Infrastructure and Projects Authority

Part Two - Delivering a Net Zero Change

Decarbonisation of Operational PFI Projects

Handbook of good practice for contracting authorities

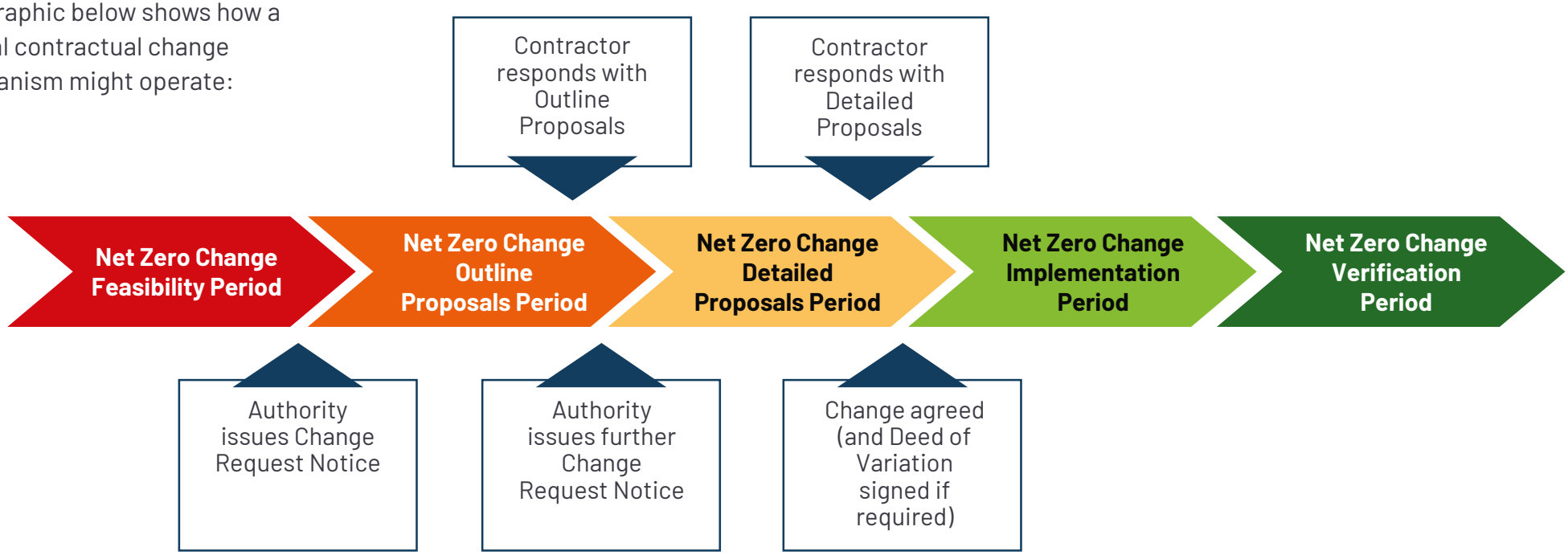
Contents

Introduction

This handbook considers the phases of activity required for the delivery of individual decarbonisation interventions that may require a contract change, referred to in this document as a 'net zero change', breaking the change process down into five key phases.

The stepping off point for this document is the point at which a preferred decarbonisation intervention has been selected, assuming that a project's short-, medium- and long-term decarbonisation plan has already been developed at an earlier stage. Part One of this handbook that sits alongside this document makes recommendations for the development of a decarbonisation plan.

The graphic below shows how a typical contractual change mechanism might operate:



Net Zero Change Feasibility Period

1. Net Zero Change Feasibility Period

Executive summary

This is a critical phase in the successful delivery of a net zero change, when early feasibility is assessed. It is recommended that before any material decisions are taken, a net zero change working group is established, made up of key stakeholders, to discuss shortlisted net zero change opportunities and agree a plan going forward (referred to in this document as the 'working group'). As well as securing buy-in from all interested parties, there should be a focus on putting in place the appropriate resources and governance as well as carrying out initial due diligence to allow for informed decision making in the following phases, thus reducing the likelihood of the net zero change not proceeding, potentially leading to abortive work and costs.

Key tasks checklist

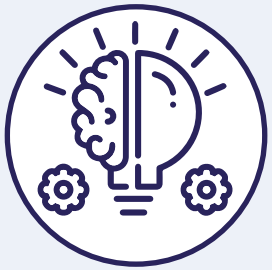
- Carry out an Energy Review and collect data
- Carry out a Site Visit
- Commission a Decarbonisation Report
- Engage with all stakeholders, in particular asset users/ occupiers, to secure early buy in and set up the working group
- Assess resources and consider governance and decision making
- Assemble dedicated project team to include legal, technical, operational and financial support
- Agree approach to project management of the net zero change and produce indicative timetable
- Create actions tracker and assign responsibilities
- Carry out initial due diligence on lender consent requirements
- Review and assess suitability of the change mechanism and consider likely contracting structure
- Check if contract already places energy saving obligations on the Contractor, including performance risk/reward
- Review the contract more generally to understand likely impact of the net zero change
- Consider key risks and likely risk share arrangements
- Consider available funding sources

Detailed recommendations

Net Zero Change Feasibility Period

1.1 Energy review, site visit, decarbonisation report and establishing the baseline

'Baselining'



The Baseline is required to understand the 'starting point' of emissions and the necessary interventions required to reduce the emissions and ultimately achieve net zero. This baseline energy and carbon performance is made up of calculating annual energy consumption and carbon emissions, comparing energy and carbon intensity against industry benchmarks and determining if it is necessary to improve the quality of the data analysis.

The first step when considering a net zero change is to carry out an Energy Review, allowing the parties to gain a clear understanding of the existing energy performance and greenhouse gas emissions of the asset. The main metrics to consider are the absolute energy consumption (kWh for electricity, gas and any other fossil fuel used) and Energy Use Intensity (EUI) by reference to the gross internal area of the property (kWh/m2/yr). Ideally a metric should also be included to reflect the energy consumption by reference to a measure of the capacity or utilisation of the asset, such as per patient/hospital bed/ pupil place etc. From the energy consumption and EUI data, the greenhouse gas emissions of the project (kg or tonnes of CO_2e) and carbon intensity (CO_2e/m2/year) can be calculated by reference to the official conversion factors published by DESNZ[1].

This establishes a baseline position from which any future interventions can be evaluated (sometimes referred to as 'baselining'). All stakeholders should agree the baseline position, reviewing the data carefully to ensure that the calculated starting emissions position is correct. This is also an opportunity to identify any gaps in the recording of energy usage or limitations in the data being relied upon and start to jointly consider the target energy saving benefits that might be deliverable from one or more decarbonisation options. It is worth noting that Authorities may have already collected data (e.g. Estates Returns Information Collection in the NHS or Display Energy Certificates) or carried out work to look at potential decarbonisation initiatives. Any relevant data, reports and studies from these exercises should be fed into the process where relevant.

To accompany an Energy Review, a Decarbonisation Report (an early options appraisal, which may be jointly commissioned by the Authority and the project company/FM Contractor) will be another key step in working up any net zero change. The Decarbonisation Report may well be capable of being produced relatively quickly and depending upon the availability of in-house expertise, may not need external consultants to be engaged. Indeed, this early step might be as simple

1 https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

Net Zero Change Feasibility Period

as the Authority's contract manager walking around the building/asset with the project company and the FM provider, to get an understanding of existing systems and to consider existing use, before sitting down together to review energy usage and consider options for energy demand reduction and potential ways of increasing energy efficiency. A Decarbonisation Report might typically cover off:

- the key findings of the Energy Review and Site Visit
- a high level options appraisal on potential net zero interventions, including the key risks associated with delivery (including, where relevant, appropriate exemplar case studies to support proposals) and indicative costs
- the technical and commercial considerations associated with implementation, including key issues to be assessed at a detailed Feasibility Study stage
- consider the net zero timeline, assuming a need to meet the Government's 2050 net zero deadline and other sector specific targets (e.g. 2040 for the NHS)
- present high-level recommendations, in the context of an overarching decarbonisation plan, with a series of preferred interventions and their priority/timetable for implementation as part of a planned pathway to net zero, and with account taken of likely need to reassess over time against decarbonisation project performance, changing technologies and available budgets. At this early stage, consideration should also be given as to whether an asset survey is likely to be required later in the process, to inform future decision making, and what the scope of that survey might be.

1.2 Stakeholder engagement

Successful delivery of net zero changes will require engagement with and the active participation of all stakeholders. Early engagement contributes to increasing the likelihood of securing a good outcome and all parties are encouraged to engage constructively. In this regard it should be noted that investors, management services providers and FM contractors have their own ESG related corporate strategies, as well as reporting and compliance aims and/or obligations, which net zero changes to the PFI asset can help deliver.

With this in mind, it is recommended that an Authority considering a net zero change establishes a working group, with representation from the following stakeholders:

- authority (including a senior responsible officer)
- authority's contract manager
- authority's site-based team (if applicable)
- building/asset user representative (as and when appropriate)
- project company
- MSA provider
- FM contractor
- advisers and consultants

Following good governance and project management principles, minutes and associated action logs should be produced for all meetings of the net zero working group. We also advise that decarbonisation, if not already, is a standing agenda item on all operational meetings between the Authority and project company.

The Better Buildings Partnership Green Building Management toolkit may be a useful guide for setting up a working group. Draft terms of reference for a working group are included at Appendix 2 of this document.

1.3 Resources, relationships, governance and project management

The likelihood of successfully implementing a net zero change will be enhanced where a fully collaborative approach is adopted and where all parties dedicate sufficient, suitably qualified resource. From an Authority perspective, it may be the case that such expertise is not available in-house and therefore specialist external help will be required, which may include legal, financial, design, planning, fire engineering and other specialist technical support. Likewise, it would be usual to see the private sector also assemble its own project team to oversee implementation of the net zero change. The scope of these appointments will depend on the net zero change being proposed and the internal resources available at the relevant time, noting that there may be competing demands on resource the nearer the contract gets to expiry and handback. It is hard to be definitive on the timing of these appointments, but it is worth noting that legal support from an early stage is likely to be needed, not least to confirm that the contract is capable of being used to deliver the net zero change.

Net Zero Change Feasibility Period

Authorities should consider resource requirements carefully before embarking on any net zero change, including factoring the associated costs into the business case for the change. Where possible and appropriate, parties may agree that specialist external advice or technical services be commissioned jointly by the project and the Authority, to reduce duplication of cost and effort, and to enable public and private sector partners to rely upon the same report. In all cases, due regard should be given to procurement rules and commercial strategies of the relevant organisation, and whether use can be made of established procurement frameworks (such as the Crown Commercial Service frameworks for external consultancy, design and delivery services) to access standardised terms and competitive pricing. Authorities may also explore whether funding is available for carrying out feasibility studies (for example the Public Sector Low Carbon Skills Fund).

Another important factor will be the relationship between the key parties. Anecdotal evidence suggests that, as is ordinarily the case in contractual matters, changes to existing contracts are much more likely to be successfully implemented where the relationship between the parties is strong. This should therefore be an early consideration for any Authority looking to implement a net zero change. To cite an obvious example – if the project company and the Authority are currently party to an ongoing formal dispute under the project agreement, this may well influence the behaviour of the parties when considering a net zero change. Generally speaking therefore,

Net Zero Change Feasibility Period

such changes should only be considered where there are no material disputes ongoing and there are good working relations, noting that the wider stakeholder representation of a net zero working group may be able to defuse this to an extent.

Authorities should consider carefully their governance, decision making and approvals processes relevant to the net zero change. This is important to mitigate the risk of delay and also to ensure that net zero changes are assessed by reference to key gateways, in order to minimise the risk of aborted costs.

Most contract changes are likely to require some form of public sector business case and approval process. In this regard, authorities will already be aware of the Five Case Model Methodology for the preparation of business cases, which is applicable to policies, strategies, programmes and projects. The private sector project partners have an important role in business case preparation, including providing necessary information.

Where a net zero change is being considered, prior to the change being approved, the Authority should be able to demonstrate that it represents value for money, by reference to the Green Book and relevant supplementary guidance, including 'Climate change and environmental valuation' and 'Valuation of energy use and greenhouse gas emissions for appraisal'. Demonstrating the VFM of the works and the associated maintenance and lifecycle costs should factor in the value of decarbonisation benefits.

As well as Authority approvals, regard will need to be had to other required approvals, which as a minimum are likely to include detailed due diligence on behalf of the senior lender where the change mechanism is being used. Typically, for high value changes, lender consent will be required and the controls matrix (and other relevant provisions) in the credit agreement should be reviewed at an early stage to better understand the lender sign-off process.

Authorities are also encouraged to engage at an early stage with the relevant sponsoring Government department, to discuss the proposed change and any implications this may have to the terms or conditions of departmental support and the accounting and budgeting treatment of the project.

1.4 Due diligence

Nearly all contract changes require an element of due diligence, and it should be assumed that the key parties (Authority, project company, lender and FM contractor) will all want to do their own diligence when a net zero change is proposed. Where lender consent is required to implement the net zero change, it will ordinarily engage external consultants to look at the legal, technical and financial aspects of the net zero change.

The due diligence process (particularly lender due diligence) can be time consuming and costly. In trying to streamline the delivery of net zero changes, a number of questions should be addressed early on in the process by the working group to try to 'head off any issues at the pass', including:

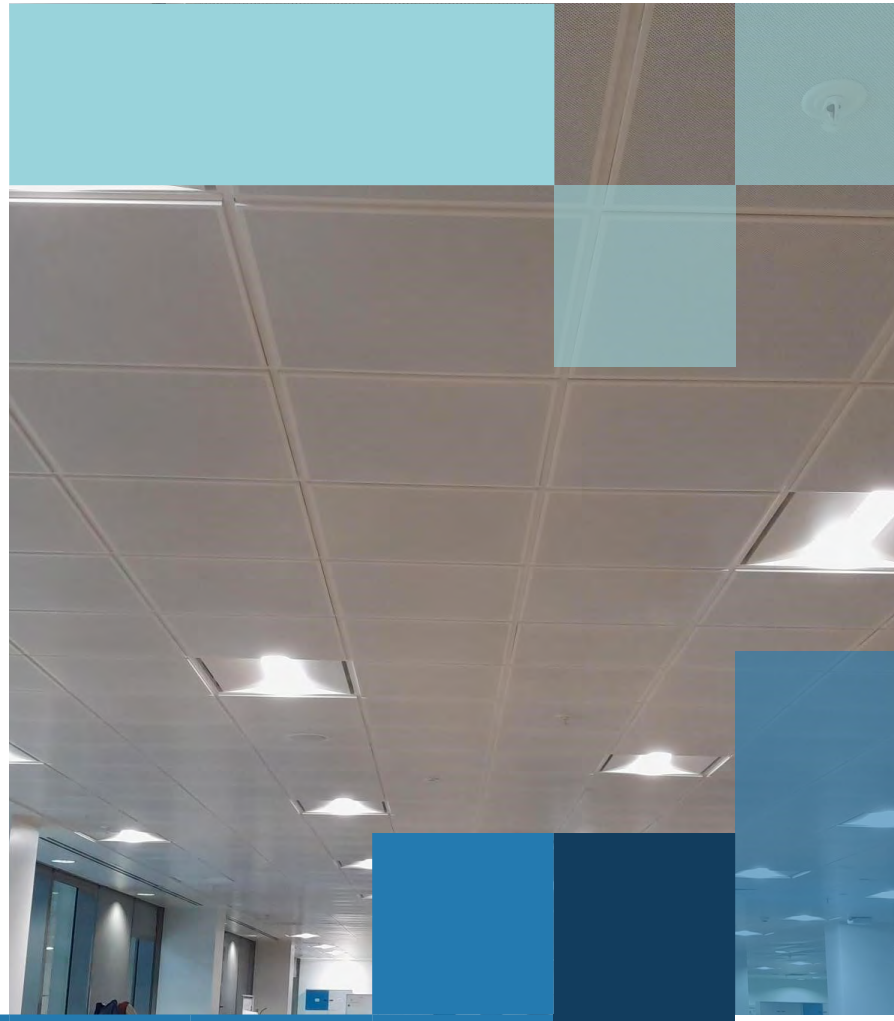
- What level of due diligence is required by each party and at what stage of the net zero change?
- Is there any reason to prevent a single adviser preparing due diligence reports with a duty of care to multiple parties? All parties should approach any potential net zero change with this mindset and a starting assumption that this approach is appropriate.

1.5 The change procedure

The starting assumption for many net zero changes will be that the change will be implemented using the change mechanism in the contract, although this may not always be the case and the parties should look at opportunities to deliver decarbonisation without having to instigate a formal change (for example, where the contract already provides for the identification and implementation of energy saving measures or there is an opportunity to upgrade assets when they are subject to lifecycle replacement).

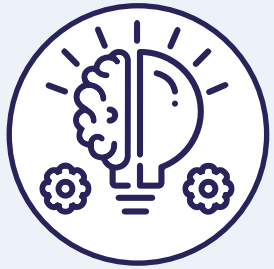
It is important to review the contract change provisions at an early stage to assess their suitability and discuss their use with the project company. This is likely to require input from legal advisers, be those internal or externally sourced. Initially, a high-level review should normally suffice to ascertain suitability. Some projects (in particular early contracts) may not have fully developed or effective change provisions, while other later projects are likely to have sector specific standard form drafting driven by HM Treasury's Change Protocol Principles of 2007.

Net Zero Change Feasibility Period



Net Zero Change Feasibility Period

It is useful to be aware of the background to change mechanisms in PFI contracts. Whilst, from its first iteration, SOPC included a chapter on changes in PFI contracts, it did not offer up a standard change clause. HM Treasury published other guidance, including Change Protocol Principles (August 2007).



As a result of this approach, it was left to each Government Department to develop their own standard form change clauses as they developed sector specific standard form project agreements. This is unhelpful in the context of this handbook and for authorities looking to deliver net zero interventions, as it means that there are a number of similar, but different, change clauses in operation, meaning that each net zero change may need to adhere to a slightly different mechanism.

As more and more projects became operational, many of the early change mechanisms contained in contracts were found to be not entirely effective and the topic of changes in PFI became one which attracted public criticism for being unwieldy and costly. Government sought to address this when it issued the final iteration of SOPC for the PF2 model. The standard form schools' contract (used for the four PF2 Priority Schools Building Programme projects) contains a change mechanism that sought to address many of these historic issues, designed to be clear, efficient, transparent and offering a value for money solution.

Parties should reach early agreement between them on the approach to be taken for each net zero change (which may reflect a tried and tested approach adopted for previous changes on the project), the options being:

- the default position, namely that the net zero change is delivered using the change mechanism, as drafted, in the relevant project agreement
- the existing change mechanism is used, but the parties agree a separate change protocol which will sit alongside it – this may, for example, extend time periods or require the provision of additional information (see below)
- the parties agree that an entirely new, more sophisticated change mechanism, such as the PSBP change mechanism is adopted and used
- the entire process is agreed following commercial negotiation, with the final negotiated position then being captured in a deed of variation to the PA.

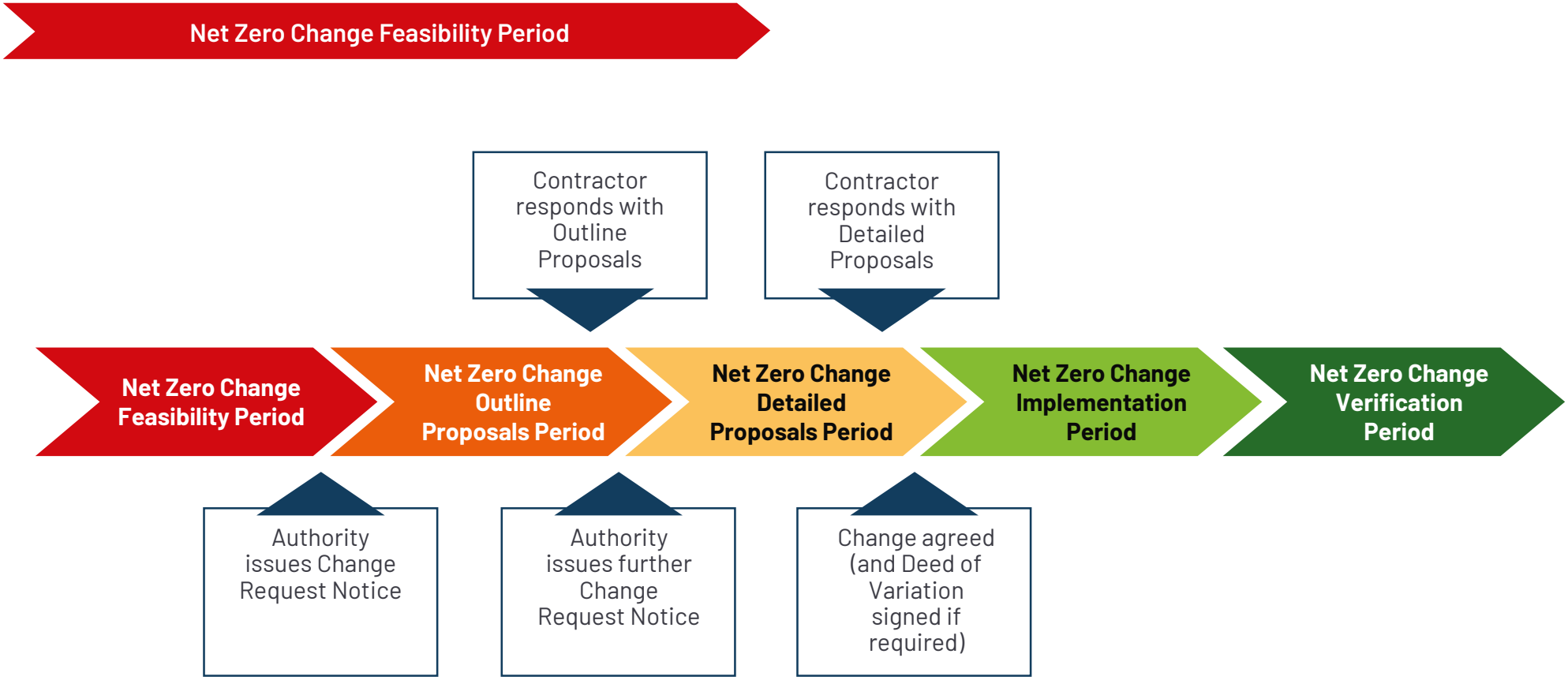
Whichever route is chosen, success is likely to rely on joint working and collaboration, with the legal approach chosen being the framework for delivery of the net zero change.

Notwithstanding that the change drafting is likely to vary from scheme to scheme and sector to sector, there are a number of common elements to the vast majority of clauses, with clauses typically including low, medium and high value change provisions. It will be important to consider which procedure is appropriate on a contract by contract basis. Whilst technically complex and/or large net zero changes are likely to be treated as high value changes, this will not always be the case and we are aware of case studies where net zero interventions have been delivered using the low value change procedure, without the need for lender sign off (although technical adviser sign-off may still be required). This is important as typically lenders have rights to approve or reject high and medium value changes, but often do not have such rights for low value changes and this can have cost and speed implications.

A further point to check is whether the contract already deals with changes designed to improve energy efficiency. This is probably unlikely, particularly in earlier contracts, but should still be checked and may have a bearing on the commercial discussions that take place in the context of the proposed net zero change. By way of example, the standard form payment mechanism in the Building Schools for the Future contract (under which energy consumption risk is shared) specifically provides that either party may propose the introduction of energy saving technology and how it may be implemented under the change mechanism.

For the remainder of this handbook, it is assumed that net zero changes will be delivered using an existing, two stage, change mechanism in the project agreement as illustrated below.

Net Zero Change Feasibility Period



Timings

As mentioned above, before the Authority issues a change request to formally start the change process, it should consider the extent to which its mechanism is workable and suited to the nature of the net zero change envisaged, particularly with regard to timescales. By way of example, a 2007 emergency services contract examined gave the project company 21 days to prepare its estimate, to include the following:

- whether relief from compliance with obligations is required
- any impact on the provision of the services
- any amendment required to the PA and/or any other project document
- any estimated change in project costs
- any loss of revenue

- any capital expenditure that is required or no longer required as a result of the change
- any regulatory approvals which are required
- the proposed method of certification of any construction or operational aspects of the works or the services required by the proposed change

In some cases, this may not be sufficient time to allow a proper proposal to be considered and worked up and highlights the importance of early engagement with all interested parties to consider and work up the proposed net zero change ahead of service of the change notice. It may also be the case that parties agree to extend the contractual time periods and indeed this is specifically contemplated in some standard form clauses.

Objections

Change mechanisms typically allow the contractor to object to a proposed change on certain specified grounds and it will therefore be important to consider these provisions early on and ascertain whether a proposed net zero change may fall foul of them through early discussion with the contractor and, if relevant, the lender. See section 2.7 below.

1.6 Energy provisions

It is obvious to say that energy usage will be a key consideration when assessing a net zero change. Whilst later standard form contracts (e.g. the BSF project agreement) included detailed energy usage provisions, setting out how energy risk is shared between the parties,

Net Zero Change Feasibility Period

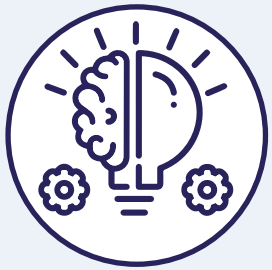
earlier projects may vary considerably in terms of their approach. When SOPC4 was published in 2007, it stated:

> "Authorities should also consider their approach to energy usage. For energy usage the general principle is for the Authority to take pricing risk and the Contractor to take volume risk since this is largely dependent on design. However, the Authority therefore has an interest in the price so the selection of service provider should not be entirely for the Contractor, moreover the Authority may have greater purchasing power than the Contractor. On the other hand the Contractor may not be entirely in control of volume and in any event, it may not be value for money to ask the Contractor to price volume over a long period of time. One approach, which has been developed in detail by the Department of Health, is to derive a mechanism for generating a central volume expectation and pay the Contractor on the basis of that volume with a sharing mechanism should volume be lower or greater than that central expectation. This is also an important element of street lighting contracts, and the street lighting standard form has detailed provisions whereby an electricity charge is usually paid by the Authority to the Contractor in addition to the Unitary Charge (and can be as large as the Unitary Charge). Detailed provisions have been developed to deal with, for example, savings derived from technological advances."

Net Zero Change Feasibility Period

Therefore, in order to implement a net zero change, the Authority should ensure it has a clear understanding of the way in which energy is dealt with in its contract, who takes consumption risk and, if it is shared, on what basis. It will also need to consider carefully the proposed position following implementation of the net zero change. A bespoke approach will need to be tailored to each project's characteristics.

Where consumption risk sits with the Authority or is shared, it should be assumed that the consumption targets will need to be adjusted or reset following a net zero change. Where this is the case, consideration should be given to whether an initial period will be required to determine agreed new consumption targets. For example, will new equipment/systems require a 'bedding in period' allowing them to be fine-tuned and calibrated to deliver the best outcome?



1.7 Contractual considerations

Authorities are advised to consider the likely impact of the proposed net zero change on the services provided under the PFI contract. As an Authority starts to think about this, prior to formally requesting a change, it should consider the following questions:

- What is the scope of the services?
- Does it include hard FM and soft FM?
- Does it include reactive and planned maintenance and lifecycle replacement?
- Who takes the key risks, the project company, the FM contractor or the Authority?
- Will the proposed net zero change have a material impact on the services?
- Will the performance and availability standards need to be changed?
- How is energy supply dealt with under the contract? Who takes tariff and consumption risk?

When planning a net zero change, an Authority will need to determine whether there will be a need to recalibrate the payment mechanism, an often complex, time consuming and costly exercise. Whilst this will be the case for some net zero changes that require or result in a change in service standards, it will not always be necessary. By way of example, we are aware of projects where the installation of LED luminaires has not required a recalibration of the payment mechanism because service standards have remained unchanged.

Credit Agreement

Whilst it is for the project company, as borrower, to secure lender approval to any change, the Authority should also make sure it has a clear understanding of the relevant provisions and how they might impact on the successful delivery of the net zero change. Areas of particular interest will be:

- What information is the project company obliged to provide to the lender and when? Are there restrictions on what the project company can share with the Authority without first getting the lender's approval?
- What are the requirements for documents to be shared with the lender, events to be notified to the lender or prior lender consent to be secured before certain actions can be taken? In these scenarios, is the lender required to act in a certain way (e.g. act reasonably) and is it subject to a maximum time period to respond? The controls matrix will usually provide all this detail. By way of illustration, matters often requiring lender consent under the controls matrix and likely to be relevant to a net zero change are:
  - submit and/or agree a change proposal/submission/response
  - refer a dispute in relation to a change proposal/submission/response
  - agree adjustments to the unitary charge
  - agree due diligence costs
  - agree amendments to the project documents

1.8 Assessing risk

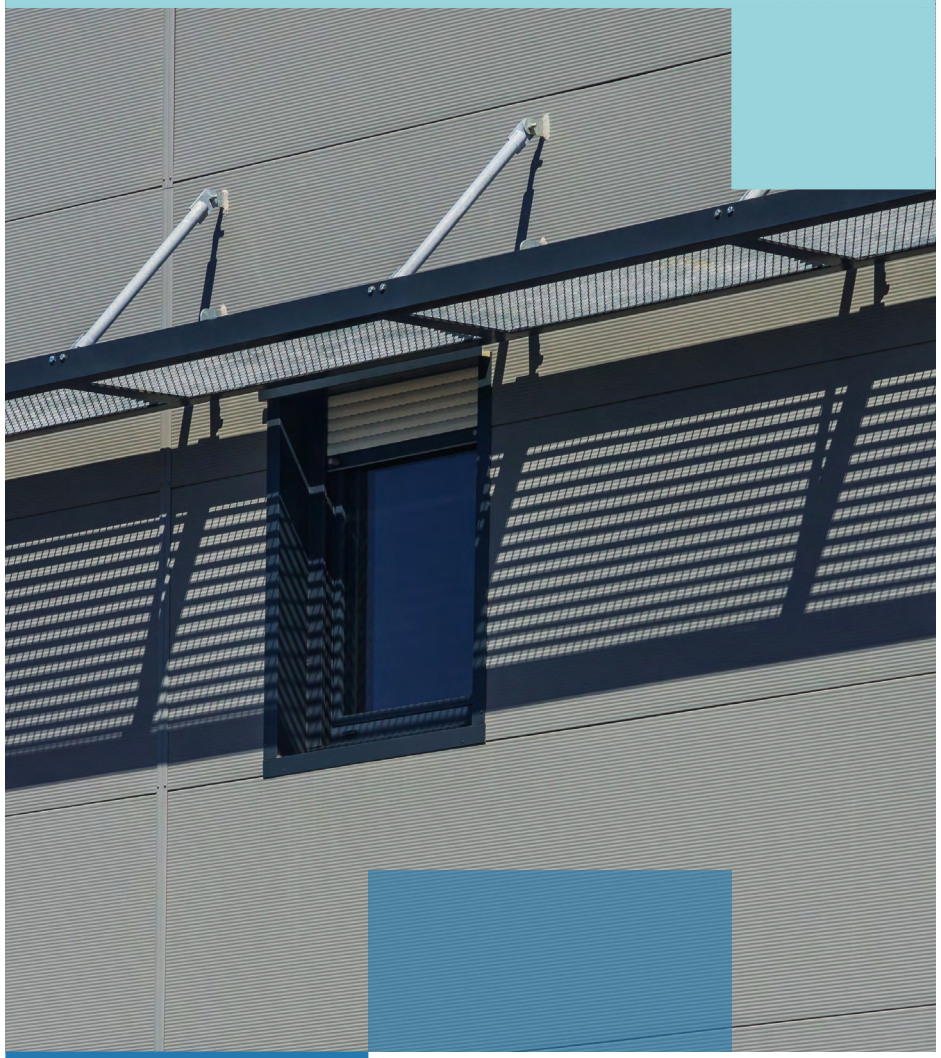
When considering a net zero change, Authorities should carry out a thorough risk analysis of the proposed intervention at the earliest opportunity and prepare a risk register. That analysis should consider all key risks, which are likely to include but not be limited to the following:

Net Zero Change Feasibility Period

- **Procurement** – does the net zero change give rise to a potential procurement issue due to its nature or value? Independent legal advice should be taken on this point and there may well be a need to review the original OJEU Notice and associated procurement documents in order to dismiss this risk
- **Affordability** – in the absence of grant funding, available capital reserves and/or the project company offering relevant maintenance savings or reprofiling of lifecycle costs, is the Authority able to afford to implement the change? This risk is accentuated by the current economic climate (high inflation, high cost of labour and materials, rising interest rates etc.) and wider market conditions (for example, a shortage of supply of PV panels)
- **Deliverability** – is the proposed intervention deliverable? This may be influenced by the scale and nature of the proposed net zero change, the site layout, configuration and condition of the building and availability/reliability of technology, as examples.
- **Impact on services and asset users** – will the implementation of the net zero change have a material impact on service continuity and building availability/access and is this risk acceptable/manageable?

Net Zero Change Feasibility Period

- **Risk allocation** – does the proposed net zero change affect the existing risk allocation and if so, are the proposed changes to the allocation of risks between the Authority and the project company as set out in the project agreement acceptable to the Authority? If the change of risk allocation proposed by the project company is not considered appropriate, this may make it impossible to proceed with the change. Also, if the Authority finds that it would be in the position of taking more risk than contemplated under the original PFI arrangement, consider why this should be the case, who is the party best placed to manage this risk, and what would be the value for money, accounting and budgeting implications of such a change. Expert advice should be sought as needed to assess technical, commercial and financial risks if the relevant skilled resource is not available in house.



2. Net Zero Change Outline Proposals Period

Executive summary

Where the Net Zero Change Feasibility Period delivers a positive outcome, the parties will progress to this phase and this will be signalled by the Authority issuing a Stage 1 Change Request Notice. If the previous stage has been conducted successfully, this will not come as a surprise to the project company and it will be comfortable with further working up the net zero change. This stage will require further due diligence to be carried out, allowing the project company to issue a reasonably detailed, indicative response to the Authority for consideration.

Net Zero Change Outline Proposals Period

Key tasks checklist

- Understand the impact of the change on the existing assets and services
- Resolve any constraints that may prevent the technology from being installed
- Collect and collate all relevant information
- Discuss approach to pricing, including fees, margins, OHP (overheads and profit), risk pricing etc.
- Agree preferred approach to funding
- Resolve any accounting treatment issues
- Understand contractual implications of the change
- Agree due diligence requirements for all interested parties
- Update the net zero change risk register

Net Zero Change Outline Proposals Period

Detailed recommendations

2.1 Impact on the Services

As the proposed net zero change is being worked up, its impact on the services provided by the project company will be a key area of focus, particularly with regard to planned maintenance, and the following questions will need to be answered as part of the process.

- What are the planned maintenance requirements as a result of the change itself (i.e. the additional planned maintenance of any newly installed equipment)?
- What are the consequences of the change e.g. reduced roof access due to installation of PV panels?
- Is there a need to update the maintenance and operating procedures (or equivalent) and programmes in the Contractor's Proposals?
- Do the Authority's Requirements require amendment?
- Does the net zero change affect the existing design life requirements?
- What does the contract say about asset replacement? Is there an obligation to replace with at least equivalent standard? Is there a requirement for an equivalent or longer lifespan? Are such requirements relevant to the net zero change?

Consideration should also be given to how interface risks will be impacted by the change, in particular where the net zero change requires a change to the original works/fabric.

Finally, do the assets revert to the Authority on expiry? What are the implications if they don't (as is the case for some housing PFI projects)? Whilst there may be good reasons that an Authority wishes to see net zero changes implemented even where they do not retain ownership of the asset on expiry, the commercial drivers will clearly be very different and will require a business case that takes this into account, and engagement with the parties that hold the long-term ownership interest in the assets.

2.2 Constraints

As well as understanding the impact of the change on the services, it will be important to consider whether there are any constraints which might affect the ability to deliver the net zero change. These could include:

- Are there any land/title/site issues to be dealt with, for example restrictions on the title or physical site constraints that might prevent delivery of the net zero change?
- Will consents or statutory permissions be required, such as planning permission for example or permission from the local Distribution Network Operator to connect a PV scheme to the grid? Are these likely to be obtainable? Who takes the risk of obtaining these and what happens if they are not obtained? In particular, where the proposal is to electrify heating systems or install solar photovoltaic panels, early review of the existing grid connection/ capacity and infrastructure is essential. Where new grid

connections or upgrades to existing infrastructure are required the cost associated with this may be prohibitive and should be tackled prior to incurring any other material expenditure, or the consideration of alternative solutions with lower installed capacity.

- Is there a risk that the net zero change will compromise or invalidate existing guarantees/warranties/approvals, for example would installation of PV panels on a flat roof invalidate the warranty given in respect of the roof membrane system or present issues regarding fire safety?

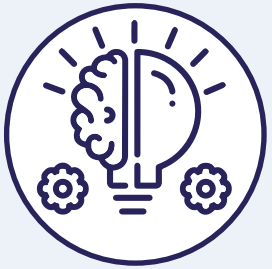
2.3 Information requirements

The successful implementation of a net zero change will rely on co-operation from the project company to provide the Authority with the information it needs to assess the proposed net zero change. During Net Zero Change Outline Proposals Period, the level of detail and extent of information required will be less than it is at the next Net Zero Change Detailed Proposals Period.

Net Zero Change Outline Proposals Period

Net Zero Change Outline Proposals Period

At Net Zero Change Outline Proposals Period, typically, the contract will require the provision by the project company of the following:



- an outline design/specification/solution
- an overview of all key risks, including infrastructure related challenge
- its assessment of the estimated costs of the net zero change (to pick up capital cost, maintenance and lifecycle and fees)
- if relevant for plant and equipment to be replaced as part of the net zero change, a comparison with the originally forecast lifecycle and maintenance costs, and identifying the amount of any funding shortfall (if costs have increased) or setting out an appropriate adjustment to be made to unitary charges (if costs have decreased)
- outline programme for implementation of the net zero change
- any relief from obligations likely to be required
- any impact on the provision of the services
- the approach at contract expiry and handback of the project asset(s)
- an initial assessment of amendments to the project documents
- any gain in or loss of revenue
- any consents or other regulatory approvals which are required and any insurance considerations
- for healthcare projects, early involvement of the Authority's Authorising Engineer is recommended

At this stage this information will not be fully developed so that the Authority will need to be aware that it does not have the definitive position in all areas when assessing whether to progress to the next stage.

Whilst most change clauses will not have been drafted with net zero changes in mind, the drafting should entitle the Authority to receive all necessary information, even if it is not referenced explicitly.

2.4 Initial pricing of the change

As referenced above, many of the earlier change mechanisms were relatively basic in their nature, sometimes using a one stage process even for high value/complex changes. The nature and complexity of most net zero changes lend themselves to a two-stage process, where an initial estimate (often based on a desktop exercise) is provided for consideration before a more detailed final price is determined at the second stage (informed by surveys and more detailed due diligence).

The pricing of changes can be complex and has often been an area of contention between the public and private sectors, particularly with regard to what should properly be included within the proposed price. It is likely that all parties will wish to interrogate in detail the proposed costs to ensure that they have been calculated properly and in accordance with the contract. SOPC recognised this as a potential issue and generally speaking, irrespective of the actual change mechanism being used, the contract will adopt the principle that the aim is for parties to be left no better no worse.

As mentioned above, many project stakeholders including the investors (particularly the larger investors who have significant portfolios of PFI investments) and FM providers have their own net zero plans and targets and therefore the delivery of net zero changes will be of benefit to them. Against this backdrop, and recognising the portfolio nature, one question which merits discussion is the extent to which the investor and FM provider may be able to identify areas where

Net Zero Change Outline Proposals Period

it is able to reduce the costs to the Authority of delivering net zero interventions for individual projects.

No double counting

An overarching principle when pricing net zero changes (as with all other changes) should be that of no double counting, noting that as it is not a party to the agreement, the Authority would not be entitled to see the terms of the MSA. With the cost often made up of both internal and external costs, margins, fees and contingencies, it is easy to see how an Authority could find itself paying twice or paying for something it has already paid for (for example, where the price includes a change management fee for the MSA provider but the scope of the MSA requires the MSA provider to manage the delivery of changes within its existing fee).

Open book accounting/transparency

Many PFI contracts include provisions regarding open book accounting, transparency and access to documents, and these principles should be at the heart of any net zero change. However, it is only the five operational PF2 contracts that included the most detailed transparency requirements and Authorities would benefit from familiarising themselves with these provisions before embarking on a net zero change. Notwithstanding this, it is hoped that all parties will approach net zero changes with the presumption that all relevant data can and will be shared with the Authority as per the PF2 provisions.

Net Zero Change Outline Proposals Period

With these principles in mind, when pricing a net zero change the three areas of focus should be the works, the services and transactions costs, each considered below.

Works

An Authority should expect the price for carrying out the physical works to include:

- the cost of labour and materials
- any associated professional fees related to the change (e.g. architects, structural engineers, mechanical and electrical engineers etc.)
- associated preliminaries ('preliminaries' in a construction contract, or 'prelims', relates to items which are necessary for the contractor to complete the works, but will not actually become part of the works, such as scaffolding, plant, the cost of power to the site and other site overheads)
- its margin (overhead and profit or OHP)
- depending on the nature of the change, a contingency

It will be important to check whether the change mechanism included unit rates (or similar) that should be used as a starting point for pricing the net zero change and whether there is any capping of OHP (see, by way of example, the BSF standard form which included unit costs, consultant, supplier and sub-contractor fees and unit cost labour rates).

A key element of an Authority's VFM assessment for a net zero change will be the basis on which the contract for the net zero change is let. It is advised that at an early stage this is considered by the working group and an approach agreed, be that the use of a formal tender process, using an existing public sector framework or third-party verification of the cost. Again though, the starting point should be the provisions (if any) of the underlying contract (for example, the BSF change mechanism requires the Contractor to include a VFM assessment as part of its response back to the Authority, explaining why the Contractor's proposals represent value for money and taking into account both the proposed capital cost and the whole life cost).

Alternatively, Authorities may wish to see the works contract let on an open book basis, which may avoid risk pricing and may be considered to offer better value for money.

Services

The contractor should be entitled to recover the additional cost of any associated change in the services to be provided, by reference to the original unit costs built into the unitary charge where they exist. Likewise, any savings resulting from the change should also be reflected in the pricing assessment.

Where the contract does not provide unit cost information, consideration will need to be given to the basis upon which the change should be priced and how the Authority can ensure it is getting good value. A key element of the services pricing will be lifecycle and maintenance. Any planned maintenance and lifecycle replacement associated with the net zero change (be that additional maintenance and replacement or savings as a result of maintenance and lifecycle

no longer required) will need to be priced and should be consistent with the lifecycle and maintenance profiles agreed at financial close. In this regard, contractors should be required to reflect improvements in technology that can optimise whole life costs for the Authority. With regard to lifecycle replacement, it is likely that the lifecycle plan will need to be adjusted to reflect the revised assumptions following the change. If the project is willing to share the forward-looking lifecycle assumptions, and revised assumptions reflecting the like for like versus energy efficient alternative replacement options, this would enable the Authority to confirm with confidence that proposed service pricing for the change has been calculated fairly. On projects where lifecycle risk has been passed (in full or in part) to the FM contractor, then the FM company and not the project company will be the party being asked to price the change taking into account changes to lifecycle and maintenance requirements and risks.

Finally, any increase or decrease in insurance costs should be easy to demonstrate and should properly be included in the pricing. As a minimum, the Contractor is likely to need to notify the insurer of the works carried out. Where the net zero change results in a change in the insurance premium, the existing contractual mechanisms will need to be applied to determine how this cost is dealt with.

Transaction costs

All parties will rightly expect to recover appropriate transaction costs, including:

- project management fees related to the implementation of the change itself (sometimes referred to as a change management fee)
- external consultant fees (legal, financial, technical)

Net Zero Change Outline Proposals Period

Careful consideration should be given to how these can be minimised, including the use of frameworks for consultants in a bid to take the benefit of economies of scale and repeat learning.

With regard to project management fees specifically, any recovery of internal project company costs should be discussed and of course informed by the contract. In this regard, the position under the BSF standard drafting (as an example) should be noted, which provides *"no charge shall be made in respect of the Contractor's time, or that of any Contractor Related Party spent processing, managing or monitoring the ... Change ... (and no additional mark up or management fee shall be applied by the Contractor)"*. This may also be an area where some betterment for the public sector is available. For example, where the investor takes a benefit from the net zero change (by enhancing the green credentials of its investment portfolio), is there an opportunity for some or all of its costs to be waived or recovered outside the project? We would expect all parties to seek to minimise any such costs and consider whether it is possible to waive them where there is a contractual right to recover.

Net Zero Change Outline Proposals Period

Risk

The net zero change may lead to a change in the risk profile of the project (positive or negative), and the project company will rightly expect to reflect this in their pricing of the change. Extreme caution is needed if changes to the original project risk allocation are contemplated, as this could impact on the value for money being delivered from the project, and may also require a change to the accounting or budgeting for the project, in a way that is problematic for the Authority or for a sponsoring department and the continuation of project budgetary support.

Examples of where net zero change may lead to a change in risk for the project could be the proposed installation of innovative or less well tested technology, where the likelihood of that technology failing (and potentially needing to be replaced) is greater. Similarly, reliability and performance of replacement equipment may impact on service and result in higher unitary charge deductions. It is not possible for the approach to pricing to be standardised, as this will need consideration on a scheme by scheme basis reflecting the nature of the change and equipment in each case. By way of example, there is a very different risk profile where an established technology such as LED luminaires is proposed to be installed, compared to an air source heat pump which has a shorter performance in use record. This is an aspect which will benefit from early discussion by the working group to ensure that all parties are in broad agreement on the approach. Finally, it should be noted that the risk pricing is not and should not be seen as an opportunity to address the financial impact up to the date of the net zero change of those risks which the Contractor bears under the terms of its Project Agreement, such as the historic lifecycle risks that have occurred up to the point of the net zero change, as well as economic factors such as changes in tax rates and indexation.

Savings

Many net zero interventions will require expenditure to be incurred up-front but will deliver future savings, be that lower energy costs and/or a reduced maintenance or lifecycle need. A challenge when delivering net zero changes will lie in how these savings are determined and who takes the risk of that up-front quantification being accurate.

Consideration will need to be given to how such savings are allocated (noting that the approach is likely to differ depending on the nature of the net zero change). Is it correct to assume that 100% of all savings are for the Authority's account, or should they be shared, noting that there is a mixed position contractually across projects? For example, we are aware of projects where the contract is explicit that energy efficiency savings generated where the Contractor puts forward measures are retained by it and not shared with the Authority.

With regard to energy costs specifically, it will be important to ascertain the pre-net zero change position with regard to both tariff and consumption risk before an assessment of future impact can be made, as referred to in more detail in a later section of this handbook.

Summary

Net Zero Change Outline Proposals Period

To summarise, we would consider the typical position in terms of the parties that have an interest in pricing a net zero change to be as follows:

Category	Includes	Project company	FM Contractor	Lender	Installer/Works Contractor	MSA Provider
Works – the capital cost of the net zero change	Materials, labour, prelims, contingency, overhead and profit and professional fees				✓	
Services – the revenue cost and/or saving of the net zero change	Reactive and planned maintenance, lifecycle replacement and insurance	✓	✓			
Transaction costs – the fees associated with the net zero change	Legal, technical, financial and project management	✓	✓	✓		✓

Finally, in this initial stage, consideration should also be given to abortive costs for work done to progress a proposed net zero change that ultimately (for whatever reason) does not proceed. Individual project agreements may already deal with such scenarios, but on a project specific basis consideration should be given to an agreed risk share arrangement in respect of abortive costs (to incentivise the Authority, the project company and the FM contractor). This is a principle that is captured to some extent in the PF2 standard change mechanism. Early engagement and discussion, plus desktop analysis with regard to feasibility, can reduce the risk of late stage cancellation of changes after significant costs have already been incurred.

Net Zero Change Outline Proposals Period

2.5 Funding

The required funding solution for a net zero change will depend on a number of factors, including whether the change mechanism is being used or whether it can be delivered within the existing contract specification. Some decarbonisation options may be capable of being delivered as part of existing maintenance and lifecycle provision without changing service requirements. In other cases, contract changes may be required that would need to be reflected in an adjustment to the existing unitary charge or may require additional capital investment. Where capital is required (and assuming that the net zero change is not as a result of a change in law, in which case the relevant terms of the project agreement will need to be followed), the following factors should be considered:

- To what extent can existing project funds be allocated to delivering the intervention. For example, lifecycle budgets may be available for some or all of the capital cost if the intervention is a lower carbon alternative to planned equipment replacement or if there is a change that has reduced other planned maintenance and lifecycle costs. This approach may leave a top up amount, if there is a shortfall, to be funded by a capital contribution from the Authority or from other sources. If this route is being considered, Authorities will need to understand forward looking planned lifecycle spend and other budgeted costs where relevant to a proposed net zero change and all parties are strongly encouraged to share relevant information freely (irrespective of the contractual position) to help facilitate net zero changes. For example, how lower carbon options compare with like for like equipment replacement in lifecycle budgets, and how ongoing performance assumptions and maintenance costs of alternative options may compare with budgeted FM costs. In this regard, it is worth noting that in the majority of projects, lifecycle risk sits with the project company and not the FM contractor. Where this is not the case, whilst the issues are the same, this 'top up' approach may be more challenging to deliver given the additional party in the contractual chain trying to assess the impact of the change on their risk position and pricing and agreeing the change.
- Is the Authority willing/able to fund part or all of the capital cost of the change? This funding may be drawn from capital reserves, borrowings or be available as a result of the receipt of grant funding (e.g. the Public Sector Decarbonisation Scheme). With regard to grant funding, Authorities will need to consider eligibility and availability and should note that they may be required to demonstrate a funding contribution alongside the grant and meet specific deadlines for completion of the works. It should also make the project company aware of any grant conditions at an early stage, to ensure that a grant compliant proposal is worked up.
- Depending on the funding route adopted, what is the impact on the unitary charge following implementation of the net zero change and is this affordable?

2.6 Accounting and budgeting treatment

Contract changes can affect risk allocation, and other factors, and therefore how the project should be presented in accounts and budgets. Care is needed to consider carefully whether any of following changes to risk allocation might arise as a result of the change, as this would be likely to impact value for money, accounting and budgets:

- capping the performance risk taken by the project through payment mechanism deductions or guaranteeing a minimum level of payments
- transferring maintenance risk from the project to the Authority
- changing ownership of elements of the project, funding and financing arrangements, or giving the Authority additional controls over important decisions of the project company
- introducing caps on private sector returns

Authority contract managers are not expected to understand the detail of accounting and budgeting for their PFI contracts. It is enough to understand that contract changes can have wider consequences, and contract managers should consult their finance department and/or sponsoring department when contract changes are being considered.

Further support on this topic is available in the IPA's PFI Training Module 4 - Change Management.

Net Zero Change Outline Proposals Period

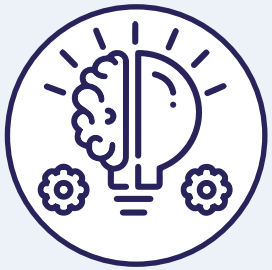
2.7 Contractual considerations

Grounds for objection

Following service by the Authority of its Stage 1 Change Request Notice, the project company will have a certain number of days to provide its response. As mentioned above, typically, that response will also provide an opportunity for the contractor to object to the proposed net zero change (albeit in practice we would not expect to see objections at this stage if the Net Zero Change Feasibility period has been successful in securing in principle agreement to proceed).

Net Zero Change Outline Proposals Period

Typically, a contractor can object to a change on the following grounds:



- the change would infringe any law or be inconsistent with good industry practice
- it would cause any consent to be revoked (or a new consent required to implement the relevant change in service to be unobtainable), which may include the need for lender consent to the change, where this is required
- it would materially and adversely affect the contractor's ability to deliver the services
- it would materially and adversely affect the health and safety of any person
- it would require the project company to implement the change in an unreasonable period of time
- it would materially and adversely change the nature of the project (including its risk profile)
- the Authority does not have the legal power or capacity to require the implementation of such a change

Relief from obligations

Assuming that the contractor has not objected to the proposed net zero change, it will need to consider the extent to which it requires relief (if any) from its contractual obligations – both temporary relief during the implementation of the change and any ongoing relief following its completion. Any such reliefs will need to be considered carefully and should be limited to directly impacted activities. This issue arises in all changes, but when considering this in the context of net zero changes and this handbook, some additional matters, over and above the usual issues, will need to be considered.

- Where the net zero change includes works to the existing fabric of the building/asset, there are likely to be various interface issues to overcome, particularly so for more recent projects (or projects which have delivered major variations) where the construction contractor may still be within its defect liability period (as of December 2022, there were thought to be more than 100 projects where the original construction contractor is still within its defects liability period). Again, early discussion on this topic is advised and, where possible, the parties should try to avoid 'reinventing the wheel' and look at how other projects which have delivered net zero changes have addressed such issues.
- Most projects set out a prescribed asset condition which must be met on handback, sometimes prescribing a minimum residual life post expiry. Consideration should be given to the impact of the net zero change on these provisions and whether, for example, there may be an opportunity to change the requirement, which may free up funds identified in the model to carry out handback works, which can then be diverted to pay for (or at least contribute

towards) the net zero change (and also consider if this is relevant when other surveys are carried out during the contract term, not just the expiry survey). For example, there may be an opportunity to replace a fossil fuel boiler, which would otherwise have required replacement in the years preceding expiry, with a lower carbon heating system.

Warranties and guarantees

To the extent that the net zero change includes works or the provision of goods, are guarantees/warranties available from contractors/ product manufacturers? By way of example, it is not uncommon to be able to secure long warranties (20 years plus) for LED luminaires. To the extent that they are available, does the Authority have the direct benefit or the project company? Can/will they be transferred on expiry? The starting assumption should be that any warranties/ guarantees will be transferred to the Authority on contract expiry.

Ownership

Who will own/have responsibility for the newly installed kit? We are aware of case studies where ownership of newly installed PV panels sits with the Authority, with it taking maintenance and performance risk for them. In this scenario, the impact on the specification and payment mechanism will need careful consideration, with most likely the contractor requiring relief event protection where the panels fail.

Late delivery

What rights and protections will the Authority have in respect of late delivery of the works associated with the net zero change. It may want to consider protections against failure to complete on time such as liquidated damages or deductions, albeit where the UC is due to

Net Zero Change Outline Proposals Period

increase as a result of the change, this might be considered sufficient protection. It may also require the inclusion of a longstop date with specific remedies included for a failure to hit this (albeit we would not expect to see a right to terminate the contract if the longstop date is missed).

2.8 Due diligence

Having discussed the required due diligence during the Net Zero Change Feasibility Period, all parties should have a good idea of what is required, who will carry it out and the associated cost. However, it is important to continue to revisit this as the net zero change progresses. As part of a proposal tabled by the project company at stage 1, the Authority should satisfy itself that the proposed due diligence costs are reasonable and, if necessary, should not be afraid to test/challenge them.

Net Zero Change Detailed Proposals Period

3. Net Zero Change Detailed Proposals Period

Executive summary

Having received an acceptable proposal from the project company in Net zero stage 1, during this stage the parties will develop a fully worked up and costed net zero change proposal for final consideration and signature. This phase is likely to include detailed due diligence by all parties and will require detailed examination of the existing legal suite of documents, the technical documents and the payment mechanism. It will require a works programme to be agreed and will require in depth discussions with not only the Authority but also the asset users/occupiers.

Key tasks checklist

- Finalise all surveys, report and studies, including the Detailed Feasibility Study
- Secure all third-party consents required for the change
- Conclude detailed design (typically up to RIBA Stage 4)
- Tender works/works packages
- Instruct consultant team (QS, PM, technical etc.), if not already appointed
- Develop detailed costings, to be updated as further pricing information becomes available
- Agree payment terms (change to UC, capital contribution or a mix)
- Agree commercial terms, including the payment mechanism and prepare deed of variation/updated project documents
- Update risk register

Detailed recommendations

3.1 Detailed feasibility study

The Energy Review and Desktop Study, carried out earlier in the process, will have been used to inform the development of the proposed net zero change and offered a high-level analysis of it. However, at this stage, in order to conclude the change, a detailed, jointly commissioned/produced Feasibility Study is likely to be

needed, which will be the pre-cursor to extensive technical, legal and financial analysis to work up a detailed proposal for consideration by the Authority. At this stage, it will be important to have a clear understanding of how the cost of the detailed Feasibility Study will be met and paid for, the default position being as per the change mechanism in the contract.

When producing the detailed Feasibility Study, areas of consideration are likely to include:

- cost, payback and value for money
- technical
- commercial
- timing
- energy efficiency and emissions reduction expectations
- data collection and measurement

3.2 Working up the detail

During Net Zero Stage 2, the project company will be responsible for working up a detailed Stage 2 response and a number of key tasks are likely to be completed, including:

- finalising all surveys and technical due diligence
- securing any consents and approvals required, including from Statutory Undertakers (e.g. wayleaves, grid connections), the lender and the lender's TA and the Planning Authority
- completing all design work
- of not already done, appointing the professional team

Net Zero Change Detailed Proposals Period

- placing the works contract/packages, be that via a tender process, eligible framework or direct appointment
- finalising the pricing
- working up a measurement and verification plan, to ensure any design considerations required to enable the accurate collection and measurement of data following implementation of the net zero change can be built into the works specification, which may include Automatic Meter Reading (AMR), Building Energy Management Systems (BEMS), Automated Monitoring and Targeting (AM&T) and Electrical Load Analysis (ELA)
- setting out the information and reporting requirements of the Authority for monitoring the delivery of the change during the Net Zero Change Implementation Period
- setting out the post implementation information and reporting requirements of the Authority to support measurement and verification of the impact of the change, including to take account of any conditions of grant funding to the project, if applicable

The nature of the work is unlikely to be materially different from Stage 1, but the project company will be required to provide a much greater level of detail and certainty so that the Authority can properly consider the Stage 2 proposal and determine whether to proceed with the net zero change. The table below compares the likely requirements in stage 1 and stage 2.

Net Zero Change Detailed Proposals Period

Typical items for inclusion in a stage 1 response	Typical items for inclusion in a stage 2 response
• An outline design/specification/solution • An overview of any key risks • Its assessment of the estimated costs of the net zero change (to pick up capital cost, maintenance and lifecycle and fees) • Outline programme for implementation of the net zero change • Any relief from obligations likely to be required • Any impact on the provision of the services • An initial assessment of amendments to the project documents • Any gain in or loss of revenue • Any consents or other regulatory approvals which are required	• Detailed design to RIBA Stage 4 • Detailed risk register • Final costings (including any assumptions underpinning them e.g. currency risk for imported technology) • Detailed programme and accompanying method statement (including decant arrangements, details of work areas etc.) • Final position on contractual reliefs • Final position on impact on the services • Marked up versions of any project documents where changes are proposed, draft Deeds of Variation • Final impact on revenue • Worked up consents and approvals (e.g. draft planning application where relevant) • Proposals for the sign-off/certification of the works • Value for money assessment/justification • Surveys, investigations and other due diligence reports • Lender approval/sign-off requirements

3.3 Data collection

An Authority implementing a net zero change will want to collect data to allow it to evaluate how successful the change has been in the Net Zero Change Verification Period, and to contribute to ongoing tracking of a project's journey to meet decarbonisation targets. Ongoing monitoring of the impacts of the investment may be needed as a condition of the original business case, to allow the Authority to evidence the impact and value of the change, or it may be a condition of any grant funding secured. As part of the net zero change, the Authority should agree with the project company what data it will require and on what frequency and determine whether this gives rise to any enhanced or additional energy reporting requirements over and above those already in the contract (which the project company would be required to meet).

The most appropriate data and performance metrics will vary from project to project to reflect the asset type and capacity or utilisation and are likely to include:

- absolute energy consumption (kWh for electricity, gas and any other fossil fuel used)
- absolute carbon emissions (tonnes of CO_2e)
- unit energy and carbon intensity (kWh/m2 & tonnes of CO_2e/m2)
- utilisation or other capacity related energy and carbon performance metric (kWh or CO_2e per pupil/hospital bed/other usage or capacity measure)
- cost of implementing a Net Zero intervention per tonne of CO_2e saved

Net Zero Change Detailed Proposals Period

3.4 Insurance

For the majority of net zero changes, it can be assumed that it will require a notification to the insurer. For some changes, there may need to be a change to the policy to reflect the nature of the asset following the net zero intervention.

This in turn may lead to a change in the insurance premium. Different contracts deal with insurance differently and care should be taken to fully understand the insurance implications of any net zero change. By way of example, we are aware of projects where newly installed PV panels are owned by the Authority, with it taking the risk around condition and performance, and this arrangement may well require specific insurance to reflect this. Any changes in insurance requirements and costs will need to be included in the pricing and documentation of the net zero change.

3.5 Updating the contract

One of the most challenging and potentially contentious aspects of agreeing a net zero change is likely to be agreeing the impact on the output specification and thus the payment mechanism. A PFI payment mechanism is a complex thing, with great care and attention needed to ensure it is properly calibrated and thus strikes the correct balance between reward and incentivisation. As part of the original financial close process, investors and their lenders will have paid close attention to this aspect to understand the risk and return profile of the project, key to achieving the anticipated IRR. When a change requires

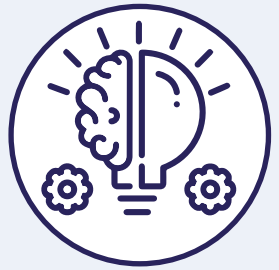
Net Zero Change Detailed Proposals Period

this to be revisited, careful attention is required from all parties to make sure the mechanism works and that the risk/reward profile is not unfairly altered. Where the expertise is not readily available internally, Authorities should look to external advisers who will be familiar with these issues and can help agree the necessary changes.

Depending on the nature and scope of the project, different elements of the Authority's original output specification will need to change. For an accommodation-based project the following areas will need to be considered:

- changes to the availability and/or performance standards, including those that deal with:
  - Provision of heating and power
  - Temperature requirements
  - Lux levels
  - Ventilation levels
  - Provision of hot water
  - Gas supply
  - Noise and acoustics
- room/area weightings, service priority categories and rectification periods
  - Where the net zero change involves the installation of new technology/equipment, consider is it more or less likely to fail
  - Are repairs as easy to carry out? Is availability of replacement parts the same?
  - Application of different standards in different parts of the building to reflect usage and energy efficiency aims

As well as updating the output specification and payment mechanism, a number of other documents may need to be updated, including:



- planned maintenance schedules
- lifecycle plans
- operating and maintenance manuals
- health and safety manuals
- asset register
- helpdesk reporting protocols/pro-forma

3.6 Documenting the net zero change

For net zero changes that require changes to the Project Agreement, and in turn the FM contract, this will typically be done by legal agreement – often referred to as a deed of variation, an amending agreement or a supplemental agreement. This handbook does not seek to advise on the form and nature of such an agreement. Set out below are various matters that an Authority should consider when negotiating the agreement with the project company:

- that all parties have the power, relevant consents and authority to enter into the contract and any associated contracts
- whether the parties wish to waive their rights in respect of any breach of the change mechanism that may have occurred whilst delivering the net zero change
- recording the agreed position of fees recoverable by each party in relation to the contract and the associated net zero change
- certification under the Local Government (Contracts) Act 1997

The contract may also detail any agreed matters relevant to the carrying out of the works needed to deliver the net zero change – for example obligations and restrictions on each party with regard to the carrying out of those works, the mechanism that will be used to certify that the works are complete and method statements detailing how the works will be carried out.

Net Zero Change Detailed Proposals Period

Net Zero Change Implementation Period

4.Net Zero Change Implementation Period

Executive summary

During this period the Authority's primary concern will be monitoring, to ensure that the net zero change is implemented in accordance with the agreed programme and technical proposals. Where the net zero change is being implemented in a live environment (for example a school or hospital), a particular focus will be impact on the services being provided to the community and the health and safety of the building users. Delivery of appropriate decant arrangements and works site delineation will be important.

Key tasks checklist

- Monitor delivery against agreed programme/agreed milestones
- Monitor compliance with any conditions imposed where grant funding being used
- Monitor service performance during implementation, including any agreed relief from obligations
- Regular meetings of the working group
- Regular updates and reporting
- Agree and adjust control strategy for new equipment if relevant
- Training, where relevant, for building/asset users and FM staff
- Update operating and maintenance manual, asset register, as-built drawings etc.
- Finalise data recording and sharing arrangements
- Notify insurer prior to works commencement

Detailed recommendations

Net Zero Change Implementation Period

4.1 Monitoring

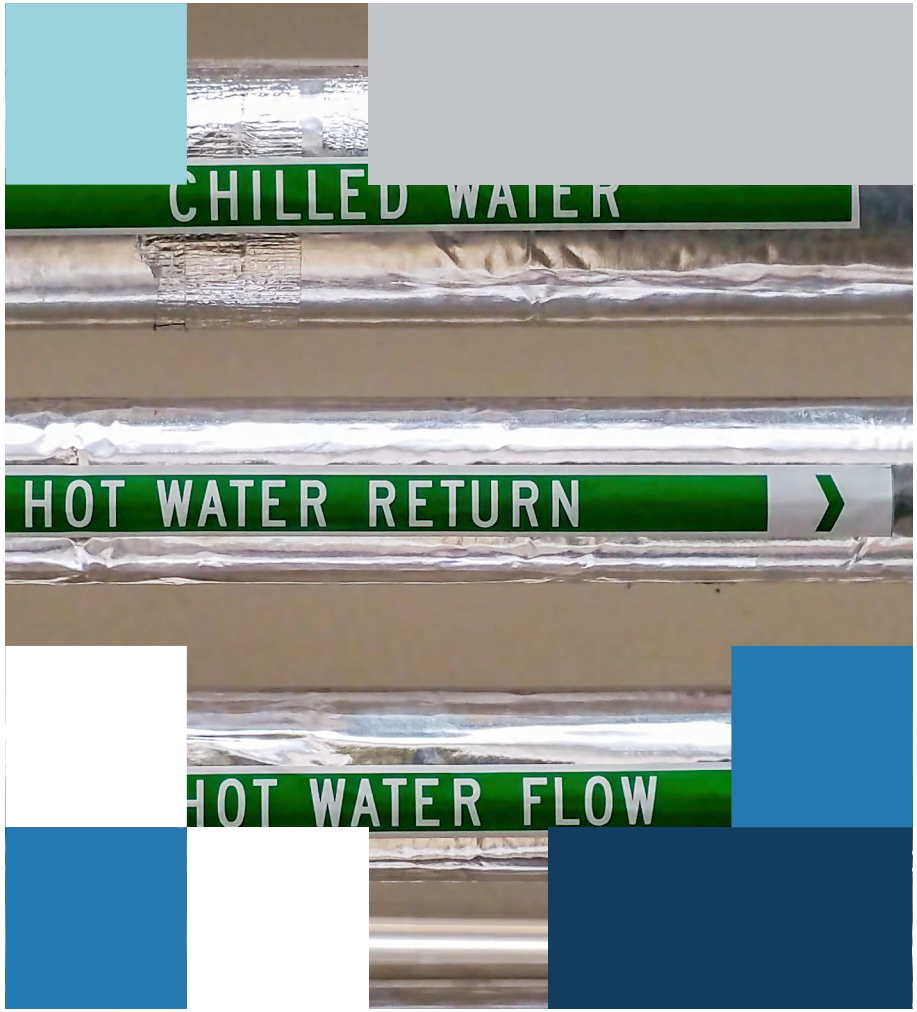
During this period the Authority's focus will be on monitoring delivery of the net zero change by the project company. To assist this, the Authority should seek to convene regular meetings of the working group and review reporting from the project company in line with the requirements agreed at the previous stage.

Where the Authority has secured grant funding to fund/part fund the net zero change, an added layer of monitoring might be required to ensure that all grant conditions are being met.

Many authorities will be well versed in good contract management (both from its PFI contracts and its non PFI related activities) and this phase of the net zero change should not require anything particularly different in that regard.

4.2 Handover

Whilst it is likely that most net zero interventions will be managed and maintained by the project company going forward, depending on the contract, there may well be a need for an element of 'handover' on completion of the works. This may include training to building/asset users, which may also need to be supported by manuals, handbooks and/or access/control strategies. This will need to be done in good time and should be included as part of the completion requirements agreed between the parties at the previous stage.



Net Zero Change Verification Period

5. Net Zero Change Verification Period

Executive summary

Following completion of the net zero change, this period is primarily about measurement and verification through data collection and analysis, allowing the project and Authority to understand the extent to which the proposed benefits have been realised and to track progress toward decarbonisation targets.

Key tasks checklist

- Commence monitoring under agreed measurement and verification plan

Detailed recommendations

5.1 Measurement and verification

Once implemented, it is assumed that all Authorities will monitor performance via the agreed measurement and verification plan. This handbook does not consider this in detail, and Authorities are advised to take specialist advice in this regard and refer to available resources such as the International Performance Measurement and Verification Protocol.

If developing a measurement and verification plan, areas to consider are likely to include:

- initial energy saving/emission reduction targets
- recording the baseline
- the measurement/reporting period
- metering
- calculation methodology and correction factors
- monitoring responsibilities
- expected accuracy
- quality assurance

During this period, Authorities should also regularly review the revised energy consumption reporting requirements agreed at outset, to assess if these are working in practice and providing the necessary data and metrics. Likewise, we would expect periodic review of asset performance against the net zero pathways assumed as part of the project's and Authority's net zero strategy.

Net Zero Change Verification Period

5.2 Reporting

The ongoing reporting of the impact of the net zero change will be required to assess the impact of the change. As part of the process of implementing the change the parties should agree a reporting format that is suitable. In this regard, the parties may want to start with the minimum requirements recommended by UKGBC shown below. Updates may be made to this when the anticipated industry-led Net Zero Carbon Building Standard becomes available.

Energy		
Indicator	kWh	kWh/m^2
Total annual energy consumption		
Total annual electricity consumption		
Total annual fuel consumption (all other sources e.g. gas, heat network) per fuel type		
Total annual electrity generated by renewable energy soures minus storage losses (e.g. photovoltaic)		

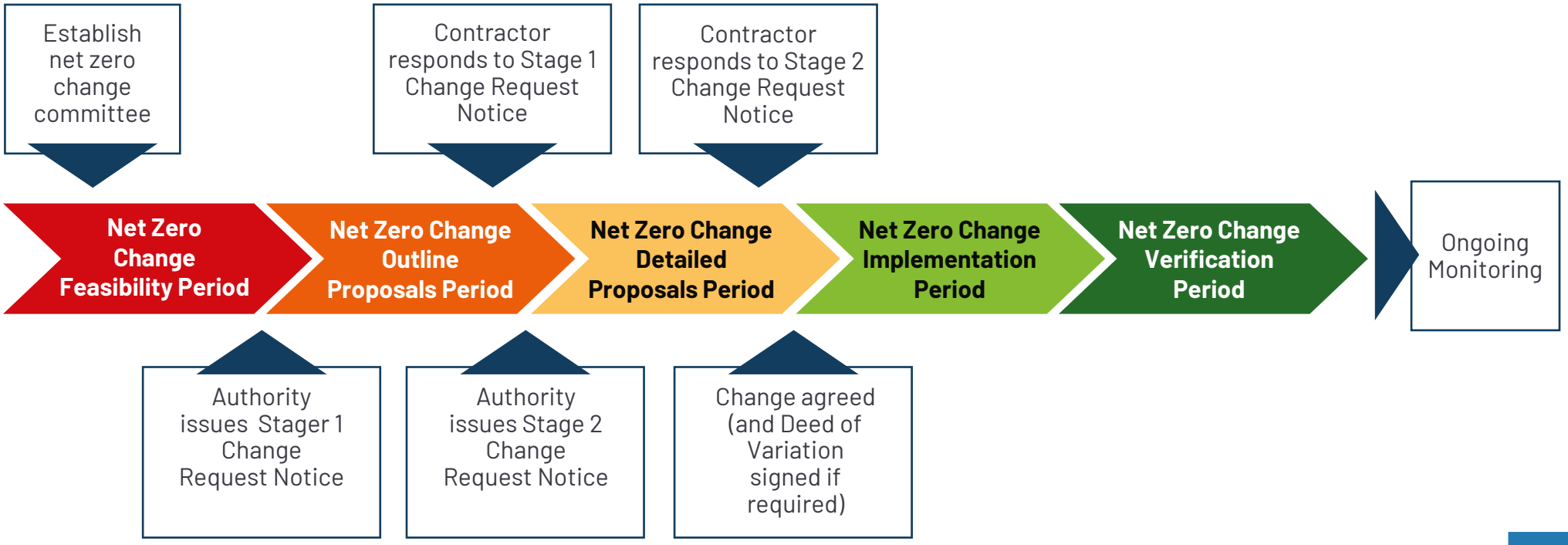
Net Zero Change Verification Period

Carbon		
Indicator	CO_2e	$kg/CO_2/m^2$
Total annual indirect CO_2e emissions from imported electricity		
Total annual indirect CO_2e emissions from combustion of fuel (e.g. on-site gas) per fuel type		
Total annual indirect CO_2e emissions from combustion of fuel (all other sources e.g. heat network) per fuel type		
Total annual displaced CO_2e emissions from electricity generated by on-site renewable energy sources minus storage losses		
Total annual displaced CO_2e emissions from offsets		
Total annual net CO_2e emissions	0 (only when verified)	

Offsets	
Amount and type of offsets procured, including relevant framework used:	
Expected verification processes:	
Cost per tonne of CO_2e:	

Appendix 1

Five phases of delivering a net zero change



Net Zero Change Feasibility Period | Net Zero Change Stage 1 | Net Zero Change Stage 2 | Net Zero Change Implementation Period | Net Zero Change Verification Period

Consider	Activities	Governance and decision making
• What is your net zero strategy? • What are the preferred/possible net zero interventions • How much is the change likely to cost? • Is the change mechanism suitable for delivering the net zero change? • Will it be a low, medium or high value change and what are the implications of this? • What affordability constraints exist (capital and revenue)? • Are there any existing funding streams available (e.g. grant) and can the eligibility criteria be met? • How will VFM be demonstrated? • When is the best time to implement the change? • Who will own and maintain any newly installed kit? • Who are the relevant stakeholders? • Timing of and approach to design, using RIBA stages	• Carry out a Site Visit • Engage with all stakeholders, in particular asset users/occupiers, to secure early buy in and set up the working group • Assess resources and consider governance and decision making • Assemble dedicated project team to include legal, technical and financial support • Agree approach to project management of the net zero change • Create actions tracker • Carry our initial due diligence on lender consent requirements • Review and assess suitability of the change mechanism and consider likely contracting structure • Check if contract already places energy saving obligations on the Contractor, including performance risk/reward • Review the contract more generally to understand likely impact of the net zero change • Consider key risks including technology and long-term performance and likely risk share arrangements	• Establish net zero working group • Consider use of an MOU to secure all-party, in principle, buy-in to the proposed net zero change • Agree and document high level commercial terms • Agree high level programme for implementing change • Understand lender approval process • Agree quote or fixed price for lender due diligence costs • Start collecting documentation including as built drawings, energy consumption data, asset register and condition surveys **Authority issues Stage 1 Change Request Notice**

Net Zero Change Feasibility Period | **Net Zero Change Outline Proposals Period** | Net Zero Change Detailed Proposals Period | Net Zero Change Implementation Period | Net Zero Change Verification Period

Consider	Activities	Governance and decision making
• Is the project company likely to object to the change? • Consider the original OJEU and identify any procurement issues • Authority's affordability envelope • Likely capital cost of the change • Revenue impact of the change (+/-) • Start to develop a project cashflow • Impact of the change on the services • Maintenance implications for existing and new kit • Is the project company likely to require relief from its obligations (and for how long)? • What amendments are needed to the project documents? Are any amendments or recalibration of the payment mechanism required? • Are any consents/approvals required, including from the lender? • The likely programme (for the change and the works themselves) • Impact on risk sharing arrangements • Who will bear design risk • Insurance implications • The technical solution (e.g. mounting solution for PV panels)	• Understand the impact of the change on the existing services • Resolve any constraints that may prevent the technology from being installed • Collect and collate all relevant information • Discuss approach to pricing, including fees, margins, OHP, risk pricing etc. • Agree preferred approach to funding • Resolve any accounting treatment issues • Understand contractual implications of the change • Agree due diligence requirements for all interested parties • Update the programme previously developed • Update the net zero change risk register • Identify any required external expertise	• Authority approval to issue request Stage 1 Change Request Notice • Is lender consent/notification required to allow the Contractor to respond to the Stage 1 Change Request Notice? • Is the Stage 1 Response acceptable, allowing a Stage 2 Change Request Notice to be issued? If not, is there opportunity for the Stage 1 Proposal to be revised? • Consider Construction Design and Management allocation of responsibilities • Confirm price for lender due diligence costs if not possible at earlier Feasibility Stage **Authority accepts Stage 1 Proposal and issues Stage 2 Change Request Notice**

Net Zero Change Feasibility Period | Net Zero Change Outline Proposals Period | **Net Zero Change Detailed Proposals Period** | Net Zero Change Implementation Period | Net Zero Change Verification Period

Consider	Activities	Governance and decision making
• Does the Authority have all the information it needs to conclude the net zero change? • Is the pricing clear and in accordance with the contract? Paying particular attention to: — Internal and external costs — Overhead and profit (margin) — Risk pricing — Lender due diligence costs • Have the principles of 'no better no worse' and 'no double counting' been adhered to? • Are the asset users/occupiers happy with the proposed change and how it will be delivered? • Is the timetable acceptable and deliverable? • Who will maintain the installation and how does the maintenance strategy work with handback requirements • Do all involved parties (including users and FM) understand proposals, operational plans and energy performance expectations? • How will progress and issues arising be communicated to stakeholders? • What happens if the change is delivered late? Are contingency plans in place?	• Finalise all surveys, report and studies, including the Detailed Feasibility Study • Secure all third-party consents required for the change • Conclude detailed design • Tender works/works packages • Instruct consultant team (QS, PM, technical etc.), if not already appointed • Develop detailed costings, to be updated as further pricing information becomes available • Agree payment terms (change to UC, capital contribution or a mix) • Agree commercial terms, building on previously agreed heads of terms, including the payment mechanism and prepare deed of variation/ updated project documents • Update the programme • Update risk register • Notify insurer of planned works	• Terms of Stage 2 Proposal to be agreed by all parties • All approvals secured including Authority, project company, FM co and lender where required • Revised project documents (and/or Deed of Variation) agreed **Deed of variation (or similar) signed and works commence on site**

Net Zero Change Feasibility Period | Net ZeNet Zero Change Outline Proposals Periodro | Net Zero Change Detailed Proposals Period | **Net Zero Change Implementation Period** | Net Zero Change Verification Period

Consider	Activities	Governance and decision making
• Has a full review of risk assessment method statements, health and safety plans and safeguarding plans taken place? • How will progress and issues arising be communicated to stakeholders? • What happens if the change is delivered late? Are contingency plans in place? • Will the change require asset users/occupiers to be trained on how to use/operate the assets? • Is disruption to asset users/occupiers being minimised? • Is the net zero change part of a wider energy awareness campaign? • Have all collateral warranties, product guarantees etc. been provided to the Authority? • Have the as built drawings been updated? • Has a revised operating manual been produced? • Have handback condition implications been reviewed and any appropriate amendments considered?	• Confirm insurer approval prior to works commencement • Monitor delivery against agreed programme/ agreed milestones • Monitor compliance with any conditions imposed where grant funding is being used • Monitor service performance during implementation, including any agreed relief from obligations • Regular meetings of the working group with agreed structure, chair and agenda • Regular updates and reporting • Agree control strategy for new equipment if relevant • Training, where relevant, for building/asset users and FM staff • Has operating manual been updated • Finalise data recording and sharing arrangements	• Make sure all stakeholder roles and responsibilities are understood. A RACI matrix helps identify who is to be Responsible, Accountable, Consulted and Informed • Works will need to be certified/signed off in accordance with procedure agreed as part of the change **Assets operational following completion of net zero change works**

Net Zero Change Feasibility Period | Net Zero Change Stage 1 | Net Zero Change Stage 2 | Net Zero Change Implementation Period | **Net Zero Change Verification Period**

Consider	Activities	Governance and decision making
• Are any new data collection and/or reporting requirements being met? • Have any energy targets been reset? Is an initial monitoring period required?	• Commence monitoring under agreed measurement and verification plan	**Measurement, monitoring and verification**

Appendix 2

Net Zero Working Group Terms of Reference

Group membership likely to include:

- Authority
- Authority's contract manager
- Authority's site-based team (if applicable)
- Building/asset user representative
- Project company
- Management services provider
- Facilities management contractor
- Advisers and consultants (if applicable)

Meetings – agree duration, frequency and location (physical or virtual)

Documents – allocate responsibility for producing, updating and circulating the following documents:

- Indicative programme for implementation of the net zero change
- Risk matrix
- Standard meeting agenda
- Actions tracker

Commercials – seek early agreement on the key commercial aspects of the proposed net zero change, for example:

- How will the net zero change be funded
- How does the change affect the risk and reward profile of the contract
- How will the Authority test the pricing proposed (for example, will the works be tendered)
- What are the key risks for the risk matrix
- Is lender sign off required and if so what due diligence will be required by it, at what stage should approval be sought and how much time does the lender require

Appendix 3

Reference materials

No.	Document	Type	Author	Date
1.	Change Protocol Principles	Guidance	HM Treasury	August 2007
2.	Climate Change Act 2008	Primary legislation	HM Government	26 November 2008
3.	Energy Efficiency (Encouragement, Assessment and Information) Regulations 2014	Statutory Instrument	Department of Energy and Climate Change	2 June 2014
4.	Guide to developing the project business case. Better business cases: for better outcomes	Guidance	HM Treasury	2018
5.	Net Zero Carbon Buildings: A Framework Definition	Guidance	UK Green Building Council	April 2019
6.	Estates 'Net Zero' Carbon Delivery Plan	Guidance	NHS	October 2021
7.	Public Sector Decarbonisation Scheme	Grant funding programme	Department for Business, Energy & Industrial Strategy	1 October 2020
8.	Net Zero Strategy: Build Back Greener	Policy paper	Department for Business, Energy & Industrial Strategy	19 October 2021
9.	Net Zero Estate Playbook. A guide to decarbonising government property	Guidance	Government Property Function	November 2021
10.	The Green Book. Central government guidance on appraisal and evaluation	Guidance	HM Treasury	2022

11.	Energy efficiency: guidance for the school and further education college estate	Guidance	Department for Education	6 December 2022
12.	RC62: Recommendations for fire safety with PV panel installations	Guidance	Fire Protection Association	2023

Appendix 4

Glossary and abbreviations

Term	Definition
AHU	An air handler, or air handling unit, is a device used to regulate and circulate air as part of a heating, ventilating, and air-conditioning (HVAC) system
Authority	Used throughout this document as the shorthand descriptor for the public sector body that is the party to the PFI contract
Authority's Requirements	The requirements set out or identified in Project Agreement relating to the delivery of the project by the project company
BMS	A building management system, is a computer-based system used to monitor and control building services
BSF	Building Schools for the Future
CDEL	Capital Departmental Expenditure Limits
CIBSE	Chartered Institute of Building Services Engineers
Contractor's Proposals	The technical proposals put forward by the project company at financial close of a PFI project, in response to the Authority's Output Specification
Controls matrix	The controls matrix in a credit agreement controls what the project company is able to do under the Project Agreement, detailing matters that require notification and those that require prior approval from the lender

Term	Definition
DD	Due diligence
DNO	The distribution network operator is the operator of the electric power distribution system which delivers electricity to the project
Energy Performance Study	A desktop assessment of energy usage and performance for the asset in question, to be used to inform the parties when considering net zero changes
ESA	European system of accounts
ESC	Energy supply company
ESG	Environmental, social, and governance
FM	Facilities management
Hard FM	Hard FM services are those that are related to the physical materials and structures of a building or asset
International Performance Measurement and Verification Protocol or IPMVP	A protocol published by EVO (Efficiency Valuation Organization) and designed to offer up a consensus approach to measuring and verifying efficiency investments to facilitate a scaled-up global engagement into energy efficiency
IPA	Infrastructure and Projects Authority
IRR	Internal rate of return
LED	Light emitting diode
LETI	Low Energy Transformation Initiative
MSA	A management services agreement made between the project company and the management services provider

Term	Definition
Net zero change	A variation/change to an operational PFI project designed to support a decarbonisation objective
Net Zero Change Feasibility Period	The period prior to net zero change formally commencing, which will be denoted by the Authority issuing a Stage 1 Change Request Notice
Net Zero Change Implantation Period	The period during which the works associated with the net zero change are being carried out
Net Zero Change Outline Proposals Period	The period starting when the Authority issues a Stage 1 Change Request Notice and ending when it issues a Stage 2 Change Request Notice
Net Zero Change Detailed Proposals Period	The period starting when the Authority issues a Stage 2 Change Request Notice and ending when the net zero change is agreed
Net Zero Change Verification Period	The period following successful delivery of the net zero change
OJEU Notice	A notice published by a procuring Authority in the Official Journal signalling the commencement of the public procurement exercise to secure a PFI contractor
PA	Project agreement, the main agreement between the Authority and the project company (may be called the principal agreement, concession agreement or similar)
PFI	The UK government's Private Finance Initiative programme
PF2	An updated approach to PFI contracts, PF2 was launched by the UK government in 2012 and was described as a new approach to public private partnerships, which reaffirmed the government's commitment to private sector involvement in infrastructure and services, while recognising changes to the economic context at the time
PPA	A power purchase agreement is a contract between two parties, one which generates electricity and one which is looking to purchase electricity

Term	Definition
Project company	The private sector company that is the counterparty to the Project Agreement with the Authority - also referred to as the SPV or the contractor
PSBP	Priority Schools Building Programme
RDEL	Regional Departmental Expenditure Limits
Soft FM	Soft FM services are those that are related to creating secure, efficient environments
SOPC	Standardisation of PFI Contracts
SPV	The special purpose vehicle that is the counterparty to the Project Agreement with the Authority – also referred to as the project company or the contractor
TA	Technical Adviser
UKGBC	UK Green Building Council