DPS FRAMEWORK SCHEDULE 4: LETTER OF APPOINTMENT AND CONTRACT TERMS

Part 1: Letter of Appointment

Dear Sirs

Letter of Appointment

This letter of Appointment dated Monday 14th December 2020, is issued in accordance with the provisions of the DPS Agreement (RM6018) between CCS and the Supplier.

Capitalised terms and expressions used in this letter have the same meanings as in the Contract Terms unless the context otherwise requires.

Order Number:	CR20120
From:	The Department for Business, Energy and Industrial Strategy (BEIS), 1 Victoria Street, London, SW1H 0ET ("Customer")
To:	PricewaterhouseCoopers LLP, 1 Embankment Place, Charing Cross, London, WC2N 6RH ("Supplier")

Effective Date:	Monday 14th December 2020
Expiry Date:	Wednesday 31st March 2021

Services required:	Set out in Section 2, Part B (Specification) of the DPS Agreement and refined by: · the Customer's Project Specification attached at Annex A and the Supplier's Proposal attached at Annex B; and

Key Individuals:	[redacted]

Contract Charges (including any applicable discount(s), but excluding VAT):	£96,675.00 excluding VAT in alignment with AW5.2 price schedule Contract. The payment schedule can be found in Contract Terms Schedule 6 Annex 2 Payment milestones: [redacted]
Insurance Requirements	Public liability insurance to cover all risks in the performance of the Contract, with a minimum limit of £5 million for each individual claim employers' liability insurance with a minimum limit of £5 million indemnity professional indemnity insurance adequate to cover all risks in the performance of the Contract with a minimum limit of indemnity of £2 million for each individual claim. Product liability insurance cover all risks in the provision of Deliverables under the Contract, with a minimum limit of £5 million for each individual claim
Liability Requirements	**Suppliers limitation of Liability (Clause 18.2 of the Contract Terms);**
Customer billing address for invoicing:	All invoices should be sent to should be sent to finance@services.uksbs.co.uk or Billingham (UKSBS, Queensway House, West Precinct, Billingham, TS23 2NF).

GDPR	As per Contract Terms Schedule 7 (Processing, Personal Data and Data Subjects

FORMATION OF CONTRACT

BY SIGNING AND RETURNING THIS LETTER OF APPOINTMENT (which may be done by electronic means) the Supplier agrees to enter a Contract with the Customer to provide the Services in accordance with the terms of this letter and the Contract Terms.

The Parties hereby acknowledge and agree that they have read this letter and the Contract Terms.

The Parties hereby acknowledge and agree that this Contract shall be formed when the Customer acknowledges (which may be done by electronic means) the receipt of the signed copy of this letter from the Supplier within two (2) Working Days from such receipt

For and on behalf of the Supplier:

Name and Title:

[redacted]

For and on behalf of the Customer:

Name and Title:

[redacted]

ANNEX A

Customer Project Specification

1. Background

Net zero offers significant economic opportunities across the UK. Significant parts of our economy are exposed to transition risk as policy is brought in to deliver our climate targets. There is a risk that a poorly managed transition, where national and local governments do not anticipate or act to mitigate potential risks, could have negative impacts on these sectors and workers and could lead to pressures on the wider economy. Despite the scale of these impacts, evidence on their regional distribution is still scarce and no methodology has been agreed upon on how to develop it.

The research outputs will help inform the following decisions and processes:

- Decisions requiring an understanding of risks and opportunities arising from the transition to Net Zero at the regional level focused on the North East (North Eastern LEP & Tees Valley LEP), based on regions' current strengths and vulnerabilities. Risks and opportunities will be measured in terms of Gross Value Added to the economy and in terms of jobs lost, safeguarded and created.
- The distribution and planning of skills funding to maximise its alignment with the expected impacts of the Net Zero transition on the local economy, e.g. through regional Skills Advisory Panels (SAPs) to feed in and support national level skills policy development.
- Help guide where HMG support for low carbon infrastructure is invested in, based on the assets and skills within the area.
- The research would also act as an innovative, first of kind project that would enable us to test a research approach with the North East that could then be applied to other regions in the UK.

The research outputs will feed into the following workstreams:

- The development of long-term economic plans at a local level by improving their understanding of economic risks they are exposed to. As the successor to EU Structural Funds are rolled out, better analysis on risks can also help guide those investments. The expectation is that these funds would invest across the drivers of local growth.
- Supporting central government policy aimed at levelling up the economy by providing a better understanding of regional economic risks and opportunities, as well as of other economic vulnerabilities (e.g. automation) that might interact at the local level.
- Improving the analysis that underpins our UK wide climate strategy including our Net Zero Strategy, which is expected to be published next year, by broadening the factors that are considered when developing pathways, beyond resource cost and technical potential, to considering wider regional, economic impacts like increased employment or

considerations of how to align sector decarbonisations pathways so that skills can be shared between them

- Bolster UK's international collaboration with other countries on climate change by showing how we can manage transition impacts and sharing lessons about how this can be done with other countries.

2. Aims and Objectives of the Project

The research aims to address an evidence gap crucial to help smooth the transition to Net Zero, by minimising its potential negative impacts and maximising its opportunities on local economies. By establishing a methodological approach to understanding the risks and opportunities at the regional level, the research will play a key role in informing policy development both at the national and local level.

The intended outputs of this programme are:

1. A report setting out the potential impacts (positive and negative) that the transition to net zero could have on the North East of England (North Eastern LEP & Tees Valley)
2. A pilot methodology that could be applied to other places and regions
3. Toolkit to help translate findings and the methodology

3. Suggested Methodology

A potential approach and methodology that could be used by the contractors would be:

Phase 1 – Mapping of structure of the economy of the NE using comparable ONS data inc sectors and labour market, and data sources being used by local government and LEPs, to identify which parts are most exposed to the transition. Complementing this with place specific research, building on wider research through a literature review, such as the work done by IPPR and LSE.

Phase 2 – Qualitative bottom up assessment of how decarbonisation is likely to affect local economy based on specific assets and skills of region.

- Qualitative descriptive analysis of existing data sources, and of data derived from modelling outputs
- Interviews with local academics, stakeholder and industry associations, citizens groups, skills providers, LEP officials, and local offices of HMG departments to develop a qualitative assessment of:
    a. The strengths and weaknesses of the local economy at present (including the competition/opportunities at the regional and national level)

b. Potential low carbon economic future in 2050, challenges towards meeting that future (skills, social and physical infrastructure, local governance capacity, vulnerable groups)

c. Views on the funding, policy, and governance capacity development support from HMG that would be required in the region

Phase 3 – Using insights from phase 1 and 2, apply decarbonisation scenarios to this mapping of the local economy following a process similar to that set out in the diagram below to establish impacts

Phase 4 - Validation of case study findings (at both local and HMG level) and finalisation of reports

Phase 5 - Final report presenting findings, methodology and toolkit for applying the methodology and setting out key findings, validated through Steering Group.

<u>Potential approach to Phase 3</u>

1. Modelling of decarbonisation trajectories for the sectors in the economy affected by the transition (energy, transport, construction, agriculture, forestry, waste) – these should include deployment pathways up to 2050 by low/high carbon sector. For the initial case study and for the wider analysis we might aim to conduct in later years we might rely on some existing analysis already conducted within the Department.
2. Market analysis to understand the current and future geographical distribution of sectors under analysis (incl. development of hypotheses where the market analysis falls short).
3. Analysis of modelling scenarios outputs and other existing data sources to understand positive/negative labour market impacts related to the Net Zero transition
4. Further analysis of modelling outputs and market analysis to assess regional distribution of impacts

5. Further analysis to assess impact of the Net Zero scenarios considered on occupations and related skills within the sectors under analysis

4. Deliverables

The intended outputs of this programme are:

1. A report setting out the potential impacts (positive and negative) that the transition to net zero could have on the North East of England. As an illustrative and non-exhaustive list, the report should have an executive summary, detailed description of outputs emerging from phases 1 and 2, relevant decarbonisation scenarios and their impact assessment etc.
2. A pilot methodology that could be applied to other places and regions.
3. Toolkit to help translate findings and the methodology.
   (The methodology and toolkit will need to be flexible to accommodate place-specific characteristics and include spatial elements. This might work by constructing a multi-factor index to evaluate risk and resilience of an area to the transition to net zero.
4. Powerpoint presentation summary of report, methodology, and toolkit.

Estimated project timelines.

Phase 1
- first draft by Monday, Dec 23
- second draft by Thursday, Jan 07

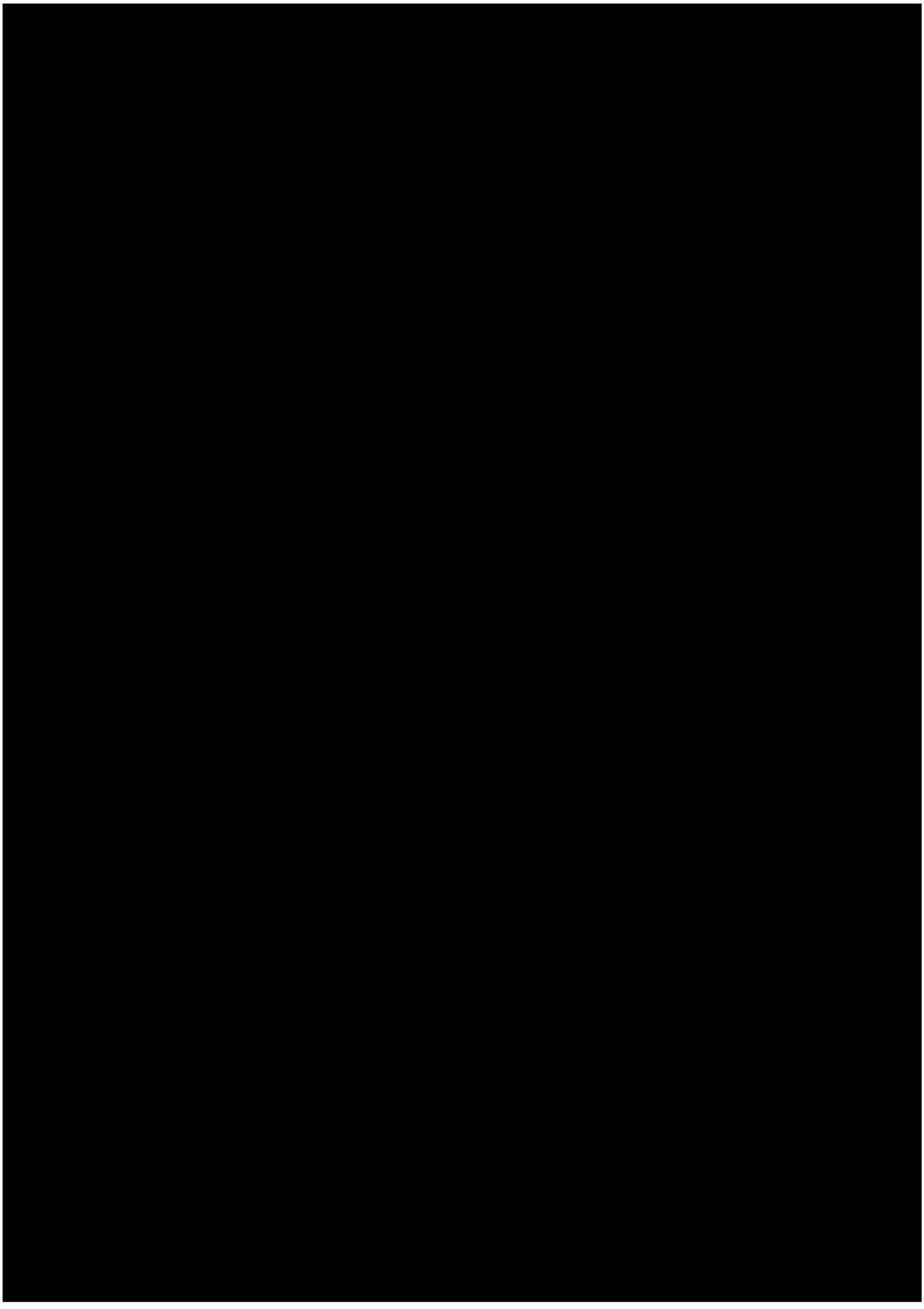
Phase 2
- first draft by Thursday, Jan 21
- second draft by Thursday, Feb 04

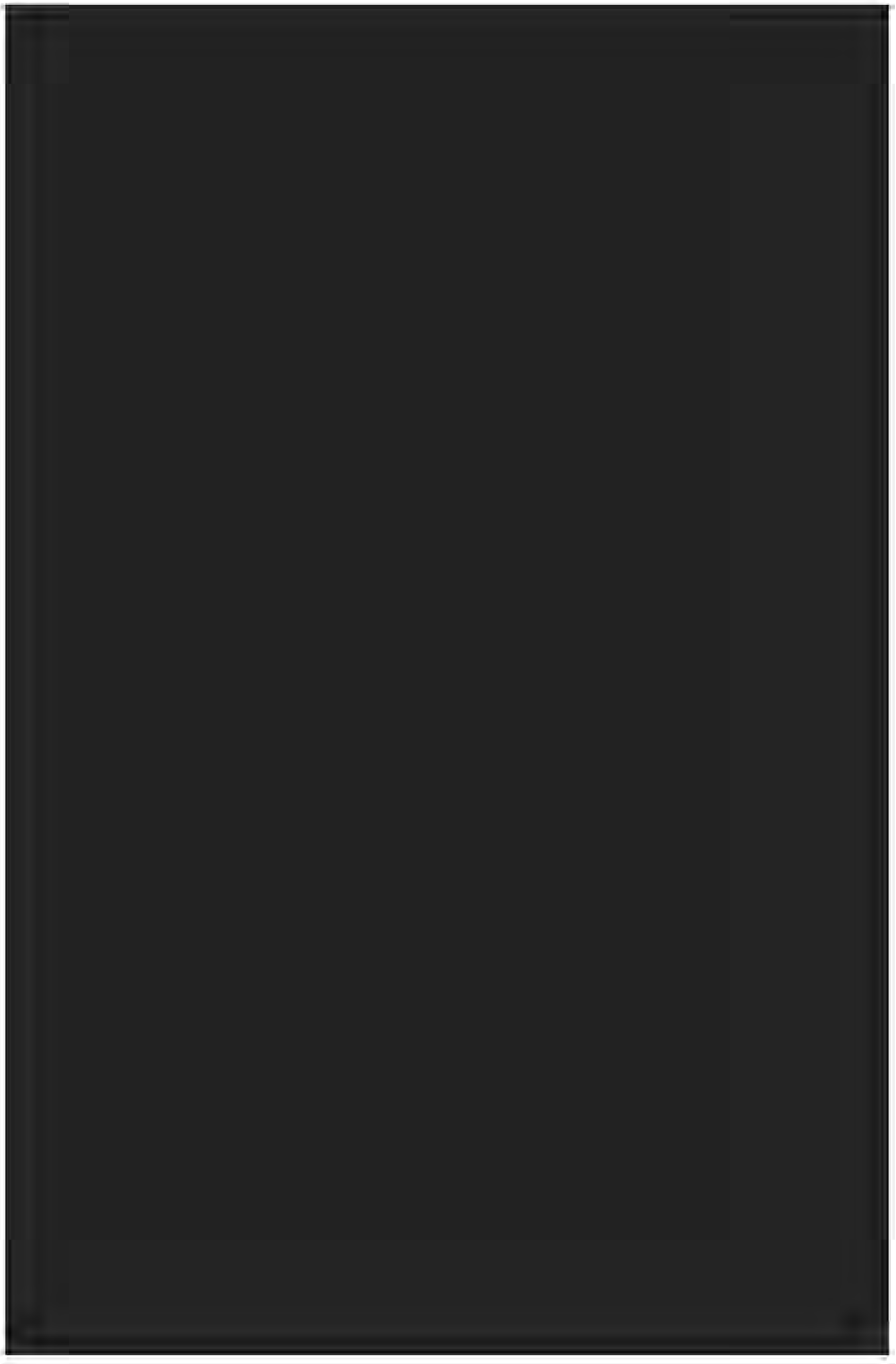
Phase 3
- first draft by Thursday, Feb 11
- second draft by Thursday, Feb 18

Phase 4
- first draft by Thursday, March 04
- second draft by Thursday, March 11

Phase 5
- first draft by Thursday, March 11
- second draft by Thursday, March 25
- final products by Wednesday, March 31

Question 1.1





We will indicate whether components are **fixed** (e.g. geographic distribution of population) or **flexible** (e.g. energy mix). This is directly relevant to policy, as flexible components can change through policy while fixed ones may reflect challenges that need to be overcome.

We will then map out what key **industries** (agriculture, forestry, energy, transport, industry, other commercial, waste) are involved in moving the dial for more flexible components through upstream and downstream activity.

For instance, if home energy efficiency is particularly low, the construction sector would be the upstream industry largely responsible for change at an operational level (with further upstream impacts for their suppliers). We have an existing library that we can use to map key industries to where the emissions are generated. We can complement this as needed with specific research. Figure 3 shows an example from our library

Figure 3: Illustration of industry supply chain mapping from our library

We will use these tools and our existing libraries to quickly provide an initial map of the relative challenges for the region that is simple to use, and easily replicable by BEIS and comparable across LEPs. We will also agree at this stage a mapping of SIC codes to broad industries categories (agriculture, forestry, energy, transport, industry, other commercial, waste). Indicative, we would use the below mapping, seeking to keep main outputs at Section level where possible to improve ease of use for a wide set of audiences:

Table 1: Indicative industry SIC mapping

Energy	Agriculture	Forestry	Waste	Transport	Industry	Construction
Section D	Section 1A	Section 1B	Section E	Section H	All other	Section F

Methodological challenges addressed and rationale

We have designed this approach to provide you visual and cross-regional insights starting in 2020, which can then be easily disseminated in a compelling way. We acknowledge the gaps in standard datasets, which do not reflect regional differences in SIC carbon intensity, or differentials within firms in a given industry. By using a wide set of data from the literature and government/third sector sources, combining datasets and using industry-adjusted CO2 metrics, we aim to provide a textured picture that nonetheless provides insights at a regional level. We will further bridge the gap in Phase 2 with literature and interviews.

Phase 2: Decarbonisation scenarios

In Phase 2, we will conduct qualitative research and analysis to define decarbonisation scenarios and refine our understanding of potential challenges and opportunities for the North East. We have set out our approach in 4 sub-phases.

Phase 2a: Description of decarbonisation statistics and future scenarios

In Phase 2a, we will undertake a literature review of decarbonisation scenarios. The purpose of this will be to outline:

What will the new future look like? While the transition pathways to net zero are uncertain, there is already a clear understanding based on extant technology and the current asset

base around which sectors can transition to net zero, and which hard-to-decarbonise may still be emitting by 2050, with carbon sinks and other net-negative approaches making up the balance. We will use scenarios around the 2050 state of play from sources such as the Committee on Climate Change's 2019 report 'Net Zero the UK's contribution to stopping global warming' to form the future state transition scenarios. As far as possible, this will include insights into the future skills required of the net zero economy. Here we will leverage existing PwC and Grantham studies, such as the Grantham Research Institute's recent paper 'Jobs for a strong and sustainable recovery from Covid-19' (which considers CCUS and hydrogen, particularly relevant to skills in the North East) and build on this with literature.

How will we get there? While there are ideas of the scale of change needed at an industry level to reach the 2050 net zero target, there is still uncertainty about what actions will be taken to reach there. Initial direction has been set by the 10 points to a Green Industrial Revolution, but uncertainty remains about whether future policy will use tax-based, investment-based or other policy levers to reach net zero. Our team combines not only climate experts but wider policy expertise, which we will use to translate current policy and insights using our existing work [redacted] How to price carbon to reach net-zero emissions in the UK) as well as the wider literature. This will also help us understand the phasing of the transition in the modelling in Phase 3.

Output. We will discuss and agree what these initial decarbonisation scenarios look like with you. Scenarios will include information on levels of decarbonisation by sector in 2050, any information on spatial differences, and policy levers (e.g carbon pricing levels, demand, investment). These will be further refined based on interviews in Phase 2c and with input from our experts.

Phase 2b: Initial description of challenges and opportunities for the North East

We will compare the outputs of Phase 1 with decarbonisation scenarios to provide an initial **'where-to-look' guide** of the relative decarbonisation weaknesses and strengths of the North East. We would discuss and agree with this with you, and would then use it as the basis **of the topic guide for interviews in Phase 2c**. We would expect this guide to be a short **1-2 page table**, designed to be replicable and easy to digest for policy makers.

Phase 2c: Interviews

After agreeing the topic guide with you, based on the outputs of Phase 2b, we will look to undertake interviews with key stakeholders.

Interviewees. We believe that a *purposeful sampling* approach is best suited to this study. This technique involves intentional selection of particular organisations or individuals, and is widely used in qualitative research to maximise the richness of data from a limited number of observations.

We anticipate conducting around 20-25 interviews across the spectrum of stakeholders, making an informed judgement together with you about the balance of interviewees in each category. We will target those we believe will bring the greatest insights to the research questions, with an emphasis on decision-makers and those in strategic positions.

Based on our work in Phases 1 and 2 we will develop a long list of potential interviewees, which we will distill into a shortlist with you. We would draw on our PwC network, as well as on the P-CAN network coordinated by [redacted], when identifying and securing interviewees. An indication of the likely breakdown of the sample is below:

Interviewee group	Specific area / examples	Indicative # of interviews
LEP Officials	North Eastern LEP	1-2
	Tees Valley LEP	1-2

Government	Local offices of UK government departments	2-3
	Policymakers (Central UK Government)	1-2
Local academics	Local universities (e.g. Newcastle University)	2-3
	Regional climate researchers (e.g. Place-based Climate Action Network (PCAN))	1-2
Skills providers	North East Learning Providers	1
Stakeholder and industry associations	Business associations (e.g. North East of England Chamber of Commerce)	1-2
	Advanced manufacturing sector (e.g. The Society of Motor Manufacturers and Traders (SMMT); The Advanced Manufacturing Forum (AMF))	2-3
	Maritime transport sector (e.g. Port of Tyne)	1-2
Citizens groups	Local action groups (e.g. Tyne and Wear Citizens)	1-2
Others	Northern Powergrid	1
	Key individuals not covered above	1-2

Although stakeholders in each region will vary greatly, these descriptions will help to create a model upon which the same activity can be replicated in other regions.

We understand that in the present climate, gaining stakeholders' time can be difficult as they deal with the impact the COVID-19 crisis is having on their organisations. PwC and our academic team members have long standing relationships with many stakeholders in the North East and we expect to be able to leverage these relationships to ensure the availability of interviewees. We will also ask that where you have close relationships with stakeholders, that you make an introduction to highlight the importance of this work to you.

Interview tool: At the same time as identifying interviewees, we will develop a draft interview guide. We will use mostly open-ended, and probing questions, with some limited closed ended questions. We will be clear about the scope of our questions, such as specifying that we are interested only in the impact of the transition to net zero. Our dynamic question set will be grouped thematically and react to the responses given.

In addition to allowing us to derive both qualitative and quantitative insights from the interviews, this approach allows the interviewers to cover consistent core information while not being so restrictive as to miss useful insights not covered by the questions. Our interviewers are suitably skilled in the subject matter to be able to contextualise the information as it is provided.

We will shape our questionnaire as we progress through Phases 1 and 2, however at this stage we envisage basing our question around the following themes:

- The strengths and weaknesses of the region's economy relative to competition at both a regional and national level;
- The challenges of meeting the government's 2050 target, in particular relative to the regional infrastructure;
- The availability of skills needed to facilitate a successful transition to net zero; and
- Beliefs about how HMG's current policy and investment are supporting the transition at present and how they might need to change in future.

After compiling our draft interview questions, we will share these with you for agreement.

The questionnaire, although specific to the North East, will provide a clear and replicable model for stakeholder engagement in other parts of the UK. We will identify the areas which

are applicable on a national level and provide guidance for amending the areas which we have tailored to the North East audience.

We will need to agree on an approach to confidentiality with you during the kick-off phase. Our experience, particularly with companies, suggests that offering confidentiality to interviewees can encourage participation and produce more in-depth information.

Outputs. We will collate and analyse the data we have gathered from our interviews to draw conclusions, and inform the next Phase of the project. One area of particular interest will be what organisations are already doing to prepare for the transition. This could hugely impact the region's readiness for the transition and will be an important factor in refining our estimates of potential impacts in Phase 3.

Before finalising Phase 2c, we will review the characteristics of survey respondents to ensure that a wide representation has been achieved. In the unlikely event that any key group is not represented we will carry out further interviews.

Phase 2d [additional to scope of work]: Innovative approach to viewing the future

There could be scope to enhance the traditional research techniques listed above with innovative research options by calling on AI companies in our start-up ecosystem. These use the wisdom of crowds and sentiment and network analysis to create interactive maps (semantic graphs) of opinions and attitudes, overcoming some of the biases/limitations of questionnaire-based research. If this is of interest, we could explore options in the kick-off.

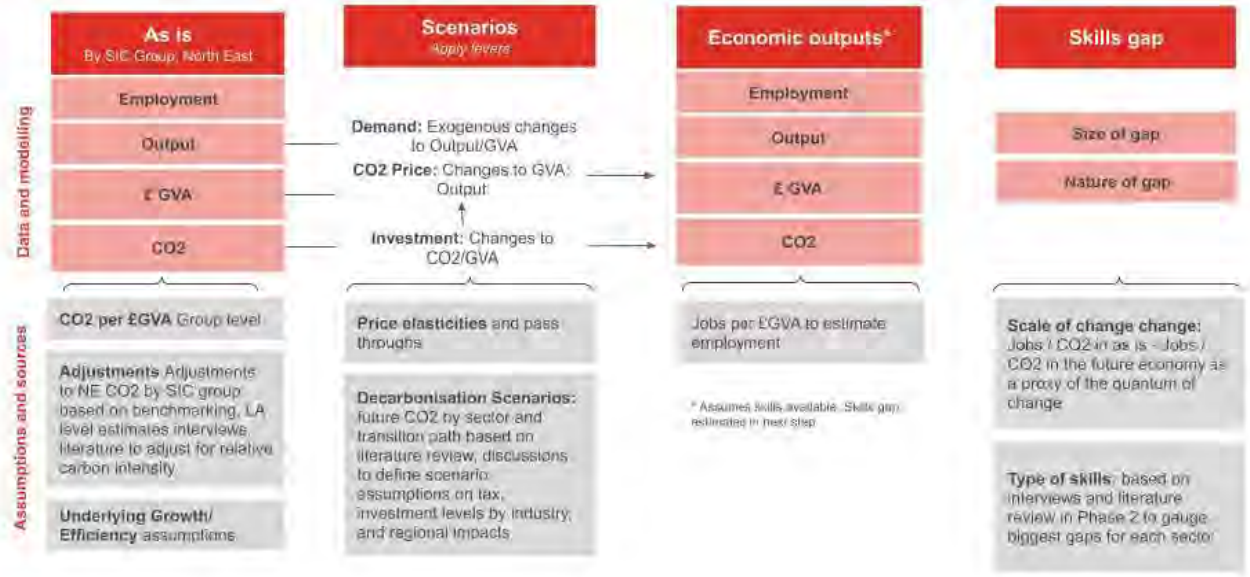
Phase 2 Outputs and benefits.

The outputs of Phase 2 will include a set of decarbonisation scenarios based on the literature and refined through interviews to understand how they will apply to the North East. Using interviews allows us to bridge some of the regional/industry level gaps in existing datasets, and provide context on what skills gaps and challenges are faced locally. Outputs will also include the 'where to look' sheet (designed for easy, visual dissemination of interim findings) and the interview guide and interviewees, designed to be repeatable in other LEPs. Outputs will contribute to the impact modelling at Phase 3

Phase 3: Establishing impacts

In Phase 3, we will combine the outputs of Phase 1 and 2 to understand potential impacts of decarbonisation scenarios for the North East. Figure 4 below shows the high level model architecture and key sources/assumptions.

Figure 4: Indicative impact model architecture



As a starting point, the model will leverage existing SIC industry data on employment, GVA, output (all readily available at the regional level), and carbon-intensity by industry, modelled out to 2050 in a high level baseline scenario.

Scenarios: Defining decarbonisation scenarios to model

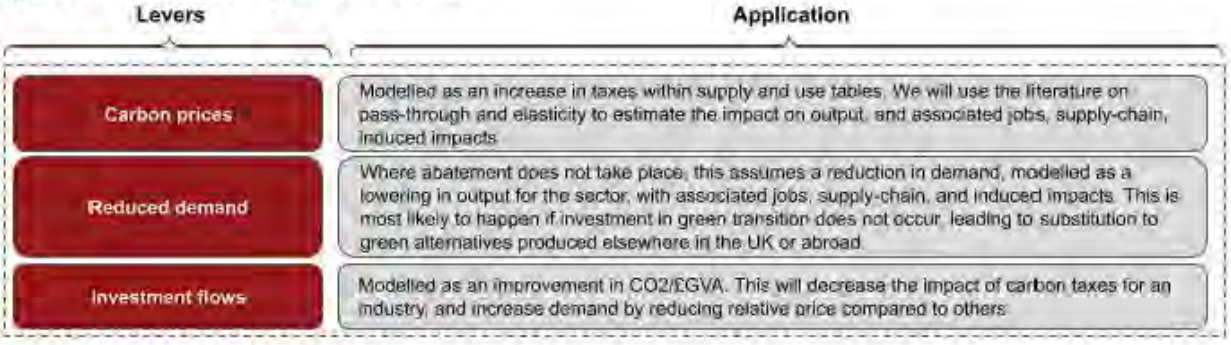
Net zero transformation scenarios will be defined. We would expect each scenario would be comprised of a set of assumptions about a several **levers**:

- future **carbon prices** (at a national level),
- **investment** to mitigate carbon (which would reduce carbon per £ of GVA, at an industry level, and could be flexed up or down at a regional level),
- impacts of **demand** (based on increases in prices and exogenous changes in consumer preferences).

We would discuss and agree scenarios with you based on our research. As an example, in an initial scenario we could assume that industries across the UK are given the investment needed in each sector to achieve target 2050 CO2 emissions level, and use a carbon price [redacted].

Figure 5 below sets out how we would expect to model the impacts of these levers on GVA, employment, and economic output at the regional level and SIC groups. At its core, the model would use existing relationships in the SIC data combined with information on elasticities of demand, pass throughs and future models to estimate the impact of each lever (and hence scenario) on ultimate demand (output). This could then be translated into employment impacts based on local estimates of jobs per £ GVA. We would also seek to draw on the Grantham Research Institute's existing work 'Looking for green jobs: the impact of green growth on employment' to inform our estimation approach.

Figure 5: Functioning of the model



Outputs

The outputs of the model would be estimated changes in output, employment, and GVA at the regional and industry level as a result of decarbonisation scenarios. We could also include high level supply-chain or induced impacts using input-output multipliers.

We propose estimating the skills gap by looking at the scale of change: in industries that are already close to achieving net zero goals, we would expect the skills gap to be relatively low, while lagging industries may need significant production model (and hence skills) transition. We will again draw on Grantham's existing work on green jobs in this area.

Methodological challenges addressed and rationale

Our approach models each industry separately, and outputs are expressed in terms of potential economic output and employment assuming that the skills are available (in the first instance). We propose this approach based on our experience in delivering models for policy purposes and in recognition of the challenges inherent in this work. In particular:

- **Flexible and simple model that can be easily applied to other regions or years**. The model uses readily available data and a limited amount of input assumptions alongside

insights on skills needs by sector. It can be easily updated to reflect later statistical releases and used by a wide set of stakeholders, thus providing value for money.

- **Positive and negative spillovers in the green transition.** The modelling uses an industry by industry approach (i.e., modelling each broad industry in isolation, rather than embedding supply-chain interactions). We propose this approach based on our experience as it allows for maximum flexibility for future scenarios, and allows the greatest policy insight and transparency (e.g. industry and scenario impacts can be seen in isolation - these effects could be 'washed out' if several industry-level interventions are taken together). We will avoid double counting issues that may arise by triangulating our results using current input output relationships.

  In particular, this reflects our recognition that GVA and existing green-enhanced input-output models to estimate supply-chain and spending impacts may underestimate both positive and negative feedback loops in the transition to net zero. For instance, transitioning away from coal power in the UK reduced UK rail freight, thereby altering the production model and impacting the future validity of supply-use relationships. Given the pace of change required in the next 30 years to achieve net zero, such relationships are likely to change further in future.

Phase 4: Testing the case study

In Phase 4, we will validate our findings by testing them with a small number of stakeholders to be agreed with you. At this stage we envisage selecting 4 - 6 stakeholders to confidentially share our high level findings with.

We will create a short, engaging slide deck of the indicative results of our research. After agreeing the content of the slide deck with you, we will hold a meeting with each stakeholder where we can present our results and actively seek challenges. We will share the feedback gathered with you and use it to update our results where necessary. The activity in Phase 4 will also inform our dissemination strategy, in particular with respect to identifying the optimal format for sharing our findings.

Phase 5: Final reporting and working with BEIS to disseminate findings.

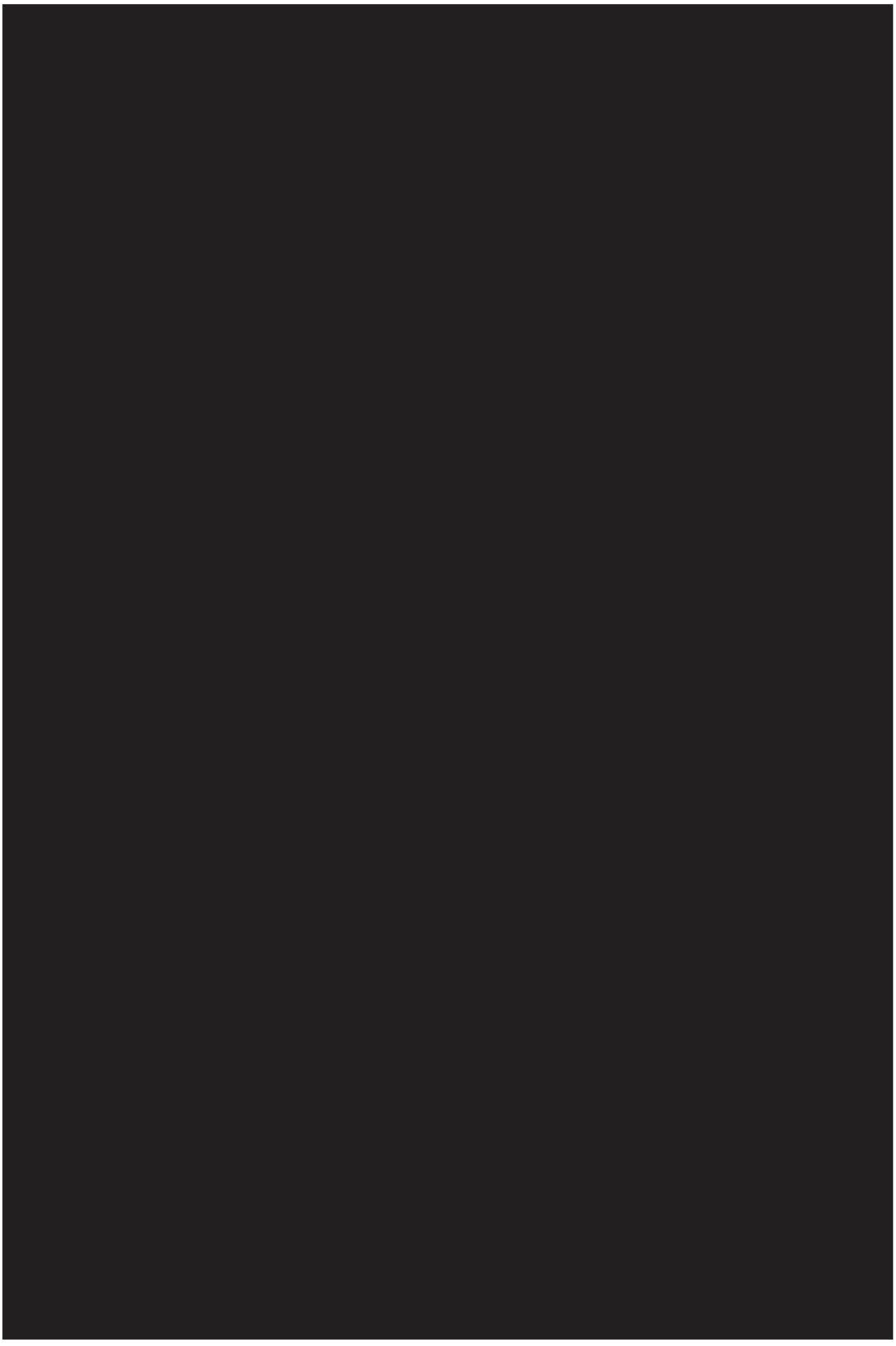
In Phase 5, we will combine the work carried out in the previous phases to produce a final report which sets out our findings in detail. It will incorporate any feedback received from you, and the stakeholders engaged in Phase 4. The final output will be an engaging and accessible report which:

- Clearly describes the impacts that the transition to net zero could have on the North East of England;
- Demonstrates the sectoral and geographical exposure to the transition to net zero in the North East;
- Describes the possible future decarbonisation scenarios for the regions; and
- Clearly describes the methodology used to arrive at the findings described.

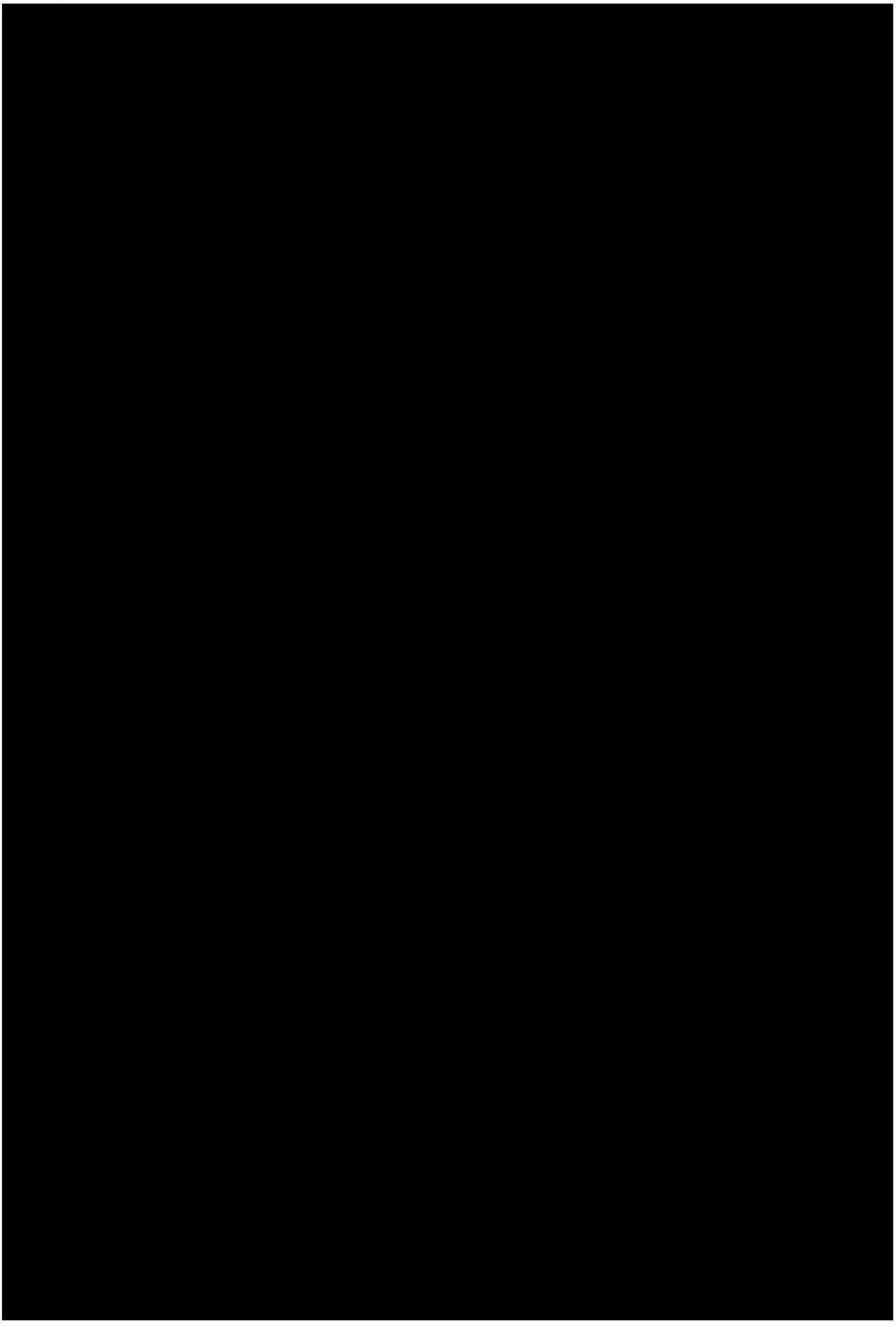
In addition to the report detailing our findings and methodology used, we will supply you with a toolkit to enable the same methodology to be adapted for use in other regions.

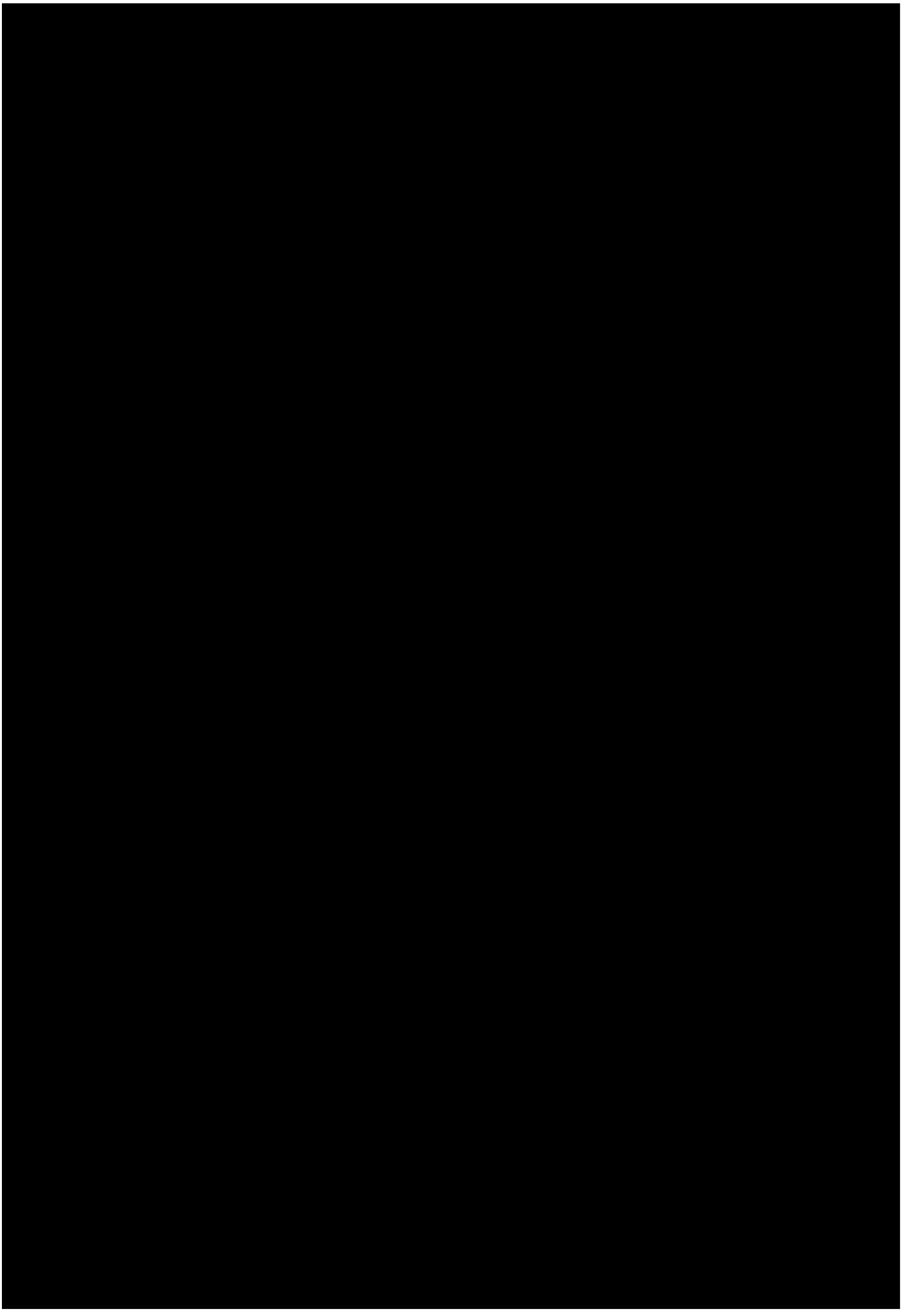
In order to support the dissemination of findings to your stakeholders, we will leverage the stakeholder mapping and engagement carried out in Phases 2 and 4 to recommend an optimal dissemination strategy. We will develop and provide you with a number of materials for sharing and presenting the report findings. This will include a slide presentation summarising our findings (including visual one pagers that can be easily extracted) and a visual one page summary of the report ready for distribution. We will develop this with you.

Question 1.2

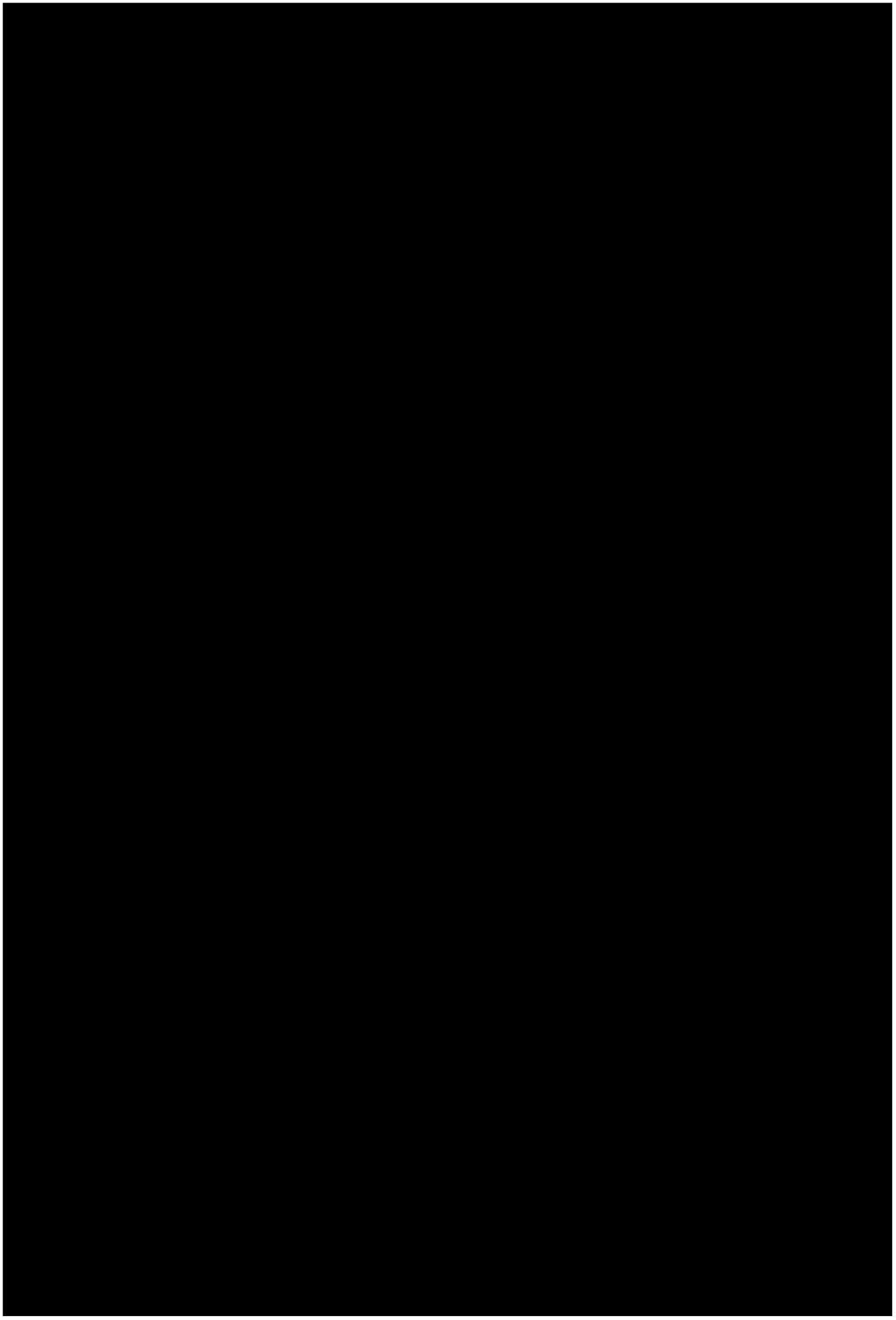


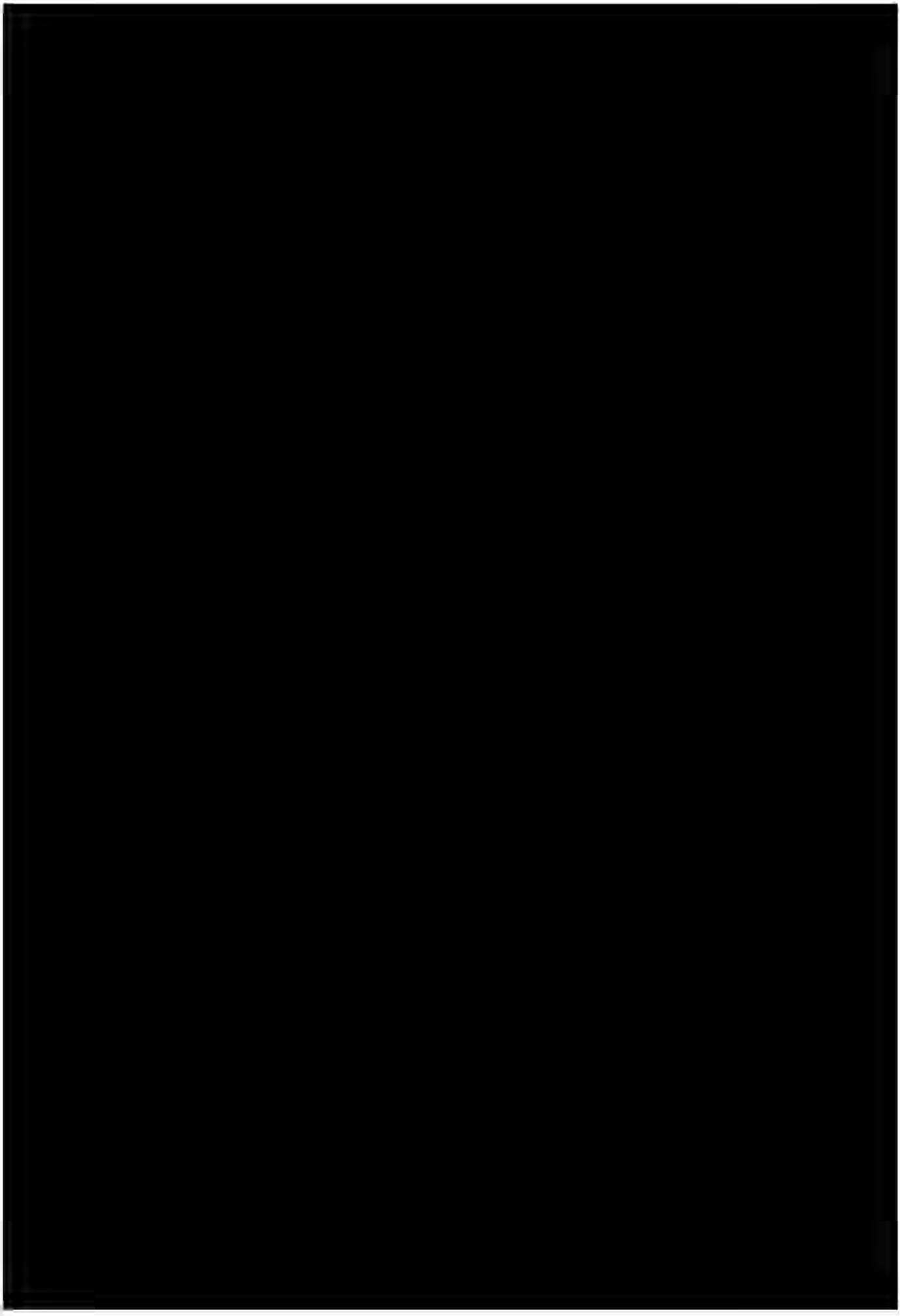
Question 1.2





Question 1.2





Question 1.3

Understanding your requirements

The UK has a longstanding commitment to tackling climate change. Binding emission reduction commitments were first put into law with the Climate Change Act (2008) which also saw the establishment of the Committee on Climate Change. The commitment was further strengthened in June 2019, when Parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050, making the UK the first major economy to commit to net zero.

While the 2050 net zero target has set the national direction of travel, there remains uncertainty around translating this commitment into action, and what the net zero future will look like for businesses and communities.

In some respects, the scientific evidence, technology, and existing economic structure give a clear indication of what is and is not possible by 2050. Battery technology, physics and the current long life of assets in sectors such as marine and aerospace point to a slower transition in these industries relative to potentially rapid changes in personal and light vehicle transport, energy efficiency, and clean (wind, solar) power generation. Similarly, there is already a large body of research on carbon pricing levels consistent with net zero goals, giving an indication of the types of policy tools that could be enacted to incentivise transition.

At the same time, there remain great uncertainties. While businesses and communities often lead the way in making their own net zero commitments with dates before 2050, many have called upon the government to help 'de-risk' their investment in untested technology with uncertain markets, and to provide the right incentives to decarbonise. BEIS investment to support green R&D - including its financial commitment to developing specific technology ecosystems such as hydrogen - are part of this work. The Prime Minister's 10-point Green Industrial Strategy plan announced last week reinforces government's commitment and direction of travel in named areas and technologies, with plans to 'Build Back Greener' by making the UK the world leader in clean wind energy – 'creating jobs, slashing carbon emissions and boosting exports'.

Regional context

While it is clear that achieving net zero will require substantial changes at global and national level, the net zero future and the impacts of the net zero transition are even more uncertain at a regional level. Just as climate change will require different adaptation strategies across regions and communities, so too will the transition to mitigate our climate impacts.

Actions towards net zero already vary between regions. For example, recent papers such as the Grantham Institute report "Jobs for a strong and sustainable recovery from Covid-19" highlight the difference between current and potential energy efficiency ratings of buildings in the North of England. There is significant progress to be made in this area, which could also result in significant opportunity for job creation.

Economic activity also suggests the potential for vastly different regional net zero futures. Regions dominated by high-carbon industries may face the disproportionate impact of measures such as carbon pricing. However, the current carbon intensity of a region's industrial base does not tell the full story, as some polluting sectors are poised for rapid decarbonization, and average statistics on carbon intensity at SIC Group level can mask green innovators that are changing the field. For example, as well as manufacturing traditional vehicles, the North East is home to the pioneering Nissan Leaf and more than a quarter of European electric vehicles were made in the North East.

There is therefore an urgent need for research to identify ways to smooth and embrace the transition by minimising its potential negative impacts and maximising opportunities for local economies. This is critical not only to the government's levelling up priority, Industrial Strategy, and Covid-19 recovery, but also to the viability of Britain's net zero ambition as a

whole. Without a just transition that allows all to thrive, it will be impossible to mobilise the sustained public and political will to make the transformative choices that are needed.

Our understanding of your needs

Within this context we understand that you want to map out the regional impacts of the transition to net zero. You require innovative research to pilot an approach for you to understand impacts using a methodology which can later be applied to other regions in the UK. It will help to cement the UK's reputation as a leader on climate change and position the UK to support other countries by sharing best practice.

We understand that in the first instance you want to understand the risks and opportunities arising from the transition to net zero in the North East (North Eastern LEP & Tees Valley LEP). The research should:

- Provide specific, actionable insights and complement the development of long-term economic plans at a regional level through tailored analysis to reveal the risks and opportunities often masked by 'averages';
- Support the government's levelling up policy by providing a better understanding of regional economic risks and opportunities which the transition brings for *communities,* including the impact on jobs*;*
- Inform decisions about the the distribution and planning of skills funding to maximise its alignment with the expected impacts of the net zero transition on the local economy; and
- Provide comparable insights which are based on a robust methodology and can be replicated in other regions around the UK, and potentially further afield as the UK looks to share its experience.

We will therefore provide you with:

- A report which clearly articulates the potential impacts, both positive and negative, that the transition to net zero could have on the North East of England;
- A robust and easy to understand pilot methodology which is replicable and could be applied to other areas in the UK; and
- A toolkit to help translate findings and the methodology into actionable insights.

Data sources and literature

To guide our analysis we have already identified a number of key literature sources, including but not limited to:

- Grantham Research Institute (2020), *Distributional impacts of a carbon tax in the UK Report 2: Analysis by income decile*;
- Grantham Research Institute (2020), *Jobs for a strong and sustainable recovery from Covid-19*;
- Institute for Public Policy Research (2017), *Net-Zero North, Delivering the Decarbonisation Mission in the North of England*; and
- North East LEP & European Union (2017), *Sustainable Urban Development in the North East*.

We have also begun to research the data available. As well as any data you supply us with, we have identified a number of relevant ONS datasets on carbon dioxide emissions intensity by industry, and on the low carbon and renewable energy economy in the UK. We also plan to use a number of publicly available datasets compiled and held by BEIS, DfT and the Centre for Sustainable Energy among others (detailed in our methodology).

How we will deliver value

In recognition of the importance of this work and the need for it to succeed in the broader policy landscape, we bring together a team of:

- **Climate experts** from the LSE's Grantham Institute and PwC's Sustainability and Climate Change team,

- **Policy experts** with experience working inside Cabinet Office, HM Treasury, and OECD, who will ensure the work fits into the broader policy context
- An **experienced delivery team** with a track record of building deliverable economic models and replicable monitoring methods for government to assess local impacts

In particular, our team includes [redacted] who are both Policy Fellows at the Grantham Research Institute on Climate Change. It also includes [redacted] who is an expert in green technology and innovation. Our team has worked closely with governments and businesses around the world, and published extensively, including:

- Distributional impacts of a carbon tax in the UK Report 2: Analysis by income decile [redacted] This study explores the distributional impacts of a net-zero-consistent carbon price and examines which combination of interventions may reduce carbon consumption and still be progressive;
- Informing UK governance of climate risks: improving the local evidence base. [redacted] This paper argues that higher quality, more thorough local evidence is necessary in informing sound decision making with regards to climate resilience on a local scale, using the UK as an example; and,
- Co-producing UK climate change adaptation policy. [redacted] This study examines the 2012 and 2017 United Kingdom Climate Change Risk Assessment (CCRA) reports to discern potential improvements needed in UK adaptation policy.

We have extensive experience developing simple to use impact tools for government that can be flexed geographically, as well as existing assets and contacts that will allow us from day one to start to identify how impacts will be felt throughout the economy.

- Total Impact Measurement Framework: PwC has an existing methodology that enables businesses and institutions to explore their impact, in terms of economics, sustainability, tax and social;
- EBRD: The fiscal implications of a green economy transition for the oil and gas sectors in Kazakhstan and Egypt: PwC critically evaluated, improved and piloted a methodology to calculate government's fiscal exposure to climate change. [redacted] was the lead modeller of a reusable methodology deliverable; and
- Policy methodology for a Middle East Client: PwC provided a deliverable methodology and set of supporting tools templates to help a Middle Eastern government assess environmental and economic impacts.

Delivering in the current environment

In the current environment, we recognise that many stakeholders are facing additional Pressures from staff absence and financial insecurity, and are incredibly busy supporting the fight against COVID-19.

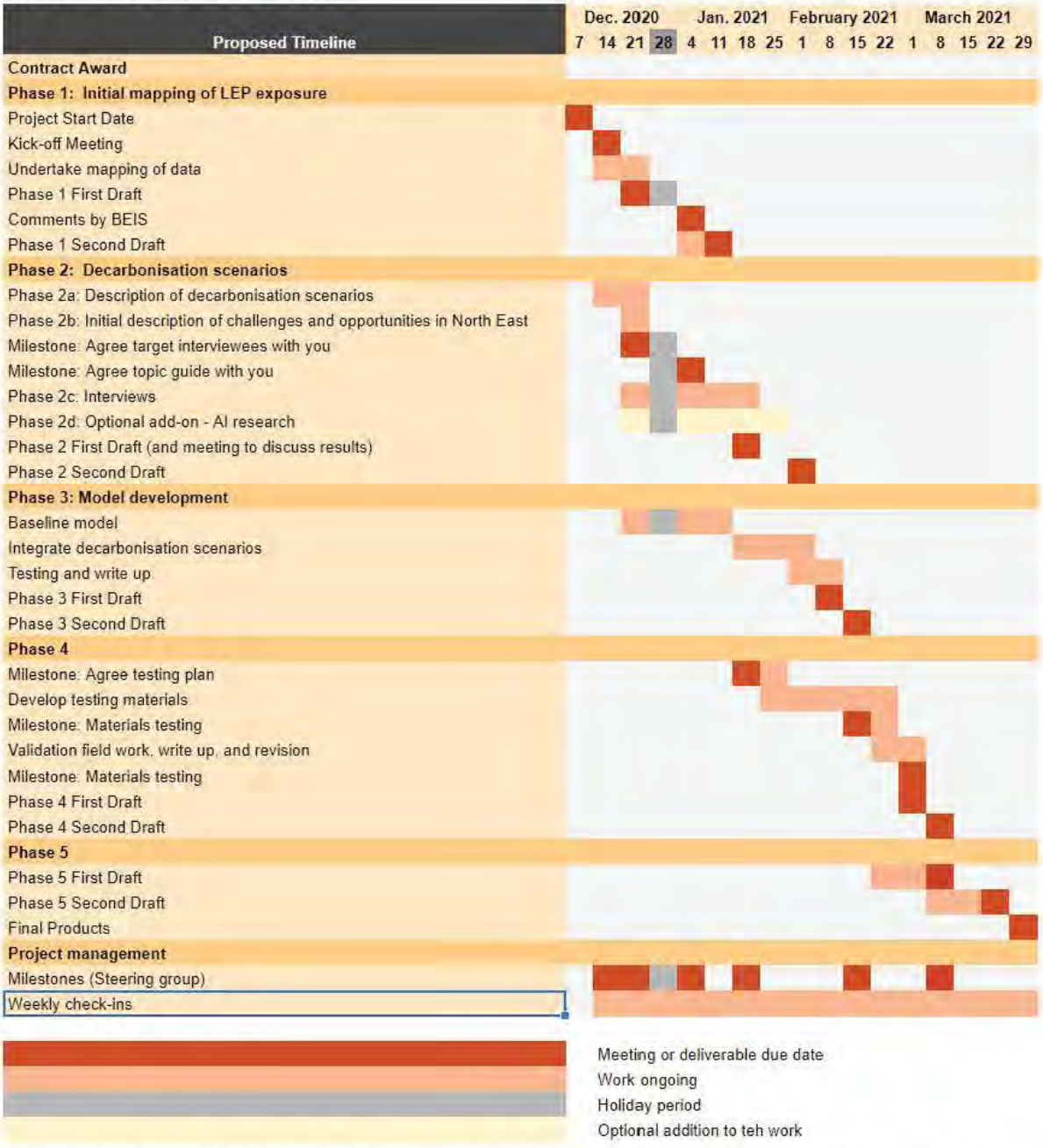
We understand that meaningful stakeholder engagement is key to the success of this project, not only in terms of collecting data, but also to protect your reputation as a collaborator and supporter of the local industry. When designing our project plan we will therefore prioritise making engagement easy and flexible, and review all of our tools to make sure they place the absolute minimum burden on stakeholders. Where possible we will use existing data sources to reduce the information to be requested from stakeholders.

Our entire team is equipped to work remotely and, as we regularly work with international clients, and have significant experience using online tools to deliver similar projects. We have delivered consultative research projects for UK Government and European bodies under tight time pressure. We will leverage this experience and work collaboratively with you to successfully deliver this work on time.

Question 1.4

Below we have set out below our indicative project plan, including the meetings and timelines we will use to prepare deliverables in line with the deadlines set out in the ITT. We will work closely with you to manage delivery, providing flexibility in the resources we deploy to manage e.g. around staff limited availability during the Christmas/New Year period. We will use weekly calls to flag risks, share progress, and update you on emerging findings on an informal basis.

Figure 1: Indicative work plan



In light of the current COVID-19 pandemic we have highlighted throughout our methodology and in the timeline above how we intend to carry out virtual meetings to ensure the safety of PwC, BEIS and any other stakeholders' staff that we need to engage as part of the study.

Key milestones and deliverables

We anticipate they following timeline for key deliverables:

- **Phase 1:** first draft by Monday, Dec 23
- **Phase 1:** second draft by Thursday, Jan 07
- **Phase 2:** first draft by Thursday, Jan 21
- **Phase 2:** second draft by Thursday, Feb 04
- **Phase 3:** first draft by Thursday, Feb 11
- **Phase 3:** second draft by Thursday, Feb 18
- **Phase 4:** first draft by Thursday, March 04
- **Phase 4:** second draft by Thursday, March 11
- **Phase 5:** first draft by Thursday, March 11
- **Phase 5:** second draft by Thursday, March 25
- **Phase 5:** final products by Wednesday, March 31

Due to both the project timeline and the closely related nature of the research required in Phases 1, 2 and 3, we plan to undertake the work simultaneously.

We will have two different workstreams to account for this. Phase 1 and Phase 3 will be spearheaded by [redacted] as the lead analyst, drawing on input from [redacted] and the expert team. Phase 2 will be led by [redacted], who as project manager will also ensure insights read across to Phase 3. He will be supported by [redacted] and work closely with [redacted] and [redacted] to guide the work, as well as drawing insights from the expert panel. [redacted] will also provide some support after the initial intense phase of modelling and data-based research in December/ early January.

Kick off. We propose holding a kick off meeting in the week commencing (w/c) 14th December 2020 where we will refine our understanding of your specific requirements, obtain feedback on our approach, confirm timelines and arrange access to any relevant data you may hold.

Deliverable 1. The project's first key milestone and deliverable comes in w/c 21st December 2021 when we will provide you with the first of our map of LEP exposure to the transition to net zero. We propose scheduling a virtual feedback meeting for the following week with a view to providing you with a second draft in w/c 11th January 2021. This will inform the ongoing work on Phases 2 and 3.

Phase 2. We will commence work on Phase 2 at the same time as the project kicks off. The first stage will be to undertake desk research on carbon scenarios and what they mean for the North East (to take place in December). We would also set out potential interviewees.

The first milestone in this Phase will be the agreement of the stakeholders to be interviewed in Phase 2, in w/c 21st December 2020. In order to secure interviews in January, we would seek to contact agreed interviewees in December. We would seek to draw on our relationships and ask you to provide introductions where you have close relationships to highlight the importance of this work to you.

Once we have agreed on the stakeholders to be interviewed, we will finalise our interview topic guide to be shared with you for agreement in w/c 4th January 2021.

After the interviews have taken place (mid-late January) we will combine the responses with further investigation of future decarbonisation scenarios and provide you with a first draft of our findings in w/c 18th January 2021, which we plan to test with you in a meeting. We will agree the format and structure of the report in advance, ensuring the material can be easily adapted for inclusion in the subsequent final report. We propose scheduling a virtual feedback report meeting a week after submission of the first draft and we would look to incorporate any comments received in a second draft to be delivered in w/c 1st February 2021.

We note that Phase 2d is not included at present in the budget and if you would like to explore this we could discuss it at inception.

Phase 3. will commence with the development of a baseline impact assessment model in w/c 21st December 2020. From w/c 18th January 2021 we will begin to incorporate the findings of our decarbonisation future scenarios work, subject to any feedback provided by you on our draft findings. We will present you with a first draft of our impact assessment model in w/c 8th February 2021. We will incorporate your feedback and the final milestone of Phase 3 will be to provide you with an updated impact assessment model in w/c 15th February 2021.

Phase 4. Our first milestone in Phase 4 will come in w/c 18th January 2021 when we will agree with a plan which sets out how, and with whom, we will test our findings. After delivery and agreement of the deliverables in Phases 2 and 3, we will begin to write up our findings which will form the basis of our testing materials. We will use these materials to engage the small group of stakeholders identified in collaboration with you. In the current climate we envisage that these meetings will be held virtually. All materials will be agreed with you before they are discussed with other stakeholders.

We propose to hold an additional meeting with you during Phase 4 in order to discuss the emerging results and the proposed approach to the final report, and to brainstorm potential recommendations (w/c 15th February). We will incorporate feedback from you, and from our meetings with stakeholders, to refine our findings and deliver a draft report in w/c 1st March 2021. The key milestone in Phase 4 will be to present you with a second draft of the report in w/c 8th March 2021.

Phase 5. The final key milestone of the study is the delivery of the final report, methodology, toolkit, and dissemination plan and materials. We propose to submit a first draft of the report in w/c 8th March 2021 with a feedback call scheduled for the following week and a contingency period for reworking the final report up until the formal deadline of 31st March 2021. This report will synthesise the work and results from all previous phases. We will test emerging findings with you iteratively ahead of the agreed deadline at milestones and during weekly calls. Iterative testing will help ensure the final report meets your expectations.

Working with you

Weekly meetings. As set out in the indicative project plan, we would like to schedule weekly progress meetings between your project manager and [redacted]. We will use these meetings to discuss emerging findings and raise risks. Raising any risks at an early stage and working collaboratively with you to resolve them will be essential to a successful project.

We will also use these meetings to ensure you are closely involved in developing the method alongside us, so you are clear on the approach and involved closely in decisions.

Milestone meetings. Throughout the project, we have indicated key milestones where we would like the Steering Group (if relevant) or other key decision makers that you decide to be present. These are key points in the project that will set the direction of the final deliverables. Some such Milestones would be meetings, whilst others could be potentially undertaken over email.

The first such milestone meeting is the kick-off meeting. We would seek to diarise future meetings at this stage with you. We anticipate that meetings would be virtual.

We have listed key milestone dates below (to be discussed and agreed with you)

- Kick Off meeting: w/c Dec 14th
- Agree target interviewees with you: w/c Dec 21st
- Agree interview topic guide with you : w/c Jan 4th
- Emerging findings Milestone meeting: w/c Jan 18th
- Agree stakeholder testing plan with you: w/c Jan 18th
- Agree testing materials: w/c 15th February
- Discuss findings prior to preparing final materials: w/c 8th March

Review comments. We would seek to agree an approach to receiving your review comments at the kick-off meeting to ensure that we are able to meet your timelines

Escalation. Amal Larhlid will serve as the immediate point of escalation for you.

Quality assurance

Quality control is integral to ensuring a deliverable which meets BEIS' expectations and gives you the insights and analysis you require. Our quality assurance process is outlined below. These steps are in addition to continuous review within the project team:

Senior and collaborative core team: Our core team of PwC and Grantham researchers is composed of colleagues who are experienced in this type of work, have complementary skill-sets, frequently work in multi-organisation teams, and have experience working collaboratively remotely. This enables us to achieve high quality outputs before our work goes through a formal review process and without the need to be together in one place.

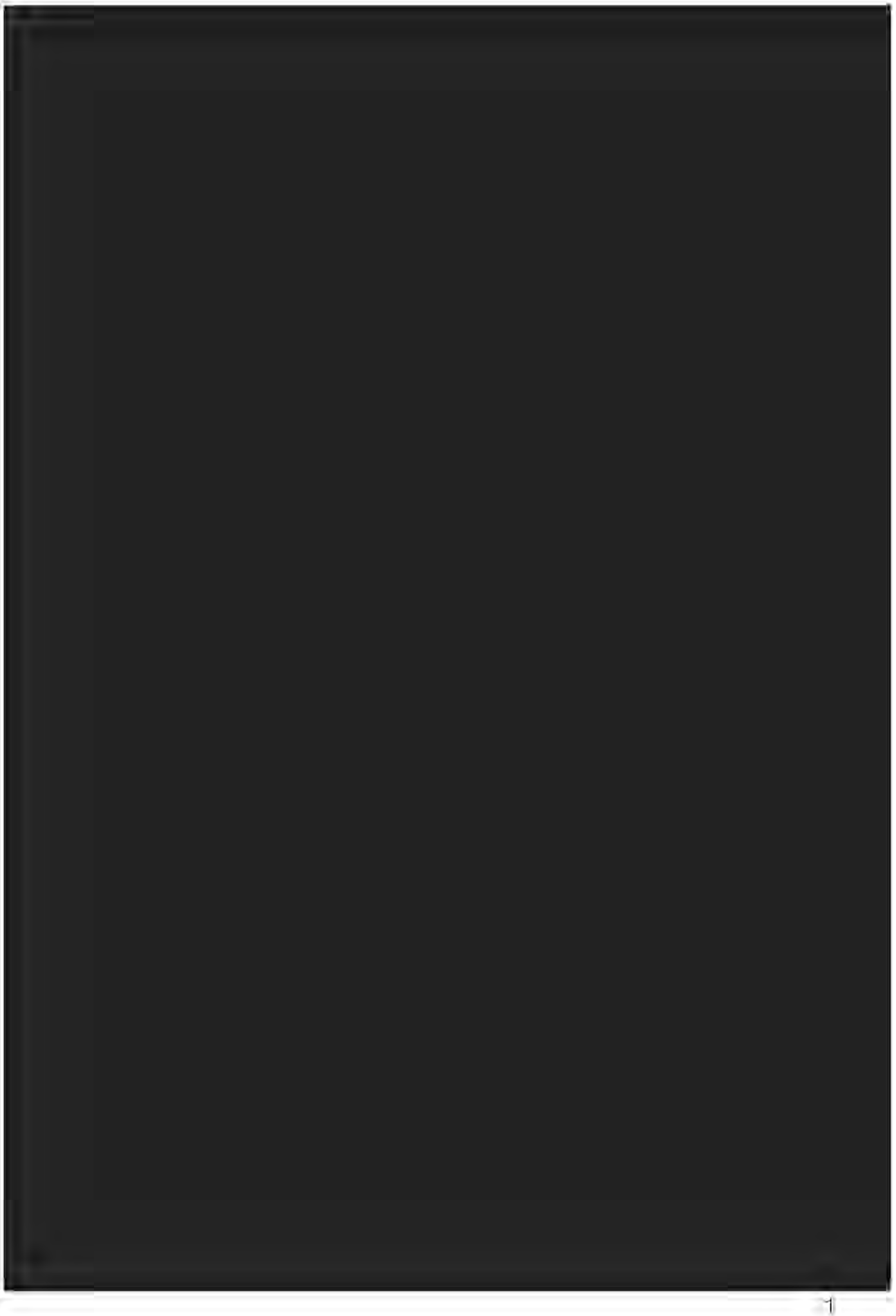
Internal review: Amal Larhlid will be responsible for the overall quality of our work. She will review all of our deliverables, providing sign-off only when she is satisfied that we have met the high standards you expect. Mo Jamei will act as a further quality assurer throughout the engagement and will provide a review of our deliverables. This is in addition to review and direction that will be given on an ongoing basis by Rosalind, Josh, and Candice.

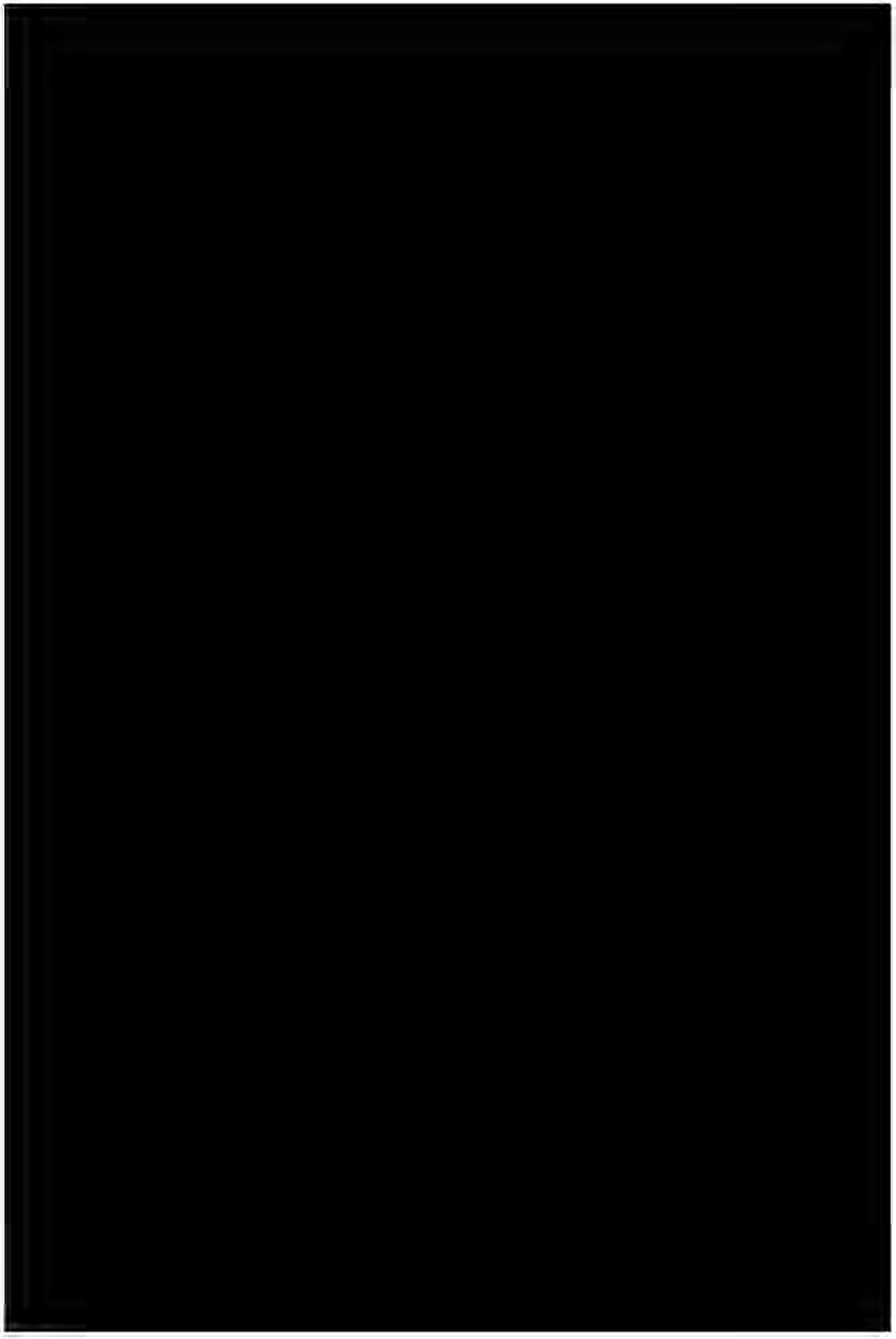
Expert review panel: We have an expert panel composed of Richard Williams (policy expert with Whitehall experience), Ben Combes (net zero and Innovation expert) and Ben Copley (Impact assessment expert with Whitehall experience). Each reviewer will review and provide independent feedback on the approach. The purpose of this is to ensure that the results are actionable and of high quality. This is in terms of their policy relevance, their technical adherence to government modelling standards and their economic relevance in terms of capturing the forward looking impacts of net zero technology for future jobs and industries.

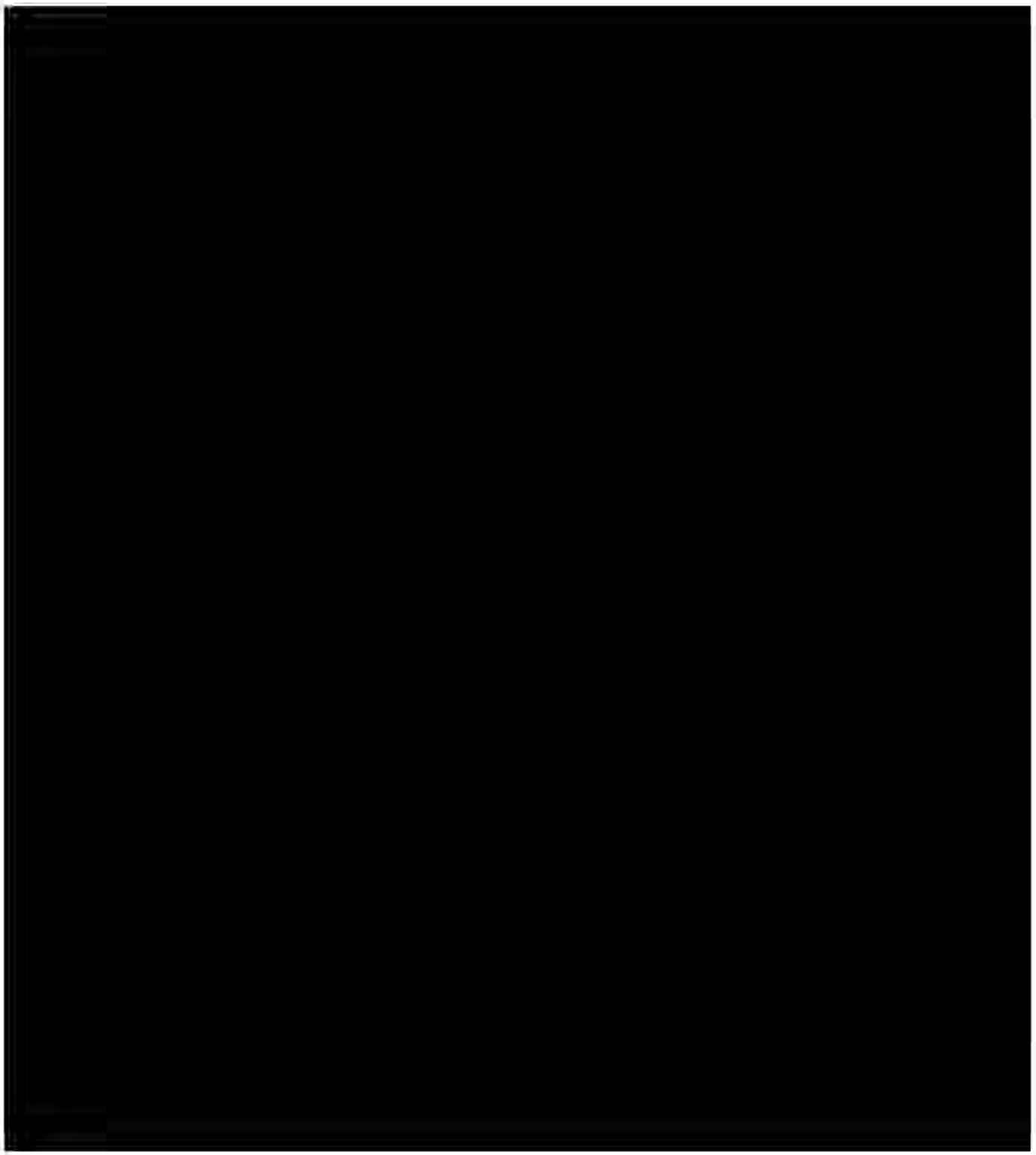
Independent and technical review: As part of our processes, deliverables will be reviewed by an independent senior member of staff, and calculations (inputs, outputs, mechanism) will be reviewed by an independent senior analyst.

Data Protection

We are strongly committed to protecting individuals' personal information data that we hold or process and to securing other confidential data to which we may have access as part of this work. During the course of conducting any primary research and data collection we will put in place procedures to ensure our GDPR obligations are met. We will follow procedures on informed consent, anonymity and pseudonymisation, data handling and data retention, as well as adhering to the ethical requirements incumbent upon researchers. PwC is also fully compliant with Cyber Security Essentials through it's GSEC facility. Further details and information on our wider data protection and IT security policy is available on request.







Part 2: Contract Terms

Contract Terms v6.0