



A4S

CFO LEADERSHIP NETWORK

ESSENTIAL GUIDE TO CAPEX

**A practical guide to embedding sustainability into
capital investment appraisal**



THE PRINCE OF WALES'S
CHARITABLE FUND



THE A4S CFO LEADERSHIP NETWORK

The Prince's Accounting for Sustainability Project (A4S) was established by HRH The Prince of Wales in 2004 to convene senior leaders in the finance, accounting and investor communities to catalyse a fundamental shift towards resilient business models and a sustainable economy.

The A4S Chief Financial Officer Leadership Network was launched by HRH The Prince of Wales at St James's Palace in December 2013. The Network brings together a group of leading CFOs from large European businesses seeking to embed the management of environmental and social issues into business processes and strategy. We believe it is the first grouping of its kind globally.

The Network has worked on a number of projects during 2014 including looking at ways to embed sustainability into capital investment appraisal, the subject of this guide. The outputs from all of the projects are available on the A4S website www.accountingforsustainability.org.

The project team would value feedback on this guide from other organisations working in this area. Please send any comments to: accountingforsustainability@royal.gsx.gov.uk

NETWORK MEMBERS

The following CFOs were Network members during 2014:

Scott Longhurst Anglian Water*

Lucinda Bell British Land

Evelyn Bourke Bupa*

Carol Fairweather Burberry Group

Pierre-André Terisse (co-chair)
Danone*

Alan Stewart / Paul Friston
Marks and Spencer*

Andrew Bonfield National Grid*

Susan Davy Pennon Group
(South West Water)

Rolf-Dieter Schwalb Royal DSM*

John Rogers (co-chair) Sainsbury's*

Gregor Alexander SSE*

John Lelliott The Crown Estate

Jean-Marc Huët Unilever

Russ Houlden United Utilities Group*

Richard Mayfield Walmart EMEA
(Ex Asda CFO)*

Liz Barber Yorkshire Water*

*These companies are members of the Network's capex project.



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“We should think about how new information can better inform our capital investment decisions”

Gregor Alexander, SSE

INTRODUCTION FROM THE A4S CFO LEADERSHIP NETWORK

As Chief Financial Officers, it is our responsibility to measure and manage the financial performance of our companies. We do that to develop good investment decisions into great ones and to challenge those that could do better. These decisions, to date, have typically focused on measuring traditional business risks and impacts which have resulted in successful delivery of projects.

However, the world is changing and we must change too, not because our external advisors say so but because our own companies' future success depends on it. Change comes in many forms and radical change is often risky and disruptive and as a CFO, this can sometimes challenge our primary focus of financial stability.

What we CFOs need to consider within our businesses and what has been documented in this guide, is a sustainability journey of limited but fundamental changes in our capital investment decisions which we can lead our organisation along. Our financial models may have brought us success in the past and we should not abandon them now, but we should think about how new information can better inform our capital investment decisions.

Measures and metrics exist, which are wider in scope and encompass more societal and environmental risks and impacts which can be incorporated alongside traditional cost of capital and risk premiums. As responsible ‘investors’, we must ensure that our decisions continue to provide benefits to our companies, our

customers and our shareholders but they must also protect the well-being of current and future generations.

This guide, created in conjunction with A4S, aims to provide a catalyst for a strategic and cultural focus by finance professionals towards greater sustainability thinking in business. Capital investment decisions are fundamental to our companies' success and the A4S CFO Leadership Network companies case studies show real life project insights as to what your company can achieve.

We are all on an important journey to move sustainability accounting forward, and finance professionals have a critical role in leading the sustainability agenda within business. I hope you will join with us, the A4S CFO Network companies, as we all work towards a more sustainable and resilient business future.

Thank you,

Gregor Alexander, Finance Director, SSE

FOREWORD

A MEETING OF MINDS

I am pleased to introduce this guide to embedding sustainability into capital investment appraisals.¹ The guide has been developed by finance professionals and sustainability experts in member companies of the A4S CFO Leadership Network that are doing this in the real world. We are all at different stages of 'the journey' and have been frank about what we have done well, and what has worked less well. We don't have all the answers but our shared aim is simple: to share experience, stimulate debate and action.

SUSTAINING 'PEOPLE, PLANET AND PROFIT'

By sustainability we mean balancing social, environmental and economic issues – people, planet and profit. It is about more than just managing carbon efficiently, though that is, of course, an important part of the equation and a great place to start. A sustainable company is one whose business model enhances economic, human, social and natural capital in a stable, long-term manner and thereby delivers sustainable financial performance.

For capital investments, we tend to think of sustainability from two perspectives. Firstly, the impact of capital investment decisions can be positive (e.g. job creation) or negative (e.g. pollution). Secondly, sustainability risks and

opportunities may potentially impact on the success of the investment. For instance, returns can be improved if, say, a factory showcases sustainability innovation, in turn leading to enhanced operational efficiency, brand image and employee or customer loyalty. On the other hand, investment returns from the factory would be damaged if water scarcity disrupts its operations or supply chains. For ease, these sustainability impacts, risks and opportunities are all referred to as 'sustainability issues' in this guide.

STARTING THE JOURNEY – HOW THIS GUIDE MAY HELP YOU

We describe how our companies have put sustainability into practice at what is perhaps the heart of organisations – how they make investment decisions. There is no 'one-size-fits-all' solution – how you approach this will depend upon your organisation's particular circumstances. But, in our experience, a common feature has been cultural change, particularly the leadership required to ensure sustainability is taken seriously and to overcome any residual scepticism – and I speak as a former sceptic!

We describe how the social and environmental issues related to what have traditionally been financial return-based investment decisions can be made more explicit and transparent. The approaches we describe should appeal to

'beginner' and 'leading' practitioners alike: we describe a maturity model to guide you on your journey.

DEMONSTRATING THE PAYBACK

This guide is supported by case studies of Network members, from regulated utilities to producers and retailers of fast-moving consumer goods, from the UK to China. They illustrate that promoting positive environmental and social outcomes is entirely consistent with the economic imperative of creating shareholder value. And they demonstrate that 'doing the right thing' doesn't have to require governmental or regulatory intervention but can be driven by the business case.

It no longer requires a leap of faith to understand that lower carbon (and for that matter, lower water usage or waste products) often means lower cost, for both businesses and society as a whole. Increasingly, we find that what makes sense for the long-term also has a positive impact in the short-term. In fact, the payback is improving all the time as we gain experience and become more innovative. That our employees, customers and communities also benefit makes making capital investment decisions more sustainable just good common sense.

STARTING THE CONVERSATION

¹This guide focuses on capital expenditure (CAPEX) but the principles are equally applicable to investment decision-making more broadly, including operating expenditure (OPEX) and total expenditure (TOTEX).

Whatever sector you operate in, whatever your field of interest, I trust you will find this guide a useful insight into how sustainability can be integrated in a pragmatic and systematic manner into capital investment decisions. Please share this guide with your colleagues and start a conversation about how you can integrate some of the approaches into your investment appraisal processes.

All members of the CFO Leadership Network are committed to piloting, refining and embedding these as part of 'business as usual' – the next part of our journey. I hope you will join us.

**Stuart Humphreys, Group Financial
Controller, National Grid**
Chair of the A4S capex project

SUMMARY

THERE IS A CLEAR BUSINESS CASE FOR EMBEDDING SUSTAINABILITY INTO CAPITAL INVESTMENT APPRAISAL

As members of the A4S CFO Leadership Network, we have experienced first-hand how sustainability can deliver commercial value in capital projects. Considering sustainability in capital investment appraisal makes clear business sense:

- Material costs savings can be achieved.
- Capital projects can be made more resilient, or future-proofed, against emerging sustainability risks.
- The costs of inaction are potentially material.
- Taking into account sustainability issues drives innovation in your supply chain.
- Demonstrating your sustainability commitment can build trust and reinforce or enhance your licence to operate.
- Adopting sustainability practices can help to reduce financing costs and increase access to capital.

This guide provides insights, based on our collective experiences, into how sustainability can be integrated in a pragmatic manner into capital investment appraisal processes and decisions.

IT CAN ALSO BE CHALLENGING

We have each faced challenges along our own journeys – from knowing where to start to overcoming scepticism. Ultimately, enabling investment in more sustainable capital assets is a question of strategic priorities – what does

the company want to invest in and how will this be funded? There are techniques to support companies in overcoming these challenges, many of which we reflect in our top tips:

- Set targets
- Show senior level leadership
- Expand the Investment Committee
- Collaborate internally
- Make a start
- Start early
- Don't reinvent the wheel
- Share successes
- Speak the right language
- Collaborate across the value chain

BUILDING UPON THE EXISTING CAPITAL INVESTMENT APPRAISAL PROCESS IS MOST EFFECTIVE

Most companies already have sophisticated capital investment appraisal processes that focus on managing project risk. Sustainability is simply one type of risk to be managed. The questions we ask at each stage of the appraisal process, traditionally designed for testing and assessing financials, are equally applicable to sustainability:

- Does this project support our corporate strategy, values, targets and commitments?
- How can we optimise business value through project design?
- How can this project be refined to maximise long-term value creation?
- Did we achieve our objectives?

We have observed four common elements in our approaches to integrating sustainability issues into capital investment appraisal processes:

- **Who to involve and governance:** Establishing accountability (through leadership) and changing mind-sets (through culture) are the foundations for embedding the change. Involving the right mix of people with appropriate roles and capabilities is crucial.
- **What to assess:** To identify and prioritise sustainability issues for consideration in the capital investment decision, it is useful to think about:
 - **Types of sustainability issues** (social, environmental, economic)
 - **The whole lifecycle** (from construction to operation to end-of-life)
 - **The value chain** (from suppliers to own operations to customers)
- **How to assess:** To assess the sustainability issues identified, there are four main approaches:
 - **Qualitative** e.g. high / medium / low rating
 - **Quantitative** e.g. KPI scorecards
 - **Monetary, using shareholder (or company) value** e.g. energy costs
 - **Monetary, using stakeholder (or societal) value** e.g. cost of pollution to society
- **How to decide:** In order for decision-makers to make sense of a sustainability assessment, they need frameworks. Key considerations when developing a framework include:

- Setting decision-making criteria:

These may be non-financial or financial criteria, depending on the type of sustainability assessment undertaken.

- Choosing between investment options:

Holistic evaluation frameworks and structured decision-making methods can help to formalise the consideration of sustainability as a core part of the investment case.

- Exploring funding options:







The way in which funding is sourced can influence how capital is allocated between investment options from simply using your mainstream capital budget as the sole source of funding to identifying new sources of specialist funding.

Fully integrating sustainability into capital investment appraisal is a long-term ambition, taking years rather than months.

There are a number of measures that companies can use to gauge where they are on their journey, such as the scope of what they assess, the sophistication of their assessment approach and the structures they have in place for decision-making and overall governance. The reality is that no definitive approach is 'best'. Rather, maturing in this space is about finding approaches that work for your organisation – and the most important step is to make a start!

NAVIGATING THIS GUIDE

This guide is divided into five main sections that outline how to approach integrating sustainability issues into your capital investment appraisal process, including a maturity model. Before this, we discuss the business case and some of the challenges you may face and how to adapt your existing processes.

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WHY CONSIDER	WHO TO INVOLVE AND GOVERNANCE	WHAT TO ASSESS	HOW TO ASSESS	HOW TO DECIDE	STAGES OF THE JOURNEY
Sustainability in capital investment decisions	Establishing accountability and capabilities	Identifying and prioritising sustainability issues to consider	Methods for appraising sustainability	A) Setting decision-making criteria B) Choosing between investment options	Assessing where you are on your journey
The business case The challenges you will face How to adapt your capital investment appraisal process	Leadership Culture Cross-functional team: <ul style="list-style-type: none">- Project team- Decision-makers- Specialists	Types of sustainability issues <ul style="list-style-type: none">- Social- Environmental- Economic The whole lifecycle <ul style="list-style-type: none">- Construction- Operation- End-of-life The value chain <ul style="list-style-type: none">- Suppliers- Own operations- Customers	Qualitative e.g. RAG ratings Quantitative e.g. KPI scorecard Monetary, using shareholder (or company) value e.g. NPV including wider business costs and benefits of sustainability Monetary, using stakeholder (or societal) value e.g. NPV with societal costs and benefits of sustainability	Non-financial decision-making criteria e.g. minimum threshold Financial decision-making criteria e.g. IRR hurdle rate C) Exploring funding options	Holistic evaluation frameworks e.g. presenting non-financial information alongside financial models Structured decision-making methods e.g. multi-criteria analysis (MCA) Maturity model
					

THE BUSINESS CASE

Why considering sustainability issues in capital investment decisions leads to better commercial outcomes

In our experience, it helps to stop thinking about sustainability as an optional add-on and recognise the commercial value it delivers in capital projects. These are some of the reasons why we believe it makes clear business sense.

Material costs savings can be achieved:

We have found that challenging project teams to deliver more energy and water efficient designs can result in significantly lower whole life costs. Multiplied across a portfolio of capital projects, these cost savings can be material.

Capital projects can be made more resilient, or future-proofed, against emerging sustainability risks:

Many of the world's natural resources on which business and society depend are being depleted at an alarming rate. Climate change, water scarcity and resource depletion are already having significant impacts on businesses. Incorporating sustainability issues into capital investment appraisal can future-proof long-lived capital assets against these trends. This can help to avoid locking in features that could otherwise put your assets at a competitive disadvantage in the future operating environment.

The costs of inaction are potentially material:

Many of the measures for mitigating emerging sustainability risks are of marginal cost when compared with the potential material costs they help companies to avoid. Planning sustainability into capital projects upfront, frequently proves cost-effective overall – and, with significant value at risk, it is likely that you cannot afford not to.

Taking into account sustainability issues drives innovation in your supply chain:

When given sustainability targets, suppliers develop new solutions – ones that minimise waste and drive down costs across the whole value chain. There are lots of examples of where new innovative solutions have been driven by approaching the challenge from a sustainability perspective and we include some of our experiences in this guide.



Demonstrating your sustainability commitment can build trust and enhance your licence to operate:

Whatever it is that you are investing in, improving environmental and social credentials demonstrates to stakeholders (such as regulators, customers, employees and the local community), your commitment to responsible business. This can bring indirect financial benefits through improved stakeholder relationships and faster planning consents, greater employee engagement and higher customer satisfaction.

Adopting sustainability practices can help to reduce financing costs and increase access to capital:

There is increasing evidence that companies with higher sustainability performance benefit from lower costs of capital due to a lower risk profile and increased resilience. Increasingly, there are also opportunities to gain improved access to capital as a result of strong sustainability performance (e.g. through green bonds) – see section 4c on page 30.



Sceptics told us

“Sustainability risks will occur too far into the future for us to be concerned with today.”

We say

“Businesses are already experiencing the effects of sustainability issues, considering potential future sustainability risks can produce short-term benefits (e.g. cost savings from increasing energy efficiency), but other benefits might take longer to materialise.

Having a longer-term focus brings better visibility of the real costs and benefits of an investment over its lifetime. This can lead businesses to make more optimal decisions, for both shareholders and stakeholders, based on more complete information.”



SAINSBURY'S

Delivering financial and sustainability benefits hand in hand – the next generation of Triple Zero Stores (zero carbon, waste and water)

Sainsbury's have ambitious goals in our 20 x 20 Sustainability Plan to accelerate progress towards our aim to become the UK's greenest grocer. So, for us, stepping up our sustainability investments in retail stores makes strategic sense.

The Triple Zero challenge: We had demonstrated the technical feasibility of cutting carbon consumption by 30% by 2020 through a series of sustainable technology projects. Post-investment review showed that these projects were achieving better-than-expected financial results and accelerated cash payback periods by one year. Bolstered by confidence in the financial business case, our executive leadership set our property team a genuine challenge: to showcase Sainsbury's sustainability innovation at scale in two of our largest new stores, Weymouth and Leicester. The aim was for these to be the most sustainable stores yet - "off the grid" for energy, water neutral and, like all Sainsbury's stores, disposing of zero waste to landfill.

Sustainable, but financially viable: The project team knew that the Triple Zero stores would be approved only if they could be shown to be commercially viable and repeatable.

These eco-investments were not subject to any special conditions – they were evaluated against the same financial hurdles, using the same measures and models (including cash payback, NPV, NPV / gross investment, ROCE and IRR) as any other investment opportunity within Sainsbury's. They were also funded from existing capital funds, financed via existing cash inflows and debt facilities.

So a robust business case was needed.

Finance as a key player: A dedicated finance team was assigned to support the project team in:

- Identifying and navigating the government incentives such as the renewable heat incentive (RHI) and feed-in tariffs (FIT), both of which were factored into the project economics.
- Determining the cost savings associated with the carbon, water and waste reductions.
- Conducting financial appraisals, using standard financial appraisal techniques.
- Arranging capital allocations.
- Conducting post-implementation reviews.

Sainsbury's also sought input from experts at Imperial College London, who provided technological insight on the pre-evaluation assessment of the proposed sustainable technologies.

Achieving results: The Triple Zero stores in Weymouth and Leicester opened in 2013.

In addition to a range of proven sustainable technologies (including rainwater harvesting, photovoltaic solar panels, CO2 refrigeration, efficient LED lighting and a bee hotel), the stores featured solutions new to Sainsbury's, such as electricity and heating from gas-fired combined heat and power (CHP) generator, a biogas offset scheme and partnerships with community water saving projects to offset water use. These have enabled Sainsbury's to eliminate the stores' operational carbon footprint (without offsetting) and achieve water neutrality within our communities. The stores continue to achieve good financial returns on investment (22% ROCE) with costs in line with expectation.



These eco-investments were not subject to any special conditions – they were evaluated against the same financial hurdles, using the same measures and metrics (including cash payback, NPV, NPV / gross investment, ROCE and IRR), as any other investment opportunity within Sainsbury's.



“There are a range of allowances and incentives available to support businesses implementing sustainability initiatives. A dedicated Finance person working alongside the sustainability team can capture their financial impact and is well-placed to comment on how this impact could change in the long run, thereby strengthening the business case.”

Martyn Burke, Head of Property Finance, Sainsbury's



NATIONAL GRID

Delivering value through sustainable design on the London Power Tunnels project

In 2011, National Grid embarked on a 7 year project to rewire London's high-voltage electricity network via deep underground tunnels. This was to provide for increasing electricity demand and to meet regulatory requirements for safety and efficiency. A total of 32km of tunnels are being constructed between 20m and 60m deep below the road network. By housing the cables deep underground, the London Power Tunnels (LPT) project is minimising disruption to London's traffic and visual amenity during construction, and will enable National Grid to carry out future maintenance work without digging up the road network.

Carbon, waste and cost savings: Through years of experience in driving out cost from capital projects, we recognised a correlation between carbon savings, waste savings and cost savings. Driving carbon and waste reductions benefits the environment and society, but has delivered tangible financial benefits too. So we know that looking for a sustainable solution could also lower our costs.

Sustainability drives innovative design: We worked with our suppliers to develop standard tunnel design options as well as more innovative designs that minimised carbon emissions and

waste. We used a carbon modelling tool to measure the projected carbon emissions for the different design options. A Sustainable Options Appraisal Tool was also used to qualitatively compare the sustainability characteristics of the different options. Having conducted this analysis, we selected a reduced size tunnel design that would require less excavation during construction and lower energy consumption for ventilation during operation.

Delivering value: By embedding sustainability into the design and build of the tunnels, the project has achieved up-front cost savings of approximately £3 million. Operational costs over the asset's lifetime will also be reduced. The redesigned tunnel ventilation system for example is forecast to save a further £400,000 from lower energy running costs over a twenty year period.

By reducing the tunnel size, using low-carbon cement and redesigning the tunnel ventilation system, the project will also achieve a 40% reduction on carbon emissions over the lifetime of the asset. By re-using spoil from underground tunnelling as backfill for remediation sites elsewhere, National Grid has already diverted 48,000m³ of waste from landfill, reducing lorry haulage distances by between 21% and 88%. These features, combined with others such as a green roof and energy recovery that benefits local communities, have also made LPT an environmental award-winning project.

£3M

The project achieved up-front cost savings of approximately £3 million. Operational costs over the asset's lifetime will also be reduced. The redesigned tunnel ventilation system is forecast to save a further £400,000 from lower energy running costs over a twenty year period



“

“Engage with your suppliers early in the design process. They can often work with you to identify where material reductions in carbon, waste and cost can be made.”

Stuart Bailey, Head of Sustainability and Climate Change, National Grid

”

THE CHALLENGES YOU WILL FACE

Our experience of how these can be overcome

Sharing experiences between the Network members, we found that we each faced a number of challenges when integrating sustainability issues into our capital investment appraisals and we offer our advice on how these can be overcome.

TO BEGIN

Getting started: With such a vast array of perspectives about what 'sustainability' means, and which issues are relevant to your organisation, it can be difficult to know where to start. We took the first step by starting with one or two of the most material impacts or risks, trialling ideas to see what works well and building up from there. The most important thing is to take that first step (see Section 2).

BROAD SUPPORT

Getting leadership buy-in: Executive-level leadership buy-in is crucial. To ensure leaders are active advocates of integrating sustainability, work with them to demonstrate the business benefits for your organisation. They can then disseminate the message to others, e.g. investors.

Embedding into processes: Enhancing your existing capital investment appraisal processes to consider a broader set of issues, requires support from your wider finance team and

Investment Committee so it is good to seek broad support for the changes upfront.

Overcoming scepticism: There are sceptics in any organisation who will resist integrating sustainability into a 'traditional' capital investment appraisal. We've found that being able to counter the arguments of sceptics is essential and this guide offers some examples and recommendations throughout.

ADAPTING PROCESSES

Determining the boundaries: Determining what is in and out of scope for assessing sustainability is not always clear-cut. You will need to decide which parts of your organisation and wider value chain (from supply chain to final consumer) are relevant in the analysis. This will depend upon the scope of the investment decision being made, the data available, where you think the most material issues are likely to be as well as your organisation's level of maturity (see Section 5).

Data availability: Assessing sustainability issues can require a lot of data which is likely to involve collaboration with suppliers. It is helpful to determine the completeness and reliability of your existing data set as this will influence which assessment approaches you are able to use and the amount of influence they can have on the decision (see Section 3).

Quantifying intangible costs and benefits:

In order to enhance the investment case, quantifying the intangible benefits, for example the value of building public trust can be beneficial. However this remains challenging due to the complexities of availability of data and the costs of modelling these costs and benefits. We recommend you estimate upfront whether these are likely to be material and if so consult specialists.

Dealing with trade-offs: The diverse nature of sustainability issues and the range of stakeholders affected, means that you will inevitably need to make trade-offs. Where you have not been able to measure these impacts in a common 'currency' (e.g. monetary valuation), you will need to use subjective judgements which should be made transparent in any investment case (see Section 3).



Governance challenges for integrating sustainability – National Grid

In 2007, National Grid introduced carbon pricing into its capital investment appraisal process through mandatory inclusion in the investment case. For a while the new approach was enthusiastically adopted by certain members of the Investment Committee. However, following changes in senior management, fewer questions were asked and monetised carbon impacts started to be omitted from our investment papers.

This highlighted that policies need to become 'business as usual' in the end-to-end decision-making process rather than relying on a small number of supportive individuals.



HOW TO ADAPT YOUR CAPITAL INVESTMENT APPRAISAL PROCESS

ENABLING INVESTMENT IN MORE SUSTAINABLE CAPITAL ASSETS

Companies allocate investment funds to align with their strategic priorities. One of the most effective ways to enable a more strategic focus on the sustainability of capital investments is to include a clear, measurable sustainability commitment within the company's wider strategy which is supported at THE highest level in your company and will therefore impact on all investment decisions.

Transitioning to a more sustainable business model is a strategic priority for each of the companies in the A4S CFO Leadership Network. We each recognise that capital investment decisions are strategic decisions – they are a key determinant of how we implement our strategy and we have taken different approaches to capital investment to support this transition.

Some members have focused on adapting the capital investment appraisal process to ensure that projects with sustainability benefits are given due consideration when compared alongside projects driven by profit or investment returns. This is the main topic of this guide.

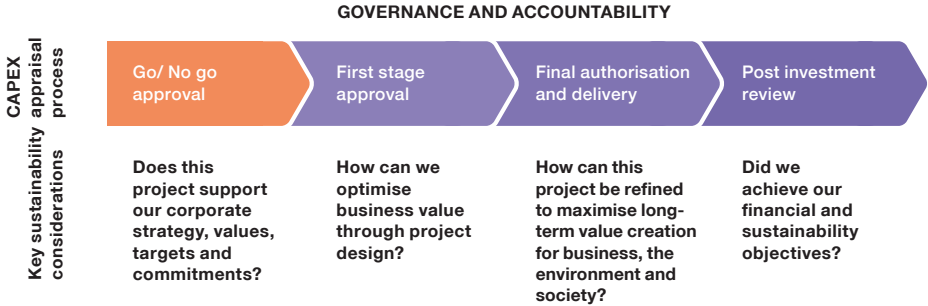
In addition, others have also amended our capital allocation processes, for example by setting aside ring-fenced funds for investing in projects that offer sustainability benefits.

There are a number of approaches for prioritising investment in sustainability projects as part of the annual capital budgeting, allocation and planning process. We explore some of these options in Section 4.

Whichever approaches best suit each individual company, all of us agree that the way in which we decide where and how to invest capital will be a key determinant of whether our companies achieve their strategic sustainability goals and ultimately drives superior financial performance.

HOW THIS FITS WITH YOUR CURRENT APPRAISAL PROCESS

Whilst details vary by company or investment size, a typical capital investment appraisal process comprises a number of stages and approvals. Project design, appraisal and business case requirements often become more detailed and more specific as the project progresses towards final authorisation, hence the type and detail of sustainability information required will evolve with each stage of the process. The areas to consider contained in this guide are relevant at each stage.



We will take you through the areas you should consider when adapting your capital investment appraisal process.

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1

WHO TO INVOLVE AND GOVERNANCE

Establishing accountability and capabilities



“Successfully delivering ambitious sustainability initiatives requires a shift in mind-set and organisational culture. Decision-makers need to move from the traditional financial view to a more strategic view that considers return on investment more holistically. The impetus for this shift comes from the top.”

Simon Griffiths, Head of Financial Planning & Analysis, Bupa

“Getting multiple perspectives is crucial to thinking about capital investments in a more holistic way, including their sustainability impacts and risks. Our experience has shown that working collaboratively across all stakeholders is the most effective way to achieve this.”

Emma Harris, Senior Director, Property Finance, Asda

ESTABLISHING ACCOUNTABILITY AND CHANGING MIND-SETS

Governance, leadership and culture are key to changing investment processes.

Leadership: For sustainability issues to really influence capital investment decisions, clear commitment is needed from the CFO, Board and Investment Committee. The CFO has a key role to play in setting the right tone, emphasising the link between sustainability and improved investment performance and establishing appropriate decision-making standards. Many

Network member companies have assigned accountability for this to a top level business leader.

Culture: Integrating sustainability into capital investments (or business decisions more widely) is still a new concept for many organisations. There can be resistance to change and scepticism to overcome. Supporting change towards a culture of innovation, can maximise the chances of successfully embedding sustainability in the capital appraisal process.

WHERE ARE YOU ON YOUR JOURNEY OF GOVERNANCE CULTURE AND GETTING THE RIGHT PEOPLE INVOLVED?

Maturity measure	Beginner	Intermediate	Advanced	Leader
Leadership	Some awareness at leadership level but little active involvement	Increasing awareness and discussion at leadership level	Increasing involvement and commitment of leaders	Highly visible top level commitment
Cross-functional involvement	Little interaction across teams	Communication of final outcomes across teams	Consultation with other teams when required	Cross-functional core project team
Continuous improvement	Reliance on individuals to provide lessons learned from previous projects	Post-implementation review conducted to formally capture lessons learned	Feedback from post-implementation review drives learning across projects	Feedback from iterative and continuous review drives learning within and across projects

CAPABILITIES - WHO TO INVOLVE AND WHAT ARE THEIR ROLES?

To achieve the best commercial and sustainability outcomes, we recommend that you consider the individuals and groups involved in the appraisal process and their role.

- **Project team:** The team responsible for project scoping, design and planning should have a basic understanding of sustainability and know when to seek advice from specialists. We have found that cross-functional teams (with representatives from teams across the business, and even from supplier organisations) can broaden skill sets and increase innovation. Post-investment reviews conducted by the project team should keep track of the benefits gained to help with future investment cases.
- **Investment Committee:** To encourage the consideration of sustainability alongside the financials, consider either nominating at least one member to be accountable for ensuring the project meets the sustainability expectations of the company, or appointing a sustainability specialist to the Investment Committee.
- **Specialists:** Sustainability specialists can play a useful role to advise the project team on how to integrate sustainability into the project. We've found it is useful to start by consulting internal specialists and to appoint external advisors where complex material issues have

been identified or in cases where you wish to undertake monetary valuation of sustainability issues.

- **Other internal and external stakeholders:** Including stakeholders external to your organisation can help increase support for the project and offer additional perspectives. These can include local community representatives with whom you may wish to collaborate.

Amongst the Network members, we have each observed (either historically or currently) an artificial tension between our sustainability and finance functions and we also found huge value in bridging this organisational divide.

Finance and sustainability teams have unique skill sets, both of which are required to support capital investment appraisal. The finance team's core capabilities in quantification, monetisation and financial modelling make them ideally positioned to draw out the project's sustainability credentials in a way that resonates with the investment case. Sustainability professionals bring expertise and experience in assessing sustainability and identifying sustainable solutions. Combining expertise is a simple way to accelerate integration of sustainability into capital investment appraisal.

2 WHAT TO ASSESS

Identifying and prioritising sustainability issues to consider



IDENTIFYING SUSTAINABILITY ISSUES TO CONSIDER

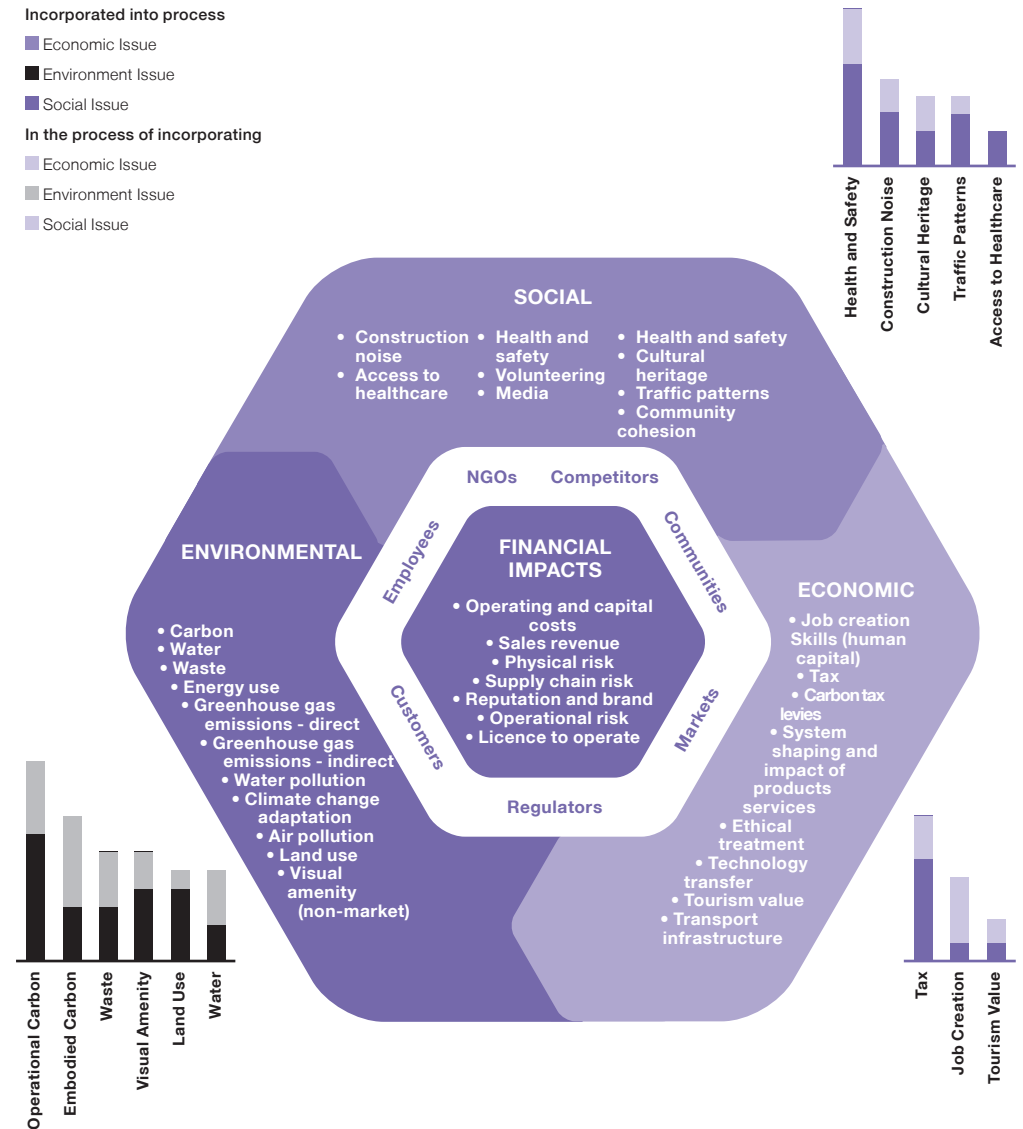
To identify which sustainability issues to consider in a capital investment appraisal, it is useful to think about:

Types of sustainability issues	What issues might the capital project create or be impacted by? Consider the following types of issue: <ul style="list-style-type: none"> • Social • Environmental • Economic
The whole lifecycle	How will these issues change over the lifetime of the project? Consider all stages of the lifecycle: <ul style="list-style-type: none"> • Construction • Operation • End-of-life
The value chain	How do these issues impact different parts of the value chain? Consider the end-to-end value chain: <ul style="list-style-type: none"> • Suppliers • Own operations • Customers

TYPES OF SUSTAINABILITY ISSUES CONSIDERED BY NETWORK MEMBERS FOR CAPITAL PROJECTS

Sustainability is a widely used term that refers to a range of social, environmental and economic issues. The diagram opposite shows some of the sustainability issues that Network members have considered on their capital projects. Whilst this list is not exhaustive, it provides some examples of where to start.

The diagram shows the top issues per type of sustainability category that Network members have incorporated (or are in the process of incorporating) into their capital investment appraisal processes.



APPROACH TO IDENTIFYING SPECIFIC SUSTAINABILITY ISSUES THAT MAY BE RELEVANT TO THE INVESTMENT

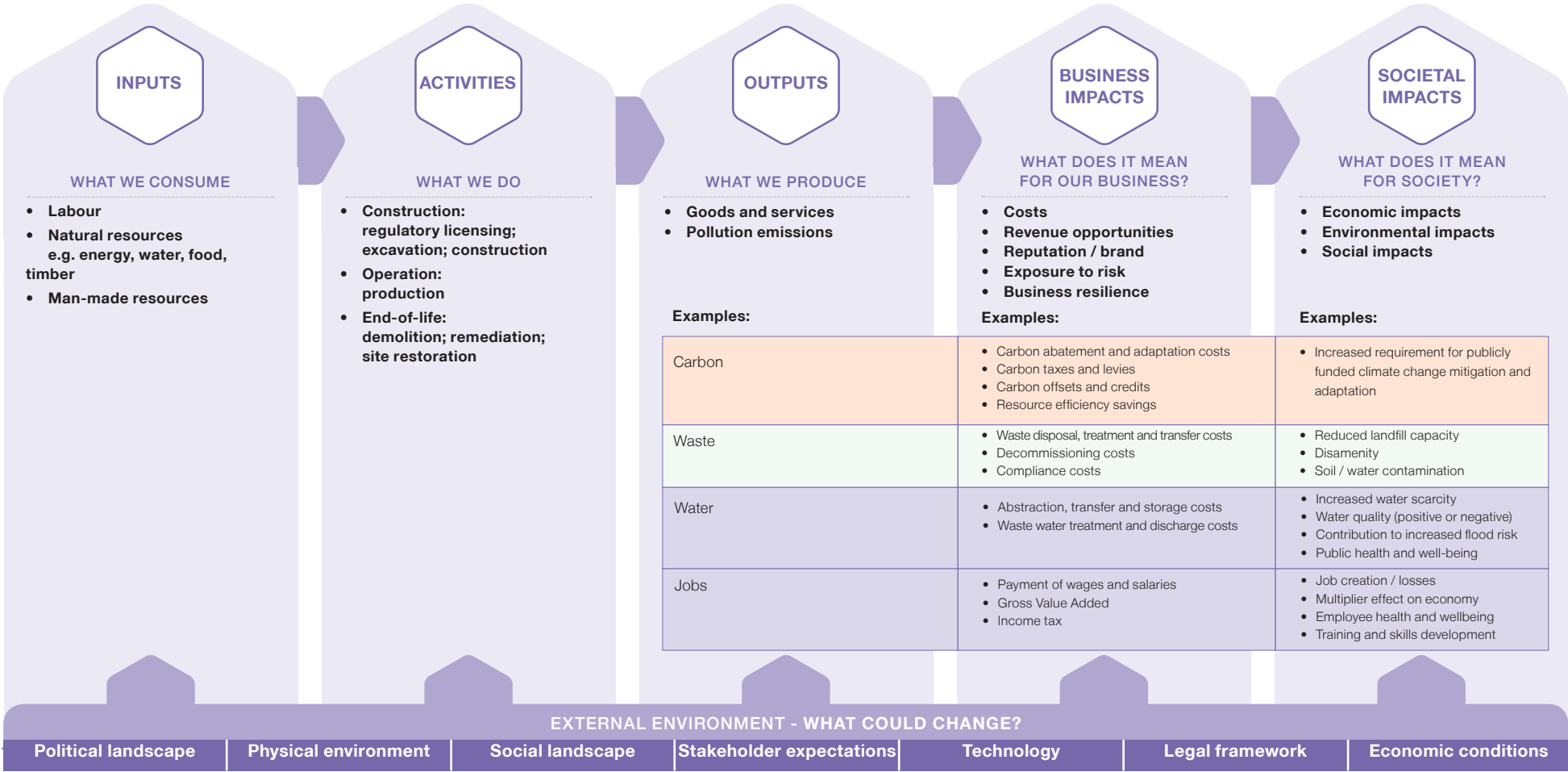
Sustainability issues can manifest in different ways across the asset lifecycle (from construction to operation to end-of-life) and across the value chain (from supplier inputs to own operations to customer activities). The following approach can be helpful in thinking through these different dimensions to identify the:

- **Sustainability impacts of the project:** Consider the pathway from input (e.g. the resources you consume) to impact (e.g. resource scarcity, pollution) – this helps to break down the impact of the project activities into simpler and more measurable steps.
- **Sustainability risks to the project:** Examine the external environment – factors external to the project can change significantly over its life. Consider how environmental, political and social landscapes and stakeholders perceptions might change and how this might create risk (or opportunity) to the value of the investment e.g. the increasing impact of climate change.

The diagram illustrates how this approach could be applied to four sustainability issues that we collectively thought to be most commonly relevant to capital projects: carbon, water, waste and job creation.

PRIORITISING SUSTAINABILITY ISSUES

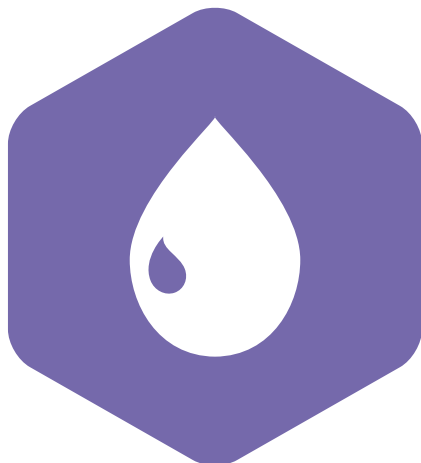
Prioritise the most material sustainability issues i.e. those with the greatest potential to influence the value of the investment and that are of highest importance to the project's stakeholders (e.g. regulators, employees, shareholders, local communities, media organisations, the general public).



SPOTLIGHT ON WATER SCARCITY RISK

Water is a critical resource for many businesses and their operations. Because water scarcity poses a real risk to business continuity and profitability, water availability is often a consideration when choosing a location for a new site or plant. Like many other sustainability risks, understanding the water scarcity risk profile of a project requires thinking across the lifecycle. The changing level of water use during construction, operation and end-of-life is one variable that could influence the level of risk. Another variable is changing external factors, particularly future water availability and price.

Water supplies globally are expected to become increasingly stressed by rising demand and changing climatic conditions. So whilst the level of water use by, for example, a manufacturing plant in India may be acceptable to local communities and regulators in 2015, this same level of water use might become less acceptable if that region becomes more drought-prone by 2030. There are a number of tools designed to help businesses identify and manage their water related risks.



WHERE ARE YOU ON YOUR JOURNEY OF EXAMINING DIFFERENT ASPECTS OF SUSTAINABILITY

Maturity measure	Beginner	Intermediate	Advanced	Leader
Value chain	Focus on own operations	Considers some supplier activities	Considers some up- and down-stream activities	Whole value chain approach
Asset lifecycle	Focus on operation stage	Focus on construction and operation	Some focus on construction, operation and end-of-life	Whole asset lifecycle approach
Scope of issues	One sustainability issue (most likely carbon)	Small selection of sustainability issues	Wide range of sustainability issues, focus on materiality	Focus on material sustainability issues, and interactions between them
Sustainability from the start	Sustainability risks mitigated after project design is completed	Initial project design is altered to avoid sustainability risk	Initial project design is influenced by sustainability issues	Optimising sustainability is a key objective of project design from the outset



“When starting out with assessing the sustainability impact of your investments, pick a relevant sustainability impact or risk for which you have sufficient available data. Develop a simple methodology for measuring it – complicated methodologies can hinder uptake, especially if significant effort is required to conduct the analysis.”

David Widdowson, Head of Asset Management Programme,
Yorkshire Water



Sceptics told us

“Sustainability data is too uncertain.”

We say

“Traditional investment models rely upon assumptions and uncertain data e.g. forecast prices or market growth trajectories. Sustainability data can be thought of in a similar way as it is based on the best available information at the time and takes into account the professional opinions of experts in that field.”

3

HOW TO ASSESS

Methods for appraising sustainability



METHODS THAT NETWORK MEMBERS HAVE USED TO ASSESS SUSTAINABILITY IN CAPITAL INVESTMENT APPRAISAL FALL INTO FOUR MAIN TYPES:

1 - QUALITATIVE

- Written explanations e.g. describing importance or improvement
- Qualitative ratings e.g. high, medium, low; Red, Amber, Green (RAG) ratings

2 - QUANTITATIVE

- KPI dashboard or scorecard, containing numerous KPIs e.g. m³ of water per product, % employees satisfied
- Single index or score scorecard, which combines and normalises KPIs into a single score for each issue

3 AND 4 - MONETARY

- 3. Shareholder (or company) value e.g. NPV including cost or benefit to the company in monetary terms
- 4. Stakeholder (or societal) value e.g. cost of pollution to society

WHERE ARE YOU ON YOUR JOURNEY OF APPROACH TO APPRAISAL METHODS?

Maturity measure	Beginner	Intermediate	Advanced	Leader
Method of appraisal	Qualitative only	Qualitative and some quantitative	Mix of qualitative, quantitative and monetised methods as appropriate	Mix of appraisal methods including monetisation of sustainability value to shareholders or society as appropriate
Perspective	Value creation for shareholders only	Value creation for shareholders, but risk to other stakeholders considered	Value creation for all project stakeholders	Value creation for all project stakeholders and wider society

WHICH METHOD IS BEST FOR YOUR ORGANISATION?

To help you decide which appraisal method to use, the table below sets out some key considerations.

	Non-Financial		Monetary	
	1 Qualitative	2 Quantitative	3 Shareholder value	4 Stakeholder value
Provides a common basis of comparison for different types of sustainability impact	✓/✗	✓/✗	✓	✓
Requires development of explicit sustainability decision-making criteria	✓	✓	✗	✗
Can be integrated directly into financial analysis	✗	✗	✓	✓
Allows an objective assessment of project sustainability performance	✗	✓	✓	✓
Can be incorporated into a multi-criteria analysis along with other performance criteria	✓	✓	✓	✓
May over-simplify complex sustainability issues	✗	✓	✓	✓
Requires relatively high level of data availability and quality	✗	✓/✗	✓	✓
Data can typically be gathered in-house	✓	✓	✓	✗

1. QUALITATIVE METHODS

These enable analysis of sustainability issues using descriptions or categorisations to illustrate their relevant size or severity. They involve using professional judgement or canvassing stakeholder or expert opinion.

Methods of presenting the results include:

- **Written explanations describing importance or improvement:** Essential for impacts or risks that have a strong ethical or

political dimension or where severe, long term or irreversible impacts are likely.

- **Qualitative ratings:** Useful where data is unavailable for comparing perceptions of risk or impact across different sustainability issues. Requires development of clear impact or risk criteria to describe the characteristics of each rating.

2. QUANTITATIVE METHODS

These enable analysis of sustainability issues using non-financial sustainability KPIs or indices e.g. tonnes of carbon dioxide equivalent (tCO₂e), cubic metres for water use, or number of full-time employees (FTE) for job creation.

Methods of presenting the results include:

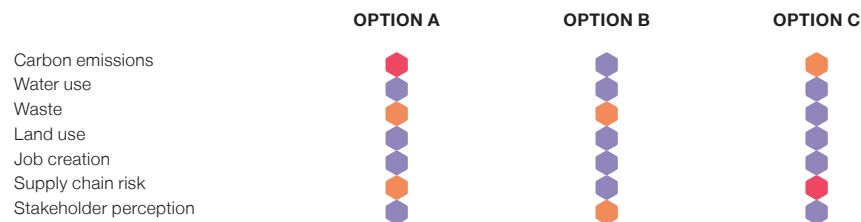
- **KPIs dashboard or scorecard:** Presents the project's performances against a range of sustainability KPIs or corporate targets for

each project option. Combining the results in a single standardised output enables easier comparison between options.

- **Dashboard or scorecard of single indices or scores:** A method that normalises project impacts and risks on individual sustainability KPIs by weighting and combining them to produce a single measurable scale for each issue (e.g. a score of 1 to 10).

HOW COULD YOU ASSESS THE LEVEL OF RISK FOR EACH ISSUE?

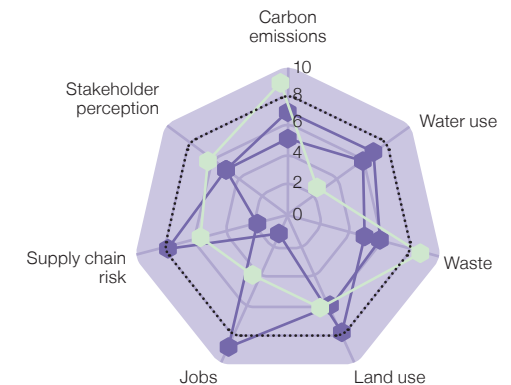
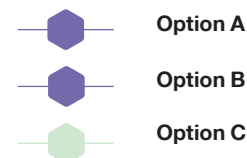
Illustrative output – Red, Amber, Green (RAG) Rating



HOW COULD YOU ASSESS WHICH ISSUES ARE MOST AFFECTED BY THE PROJECT, AND BY HOW MUCH?

Illustrative output - sustainability scorecard - project option scores

Project lifecycle impact score



ASDA

Evaluating sustainability alongside commercial metrics during options appraisal for a new distribution centre

Carbon efficiency was a key objective for the designers of Asda's new-build chilled distribution centre in Rochdale. Targeting carbon as a major driver from the outset gave the project team licence to consider innovative solutions, and to challenge traditional approaches.

A cross-functional team: We assembled a cross-functional project team including specialists from distribution, construction and finance. For projects of this magnitude, our capital investment approval process requires the project team to engage with a range of additional cross-functional stakeholders to gather specialist input. This multi-disciplinary approach brought different perspectives of sustainability to the design process.

Considering the options: In addition to energy efficiency technologies (such as LED lighting and smart refrigeration), we considered a wide range of technologies for large-scale renewable and low-carbon energy

generation that could deliver significant reductions in carbon emissions.

Options included:

- Small and large-scale wind turbines
- Solar photovoltaic (PV) cells
- Solar water heating
- Biomass boilers
- Combined heat and power (CHP)
- Ground source heat pumps

But, with finite resources, we needed to select the technologies that would deliver best value-for-money, in terms of both financial return and carbon savings.

A scorecard approach: We conducted an evaluation of the technology options using a scorecard. The scorecard enabled us to assess and compare the different commercial and sustainability characteristics of each option, using a combination of qualitative, quantitative and financial measures. It examined absolute cost and financial payback, technical design constraints and annual carbon savings. These key metrics were combined into a single red / amber / green (RAG) rating to reflect the overall viability of each technology, which gave investment decision-makers a clear way to differentiate between options. The evaluation highlighted two technologies that were technically feasible, cost-effective and that, together, would deliver 300,000 kg of carbon savings per year.



Use good data to tell a good story. Whilst it will take time to put the necessary systems in place and gather all the information, demonstrating your case with robust numbers is crucial and provides a factual basis on which to compare sustainability with other business considerations



Sceptics told us

"The techniques for measuring sustainability are not mature or not reliable enough to be used in capital investment appraisal."

We say

"Methodologies for measuring and assessing some sustainability impacts, for example carbon or water, are increasingly sophisticated and accurate. Others, for example social impacts, are less easy to quantify. However, in the majority of cases the exact measurement of sustainability impact or risk is less important than an understanding of the range of possible outcomes and a judgement of whether, on balance, the investment adequately fits an acceptable risk profile."



3. MONETARY, USING SHAREHOLDER (OR COMPANY) VALUE

Shareholder value methods involve assessing the direct and / or indirect financial consequences (market values) of sustainability on shareholder value in monetary terms. This approach can be used for example when assessing the financial consequences of sustainability features such as photovoltaic solar panels, LED lighting, ground source heat pumps and rainwater harvesting.

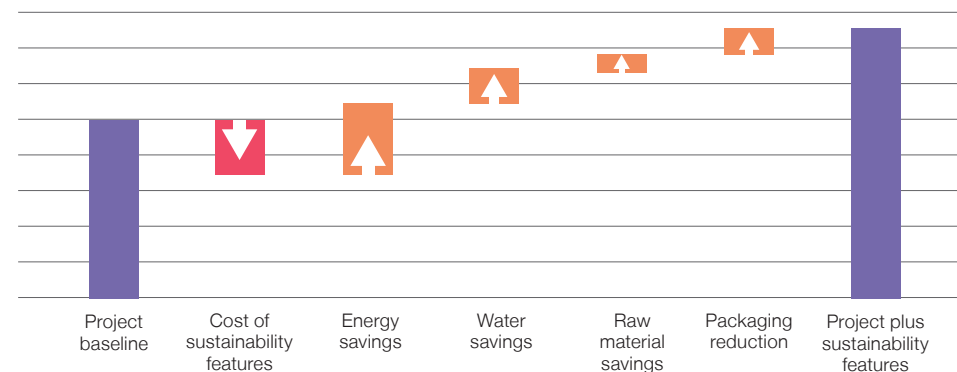
- **Direct financial impacts:** Sustainability has a direct financial impact on a company when sustainability improvements directly result in reduced costs or increased revenue. These cost (CAPEX or OPEX) and revenue impacts can be included in the project's financial model.
- **Indirect financial impacts:** Sustainability has an indirect financial impact on a company when sustainability improvements lead to a change in the value of its 'intangible assets' (e.g. corporate reputation, employee engagement or licence-to-operate). Quantifying this 'intangible' value involves more complex techniques (and generally requires input from both valuation and sustainability experts). Indirect financial impacts are often valued using a proxy measure. For example, the value at risk from poor employee engagement could be linked to unplanned absenteeism, which can in turn be monetised in terms of the costs for temporary cover, overtime or the loss of productivity.

This type of appraisal enables sustainability issues to be fully integrated into the project's financial model (e.g. NPV, ROI or IRR). See the A4S guide titled "Natural and social capital accounting: an introduction for finance teams" for more information.

HOW COULD YOU ASSESS THE FINANCIAL VALUE OF SUSTAINABILITY TO THE BUSINESS?

Illustrative output - direct financial impacts of sustainability features on NPV

Project NPV with and without sustainability features



LINKING SOCIETAL VALUE TO SHAREHOLDER VALUE THROUGH INTERNALISATION

Strictly speaking, societal costs are external to the company. However, regulation, taxation and stakeholder action can serve to 'internalise' societal costs by obligating the company to pay for them. Some companies voluntarily adopt corporate standards that require them to consider external costs in decision-making.

For example, National Grid assigns a societal value to methane and SF6 emissions (greenhouse gases) as part of capital project appraisal. It applies a project cost valued at the Shadow Price of Carbon for each tonne of CO2 equivalent emissions. Consequently, project options that minimise emissions become more commercially attractive than those that do not, which incentivises investment decision-makers to select options that reduce environmental harm.

4. MONETARY, USING STAKEHOLDER (OR SOCIETAL) VALUE

Societal value methods assign a value to the external non-market sustainability impacts of a project.

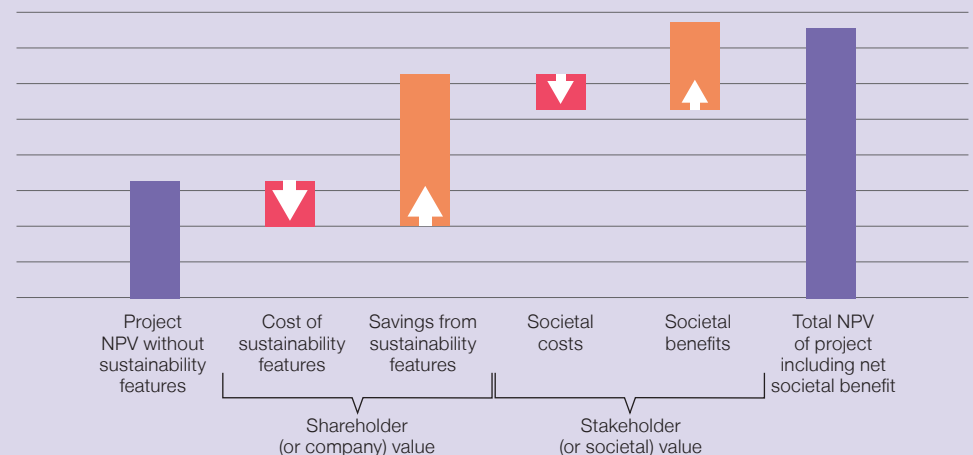
- **Societal cost:** The costs or negative 'externalities' that a company would need to pay to compensate society for the negative environmental or social impacts it causes. For example, the 'social cost of carbon' calculated by some governments (also sometimes referred to as the 'shadow price of carbon') reflects the damage incurred by society from climate change.
- **Societal benefit:** The benefits or positive 'externalities' created by a company through, for example, job creation, investment in skills development or community engagement.

This type of appraisal enables comparison between the value created for the shareholder (or company as reflected in traditional financial measures such as NPV) and the value created (or eroded) for wider society.

HOW COULD YOU ASSESS THE FINANCIAL VALUE OF SUSTAINABILITY TO SOCIETY?

Illustrative output - impact of societal costs and benefits on NPV

Project NPV including costs and benefits



SSE

Assessing total impact to maximise societal and business benefits

In 2010, SSE in conjunction with Scottish Power started work to upgrade one of the main transmission lines running between the towns of Beaully and Denny in the highlands of Scotland. The upgrade, due to be completed in 2016, involves the replacement of 220km of 132kV line with a 400kV line to transmit renewable energy generated in the north of Scotland to other parts of the UK. This is one of SSE's major capital projects, with over £675m of investment between 2010 and 2016.

Value at risk: We have experienced first-hand the perils of considering sustainability too late in the day. Delays in obtaining planning consents - fuelled by opposition from stakeholders concerned about damage to Scotland's environment, economy and communities, had already added an estimated 10% to 15% to project costs. Considering this sizable impact, the ability to assess the total impacts to the economy, environment and society was a key focus.

A new approach to project appraisal: We wanted to better understand the impacts that the project had on society and to measure them using a consistent metric. With support from sustainability consultants, we developed a framework comprising over a dozen methodologies to quantify and monetise the

environmental, social, fiscal and economic impact, i.e. the total impact, of the Beaully-Denny transmission line.

Focusing on material impacts: The assessment focused on a number of sustainability impacts that were assessed to be most material to the project, including total economic footprint of the construction expenditure, cultural heritage, traffic management, carbon footprints, building waste and visual amenity.

A sustainable commercial model: The results of the assessment are allowing us to build a sustainable commercial model; one that can evaluate externalities alongside shareholder value to maximise societal and business benefits. This innovative approach reflects our determination to act in a sustainable and socially responsible way, going beyond what is expected and making a positive difference to society as a result. We plan to use our quantitative framework to improve transparency and communication with our stakeholders. Our experience shows that a better understanding (by both SSE and our stakeholders) of the total costs, benefits and consequences of different options can seek to deliver a low carbon economy sooner.

YORKSHIRE WATER

Calculating the cost of carbon for both the business and society

Yorkshire Water recognises that driving carbon out of the water infrastructure that we design, build and operate leads to greater efficiency, and reduced costs. But, unlike operational carbon (i.e. the carbon emission from operating our plant), we were not yet able to analyse our embodied carbon footprint (i.e. the emissions from building the plant) on a project by project basis. Without this, we could not see the full picture i.e. our full carbon footprint across the whole life of a capital investment, and hence we didn't know where to prioritise efforts to reduce lifetime emissions.

The carbon calculator: In 2012, Yorkshire Water developed a tool to help us calculate the full cost of carbon. The carbon calculator estimates the embodied and operational carbon emissions of a project based on its technical specifications. It then assigns a price to each tonne of carbon that reflects the social cost of carbon - that is the cost of the additional climate change damage likely to be incurred by society due to each extra tonne of carbon emitted. These carbon costs were integrated into the standard discounted cash flow models.

Proof of concept: We needed to show that calculating the full cost of carbon was worthwhile - that the information obtained could materially change capital investment decisions.

To prove this concept, we retrospectively reviewed two major capital projects (one above-ground and one below-ground waste water facilities). We simulated calculating the cost of carbon at different project stages: solution optioneering, complete design, post-tender design and post-project implementation. At each stage, the results were reviewed alongside the whole-life cost (calculated as standard for all Yorkshire Water investments). On both projects, considering the whole life cost of carbon would have changed the solutions promoted and design decisions made.

Next steps - embedding the calculator:

Having proved the value of its application, our next challenge is to embed the carbon calculator into our capital investment appraisal process.

This will require:

- Leadership from the top, including Board-level direction to incentivise a shift in culture and mind-set towards more holistic assessment of impacts in capital investment appraisal.
- Integration with existing tools, such our Whole Life Cost calculator, which is already used during capital investment appraisals and can be adapted to include carbon with minimal additional effort for project team.

George Cobb, Sustainability Accountant, SSE

4

HOW TO DECIDE

- A) Setting decision-making criteria
- B) Choosing between investment options
- C) Exploring funding options



The investment decision-making process needs to include opportunities for decision-makers to objectively review the results of any sustainability assessment undertaken by project teams alongside the financial considerations.

Network members have found that there are two key things to consider when seeking to embed sustainability into the investment decision-making process:

A) Setting decision-making criteria:

Depending on the type of sustainability assessment conducted i.e. qualitative, quantitative or monetary (see Section 3), decision-making criteria may be:

1. **Non-financial criteria**, such as minimum thresholds that the project must meet, or criteria that can be used to compare project options relative to each other
2. **Financial criteria**, such as hurdle rates for NPV, IRR or ROI and payback

B) Choosing between investment options:

There are approaches to considering sustainability issues alongside the commercial and technical characteristics of a capital project, such as:

1. **Holistic evaluation frameworks** that evaluate a range of strategic, financial and technical criteria alongside each other
2. **Structured decision-making methods** e.g. multi-criteria analysis (MCA)

C) Exploring funding options

The way in which funding is sourced can influence how capital is allocated between investment options from simply using your mainstream capital budget as the sole source of funding to identifying new sources of specialist funding.

These concepts are explored in more detail over the next few pages.

A) SETTING DECISION-MAKING CRITERIA

How you incorporate sustainability into decision-making criteria will depend upon whether the assessment of sustainability issues undertaken is financial, non-financial, or a mixture of both.

1) NON-FINANCIAL CRITERIA

Where sustainability has been assessed using non-financial KPIs, you can develop explicit criteria to determine whether the project's sustainability performance is good or bad, acceptable or unacceptable. Types of non-financial sustainability criteria include:

Minimum thresholds (for project approval):

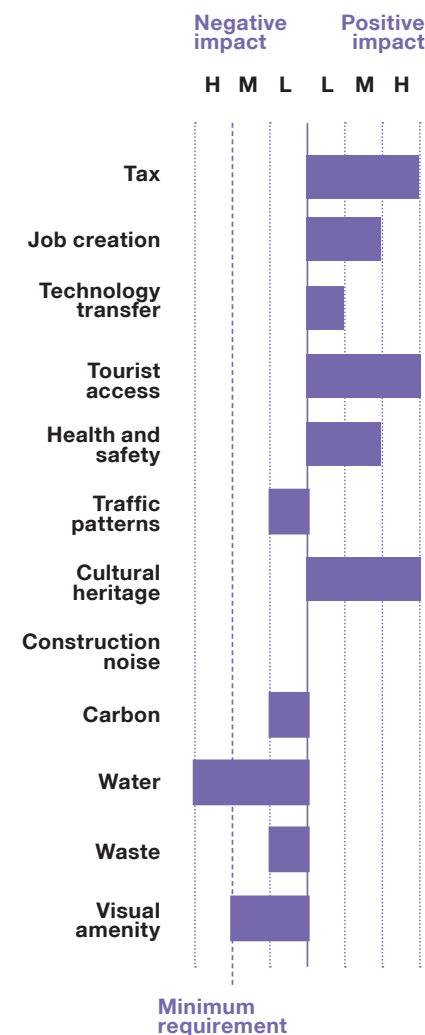
A minimum threshold might be applied to each significant sustainability impact or risk, or for the project overall. This minimum threshold could be:

- Qualitative (for example, in the diagram to the right, the project must have no more than a 'medium' negative impact), or
- Quantitative (e.g. cubic metres of water usage per unit produced), then the minimum threshold might be set at an industry benchmark value.

Relative performance criteria (for comparing options):

Rather than setting an absolute minimum threshold, you may choose to compare project options relative to each other using a range of performance criteria.

This comparison enables decision-makers to select the best performing option. For example, each project option could be assessed according to its expected contribution to meeting your overall carbon target or its contribution to job creation.



The following sources of information are a good starting point for developing non-financial sustainability decision-making criteria:

- **Quantitative sustainability targets:** Many organisations set quantitative corporate targets e.g. in relation to carbon, water, waste or employment. Capital investments should contribute to (or at least not inhibit) the achievement of the company's sustainability targets. The appraisal process should therefore include assessment of each project option for its contribution to these targets.
- **Qualitative sustainability commitments or goals and corporate values:** High level corporate goals can help decision-makers to gauge whether or not proposed capital investments align with overall corporate strategy. For example, if your organisation is seeking to 'demonstrate sustainability leadership' or 'maintain global good practice sustainability standards', then performance against these goals should be documented within the investment case to help to ensure that capital investments uphold these commitments.
- **Company reputation:** A simple test for decision-makers is to consider whether a project's potential sustainability impacts could put the company reputation at significant risk, or damage trust in the company or its brand.

ANGLIAN WATER AND THE @ONE ALLIANCE

Driving down costs through designing a carbon-efficient new treatment plant

On the surface, refurbishing the end-of-life water treatment works at Raithby seemed like the low-cost, low-carbon solution. But when we challenged the project team to design a brand new works for the same cost and embodied carbon as a refurbishment, we discovered innovative new solutions that generated even greater savings.

Embodied carbon drives innovation:

Anglian Water's ambitious carbon targets (to halve embodied carbon and reduce operational carbon by 20% by 2015 from a 2010 baseline) have been a major driver in considering new approaches for recent capital investments. We found that in nearly every scheme our interventions to reduce embodied carbon also resulted in cost-savings. Raithby was no exception. The cost of a traditional solution would have been c.£7m. The designed cost was only £5.9m, with a 55% embodied carbon saving.

Targeting embodied carbon as a major driver early in the project gave the project team licence to radically rethink the way water treatment works are designed, built and operated, which ultimately delivered significant cost-savings, shorter project delivery times and operational efficiencies.

Breaking the mould: Anglian Water has traditionally taken a low risk approach – using tried and tested designs. Working with the @One Alliance, the Capital Delivery Teams have used various techniques to help them break the mould of using traditional design by default:

- Using computer aided design (CAD) enabled the team to visualise the build in 3D and rectify potential issues with the plant layout and health and safety during early design. This avoided rework during construction and maximised the plant's operational efficiency over its lifetime, saving both cost and carbon.
- 'What if' scenario planning helped the teams to work through the potential risks of using relatively new technologies and materials. By exploring several scenarios, the team agreed that the risks associated could be managed through relatively simple and cost-effective measures, such as installing security fencing and sub-surface rodent netting.
- Standardising products and using a modular approach to design saved time, cost and carbon by making fabrication and construction processes more uniform, repeatable and scalable. It had the added benefit of strengthening relationships with key suppliers so that we were in a better position to negotiate on price.

Proactive engagement strategy pays:

The project was also a great example of effective internal and external co-ordination and engagement. The site is located in an area of outstanding natural beauty, which meant developing a clear, proactive strategy of engagement with both the Local Planning Authority and Natural England to address our concerns. Moreover, early involvement within the design and decision making process from a number of internal stakeholders resulted in wide acceptance of the innovative new design.

"It's easy to dismiss an unfamiliar solution before it has been properly considered. But bringing more sustainable solutions to life depends on companies being more open-minded to new ideas and exploring their feasibility by asking 'what if?'"

Jonathan Forster, Head of Planning, Management Accounting and Analysis, Anglian Water

Our analysis shows that interventions to reduce embodied carbon also resulted in cost savings in over 90% of capital projects

2) FINANCIAL CRITERIA

Companies that have assessed sustainability using a monetary method (see Section 3) can directly incorporate the results into the project's financial analysis, resulting in financial models (e.g. NPV, IRR) that better reflect the financial value of sustainability issues. Decision-makers can then use traditional financial criteria (e.g. IRR hurdle rates, maximum payback periods, minimum rates of return) to determine whether the project should be approved.

Monetary appraisal methods (shareholder value and stakeholder value) can be included in, or presented alongside, the financial investment case of a project.

- **Monetary, using shareholder (or company) value:** Some Network members have calculated the shareholder value of sustainability in financial models terms and presented this as a separate figure alongside the traditional financial analysis. This approach enables decision-makers to see how the sustainability costs and benefits affect the value of the investment.
- **Monetary, using stakeholder (or societal) value:** Some Network members have used the societal value of sustainability to differentiate investment options that have similar shareholder returns. For example, when faced with two projects of equal financial return or payback, decision-makers might prefer the project that minimises societal costs and maximises societal benefits.

Traditional financial analyses may not always reflect the long-term value created, particularly if the assessment period is short. If the period of the financial analysis covers only the near-term, then sustainability projects that deliver stronger returns in the long-term may be disadvantaged when compared to faster payback projects with shorter lifespans. Adjusting the assessment period can help to level the playing field.



Sceptics told us

“Sustainability can't be integrated into our Discounted Cash Flow (DCF) analysis.”

We say

“Many aspects of sustainability can be monetised and incorporated into a standard DCF analysis. By doing this, we can take into account the full impact of our decisions on shareholders and on society. It also keeps us one step ahead of any forthcoming regulation, corporate commitments or stakeholder action that could oblige the company to account for these impacts in the future.”

ADJUSTING FINANCIAL CRITERIA TO ENCOURAGE PROJECTS WITH SUSTAINABILITY BENEFITS

As our examples in this guide have shown, it is possible for projects with sustainability features to achieve the same, or improved financial returns as any other capital project. We have found that capital projects that are more carbon, water or waste efficient are also more operationally efficient, and hence more cost-efficient. Using standard financial hurdles may well be appropriate, particularly for organisations for which cost-effectiveness is a top strategic priority or who believe in the philosophy that sustainability should pay for itself.

However, some companies recognise that there are wider benefits (e.g. building public trust) associated with investing in sustainability features that it may not be feasible to capture using standard financial analysis. These are some of the ways in which these companies, including some Network members, adjust their financial criteria to encourage projects with sustainability benefits:

- **Lower hurdle rates:** Lower the required rate of return for investments in projects with wider sustainability benefits to reflect a lower risk profile or to account for intangible benefits that have not been possible to quantify.

- **Trigger points:** Undertake a sustainability assessment of projects which then triggers a lower hurdle rate if it meets the required level of sustainability.
- **Consolidating projects into programmes or portfolios:** Bundle together projects with sustainability benefits and varying rates of return into a larger sustainability programme or portfolio, which is then subjected to the usual financial hurdles. This allows for some lower return projects to be offset with some higher return projects.
- **Considering CAPEX and OPEX budgets together:** Maintaining a strict divide between CAPEX and OPEX budgets can disadvantage capital projects which result in lower operating costs e.g. energy and water efficiency projects. Some companies set up special funds that allow a higher initial CAPEX budget to be offset by a lower OPEX budget in the long run.
- **Sustainability related financial hurdles:** Apply specific financial criteria related to the incremental cost of improving the sustainability impact of the project e.g. a cost per tonne of carbon avoided, to ensure that the most cost-effective sustainability projects are addressed first.

ROYAL DSM

Meeting sustainability standards and financial hurdles at the new Caprolactam (CPL) facility in China

In 2013, following a €200m investment, DNCC (Royal DSM's joint venture with Sinopec) opened a new 200 kilo ton per annum capacity facility in Nanjing for producing Caprolactam (CPL), a chemical used in the manufacture of nylon. The investment came about in response to market growth opportunities in the region. By going beyond minimum local regulatory requirements, we constructed a production line that is upheld as a model of sustainable engineering across Royal DSM's global business, whilst maintaining attractive financial returns.

Sustainability sets the bar: Being sustainable was not a 'nice-to-have.' The CPL facility was subject to strict permit requirements regarding wastewater effluent, air pollution, greenhouse gas emissions and energy efficiency. Failure to meet these would put our licence to operate at risk. Environmental factors were qualifiers, not differentiators. To meet these regulatory requirements, as well as our own internal standards, the project team designed the facility with sustainability features including a wastewater treatment and effluent recovery plant, phosphate removal unit, N₂O removal installation and heat recovery technologies.

Commercial drivers: Whilst sustainability was essential, commercial value remained a primary driver. The project was subject to standard financial hurdles for major capital investments.

Our research and development team were brought on board to seek opportunities that satisfied both commercial and sustainability goals. We identified technological improvements that would increase production yields whilst minimising resource use, emissions and waste.

The compatibility of sustainability and commerciality: Our plant shows that enhancing sustainability can be consistent with minimising cost and, therefore, compatible with commercially-driven investments. Moreover, making sustainability a core driver of project design, resulted in a facility that not only has good financial returns, but is also by far the most environmentally-friendly CPL production line in Royal DSM's asset portfolio. Compared to a standard design, the new facility uses 37% less fresh water and 20% less energy, and generates 58% less effluent waste.



The compatibility of sustainability and commerciality: the plant shows that enhancing sustainability can be consistent with minimising cost and, hence, compatible with commercially-driven investments. The environmental projects resulted in annual cost savings of €3m for Royal DSM

DANONE

Combining financial and carbon savings – investing in a new beverage production plant in China to grow market share with significant carbon benefits

Danone's beverage company in China, Danone Waters China (DWC), is enjoying a high and growing demand for a successful isotonic beverage called Mizone. As a result we are currently investing in a new facility in west China to locate production closer to the consumer, satisfy demand and grow market share.

Recognising carbon savings from the outset: We recognised early on that the commercial advantages of the chosen location also offered significant opportunities to reduce the project's carbon footprint. For example, a west China production facility with good access to transport routes would reduce delivery distances to market by an average of 300km compared with DWC's existing Central China facilities. Shorter transport distances would mean lower fuel costs, reduced carbon emissions and also allow us to reduce the plastic packaging in our bottles.

Carbon savings led to improved NPV and payback: Danone used traditional appraisal techniques – NPV, payback and IRR - to assess the financial feasibility of the investment. The project was approved using standard, corporate-wide targets and thresholds. To assess the carbon savings for the proposed plant, we consulted one of our 140 trained and certified employees known as Carbon Masters.

Carbon Masters advise Danone's business units on environmental topics and how to influence business decisions to improve our carbon footprint. Carbon savings were calculated and translated into monetary terms at €20 per tonne carbon saved. The resulting financial savings were incorporated into the project's discounted cash flow model. Both the project's NPV and payback period improved when the carbon savings were taken into account. So including the monetised carbon saving in the financial evaluation bolstered what might have otherwise been a marginal investment decision.



Including the monetised carbon saving in the financial evaluation bolstered what might have otherwise been a marginal investment decision

BUPA

Working towards a zero carbon residential care home

In 2013, Bupa commenced a pilot project to determine what level of investment was needed to make a residential care home zero carbon. We selected a challenging location for the pilot project: Summerhill – a 70-bed home with four categories of resident care, built in 1996, located in a conservation area, full of residents who could not be disturbed or disrupted by the refurbishment.

Getting towards zero: Our aim was to reduce carbon emissions in the zone to get as close as possible to zero. We proposed a suite of measures to get there – ranging from low cost behavioural change and optimisation of existing energy control systems, to installation of new renewable energy technologies, smart metering as well as other initiatives such as installing waste compactors. The carbon savings of each intervention were modelled based on the projected reduction in gas and electricity usage, which was then converted into carbon using an emissions conversion factor. By modelling the options, we were able to determine the combination of interventions that would eliminate most of the carbon from the operation of Summerhill.

Getting acceptable payback: The changes at Summerhill also needed to be financially viable. The low carbon technologies were evaluated for financial costs and payback. The investment proposal needed to reach a hurdle rate of 15% IRR with a five-year payback. Having considered the financial and sustainability credentials of the different options, we chose to install a range of sustainability features including solar photovoltaic panels, combined heat and power and energy-efficient LED lighting.

Positive results: Early post-implementation results also show that the original paybacks and savings expected for the new technologies are not only being achieved, but are being exceeded. Bupa has committed to reducing our absolute carbon emissions by 20% by the end of 2015 and this project is helping to meet our targets. Carbon emissions associated with Summerhill are expected to reduce by 80%, with CO2 down from 194 tonnes to around 40 tonnes. In addition, water consumption has reduced by 550 cubic metres per annum. There have been unexpected benefits to the sustainability upgrades too – additional investment in lighting in resident areas has provided an improved environment in which care can be delivered.



The low carbon technologies were evaluated for financial costs and payback. The investment proposal needed to reach a hurdle rate of 15% IRR with a 5-year payback



“We often consider sustainability when it is too late – when the outcomes have already been determined by decisions that were made at the beginning of the project, or even earlier – for example at the point when we decide what criteria are used to determine if a project is viable or not. To make real improvements, sustainability needs to be part of how we think about every business decision.”

Maaïke Lambrichts, Corporate Business Controller, Royal DSM

“Financial benefits can sometimes be hidden until you look at a project with a sustainability lens. For example, when choosing the location for a site, transport distances might be flagged up as a contributor to vehicle emissions, but there are financial costs for fuel and vehicle maintenance that should be considered too. Once all impacts are taken into account, the overall result is better corporate decision-making based on fuller information.”

Florence Chevalier, Cash and Capex Controller WWBU Diary, Danone

B) CHOOSING BETWEEN INVESTMENT OPTIONS

No business has unlimited capital to spend and companies increasingly operate in a capital constrained environment. So, whilst your business may have a long wish-list of capital projects that support your strategic goals, each business must set its capital expenditure budget and manage its capital investment portfolio within its financial constraints. Capital projects that can demonstrate compelling and tangible returns on investment are more likely to be awarded funding from the limited pot of available capital. The following two approaches can help ensure that sustainability is given due consideration when prioritising which capital projects should make the final cut in the annual budgeting or long-range planning process.

Use a holistic evaluation framework:

Leading companies use a strategic framework to compare individual investment options and understand how they could contribute towards the achievement of the organization's overall strategy. Holistic frameworks evaluate a range of strategic, financial and technical criteria.

To ensure that proper consideration is afforded to sustainability issues, a holistic evaluation framework should include:

- Clear qualitative criteria to prompt decision-makers to think about issues that cannot be quantified
- A requirement for qualitative and quantitative (non-financial) information to be presented alongside financial models as part of the investment case

Using structured decision making

methods: Structured decision making methods such as multi-criteria analysis (MCA) provide a transparent and repeatable way of comparing investment options or projects. The MCA technique involves establishing a set of performance criteria, quantitatively assessing the performance of each investment option against this criteria, weighting the relative importance of each criterion and producing a single score for each investment option.

A key feature of MCA is its emphasis on the judgement of the decision making team, in establishing performance criteria and determining the relative weight or importance of each criterion. The individual performance assessments are often numerical, but may also be expressed as 'bullet point' scores.

EXAMPLE OF MCA ANALYSIS

CRITERIA	WEIGHT	SCORES OUT OF 100					
		PROJECT A		PROJECT B		PROJECT C	
	%	Weighted	/100	Weighted	/100	Weighted	/100
Financial Value (NPV/IRR)	40%	20	50	30	75	40	100
Risk Profile	20%	20	100	15	75	10	50
Stakeholder Interest	25%	10	40	8	30	8	30
Sustainability Alignment	15%	11	70	6	40	5	30
TOTAL WEIGHTED SCORE	100%	61		59		62	

WHERE ARE YOU ON YOUR JOURNEY OF INTEGRATING SUSTAINABILITY INTO DECISION MAKING?

Maturity Measure	Beginner	Intermediate	Advanced	Leader
Integration in decision making	Sustainability supplements the main investment case. Decisions made on commercial factors only	Sustainability features in the main investment case. Decisions consider sustainability	Sustainability is a core part of the investment case. Decisions influenced by sustainability	Sustainability fully integrated into investment case. Holistic decision-making
Transparency	Limited transparency of basis for decision-making	Clear set of decision-making criteria	Clear criteria with evidence of how decision-makers have evaluated the project	Rationale for decision-making clearly communicated to all stakeholders

C) EXPLORING FUNDING OPTIONS

The way in which funding is sourced can influence how capital is allocated between investment options, and some members of the Network have benefited from new sources of specialist funding.

Some may simply use their mainstream capital budget as the sole source of funding; others may choose to adopt a separate approach, or identify external sources of funding to improve access to capital for projects that support strategic sustainability goals.

External organisations (such as customers, suppliers and other companies in their value chains) or investors (including public or private sector financiers) are increasingly willing to offer additional capital to fund projects that can deliver enhanced sustainability outcomes or value. Approaches such as those considered here can increase access to capital and remove barriers for projects that deliver sustainability benefits.



Sources	Examples
Internal Sources	
<p>Dedicated or revolving funds: Companies may choose to ring-fence an allocation of their mainstream capital budget specifically for funding projects with sustainability credentials. Using this approach, companies can set distinct project eligibility criteria and financial thresholds and may delegate responsibility for capital allocation within the fund to a separate group of individuals. As a variant of the dedicated fund, many companies have set up self-sustaining funds usually targeting energy and water efficiency and / or carbon reduction projects. The purpose is to invest in e.g. small scale energy and water efficiency initiatives with near term paybacks and revolve the cost savings into future projects.</p>	<p>Bupa's Energy Saver Fund Approach: To accelerate and support the achievement of our target to reduce our carbon footprint by 20% by 2015, Bupa set up a £50 million Energy Saver Fund to invest in projects that will drive rapid carbon emissions reductions. It set tight eligibility criteria for projects applying for funding from the Fund (including payback, speed of implementation and carbon impact criteria). Projects funded include LED lighting, CHP and solar projects across the world. Results: Bupa's commitment to this ring-fenced funding reflects its validation of the strong business case for energy efficiency and carbon reduction, for generating both short-term cost savings and more sustainable long-term business performance.</p>
External sources (banks and investors)	
<p>Green bonds: A corporate green bond is a fixed income investment product issued to finance 'green' projects i.e. those that meet a defined set of sustainability criteria. Green bonds appeal to investors who wish to integrate environmental, social and governance standards into their investment portfolio, whilst maintaining a reliable return on investment. In 2014, a group of financial institutions formalised a set of voluntary Green Bond Principles to further standardise and govern the issuance of green bonds and use of their proceeds. Corporate green bonds are a relatively new type of financial product.</p> <p>Companies need a mature approach to sustainability and good levels of engagement with their stakeholders in order to issue a green bond with the requisite credibility. However, this type of funding is becoming increasingly popular, and some Network members have successfully issued corporate green bonds as an alternative investment product to standard corporate bonds. Although, in Europe, the cost of debt associated with green bonds is currently comparable to 'standard' financing, green bonds may become more favourable as interest rates rise.</p>	<p>Unilever's Green Bond Approach: Unilever issued its first green bond in March 2014. Capital raised through the bond issuance is used to fund capital projects that will achieve significant reductions in greenhouse gas emissions, water use and waste generation. Results: The green bond has enabled a number of projects including a laundry liquid detergent factory in Johannesburg, South Africa; a laundry powder facility in Sichuan, China; and a Home and Personal Care factory in Selcuklu-Konya, Turkey.</p>
<p>Green loan: A green loan is similar to a green bond in that it provides a company with capital from a bank or other lender upon condition that it is used to finance 'green' projects i.e. those that meet a defined set of sustainability criteria. It is good practice for green loans (and the use of their proceeds) to be verified by an independent third party to ensure that the capital is being spent in line with the agreed terms of the loan.</p>	<p>Sainsbury's Green Loan Approach: In July 2014, Sainsbury's agreed a £200 million corporate 'green' loan (which is the first of its kind in the UK). The green loan is being used to fund clean energy generation, energy efficiency and water saving projects over a period of two to three years. Results: In addition to raising capital for sustainability projects at Sainsbury's, the green loan also supported the lenders (Lloyds and Rabobank) in upholding our own commitments to environmentally and socially responsible investment.</p>

5 STAGES OF THE JOURNEY

Assessing where you are on your journey
– a maturity model



MATURITY MODEL

Assessing where you are on your journey towards integrating sustainability into capital investment appraisal.

Integrating sustainability into the capital investment appraisal process is a long-term ambition. Many Network members have been on this journey for a number of years. It will take time (years rather than months) to progress from Beginner to Leader. The most important step is to make a start!

To get started, focus on conducting a simple analysis on a well-defined and limited scope of sustainability issues. Use simple methodologies such

as qualitative approaches (see Section 3) that do not require significant resource effort or lots of data. As your approach matures, the scope of sustainability issues considered and the sophistication of your appraisal methods can increase, moving from qualitative towards also including more quantitative and eventually monetary methods where appropriate.

Collaboration and knowledge-sharing are essential to undertaking this evolution in an efficient and cost-effective manner. There are a number of forums, including Accounting for Sustainability, that offer non-competitive space for such discussions.

There is no definitive approach that can be equated to 'best' practice or end-state – the approach that is best varies by company. Rather, maturing in this space is about finding an approach that works for the organisation – one that fits with the organisation's individual process and culture

MATURITY MODEL FOR INTEGRATING SUSTAINABILITY INTO CAPITAL INVESTMENT APPRAISAL

WHO TO INVOLVE AND GOVERNANCE	MATURITY MEASURE	BEGINNER	INTERMEDIATE	ADVANCED	LEADER
	Leadership	Some awareness at leadership level but little active involvement			Highly visible top level commitment
	Cross-functional involvement	Little interaction across teams			Cross-functional core project teams
	Continuous improvement	Reliance on individuals to provide lessons learned from previous projects			Feedback from iterative and continuous review drives learning within and across projects
WHAT TO ASSESS	Value chain	Focus on own operations			Whole value chain approach
	Asset lifecycle	Focus on operation stage			Whole asset lifecycle approach
	Scope of issues	One sustainability issue (most likely carbon)			Focus on material sustainability factors, and interactions between them
HOW TO ASSESS	Sustainability from the start	Sustainability risks mitigated after project design is completed			Optimising sustainability is a key objective of project design from the outset
	Method of appraisal	Qualitative only			Mix of appraisal methods including monetisation of sustainability value to shareholders or society as appropriate
	Shared value perspective	Value creation for shareholders only			Value creation for all project stakeholders and wider society
HOW TO DECIDE	Integration with decision-making	Sustainability supplements the main investment case. Decisions made on commercials			Sustainability fully integrated into investment case. Holistic decision-making
	Transparency	Limited transparency of basis for decision-making			Rationale for decision-making clearly communicated to all stakeholders



MARKS AND SPENCER

A flagship for sustainable store technologies at York Monks Cross

Since starting Plan A, Marks and Spencer (M&S) has achieved £145 million in cost savings through eco-improvements in property. Our ambitious Plan A commitments continue to drive further innovation in sustainable store technologies. We decided to invest in developing a flagship sustainable store – one that would make a statement about our commitment to sustainability innovation, whilst providing a testing ground for technologies and concepts that could later be rolled out across all M&S stores.

The perfect candidate: A cross-functional team of M&S architects, engineers and procurement experts identified sustainable store technologies with acceptable paybacks and rates of return that could contribute towards the achievement of Plan A commitments. We worked with the property acquisition team to identify a store for trialling some of these technologies. York Monks Cross was identified as the perfect match. Our site, location and planned development timeline made it eligible for installing these innovative new technologies. Plus, the store's development partner was fully bought-in to taking on the challenge of implementing a step-change in sustainable building design. The sustainable design for York Monks Cross was appraised against standard

hurdle thresholds (for NPV, ROCE, payback and IRR) using traditional investment appraisal techniques. The team were able to show that making the store more sustainable would not damage its commercial viability.

A wealth of green features: The store includes a variety of sustainability features. Enough PV panels were installed to power the café and 10% of the store. Roof lights maximise natural light and there are automatic sensors that dim the energy saving LED lighting on sunny days. Waste heat from refrigeration equipment is recovered for ambient heating and hot water. In total, the store's energy saving and renewable energy features are projected to make York Monks Cross 20% more energy efficient and 27% more carbon efficient than earlier built stores, resulting in 30% lower energy costs. Water saving features include low-flush toilets, sensor taps and rainwater harvesting, and (in a first for M&S) there is an automatic system that cuts off the water supply when toilets are not occupied.

Old not new can make a big difference:

During store construction, we achieved an estimated 45% cost saving through a more sustainable approach to materials use, with an emphasis on refurbishment and recycling instead of investing in new products. Most of the ambient shelving was revived, achieving a carbon saving of 80% compared with a new shelf and nearly all of the trolleys were revived, achieving a 55% carbon saving.

A path-finding store: The store was launched in April 2014. Running costs indicate that it will meet its projected payback of 5 years, but this experimental store is yielding more than just financial value. Early reviews indicate that store design has enhanced health and wellbeing for employees, reinforced colleague engagement and provided a platform for community engagement. It has enabled us to prove the viability of new technologies, such as small-scale solar PV, so that they can be scaled-up and rolled out across the business. The lessons learnt from York Monks Cross have laid a path for other existing and future new M&S stores to follow.

The sustainable design was appraised against standard hurdle thresholds (for NPV, ROCE, payback and IRR) using traditional investment appraisal techniques. The team were able to show that making the store more sustainable would not damage its commercial viability

“With the right support from around the business, making a conscious decision to target sustainable investment enables design teams to trial innovative solutions and to measure their effectiveness. Learning can then be applied to other parts of the estate.”

David Dicello, Head of Finance Cost & Capital, Marks and Spencer



Further Reading

For further information on some of the themes explored in this guide, go to:

- Accounting for Sustainability: www.accountingforsustainability.org
- The International Federation of Accountants (IFAC): www.ifac.org/global-knowledge-gateway/sustainability
- The Natural Capital Coalition: www.naturalcapitalcoalition.org

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Note from the capital investment appraisal project chair:

I would like to thank all the project team members for their invaluable and inspiring contributions to our work so far; likewise the A4S team. My two vice chairs, George Cobb (SSE) and Martyn Burke (Sainsbury's) deserve particular credit for their enthusiastic dedication in focusing our efforts over this first phase of our work, the results of which are contained in this guide.

A4S CFO LEADERSHIP NETWORK PROJECT TEAM

Emma Harris

Senior Director - Property Finance, Asda

Caroline Green

Senior Manager - Capital Investment, Asda

Paul Payne

Head of Risk and Value, Anglian Water

Jonathan Forster

Head of Planning - Management
Accounting and Analysis, Anglian Water

Simon Griffiths

Head of Financial Planning & Analysis
Corporate Centre Finance & Governance,
Bupa

Joseph Griffin

Head of Environment and Environmental
Wellbeing, Bupa

Zahera Ali

previously Financial Planning & Analysis
Manager, Bupa

Florence Chevalier

Cash and Capex Controller WWBU Diary,
Danone

Marcos Garzon

previously Operations Controller World
Wide Waters Division, Danone

Martyn Burke

Head of Property Finance, J Sainsbury

David Dicello

Previously Head of Finance Cost & Capital,
Marks and Spencer

Hannah Chambers

Senior Finance Manager – Property, Marks
and Spencer

Victoria Northcott

previously Senior Finance Manager, Marks
and Spencer

Stuart Humphreys

Group Financial Controller, National Grid

Stuart Bailey

Head of Sustainability & Climate Change,
National Grid

Maaïke Lambrichts

Corporate Business Controller, Royal DSM

Marleen Janssen Groesbeek

Manager Sustainability Reporting, Royal
DSM

George Cobb

Sustainability Accountant, SSE

Martin Gee

Head of Finance and Investment Planning –
Wholesale, United Utilities Group

David Widdowson

Head of Asset Management Programme,
Yorkshire Water

THE PRINCE'S ACCOUNTING FOR SUSTAINABILITY TEAM

Jessica Fries

Sarah Nolleth

Sarah Docherty

Melissa Carrington

Andrea McCormick

Elizabeth Ace

TOP TIPS

Throughout this Accounting for Sustainability project, we (the member companies of the A4S CFO Leadership Network) have shared, gained and consolidated our knowledge of integrating sustainability into capital investment appraisal process. Here are some of our top tips for other organisations starting out or progressing along the same journey.

