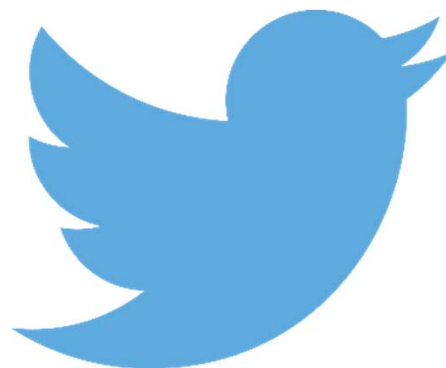


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Step-By-Step Process For The Delivery Of Energy Projects

By Alan Barber and Mike Keating

APSE Energy Associates & Directors of Salvis

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Agenda



- Project journey
- Contract considerations
- Efficient routes to market
- Installation and project management



Project Stages

Process

- Site wide strategy to identify high priority buildings
- Feasibility studies
- Detailed design
- Installation of works on site
- Post project monitoring

Available Funding



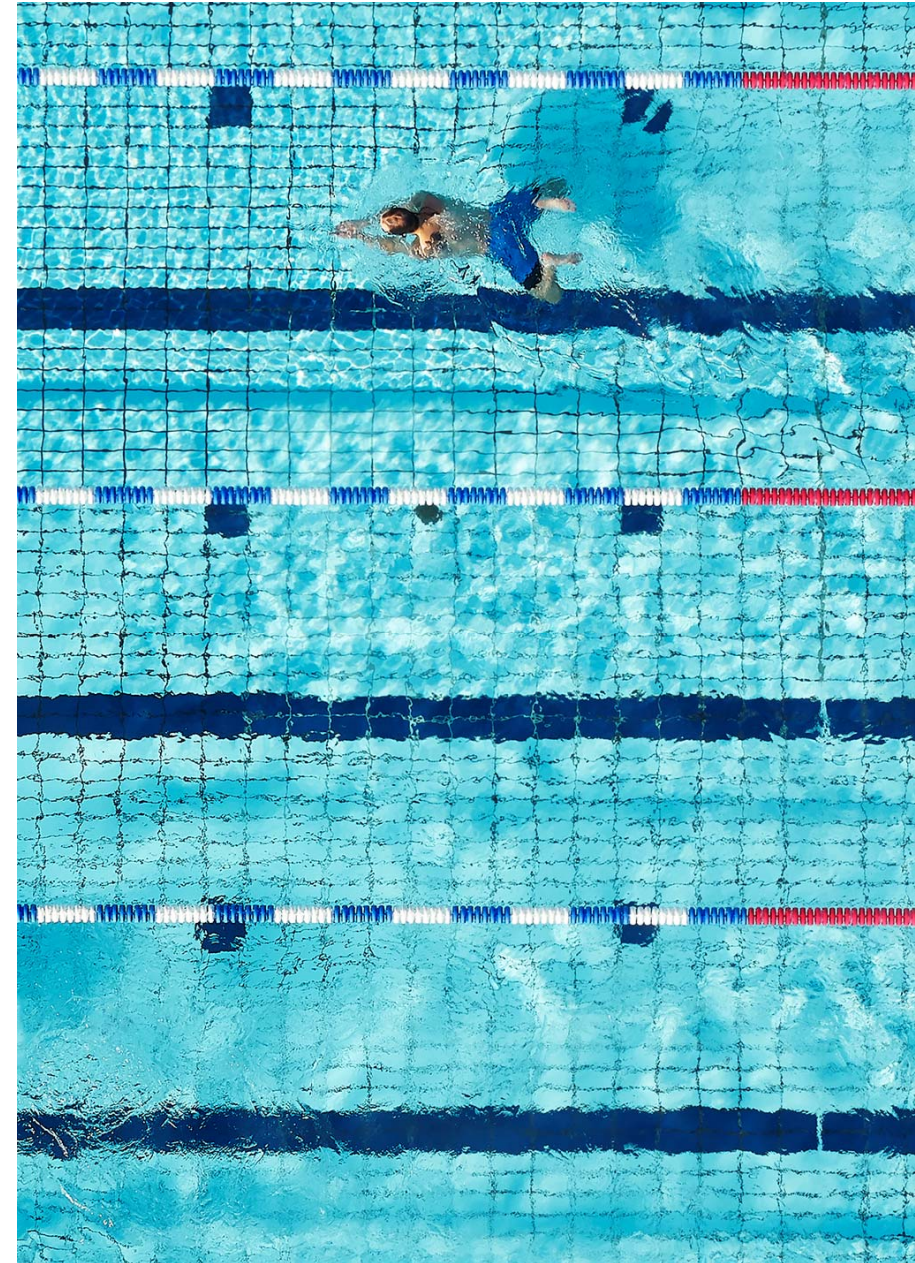
- LCSF
- LCSF
- LCSF & PSDS
- PSDS
- Not currently funded

Proposed Projects

Leisure Centre Example



Item	Recommendation	Annual Electricity Savings (kWh)	Annual Gas Savings (kWh)	Annual Saving (£)	Capital Cost (£)	Payback in Years	Carbon Saving (tCO ₂) per year
1a	Triple Glazing		74,771	£4,120	£137,730	33.4	13.7
1b	External Wall Insulation		22,739	£1,253	£191,280	152.7	4.2
2a	ASHP (Space Heating)	-166,681	933,400	-£25,180	£1,840,500	NA	136.2
2b	HT-ASHP (DHW)	-10,779	35,113	-£3,020	£258,500	NA	4.2
3	130.8 kWp Solar PV (used on site)	93,631	-	£43,035	£160,900	3.7	23.0
4	LED lighting	24,872	-	£11,432	£37,200	3.3	5.2
	Total	-41,712	1,066,023	£32,502	£2,626,110		186.4



Costing Detail: ASHP



Item	Description	Costs
1	Preliminaries	£19,000
2	ASHP and Plant Room	
	Construction Compound	£79,000
	Heating Air Source Heat Pump(s)	£239,000
	Acoustic Attenuation	£29,000
	Buffer Vessel(s)	£8,000
	Heating Primary Pump(s)	£26,000
	Heating Secondary Pump(s)	£32,000
	Pressurisation Unit(s) & Expansion Vessel(s)	£5,000
	Plant Room Pipework, Valves, & Ancillaries	£55,000
	Automatic Controls, Control Panel & BMS	£60,000
	Electrical Works	£24,000
	Interconnecting Pipework to Plant Room	£10,000
	Builders' Work	£27,000

3	HEATING DISTRIBUTION	
	Removal of Existing Building Plant & Equipment	£27,000
	Heat Emitters (Radiators)	£32,000
	Distribution Pipework	£74,000
	New AHU Heating Coils	£20,000
	Heat Exchangers for Pools	£28,000
4	Upgrading Main Incoming Electrical Supply	£122,810
5	Testing & Commissioning	£10,000
	Demonstration & Training	£2,000
	Record Information	£3,500
6	Contingency Sum	£94,000
7	Works Budget Total	£1,026,310
8	Design Fees	£93,000
	Project Management Fees	£47,000
9	Project Budget Total	£1,166,310

Contract Considerations

Pre-Designed

- Greater technical resources required pre-contract
- Investigation and design time required
- More control over the final design solution & greater confidence when entering into contract
- Greater financial certainty
- More design risk as design responsibility stays with the client or client's consultant

Contractor Design and Build

- Technical resources required pre-contract to produce the Employers Requirement/ Performance Spec
- Can be procured quicker
- Technical solution still to be fully detailed
- Budget risk if solution is not clearly defined
- Less design risk as design liability remains with the contractor
- Technical resources required to evaluate the contractor's design

Contract Performance Requirements



What System Performance Requirements are going to be included in the contract?

None	Contract is set up as an installation only project
KPIs	Energy, carbon, and financial saving targets Project delivery programme Success criteria
Guaranteed Savings	Guaranteed realisation of carbon reduction targets Financial incentives. Penalties for non-performance
Extended Handover	Monitoring, recommissioning, reporting requirements Soft Landings



Types of Contract



JCT

Minor Works (MW)

Minor Works with Contractor Design (MWD)

Design and Build (DB)

Intermediate (IC)

Intermediate with Contractor Design (ICD)

Standard (SBC)

Others

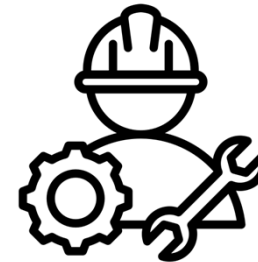
New Engineering Contract (NEC)

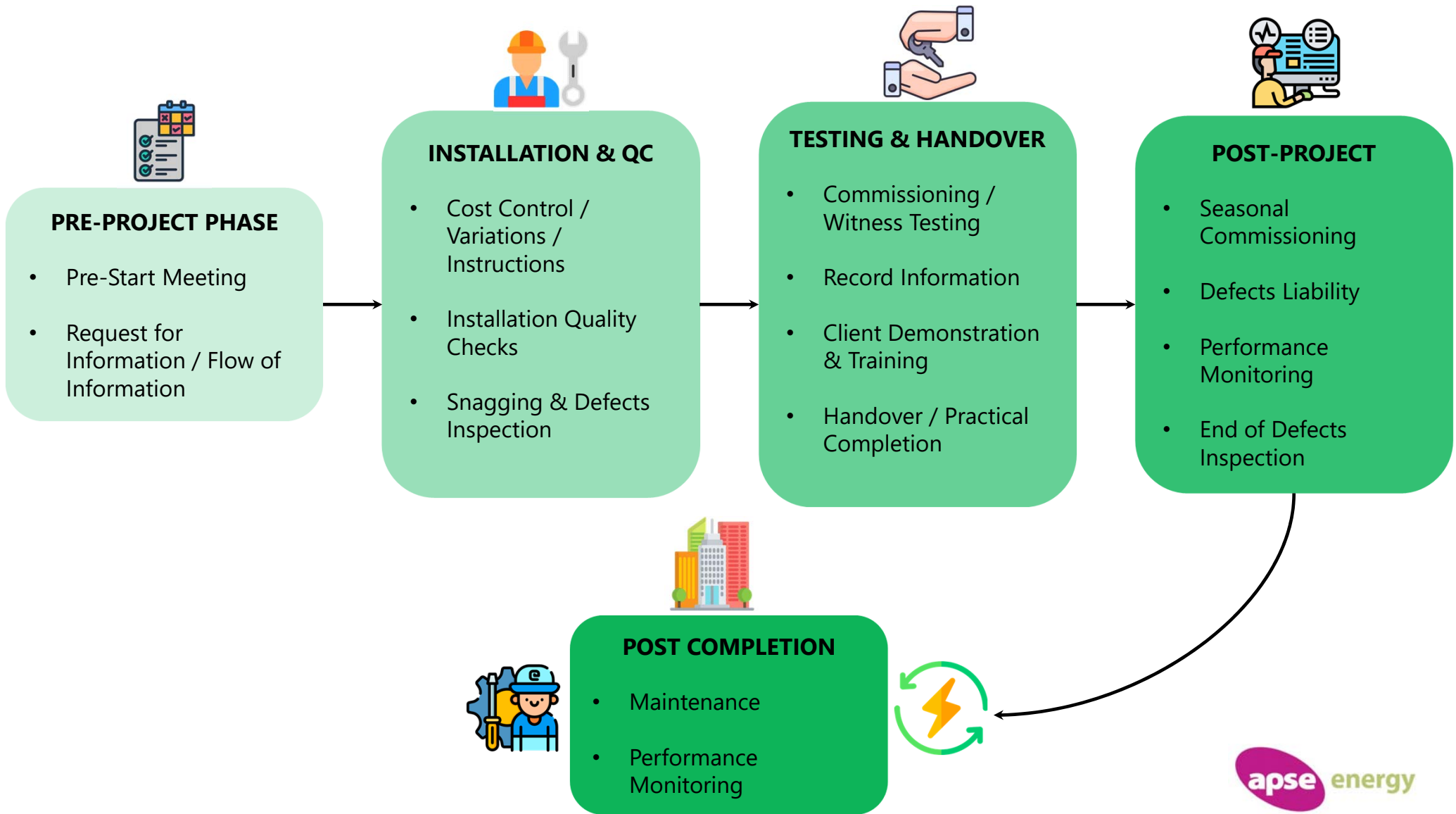
Time and Material

Guaranteed Maximum Price

Routes to Market

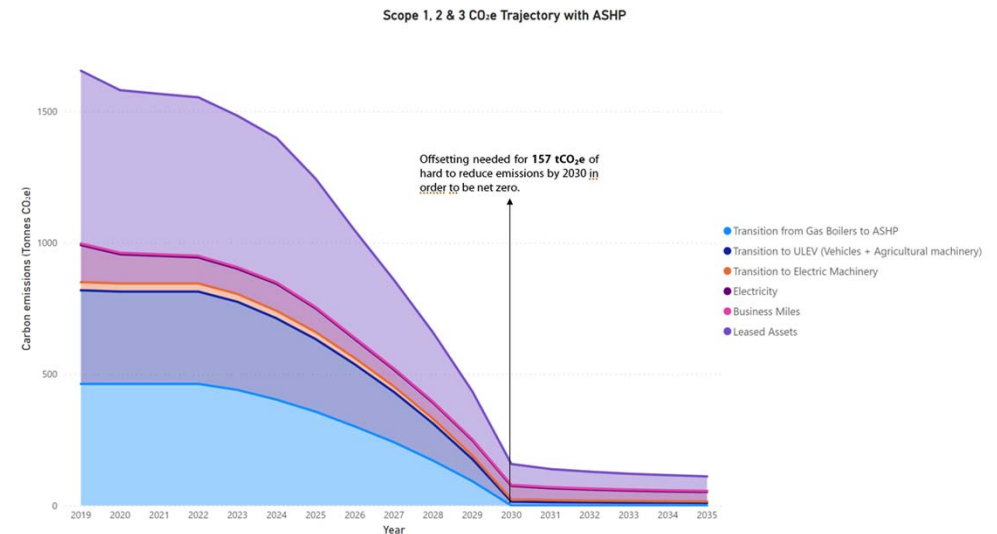
- Quotes
- Tender
- Framework
 - Established Frameworks
 - Client Framework
 - Direct Award
 - Mini Competition
- Maintenance Contractor
- Energy Performance Contract
- Direct Award



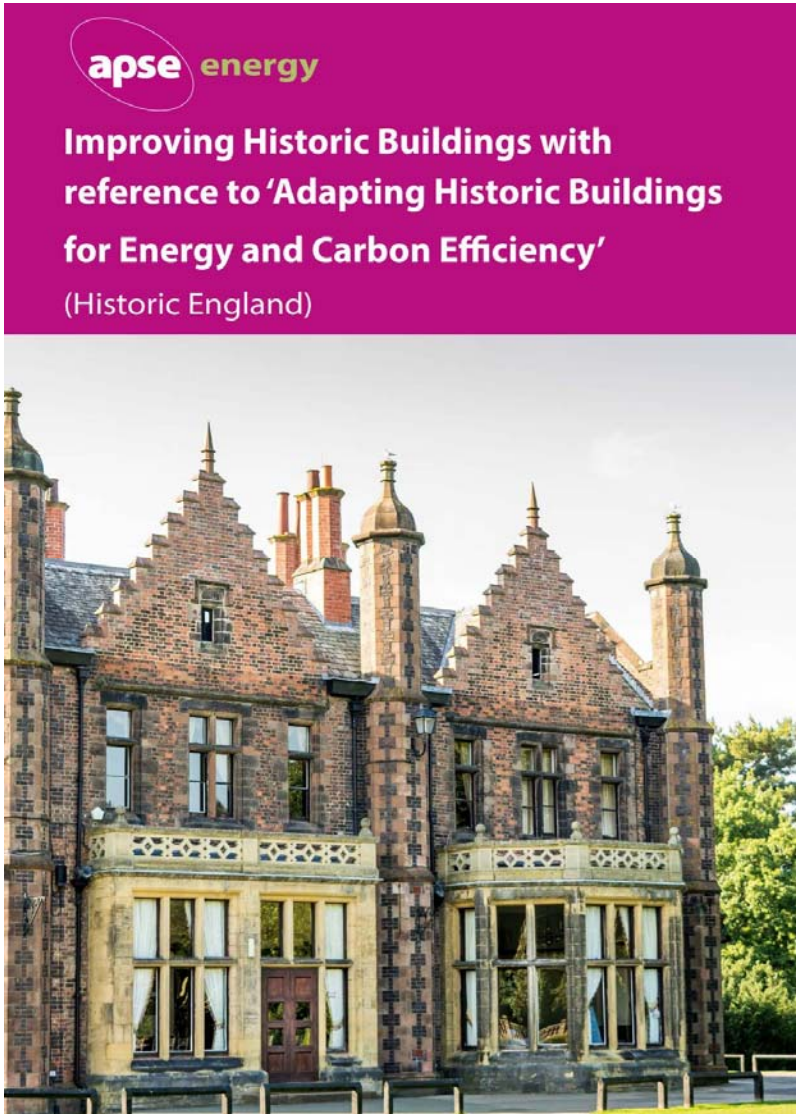
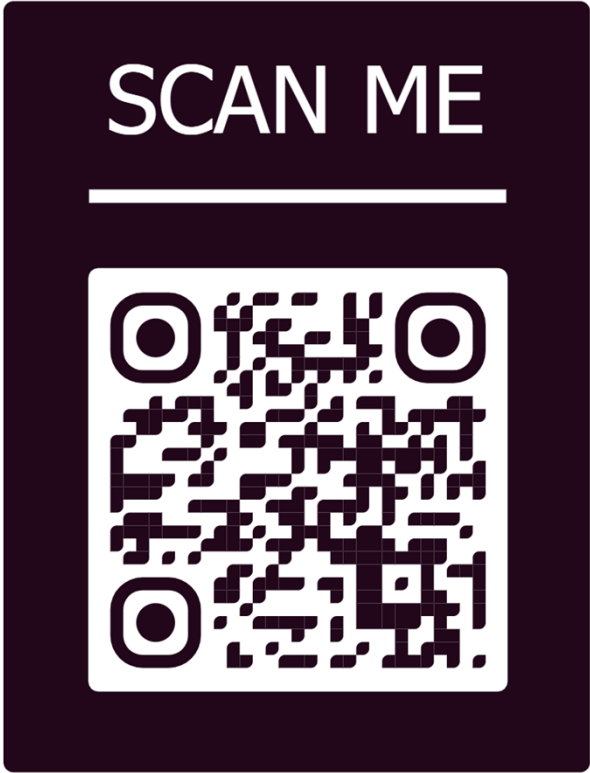


The Net Zero Journey Summary

- Get your **Data** & estate in order
- Calculate **Baseline Emissions** & **Set Net Zero Targets**
- Do a **Net Zero Trajectory**
- Carry out **on-site Energy Audits**
- **Engineering Design**
- Procurement
- Installation
- **Measure & Optimise** for *Continuous Improvement*



Guide to Historic Buildings



Contact Details



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Next Steps

Ready to take action?

Contact Phil Brennan for further details on delivery of projects

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