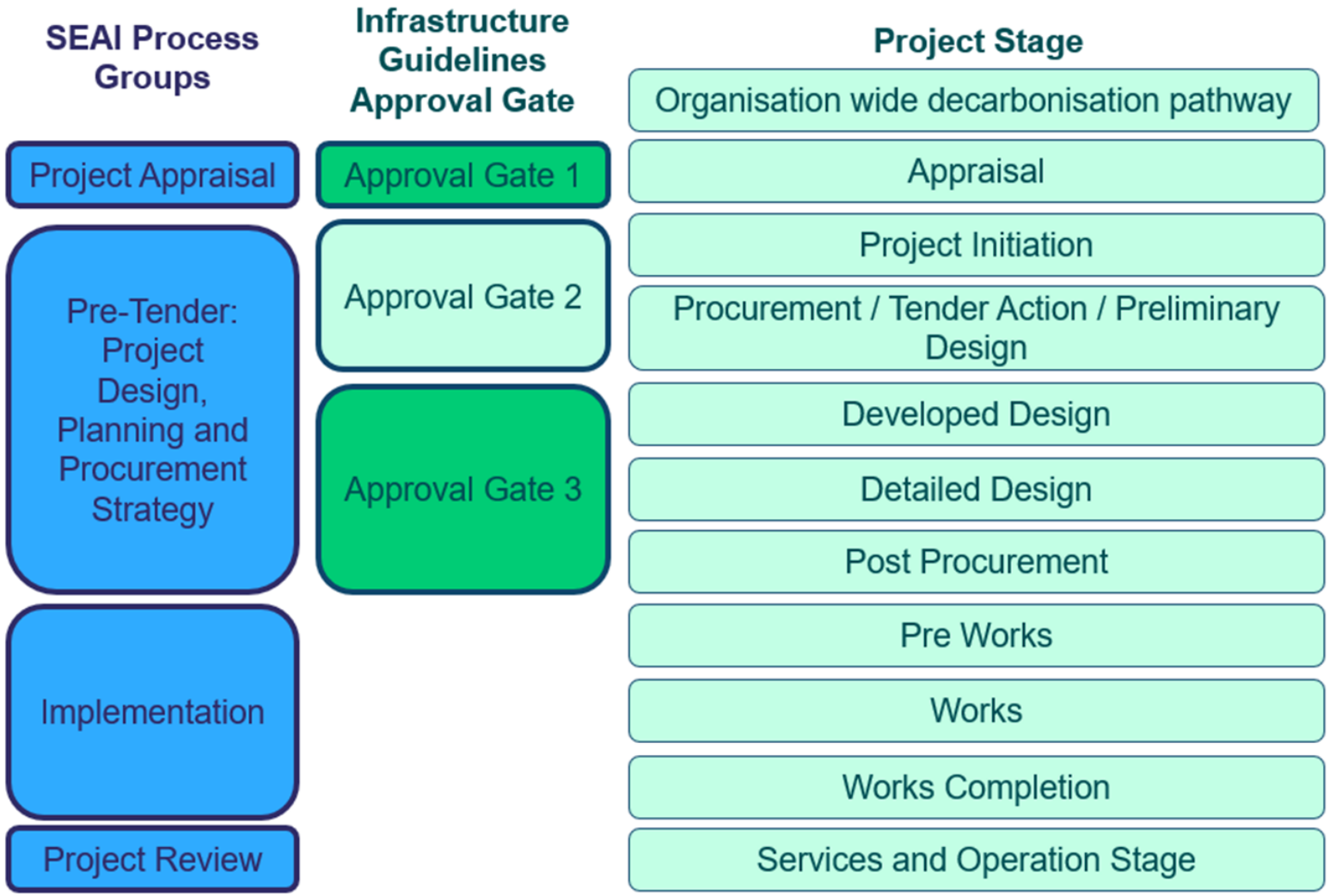
What are the benefits of a Decarbonisation Partnership?

BAU	Decarbonisation Partnership
Small, low value, single technology projects	Holistic building decarbonisation & contracted pathway to net zero-renovation roadmap for building
Poor results (no measurement and verification)	Measurement and Verification guarantees results
Technical risk (performance of measures) taken on by client organisation	Risk of performance of measures taken on by the technical expert (ESCO)
Building owner must manage multiple contractors	One face to client
Difficult to finance	Can bring in third party financing through ESCO

How do Decarbonisation Partnerships fit into existing systems?

- Architect led design teams
- Fabric first approach
- Existing contractors and facilities management
- Energy Management Systems (eg. ISO50001)
- EEOS Credits
- Climate targets
- Pathfinder Funding
- Infrastructure Guidelines

How are projects developed?



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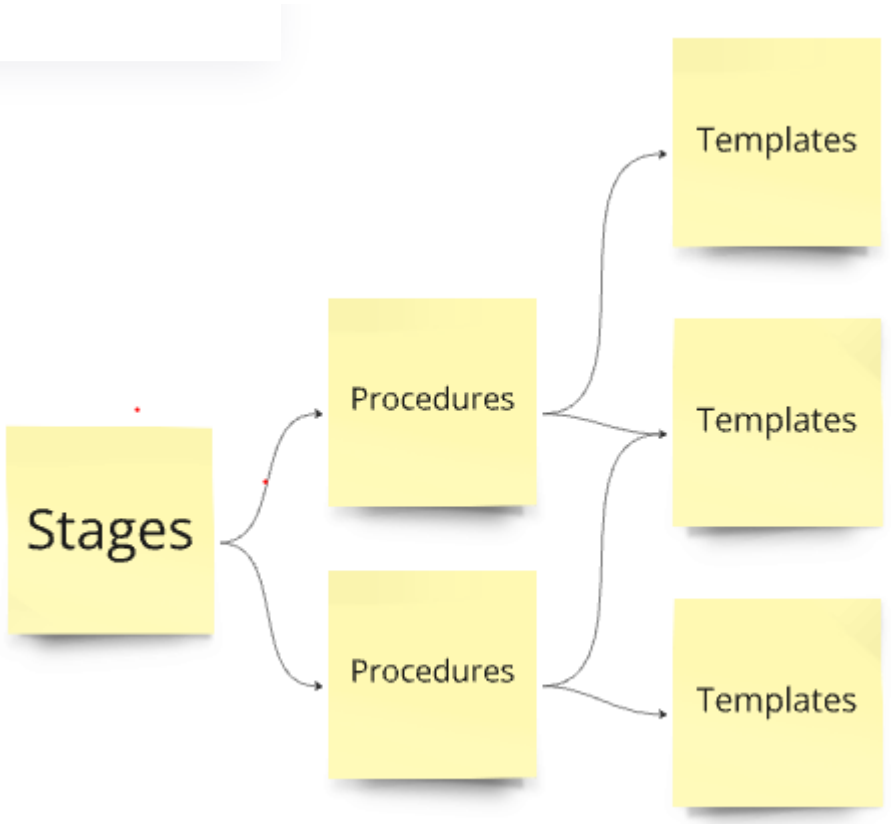

How are projects developed?

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Governance	Project Stage	Deliverable	Proce	Programme/Project Level	Required in non-pathfinder projects	Pathfinder Requirement	Template/Guidelines	Output(s)	DeliveREE PIU	DCC	Other Las	SEAI	Pathfinder Steering Group	Client
		Terms of Reference	02C	Programme		Required		Steering Group Terms of Refer						
Infrastructure Guidelines	Appraisal	Pre Works BER Assessment	02D	Project	Y	Recommended	BER guidelines, RFT Tem	BER Certificate						Oversight/ Approval
		Decarbonisation Assessment Report	02E	Project	Y	Recommended	DeliveREE Decarbonisatic	Decarbonisation Assessment F	Lead					Oversight/ Approval
		Preliminary Business Case	02F	Programme	N	Required	DeliveREE template base	Preliminary Business Case	Support			Oversight	Oversight	Lead
		Project Selection Matrix	02G	Programme/ Project	N	Required	SEAI Project Selection Ma	Project Selection Matrix Excel	Lead			Oversight		Oversight/ Approval
		State Aid Assessment	02H	Programme	N	Required	SEAI State Aid Assessme	State Aid Assessment	Support			Oversight		Lead (Lega department
		Project Selection Report (AG1)	02I	Programme	N	Required	SEAI Template	Project Selection Report	Oversight			Lead	Approval	Oversight
es/ Capital Works Management Framework	Project Initiation	M&V Gap Analysis and Baseline Creation	03A	Project	Y	Audit only	N/A	Submeter data	Lead					Support
		Project Execution Plan (Preliminary)	03B	Project	Y	Submission	Infrastructure guidelines, D	Project Execution Plan Report	Lead					Oversight
		Stakeholder Engagement, Team establishment and	03C	Project	Y	Audit only	N/A		Support					Lead/Approv
		Technical Advisory and QS Team Procurement	03D	Project	Y	Not required	PIU Template based on SE	Tender Brief for Technical Advi	Lead					Oversight/Sup
		Market Engagement	03E	Programme/ Project	Y	Not required	N/A		Lead					Oversight/Sup
		Surveys	03F	Project	Y	Audit only	Asbestos (Safety, Health	Survey Reports	Support					Lead
	Procurement/Tender Action/Preliminary Design	Prequalification Questionnaire	04A	Project	Y	Audit only	SEAI NESF Template	Published Prequalification Que	Lead					Oversight/Sup /Approval
		Technical File	04B	Project	Y	Audit only	PIU Template	Technical File	Lead					Support
		Draft Client Requirements or Works specification	04C	Project	Y	Audit only		Client Requirements Documen	Lead					Oversight/App al
		Invitation to Participate in Competitive Dialogue	04D	Project	Y	Audit only	SEAI NESF Template	Published Invitation to Particip	Lead					Oversight/Sup /Approval
		Outline Solutions Report/Concept design	04E	Project	Y	Audit only	RIBA Plan of Work	Outline Business Case Report	Support					Support
		Invitation to tender	04F	Project	Y	Audit only	SEAI NESF Template	Published Invitation to Tender	Lead					Oversight/Sup /Approval
		Tender Evaluation Report	04G	Project	Y	Submission	Infrastructure Guidelines,	CWMF	Support				Approval	Oversight
		Project Selection Report EPC (AG2)	04H	Programme/ Project	N	Submission	SEAI Template		Support			Lead	Approval	Oversight
		Contract Award	04I	Project	Y	Submission	SEAI NESF Template	Signed Energy Performance C	Lead					Approval
	Developed Design	M&V Plan	05A	Project	Y	Submission	ITPCD requirements, IPM	M&V Plan (schedule to contrac	Oversight					Approval
		Developed Design Report	05B	Project	Y	Audit only	RIBA Plan of Work/CWMF	Design Reports: Concept Desi	Support					Support
		Challenge and Analyse (1)	05C	Project	Y	Audit only	EXEED Challenge and An	Challenge and Analyse Report	Support					Support
	Detailed design	Detailed Design Report	06A	Project	Y	Audit only	RIBA Plan of Work/CWMF	Design Reports: Concept Desi	Support					Support
		Challenge and Analyse (2)	06B	Project	Y	Audit only	EXEED Challenge and An	Challenge and Analyse Report	Support					Support
	Post Procurement	Final Business Case	07A	Programme	Y	Submission	Infrastructure Guidelines,	CWMF	Support					Lead
		Project Selection Report (AG3)	07B	Programme/ Project	N	Submission	Infrastructure Guidelines		Oversight			Lead	Approval	Oversight
		Funding Drawdown Request (First Payment)	07C	Programme/ Project	N	Submission		Funding drawdown request, se	Support			Approval		Lead

How are projects developed?

Codema
Dublin's Energy Agency

DeliveREE
Energising Change

DeliveREE Procedural Document

Procedure Name	Pre Works BER Assessment
Date Created	11th November 2024
Created by	Adam Doyle
Version	v1
Date Last Updated	11th November 2024
Updated By	Adam Doyle

Description	A procedural guide outlining the steps for procuring a
Frequenc Timing	
Dependen	
Relevan Template	
Guidelin	
Procedu	

DeliveREE
Energising Change

DeliveREE Procedural Document

Procedure Name	State Aid Assessment
Date Created	9th December 2024
Created by	Emily Clarke
Version	v1
Date Last Updated	9th December 2024
Updated By	Emily Clarke

Description	State Aid is a term that refers to forms of State-controlled financial resources, given to Undertakings on a discretionary basis, with the potential to distort competition and affect trade between Member States of the European Union. All Pathfinder projects must be assessed for State Aid.
Frequency/ Timing	Must be submitted to SEAI in order for a project to be approved in principle.
Dependencies	
Relevant Templates	SEAI State Aid Assessment for Pathfinder
Guidelines	Infrastructure Guidelines; Pathfinder Agreement Schedule 3(ii) Project Identification and Selection Procedure
Procedural Steps	**a) Inform Local Authority partner of requirement to perform State Aid Assessment with inhouse legal team, and follow up on LA's progress with this activity**

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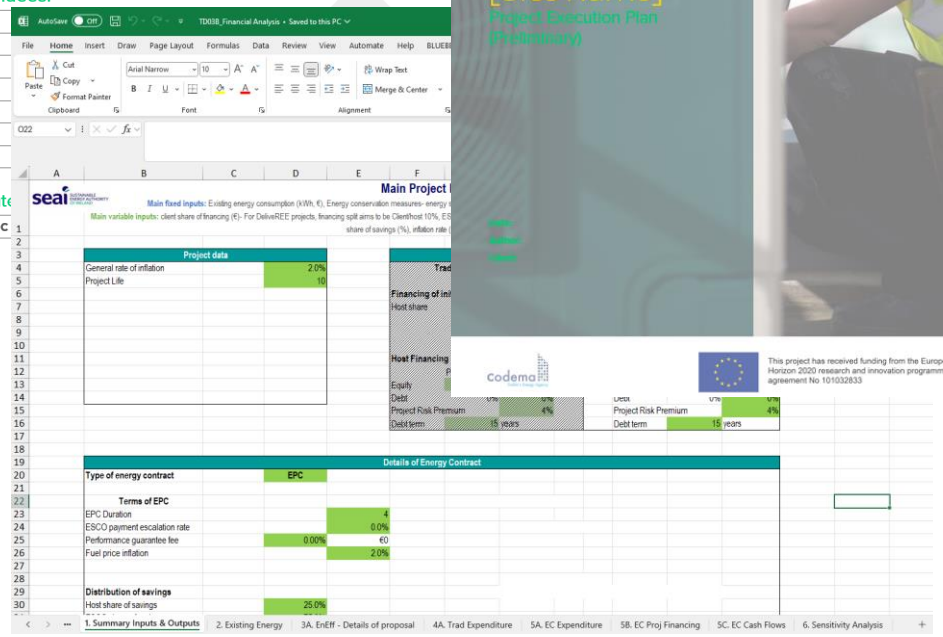
Meeting Minutes: [Meeting name]

Topic	
Date	
Time	
Duration	
Minutes by	

Attendees:

Minute

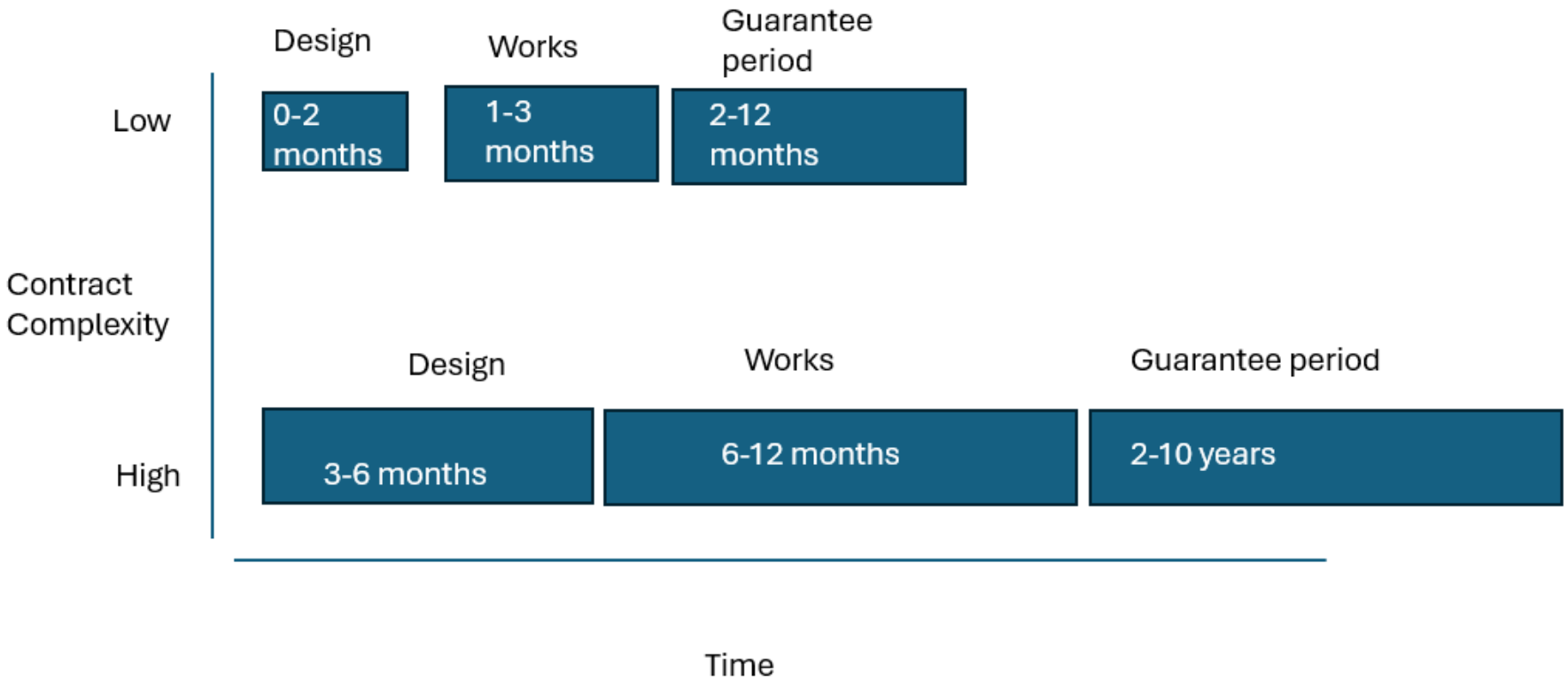
Topic



Who develops the projects?

- **Facilitator**
  - bridge and balance the different stakeholder interests
  - manages the project development process
  - unique expertise and skills
  - independent third party

What does the contract look like?



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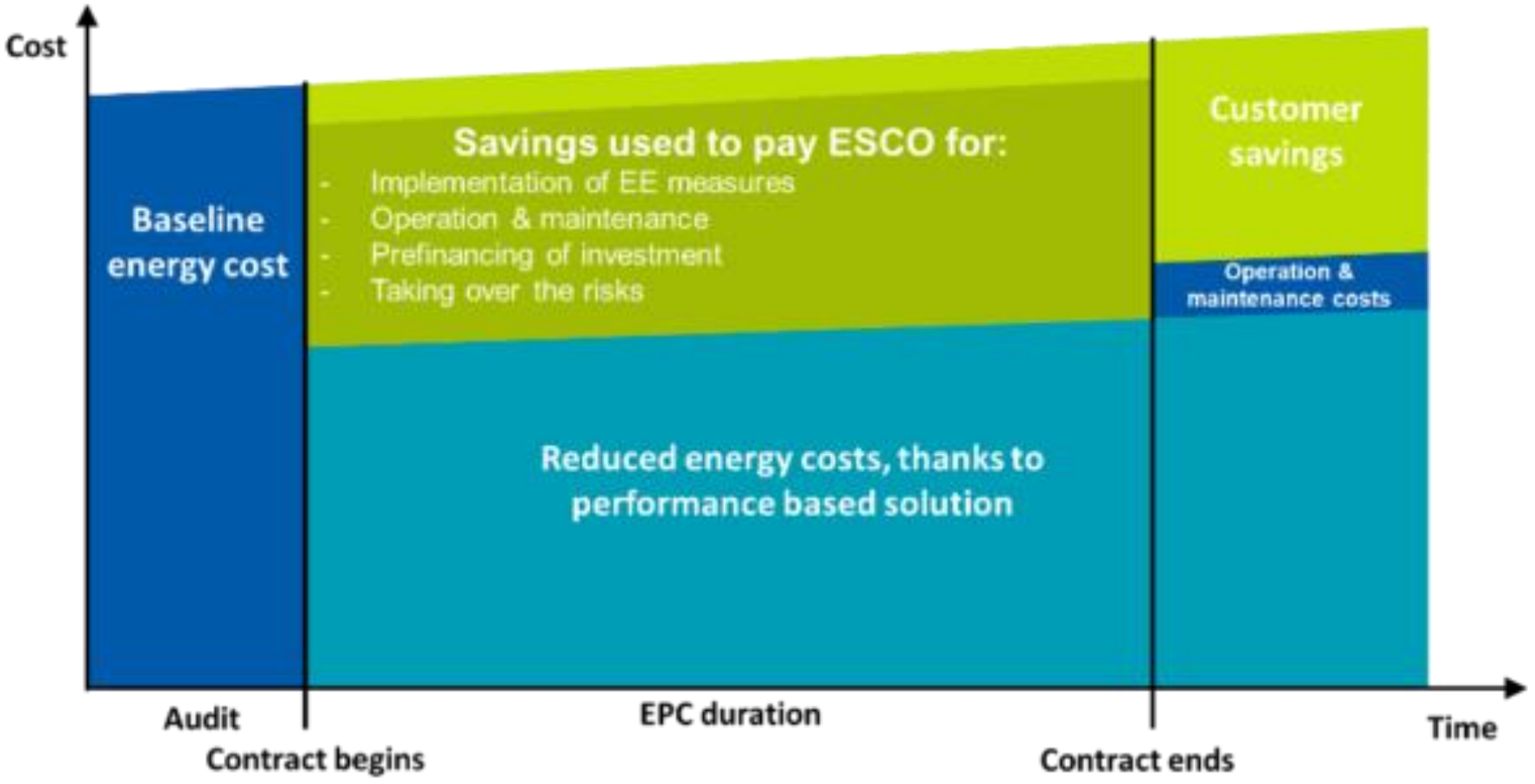
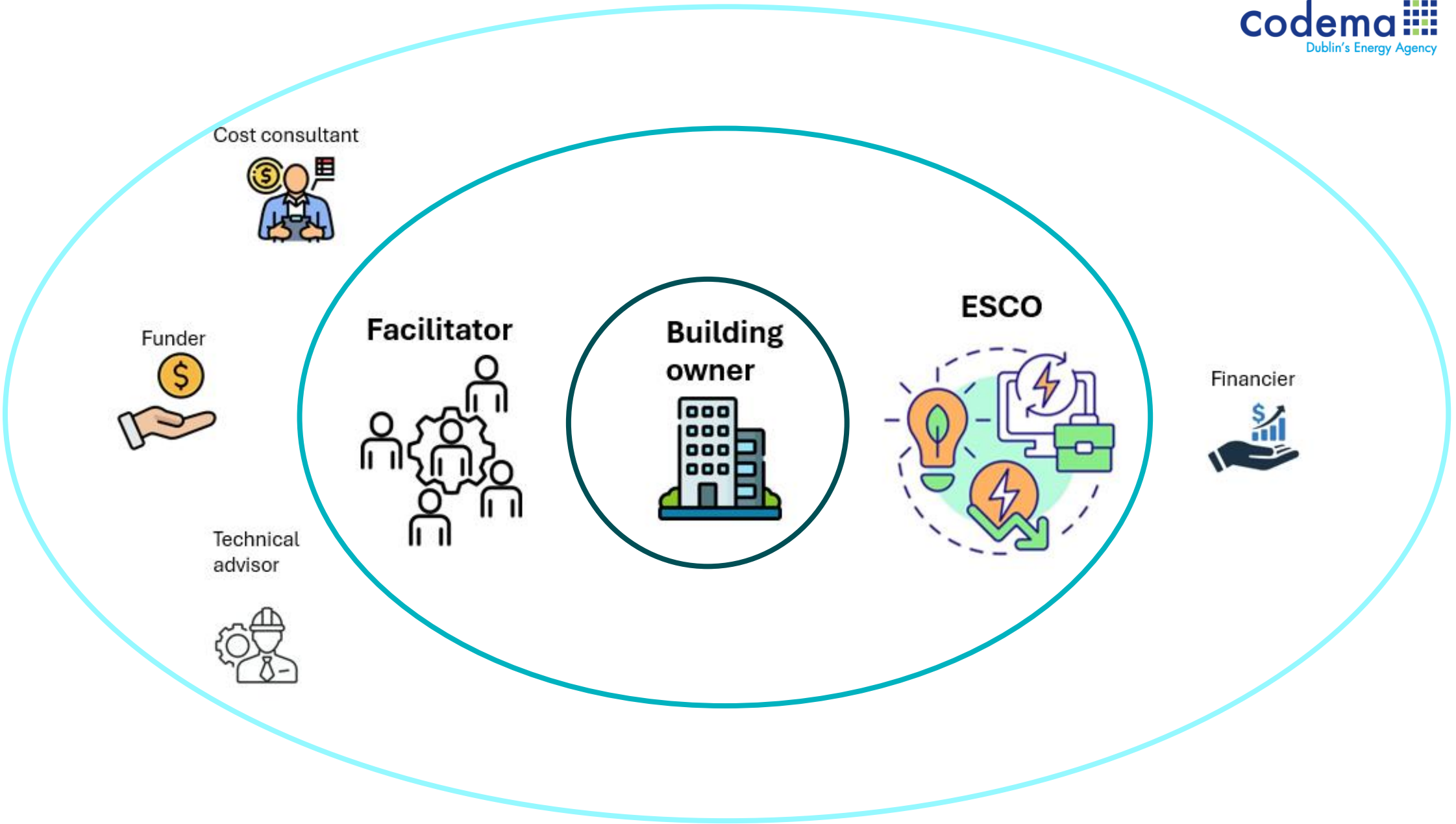


How will the Client be involved?



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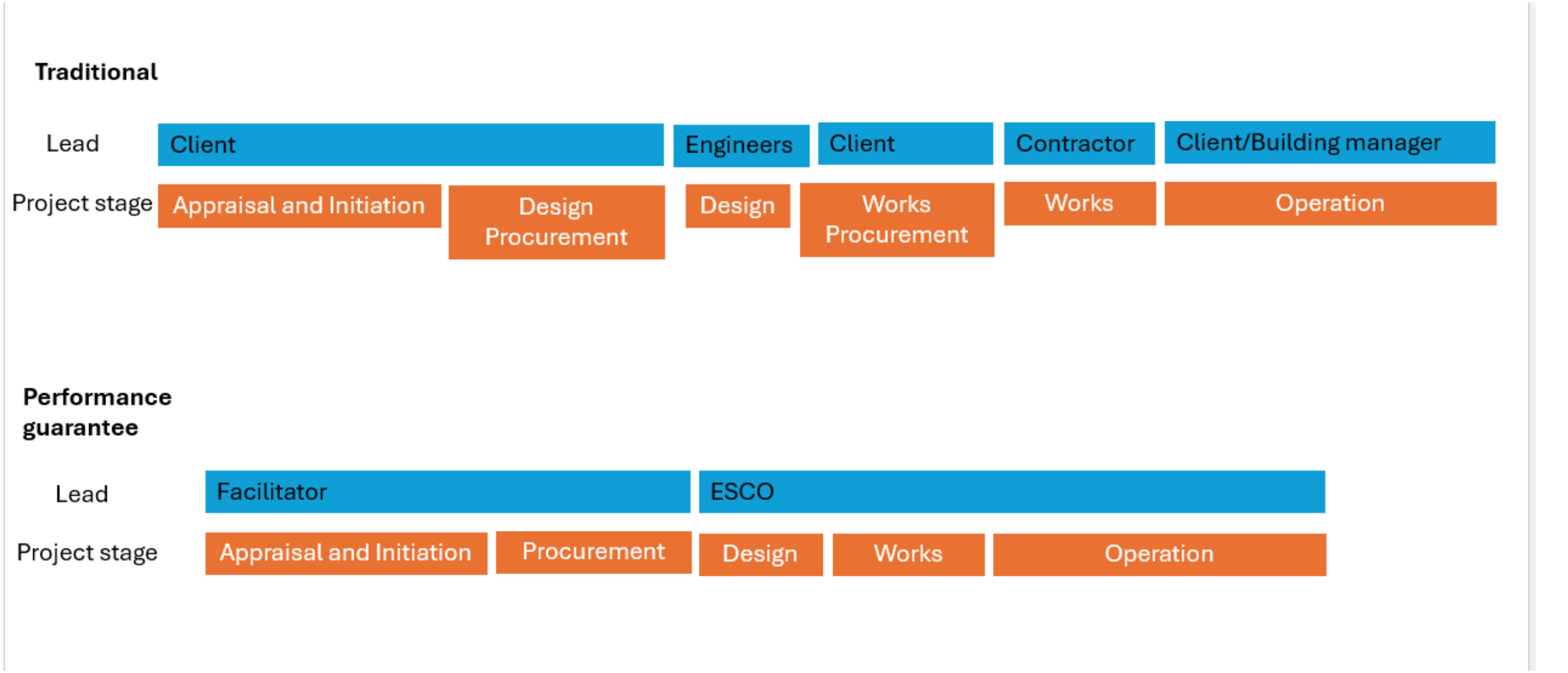

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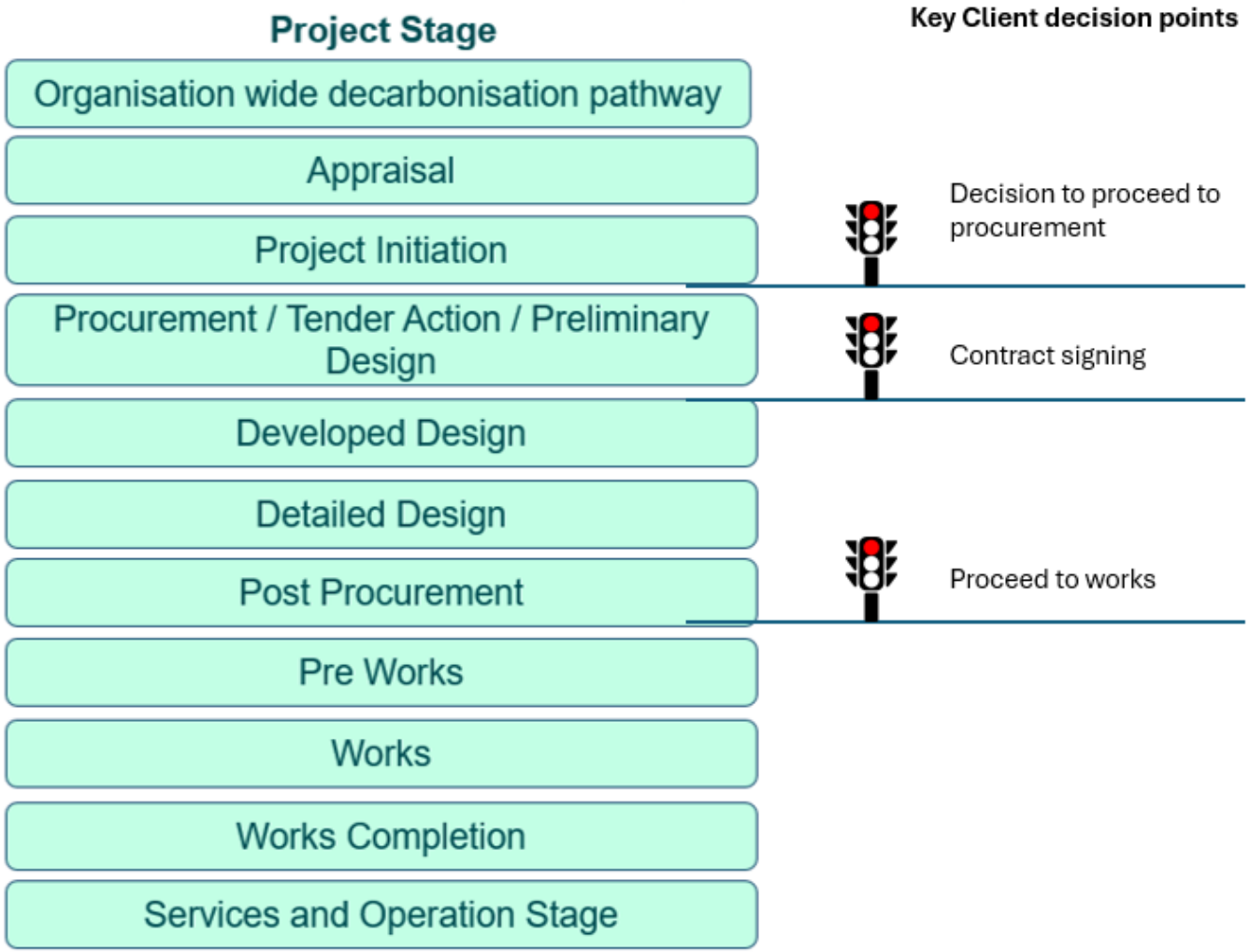
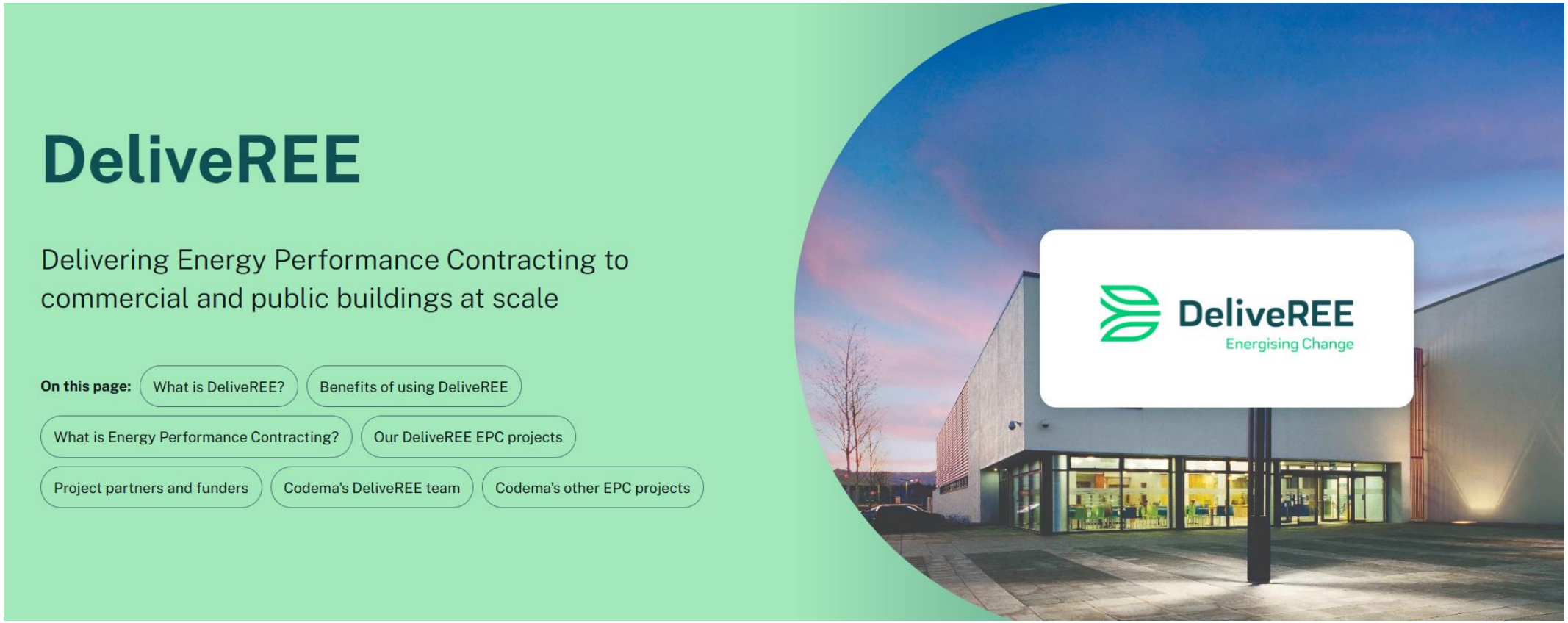


How can I find out more?

- DeliveREE hub, https://www.codema.ie/our-work/deliveree/



- Community of best practice (linkedin)

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Thank You

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HOW TO DEVELOP AN ENERGY PERFORMANCE CONTRACT (EPC) PROJECT

Q&A SESSION

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