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 3rd March 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:	CR19084
From:	The Department for Business, Energy & Industrial Strategy of, 1 Victoria Street, London, SW1H 0ET ("Customer")
To:	ICF Consulting Services Limited of, Riverscape, 10 Queen Street Place, London, England, EC4R 1BE ("Supplier")

Effective Date:	Tuesday 3rd March 2020
Expiry Date:	Thursday 31st March 2022 with the option to extend by two further years on an annual basis (+1+1)

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):	The total contract price shall not exceed £523,111.00 ex VAT in alignment with Annex 1 Contract Charges of the contract terms.
Insurance Requirements	Additional public liability insurance to cover all risks in the performance of the Contract, with a minimum limit of £5 million for each individual claim Additional employers' liability insurance with a minimum limit of £5 indemnity

	Additional 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:	ap@uksbs.co.uk

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]

Date: 13th March 2020

For and on behalf of the Customer:

Name and Title:

[redacted]

Date:

24th March 2020

ANNEX A

Customer Project Specification

1. Background

This tender is to procure research and evaluation that will be conducted alongside the delivery of the Electrification of Heat Demonstration project.

Aims of the Electrification of Heat Demonstration project

The Electrification of Heat Demonstration Project seeks to provide evidence to understand better the feasibility of a large-scale rollout of heat pumps. In particular, it will identify solutions for increasing deployment of heat pumps with consumers living in a range of housing archetypes. The project seeks to increase confidence in the technology to levels that could underpin a public debate and strategic decisions on the future of heat.

The project involves installing up to 750 heat pumps in 3 regions across the UK, employing innovative processes, technologies and consumer engagement to increase confidence, acceptability and satisfaction with the technology.

Background to the Electrification of Heat Demonstration project

The Electrification of Heat Demonstration project seeks to drive and accelerate uptake of low-carbon heating, by identifying and delivering heat pump solutions that work for a wide range of housing archetypes and consumers. The £16.5 million funding for this project is being used to:

- Appoint a Management contractor to manage and coordinate the project. This appointment was made in November 2019.
- Appoint three regional Delivery contractors to deliver the project. They will recruit as many participants as required and assess their homes for suitability for heat pumps. They will then install and monitor up to 750 heat pumps across a representative range of housing archetypes and ages. They will be responsible for purchasing and installing the equipment, providing post installation maintenance, and monitoring. We expect to publish an invitation to tender for three delivery contractors in December 2019.
- Appoint an evaluation contractor to evaluate the overall delivery of the project. This ITT sets of the requirements for the independent evaluation contractor.

Further information on the Electrification of Heat Demonstration project can be found on the Electrification of Heat Demonstration Project's website[1].

Strategic and policy context

To meet our legally binding emissions targets, BEIS analysis[2] suggests that we need to decarbonise nearly all heat in buildings by 2050. Replacing fossil-fuelled gas boilers with heat pumps can make a very substantial contribution in helping us meet these targets, but the heat pump market in Great Britain is small and consumers – particularly those living on the gas grid – have been slow to switch to the technology.

Research suggests this is partly driven by economics but also due to the current consumer proposition, which does not fit well with the challenges that exist in the domestic heating market, such as the varying thermal efficiency of the housing stock and extremely high market penetration of gas boilers.

[1] https://www.gov.uk/guidance/electrification-of-heat-demonstration-project

[2] https://www.gov.uk/government/publications/heat-decarbonisation-overview-of-current-evidence-base

To date, most heat pumps in Great Britain have been installed in large, off-gas grid homes, where there are fewer barriers to deployment. They are also being predominantly installed by either wealthy early adopters, housing developers or social landlords. However, innovation in the market is not delivering the changes required to make heat pumps a more compelling mainstream proposition, particularly to the 87% of consumers living on the gas grid.

The Electrification of Heat Demonstration Project seeks to address this by providing evidence to understand better the feasibility of a large-scale rollout of heat pumps. In particular, it will identify solutions for increasing deployment of heat pumps across a wide range of consumers, including those living on the gas grid, and seek to increase confidence in the technology to levels that could underpin a public debate and strategic decisions on the future of heat.

To support this, the project aims to:

- Develop, test and evaluate products and services, including some innovative products and services, that increase the appeal of heat pumps and identify optimal solutions for a wide range of homes.
- Demonstrate that heat pumps, including gas-electric hybrids, can deliver high consumer satisfaction across a wide range of consumers in Great Britain.
- Demonstrate the practical and technical feasibility of heat pumps, including gas-electric hybrids, across Great Britain's diverse housing stock, and socio-economic groups.
- Capture learning from the project to help improve awareness across the heating supply chain, raise acceptance and support wider deployment of heat pumps in Great Britain.

This project will seek to deliver innovative products and services that overcome barriers to deployment of heat pumps, making them a more compelling mainstream proposition. It will also identify the cost and feasibility of overcoming these barriers.

BEIS has identified several barriers to wider deployment of heat pumps in the UK. The project will test a number of innovative products and services designed to overcome these barriers.

- Running costs
- Thermal Comfort
- Disruption
- Space Constraints
- Noise
- Aesthetics

The high upfront cost of heat pump installation is one of the largest barriers to wider heat pump deployment, however addressing this is out of scope for this project. Heat pumps will be free to participants and include free insulation upgrades and free extended warranty and maintenance contract for up to 3 years.

Another key barrier to wider heat pump deployment is the energy efficiency of properties. BEIS is currently working with the Project Management Contractor to decide the extent to which energy efficiency upgrades will be offered to participants.

The Evaluation Contractor should be aware of the above factors and will be expected to consider mitigations to ensure they do not materially impact the evaluation of the project's objectives. The Evaluation Contractor will be expected to work closely with the Project Management Contractor and the three Delivery Contractors to ensure the project is evaluable and will deliver the required insights.

There are three basic technologies of heat pump systems included in this trial; Ground-source heat pumps; Air-source heat pumps; and Hybrid heat systems, these three basic heat pump systems will be optimised for different homes and a variety of innovations applied – based on technical evaluation of the homes and consumer preferences. Innovative products and services used in the project will be near-to-market and by the end should have progressed to commercialisation.

Why is evaluation needed?

There is a need for a robust evaluation of this project because of its innovative- and learning-oriented nature (and the need for due diligence and scrutiny on those learnings), its large-scale and high-profile nature and the high uncertainty of some of its outcomes (including the ability to innovate meaningfully on the installation and consumer proposition of heat pumps).

Evaluation is also a critical aspect of communicating the achievements of this project. Ultimately the evaluation findings will help to consolidate the evidence base upon which pathway decisions regarding the future of heat are made, unlocking many of the outcomes identified in the design of the project itself.

The evaluation will enable BEIS to understand the extent to which the project achieved its objectives, including assessment of whether the project delivered sufficient innovation to increase the consumer appeal of heat pumps, demonstrated social acceptability and technical feasibility, and has learnings that will support the wider deployment of heat pumps. It will also focus heavily on identifying learning to inform our understanding of the challenges, opportunities and actions needed to develop the UK's heat pump market.

The results of evaluation will be used as follows:

- To demonstrate, to internal and external stakeholders, the benefits and lessons learned. This will include events in the project's target regions, demonstrating the project's findings and outputs, such as a home suitability model.[3]
- To inform policy changes and facilitate additional targeted support to ensure benefits are achieved for heat pump consumers within and beyond the trial.
- To demonstrate the value created by BEIS innovation activity from commercial deployment of heat-pumps.
- To develop and to secure funding for future BEIS and other government innovation programmes aimed at decarbonising heating.
- To make improvements to the delivery of the project itself: as a multi-year project, process evaluation data gathered while the project is underway will be used to improve delivery of the rest of the project.
- Assess the cost effectiveness of the programme, understand issues associated with value for money and compare cost effectiveness to other similar programmes.

Evaluation is needed throughout the lifetime of the project as primary research with participating households and installers needs to occur at key points throughout the project (e.g. it is anticipated a consumer survey with households needs to occur before heat-pumps are installed in homes for effective comparisons to be made).

2. Aims and Objectives of the Project

Aims of the Evaluation

[3] Dissemination will be carried out by the project's *management* contractor – however, we expect the evaluation contractor we are procuring here to contribute where required to dissemination materials and activity. The evaluation contractor will also be responsible for the evaluation of dissemination activities.

The purpose of this evaluation will be to evaluate the overall delivery of the project against the agreed performance indicators and metrics and to gather learning on heat pump acceptability and satisfaction to inform future heat policy. It is envisaged the evaluation will adopt a theory-based approach and will collect qualitative and quantitative evidence from multiple stakeholders including heat pump installers, consumers with heat pumps installed and those who did not take part in the project but were originally recruited to participate (further detail on the comparator group can be found below).

The expected outcome of this evaluation will be to understand whether heat pumps represent an acceptable and satisfactory heating option for consumers in a range of housing archetypes and to understand the role of the innovation in this. Other parts of the project, delivered by separate Management and Delivery Contractors, will monitor the more technical impact of the project, such as impact on energy usage and energy costs. As part of the final evaluation output, the evaluation contractor is expected to use this monitoring data to produce a final Cost Benefit Analysis and assess performance against a set of Key Performance Indicators.

BEIS has published a number of technical research reports on heat pumps since 2011. The most relevant of these to this project are: [4]

- Hybrid heat pumps study (April 2018) - a study we commissioned to advance our understanding of the potential Role of hybrid heat pump systems in the UK's long-term decarbonisation of domestic heat. [5]
- Detailed analysis of data from heat pumps installed via the Renewable Heat Premium Payment Scheme (RHPP) (April 2017) - around 14,000 heat pumps were installed under the RHPP. DECC funded a detailed monitoring campaign, which covered 700 heat pumps, the aim of which was to provide data to assess the efficiency of the heat pumps and gain greater insight into their performance.[6]
- Heat Pumps in District Heating (February 2016) - this study explored the ways in which heat pumps can be integrated into heat networks, to understand which types of scheme could be economically and environmentally beneficial in the UK.[7]
- Analysis from the Energy Saving Trust's heat pump field trial (April 2012) – this trial was conducted as two phases between 2008 and 2013 and examined the performance of air- and ground-source heat pumps in UK homes. As a result of the analysis, the Microgeneration Certification Scheme installation standards for heat pumps were improved. [8]

Other BEIS projects that are of interest, but not uniquely focused on heat pumps or electrification, include:

- Heat decarbonisation: overview of current evidence base (December 2018). This review confirmed that we need a better understanding of the different options for decarbonising heat, as well as a clearer common agenda across industry, academia and the public sector. [9]
- Alternative heat solutions: converting a town to low carbon heating (April 2019). We commissioned this project to explore possible technologies able to convert a UK town to low carbon heating and to analyse the costs, practical constraints and challenges associated with each of them. [10]

[4] https://www.gov.uk/government/collections/heat-pump-research#heat-pumps
[5] https://www.gov.uk/government/publications/hybrid-heat-pumps-study
[6] https://www.gov.uk/government/publications/detailed-analysis-of-data-from-heat-pumps-installed-via-the-renewable-heat-premium-payment-scheme-rhpp
[7] https://www.gov.uk/government/publications/heat-pumps-in-district-heating
[8] https://www.gov.uk/government/publications/analysis-from-the-first-phase-of-the-energy-saving-trust-s-heat-pump-field-trial
[9] https://www.gov.uk/government/publications/heat-decarbonisation-overview-of-current-evidence-base
[10] https://www.gov.uk/government/publications/alternative-heat-solutions-converting-a-town-to-low-carbon-heating

- Building for 2050 – this research project is examining the drivers, attitudes, barriers and challenges relating to low cost, low carbon housing. It aims to understand the demand for such housing in England and Wales and the capacity and motivation in the housing sector to meet it. [11]

Recent international developments of note include:

- International comparisons of heating, cooling and heat decarbonisation policies (April 2018) - this report focused on what challenges are shared by the UK and other countries in heat decarbonisation, and what learning and innovation opportunities exist outside of the UK. [12]
- A Finnish case study in which the industry puts the growth in heat pumps in the country (900,000 systems installed today, from virtually none in 2005) down to user-created forums, which led to a large increase in public awareness and acceptance. [13]
- China has become the fastest-growing global market for heat pumps, thanks in part to the alignment of the country's policy priorities with the advantages of heat pumps.[14]

Despite this range of heat pump-related evidence in the UK and internationally, there remain several problems:

- The current heat pump market is unrepresentative of the wider UK housing stock and consumers, with current programmes benefitting a disproportionately high percentage of wealthier, off-gas grid consumers (as they need to be able to fund the high upfront costs).
- Neither the market, nor previous government programmes, have been able to innovate sufficiently to deliver suitable heat pumps for the wider UK market.
- The current heat pump market is unable to deliver significant cost reduction.
- Consumer awareness and understanding of heat pumps is low.

- International learning is limited in its applicability to the UK context. This is, in part, due to large differences in both electricity and gas costs in the UK compared to other countries, making the appeal and context of heat pumps different.
- Existing trials are limited in the learning they can provide.

Ultimately, these limitations mean that there are still key gaps in our understanding of how heat pumps could contribute towards decarbonising heat in the UK. This would have a significant impact on the strategic decisions to be made on heat decarbonisation to meet 2050 emissions targets. The Electrification of Heat demonstration project has been designed to help overcome many of these gaps and provide evidence to fill them. This evaluation will help to address the evidence gaps on satisfaction with innovative heat pumps and processes.

Overall objective

The overall objective of this evaluation is to understand the level of satisfaction and acceptability of heat pumps across multiple different housing archetypes, ultimately answering whether heat pumps are an acceptable option for consumers to support the mainstreaming of this technology.

[11] https://www.buildingfor2050.co.uk/

[12] https://www.gov.uk/government/publications/international-comparisons-of-heating-cooling-and-heat-decarbonisation-policies

[13] https://www.sulpu.fi/documents/184029/5060075/4%20Jouni%20Juntunen%20Role%20of%20users%20in%20expanding%20heat%20pump%20markets%2C%20aalto.pdf

[14] https://heatpumpingtechnologies.org/wp-content/uploads/2019/09/the-situation-of-heat-pump-technology-in-china0520-reviewed.pdf

While exact research questions will develop based on the precise nature of the trials brought forward, we anticipate the following questions will form the basis of our core requirement.

Research Question 1: How (has) the project delivered against its deployment targets and anticipated benefits?

- How many heat pumps have been deployed, how many homes suitability surveys were required to meet this number, how many customer contacts were required to reach this number of surveys?
- What different recruitment methods were used, how successful were these?
- How (have) customers fed back to Delivery Contractors / Installers to optimise their systems, what level of optimisation was needed, how was this delivered?
- How (have) customers engaged with the Delivery Contractors / Installers to receive on-going support, what level of on-going support was needed, how was this delivered?
- What is the cost benefit of the overall project?

Research Question 2: What innovations occurred, or were tested, as a result of the project and how effective were these at improving the consumer appeal? How effective were these innovations at improving consumer experience and proposition of heat pumps?

- What innovations and solutions (e.g. technological, process, consumer engagement,) were tested, why, and in which housing archetypes? To what extent would these have occurred without this project?
- How have these innovations impacted upon the offer, acceptability and appeal of heat pumps to consumers?
- What further innovations and interventions are required in order to make heat pumps a viable, mainstream proposition for consumers?
- Which consumer and practical barriers were not able to be overcome?

Research Question 3: What was the impact of the project on participants' experiences of heat pumps across the range of housing archetypes? What lessons can we learn regarding consumer understanding, satisfaction and preferences?

- What consumer journey and lived experience did participants go through? How has, or might, this be improved?
- What customer archetypes were included and why? What were the levels of customer satisfaction? What are the key drivers of this? What are the key similarities and differences across this archetype range?
- What housing archetypes were included and why? What were the levels of customer satisfaction? What are the key drivers of this? What are the key similarities and differences across this archetype range?
- What lessons did we learn about the informed preferences of people in terms of willingness and ability to adopt heat pumps? How are these affected by their neighbours/community adopting them (if applicable)?

Research Question 4: What lessons were learned regarding the practical and technical feasibility of scaling up heat pumps (including hybrids) across the UK's housing stock?

- What lessons were learned through the design, installation, optimisation, and support process that could inform scaling up?
- What did we learn from working with installers on this project? What were installers experiences of working on this project? What training was needed to enable installers to deliver the project?

- How did the installed systems perform technically both in terms of energy savings and for acceptability?
- What lessons were learnt regarding the suitability of different low-carbon heating systems to different housing and household archetypes?
- What other housing upgrades were needed to transform housing from suitable to unsuitable? How did this vary between housing archetypes? What was the impact of these upgrades in the overall solution?
- What remaining technical barriers remain unresolved?

Research Question 5: What wider learnings and impact has the project had?

- Has the project led to development and increased confidence in the heat pump supply chain and market?
- Has the project provided case studies to build public confidence?
- Has dissemination successfully demonstrated the project's findings and outputs?
- What can we learn about replacing ancillary appliances (e.g. gas cookers)
- What can we learn about wider acceptability of Heat Pumps from neighbours or communities in which heat pumps were deployed?

3. Suggested Methodology

Total number of Participants = Approximately 1880

- Approximately 1800[15] households (750 intervention; 1050 comparator group)
- 40-80 installers

Table outlining data collection activities

Data collection	Number of expected participants	Description
Participant Surveys - wave 1	525	Face-to-face survey
Participant Surveys - wave 2	525	Online survey
Participant Surveys - wave 3	525	Face-to-face survey
Installer interviews - wave 1	50	Telephone survey
Installer interviews - wave 2	50	Telephone survey
Non-Trial participants - wave 1	265	Online survey
Case Studies	15	In depth case studies. Bidder to propose approach.
Delivery and Management Contractors - online	75	Online survey
Delivery and Management Contractors - follow up	30	Telephone interview

[15] We anticipate 1,800 home suitability surveys will be needed to identify 750 suitable homes, however it will be for the Delivery Contractors to propose an optimal approach to recruiting the number of suitable homes. The Evaluation contractor should be flexible and prepared should substantially less home suitability surveys be needed to identify the 750 suitable homes.

Relevant background and methodological information

Overall approach

We propose that both a process and an impact evaluation are needed to sufficiently answer the research questions. These will be delivered by a structured package of surveys, interviews, qualitative case studies and analysis of monitoring data, all tied to a Theory of Change which should be constructed at the beginning of the evaluation. A theory-based approach to understand expected outcomes and mechanisms will likely be useful to structure data collection. We suggest using a Contribution Analysis approach to analyse the data provided by these research activities, although we are open to alternative proposals for analytical approaches to structure this evaluation.

It is important for bidders to note that the Electrification of Heat Demonstration project is in its initial stages, the precise details of the trial design are not yet confirmed and may be subject to change. Whilst the overall decision on the design of the project rests with the Management Contractor and BEIS, the evaluation contractor will be given the opportunity to work closely with the Project Management Contractor and the three Delivery Contractors to ensure the project is evaluable and will deliver the required insights. Bidders should be aware of the need to be flexible in their research designs.

The winning bidder will need to be able to work flexibly and amend the design of the evaluation if needed as the trial develops. However, for responding to this specification, bidders should write proposals working on the following assumptions:

- Random allocation of households to groups to have a Home Suitability Survey (n = 1,800) or not have one (n = ?) will not be possible.
- There will not be a sufficient number of households which pass the home suitability survey to randomly allocate households to trial (n = 750) or comparator (n = ?) groups.
- It will be possible to recruit 750 households to participate in the trial from approximately 1,800 households completing a home suitability survey.
- The total estimated number of installers involved in this project will be between 40 and 80 individuals.
- The demonstration project will be conducted in three regions which will be spread across Great Britain.

Constraints on methodology

We believe that the trail design and research questions limit the suitability of counterfactual impact evaluation methods and therefore do not suggest they form the basis of any evaluation. We suggest a theory-based impact evaluation is needed to deliver sufficient insight into the research questions. Whilst mixed-methods approaches do not currently form part of our suggested approach, we are open to exploring options for this.

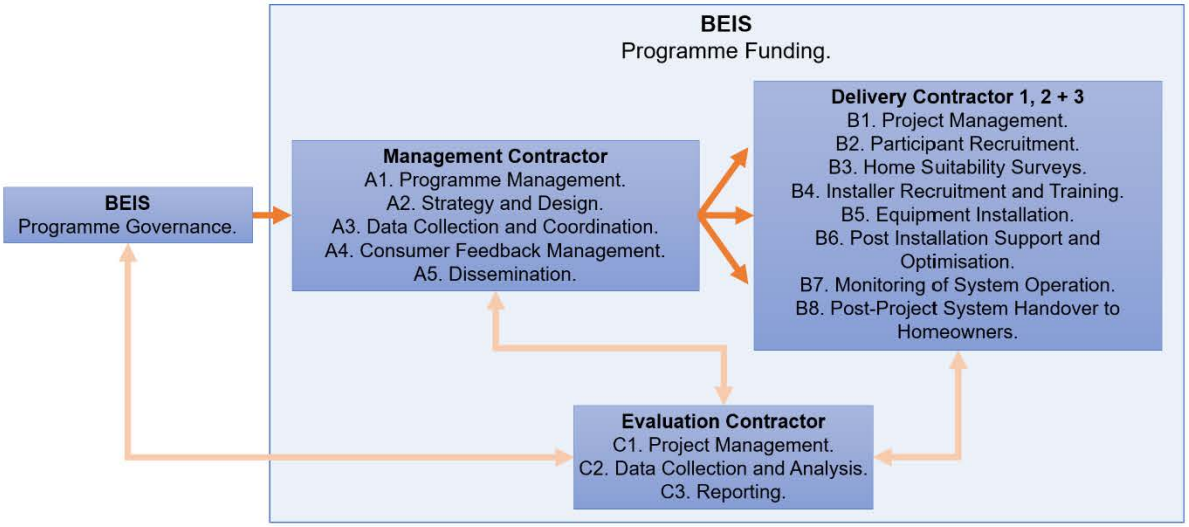
The selection of participants to receive a heat pump is based on the outcome of the home suitability survey completed by the Delivery Contractor. The Evaluation Contractor will be given the opportunity to input into the surveys design to help ensure the trial is evaluable and necessary data is collected at this stage. It is unlikely that there will be enough time, budget and suitable sample size to randomly allocate participants with suitable homes to either receive the heat pump or not (a control group). Additional commitments would also be required to ensure a control group were not disadvantaged. It is important that the project delivers the 750

installed heat pumps and it is possible that trying to adopt an experimental design would impede the ability to do so.

Whilst we do not suggest that a traditional counterfactual or control group is used, we propose that the evaluation should make use of a group of trial non-participants for a comparator group to understand their level of satisfaction with their current or subsequently chosen, heating system. More information on this is detailed below.

Programme design and implications for evaluation

The Management Contractor provides guidance, approval, and quality assurance of the design of the recruitment approach, home suitability surveys and installation process. Each Delivery Contractor is responsible for conducting their own recruitment, administering home suitability surveys, and installing and monitoring heat pumps to understand the real-world performance of the heat pumps and demand profiles across the housing types and consumer types. The Delivery Contractor will be responsible for assessing the technical aspects of the heat pump performance, including assessing energy usage and costs pre- and post-installation. A key outcome variable for the evaluation is consumer's satisfaction and it is not in scope of this evaluation to assess the technical performance of the heat pump. Instead, some of the monitoring data collected by the delivery contractor will be used to inform the evaluation. An overview of the key activities conducted by each of the contractors and BEIS can be found in the Figure below.



Sample sizes, response rates and sample frames

An estimated 1,800 households will form the trial participant and non-participant groups: The three Delivery Contractors will recruit an estimated 1,800 participants and complete home suitability assessments for all participants[16]. Of those surveyed, 750 will have a heat pump installed and monitored. This leaves a sample of 750 trial participants. The remaining non-trial participants will form a separate comparator group in this research. For sampling purposes, we have assumed a trail participant sample of 700 to allow for technical failures, participants moving to a new house, and other factors that might reduce the actual number of trial participants. Whilst the focus will be on those who have had a heat pump installed, where there has been a technical failure, it is suggested that the evaluation contractor try to generate insight into these customers experiences.

[16] Each Delivery Contractor will recruit enough participants to install 250 heat pumps in their region. Regions are not yet known, however bidders should assume they will be spread across GB and will be expected to undertake an equal proportion of research activities with each Delivery Contractor.

Participants will be advised that part of the requirement of receiving the heat pump will be engagement with the project evaluation. With a requirement of evaluation engagement, we believe a response rate of 75% is an appropriate assumption for trial participants. However, monitoring data[17] will still be obtained for those trial participants who do not engage with the evaluation. We do not anticipate the use of financial incentives for participation in research related to the evaluation, given that households will be receiving the heat-pump system for free.

For non-trial participants, whilst we will make them aware of the evaluation and gain consent to pass their details onto the evaluation contractors, we have assumed a lower response rate of 25%. Whilst the current RHI evaluation has a response rate of 20% we would anticipate a slightly higher response rate of 25% given that they will be made aware of the evaluation from the start.

Estimated sample size of up to 80 installers:
Heat pump installers are also an integral part of this project. There will be three Delivery Contractors who are expected to install 250 heat pumps each in three localities. Until the Delivery Contractors are procured, we cannot establish the exact number of installers, though it is estimated that there will be up to 80 installers in total. Therefore, bidders should work on the assumption that the population of installers involved in this project is between 40 and 80 individuals.

Both the Management Contractor and Delivery Contractors will be made aware that installers will be expected to participate in the evaluation and will be required to ensure they build enough time for this into their bids. We have therefore anticipated a response rate of approximately 60% for installers on this basis.

Unknown sample size for project stakeholders including Delivery and Management Contractors, including recruiters:
The number of individuals in the contracted organisations relevant to interview is currently unknown, as the contractors have not yet been appointed. We anticipate that as this is a large project with a number of stakeholder organisations involved, we suggest that the evaluation should aim to conduct research with approximately 75 individuals involved in the management and delivery of the project (excluding installers).

Table 1: anticipated response rate by participant group

Participant Group	Total indicative sample	Expected response rate	Resulting number of responses
Trial participants	700	75%	525
Non-trial participants	Approximately 1050	25%	265
Installers	To be determined (up to 80)	60%	50
Delivery and Management Contractors, including recruiters	To be determined	To be determined	Suggest approximately 75

Data collection activities

We anticipate that there will be six data collection activities:

1. A Theory of Change Workshop held with BEIS and the Management Contractor to develop the initial Theory of Change.

[17] Monitoring data will include as a minimum electricity consumption, cost of consumption, and home temperature.

2. A participant survey conducted in three waves with scope to capture quantitative and qualitative information built into the design (e.g. by conducting two of the survey waves face-to-face to allow for a more open discussion).
3. A survey of non-participants (those who opted into the project but were not offered or declined a heat pump) to assess their preferences and rationale for heating choices.
4. Qualitative interviews with installers conducted in two waves.
5. A survey and qualitative interviews with delivery partners to gain insights into implementation and supply side issues
6. In depth case studies of at least 15 households, purposively selected with the Management Contractor

As can be seen in the Figure 1 below, evaluation activities will run alongside the other key aspects of the project.

	2019/20	2020/21				2021/22				2022
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Project set-up										
Participant recruitment										
Home surveys										
System design										
Installer recruitment			-	-						
Installation			-	-						
Control optimisation			-	-	-	-				
Monitoring			-	-	-	-	-	-	-	
Dissemination										
Evaluation										

Key

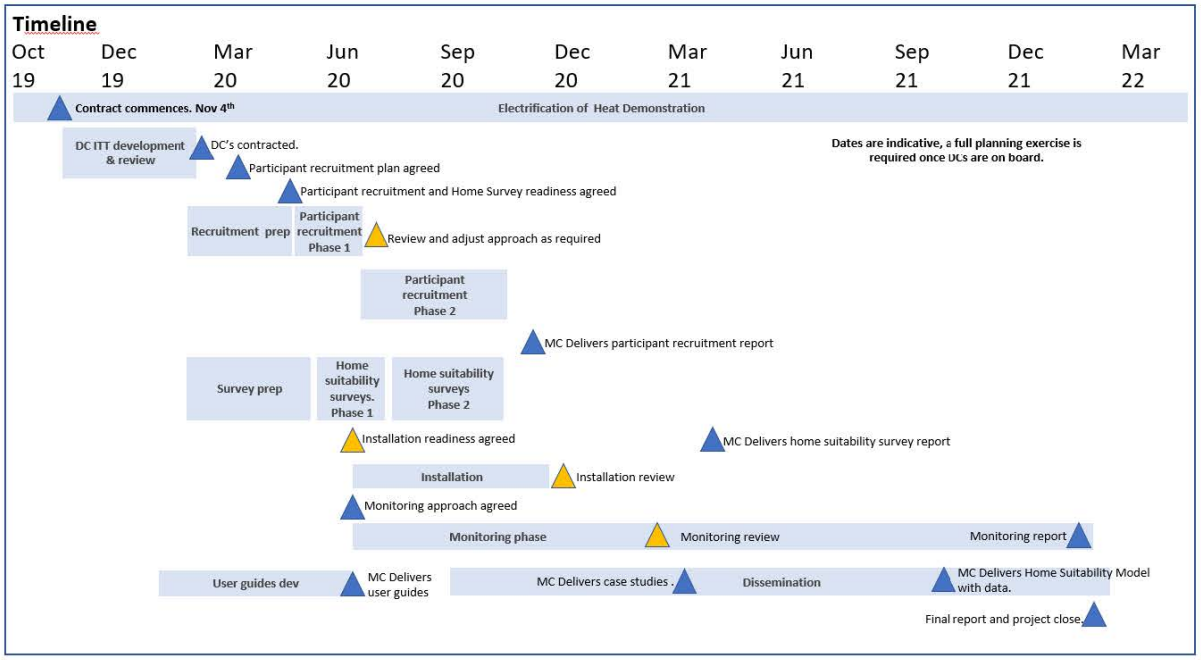
Evaluation Contractor

Management Contractor

Management Contractor + Delivery Contractors

Delivery Contractors

Figure 2 illustrates indicative delivery timelines including key review points for which process evaluation data will be used to inform process improvements.



Participant surveys

We propose that three surveys are conducted with participants who have had a heat pump installed in their home. The surveys should be conducted at key time points throughout the project and will aim to understand the process and customer experience of the project and heat pump installation and the impact of any innovation and system optimisation on satisfaction, appeal and acceptability of heat pumps. Innovations can span technology, process, consumer engagement, amongst others. Questions should focus on satisfaction and acceptability of the heat pump in general, the installation, usage and operation of it, whether particular barriers (running cost, thermal comfort, disruption, space constraint, noise and aesthetics) have been overcome and what innovations have been linked to satisfaction.

Key questions should be repeated across the three surveys to assess change in attitudes, behaviours and experiences over time. However, given that the evaluation is theory-based, other question areas will develop as the theory develops but key questions will be maintained across the three surveys. A logic model has been developed in the original project business case and a Theory of Change will be developed at the start of the project to inform the survey questions. The logic model that has been developed already is available at Appendix A.

We propose that the three waves of the survey are conducted at key points throughout the project, e.g. before heat-pump installation, after installation and optimization of heat-pumps, and after longer-term use following a winter heating season.

We propose that the length and mode of the surveys may vary for each wave depending on needs. For example, it may be appropriate for the first survey to be longer and have closer contact with the researcher to allow for the interviewer to explain the purpose and importance of the research, boost engagement and to allow for questions. Households may be less willing or engaged with the final wave of the survey, so it should be designed in a way to ensure high response rates. Earlier surveys may focus on reasoning for wanting to participate in the project, satisfaction with current heating option, attitudes and behaviours towards heat pumps, perceived barriers, and expectations about both the heat pump and installation process. The second survey should assess households' understanding, satisfaction and acceptability with the installation process, including identifying the impact of any installation innovations used, any learnings so far, current satisfaction with the heat pump, including any aspects of innovation that are related to satisfaction, acceptability and overcoming barriers mentioned in survey one. Later surveys may focus on assessing the longer-term satisfaction and

acceptability of the heat pump, identifying aspects that participants are satisfied or less satisfied with, the impact of the innovation on satisfaction and acceptability, further innovations that would increase appeal and acceptability, lessons learnt, understanding any change in perceived barriers identified in survey one and the relationship between a particular innovation and a particular barrier that has been overcome and the impact of this on satisfaction and acceptability. Any additional benefits of a heat pump, such as cooling where available, will also be investigated in this survey, as will the impact of ancillary appliances and housing upgrades installed as part off.

Given that a key element of the project is to assess satisfaction, it will be important to understand what an appropriate level of satisfaction with a heating option is as a benchmark with which to compare. To assess current and expected satisfaction with current heating options, we suggest the following options, although we are open to alternative proposals:

1. English Housing Survey – it may be possible to assess the data available from the English Housing Survey to assess the possibility of creating an indicator of expected satisfaction with existing heating (e.g. using one of the EHS survey questions on comfort or satisfaction). [18]
2. Non-trial comparator group – We suggest that households that completed a home suitability survey but did not participate in the trial will form a comparator group. It should be noted however that dependent on the method of selecting a comparator group from households that do not receive a heat-pump, there are likely to be differences in attitudes between this group and the general public, given their willingness to participate in the trial. There may also be differences between the participating households and the comparator group, for example households may not be part of the group receiving heat-pumps if their home does not pass the home suitability survey or the household passes but decides not to continue with the trial. Bidders should propose a strategy for selecting and engaging with a comparator group that makes them an effective comparator group.

For anticipated satisfaction with and attitudes towards heat pumps, we suggest using data on satisfaction with heat-pumps from existing sources, for example Renewable Heat Premium Payment (RHPP) data and Renewable Heat Incentive (RHI) evaluation data and the Public Attitudes Survey:

1. RHPP – The Renewable Heat Premium Payment data could be used to provide information about the technical performance of heat pumps that can be used to compare performance of heat pumps installed in this project. [19]
2. RHI evaluation domestic consumer survey – this survey assesses overall satisfaction with both air-source and ground-source heat pumps, as well as satisfaction with specific elements (ease of finding a suitable installer, noise level, aesthetics, reliable, understanding the system controls and ease of adjusting the system controls). [20] The RHI data allows understanding of satisfaction with the currently available heat pumps, so it may be useful to compare satisfaction with heat-pumps of RHI users with trial participants, to see if the system optimization innovations used in this project enhance satisfaction. However, it is important to note that RHI recipients tend to be early adopters who are likely to accept a degree of cost of disruption that a mainstream user might not. Any comparison to RHI users will have this in mind and include appropriate caveats.
3. Public Attitudes Tracker – There are questions in the BEIS Public Attitudes Tracker on trust in heat pumps to heat the home effectively. This data may be useful to compare to trust in heat-pumps of trial participants. [21]

[18] https://www.gov.uk/government/collections/english-housing-survey
[19] https://www.ofgem.gov.uk/key-term-explained/renewable-heat-premium-payment-rhpp
[20] https://www.gov.uk/government/collections/renewable-heat-incentive-evaluation#domestic-rhi-evaluation-reports.
[21] https://www.gov.uk/government/collections/public-attitudes-tracking-survey

Comparator group

We propose that some research is done with a comparator group to understand their reasoning for wanting to participate in the project, satisfaction with current heating options, and perceived barriers to heat pumps. Some suggested research questions to explore with the comparator group are suggested below:

- Why they did not take part in the project?
- If they were eligible for the project but did not participate, why did they not participate, and do they still intend to install a heat pump? If not, what would encourage them to install a heat pump?
- If the participants were not eligible, would the participants try to overcome the barriers/factors that made them ineligible and continue with installing a heat pump? If not, why?
- What barriers were deemed to be insurmountable?

It is likely that a mixture of both non-participants who were eligible but didn't take part and those who were ineligible will be included in the comparator group. If there are sufficient numbers of homes that pass the home suitability survey, it may be possible to randomly assign households to groups receiving and not receiving heat pumps, giving a closer comparison. However, we cannot guarantee that this will be possible, so bidders should propose a methodology assuming that random allocation to treatment and control won't be possible.

Research with installers

We would like some research to be done with installers who have been involved in installing heat-pumps as part of the project. We would like to find out their attitudes, behaviours and lessons learnt from participating in the project. We are interested in answering questions such as how has the process been, what barriers or challenges have installers encountered?, what training was needed?, what innovations have been seen?, what could be changed?, what has been learned?, what further innovations are needed?, will installers continue to install heat pumps beyond this project, have you received any additional referrals from the work conducted as part of the project? Installer innovation is envisaged to be primarily linked to the installation process, such as how installations have been improved and streamlined.

We propose primary research with participating installers at two points of time throughout the project, to assess any change in their attitudes, behaviours and experiences across the lifetime of the project. It may also be useful to consider other sources of data on installers, for examples assessing the applications of installers to the Delivery Contractors to compare proposed approaches to installations etc.

Analysis of Technical Monitoring data

The Delivery Contractors will be responsible for heat pump technical monitoring. The Delivery Contractors will create a dataset to better understand the real-world performance of heat pumps and demand profiles across a range of housing and consumer types. This will include energy usage and costs pre- and post-installation. It is envisaged that the evaluation will make use of some of this data. The evaluation contractors will be able to, for example, link it to survey responses if a participant has identified high energy bills. This will help to provide a rounded view of the heat pump experience.

Reporting and Analysis of Key Performance Indicators

The Evaluation Contractor will also be responsible for coordinating the reporting on the SICE Key Performance Indicators (KPIs) (Appendix B) to assess if the targets set out in the project business case were achieved. This information will also feed into the evaluation and form another source of evidence. The Management Contractor will play a key role in the provision of

the data for these KPIs, as detailed below. The SICE KPIs selected for this project are detailed below:

- KPI 1 – Number of energy innovation projects supported.
- KPI 2 – Number of projects that have successfully met objectives.
- KPI 3 – Number (and size) of SMEs supported in low-carbon projects.
- KPI 4 – Number of business relationships and collaborations supported (overall and new).
- KPI 5 – Advancement of low-carbon projects – technology readiness levels.
- KPI 7(ii)A – Increase in energy efficiency / reduced energy demand.
- KPI 8 – Number of products (and services) sold in UK and Internationally.
- KPI 9 – Reduction in Carbon Emissions.

Case studies

A key aim of the Electrification of Heat Demonstration project is to increase confidence in the technology to levels that could underpin a public debate and strategic decisions on the future of heat. We propose that ~15 in depth case studies are conducted throughout the life of the project. It is envisaged that these case studies will also be used for communication purposes and to help increase awareness and knowledge of heat pumps. The purpose of these case studies will be to explore the reasoning behind households' satisfaction, understanding drivers and barriers and what has worked well for whom and why. It will also be an opportunity to understand in greater detail the whole 'consumer journey' by assessing the whole process from recruitment, home suitability assessment, installation and then living with and using the heat pump.

We suggest that primary data collection supports the development of the case studies. Data could be collected from the participant households, the installer, the home suitability surveyor, recruiter, supply chain and any other relevant stakeholders for each case study. Data will likely need to be collected from some case study participants at multiple points throughout the lifetime of the project. The bidder should indicate their proposed approach to these case studies including proposed participants, data collection approaches, and timings.

Research with delivery and management contractors and recruiters

We propose that the evaluation should also include primary data collection with individuals involved in the delivery of the project. The purpose of this will be to understand what we have learnt about the delivery of the project, including what went well, what went less well, and lessons learnt. This should also include an evaluation of the consumer recruitment approaches to understand the success of different approaches to engaging consumers. Findings related to consumer recruitment approaches should be fed back to the project throughout the duration of it to ensure maximum sample sizes for participating in the project is achieved. There is a requirement for evaluation outputs to contribute to a review of recruitment after Phase 1 of recruitment (see figure 2).

Analysis of administrative data

Administrative data collected by the Delivery and Management contractors and collated by the Management contractor may also be a good source of data for analysis. This could include analysis of recruitment rates to participation to the 1,800 households who participate in the home suitability survey, reviewing progress reports developed by the management and delivery contractors etc. As the project is at an initiation stage, it is not yet clear exactly what administrative data will be available to the evaluator. Bidders should plan to be flexible in their approach and suggest how they will manage their approach to analysis of administrative data as the project develops.

Analytical approach

Overview

We anticipate that a theory-based approach will be the most appropriate. The purpose of the evaluation will be to build a body of evidence which allows us to understand how the different innovations/factors influence the outcomes we are looking for, namely consumer satisfaction and acceptability. The influence of household/consumer type will also be assessed. From this evidence, the evaluation will be able to identify the most likely contribution or impact from this project.

We suggest that a number of complementary evaluation approaches are used to guide the overall analysis of the primary and secondary data collected for the evaluation. The approach/es should allow the fulfilment of the overall evaluation aims. We are looking for evaluation approaches/methods that:

- Identify what key variables (e.g. consumer socio-economic status, resident type, house type, house age, heat pump type and retrofitting) and combinations of variables relate to high and low satisfaction and acceptability of heat pumps.
- Identify any causal links between variables and satisfaction in households (possibly using case studies as units of analysis)
- Assess the contribution the project has made to the intended outcomes. This could involve assessing the links between the activities, outcomes and contexts of the project to test a developed theory of how the project will work and build a credible 'performance story'.

A number of options for analysis are suggested below, however these are not prescriptive and are intended to demonstrate the current thinking for approaches to the evaluation. We are open to alternative proposals, including mixed methods approaches. Bidders should clearly indicate how their proposed analytical methodology will be used to answer each research question.

Dataset consolidation

It is likely that collating selected administrative and survey data into one key dataset will enable and enhance further analysis.

Theory Of Change

Whilst a logic model has been included in the original project business case, a key component of the initial stages of the evaluation should be to develop the logic model into a theory of change. This could help all key individuals to be aligned in terms of how the project is expected to work. The theory of Change should be reviewed and refreshed at key points in the projects lifetime to reflect learnings gained.

Factor Analysis

Multivariate analysis investigates the influence of the multiple variables (in this case house type, demographics, heat pump type, level of retrofit, locality and house age etc.). The number of variables in this project significantly limits sample size in each cell and therefore reduces the appropriateness of completing statistical analysis. We therefore suggest that using factor analysis may be appropriate. Conducting factor analysis on the quantitative survey data may help us understand what factors are related to high, medium and low levels of satisfaction with a heat pump. The following variables are seen as key for analysis: consumer socio-economic status, resident type, house type, house age, heat pump type and retrofitting done, to identify if there are clear combinations of factors or variables that relate to satisfaction and acceptability, or lack of it.

Our key aim for the factor analysis (or an alternative method) is that it allows identification of factors associated with high, medium and low levels of satisfaction.

Contribution Analysis

Contribution analysis could be the overarching approach to the impact evaluation. This approach allows for systematic assessments of evidence to draw conclusions about the contribution a project has made (or is currently making) to outcomes. The Theory of Change is an important part of contribution analysis by showing the links between the activities, outcomes and contexts of a project and collecting evidence from various sources to test the theory. The aim of contribution analysis is to build a credible 'performance story', which could be useful in this project.

Qualitative Comparative Analysis

In order to understand the information provided by the case studies, a Qualitative Comparative Analysis (QCA) could be conducted. This type of approach identifies the causal and supporting conditions which have led to the desired outcome. In this case, the outcome of interest would be satisfaction and acceptability of the heat pump. QCA allocates cases to sets, which are shared configurations of conditions and outcomes, enabling possible causal pathways to be identified. This type of approach on the case study data could help to identify what factors (such as innovation, type of heat pump, house type, house age) has led to satisfaction.

Important aspects/information for the evaluation

Evaluation design should facilitate project learning and development throughout the lifetime of the project.

To ensure that a real-time evaluation can occur, we will require the evaluation contractor to continually feedback any learnings to the project. This will be specifically important, for example, when assessing the success of consumer recruitment approaches. We will also require the evaluation contractor to present their findings at key timings in the project but specifically after each wave of the survey.

Ways of working

Given that there is a need for the Evaluation Contractor to feed into the project, to feedback learnings and to link data across the different contractors, we will require the Evaluation Contractor to put in a sufficient amount of time to engage both with the project team and with the Delivery and Management Contractors and the same is also required of the other Contractors. It is expected that at least a monthly meeting between all the Contractors and BEIS will occur but other ad-hoc meetings will occur where necessary, such as to feedback important findings. Coordinating work and activities will be crucial to the success of the project delivery and the evaluation. Bidders should state how they aim to maximise opportunities to collaborate and coordinate work with the other contractors, whilst maintaining necessary independence from them. For example, this could include taking opportunities to carry out in-person research with consumers at the point of the home suitability survey and analysing installer recruitment processes to assess different approaches proposed by bidding installers and evaluate how delivery contractors define high quality installation processes.

Information management

Related to the above point of ways of working, the Evaluation Contractor will also need to work closely with the other contractors to ensure that there is effective information management. This will be important to reduce participant burden and ensure the evaluation is accessing and using all the relevant project data and not collecting information that is already known (e.g. asking installers what types of heat pumps they have installed when this should have been logged at the time of installation). The Evaluator should also work closely with the Management and Delivery Contractors to ensure that information necessary and useful to the evaluation is collected at key points, and that the appropriate GDPR compliant data sharing

permissions are gained. Some examples are listed below, but bidders should suggest additional sources of useful administration data that the evaluation could make use of:

- Type of heat pump installed.
- Other work completed on the house (either by the occupant or otherwise) such as changing radiators, valves etc.
- Changes to the house or garden needed for installation
- What system optimisation occurred and why

Bidders should also consider using external sources of administration data. For example, some of the information detailed above may be logged by and available from the Microgeneration Certification Scheme (MCS) database. Bidders should consider how other external sources of data may be used in the evaluation.

Data linking and data sharing

Given that there are separate strands of data collection from different stakeholders and across the different Contractors, it will be important that the Evaluation Contractor has access to and is able to link the data from the recruiter, home suitability survey and installation and system optimisation records. Therefore, it will be important that the key individuals involved in this process keep detailed records of this information and to ensure linking is possible.

All project data held by the Management Contractor will be held in a web-based database, with data validation & checking via a workflow system. There will be authentication-based access, data encryption in transit and at rest and it will be cross-browser compatible. Bidders should outline their information risk management processes to assure us of their competency.

It will also be essential that participants are informed that their data will be linked across the different stages of the project and potentially to other datasets, if necessary.

We have suggested that RHI evaluation data could be used in this evaluation. Bidders can assume that they will be able to have anonymised data from the RHI evaluation survey that can inform this evaluation.

The successful tenderer must comply with the General Data Protection Regulation 2016 (GDPR) and any information collected, processed and transferred on behalf of the Department, and in particular personal information, must be held and transferred securely. Contractors must provide assurances of compliance with the GDPR and set out in their proposals details of the practices and systems they have in place for handling data securely including transmission between the field and head office and then to the Department. Contractors will have responsibility for ensuring that they and any subcontractor who processes or handles information on behalf of the Department is conducted securely. The sorts of issues which must be addressed satisfactorily and described in contractors' submissions include:

- procedures for storing both physical and system data;
- data back-up procedures;
- procedures for the destruction of physical and system data;
- how data is protected;
- data encryption software used;
- use of laptops and electronic removable media;
- details of person/s responsible for data security;
- policies for unauthorised staff access or misuse of confidential/personal data;
- policies for staff awareness and training of DPA;
- physical security of premises.
- how research respondents will be made aware of all potential uses of their data

Furthermore, due to there being multiple contractors working together to obtain, process, and anaylse data, the evaluation contractor may be expected to enter into a number of data sharing agreements.

4. Deliverables

The following outputs are required within the evaluation, irrespective of whether the proposed methodologies are used or whether alternatives are proposed. Alternative reporting approaches or timing may be proposed so long as they exceed the needs below and the reason for not using the below suggestions is fully explained.

Evaluation plan
Following project setup and initiation, an evaluation plan is required that sets out the agreed methodologies and timelines for the evaluation. This should include finalised evaluation questions. The plan should include an index of the all the possible data sources that are desirable for the evaluation and details of how data will be obtained or collected, including how the Evaluator will work with other contractors to arrange this.
The report is expected in January 2020, to support fieldwork to begin in Q2 2020.

Theory of Change
Once developed, a Theory of Change should be presented in a publishable standard, together with necessary accompanying notes. This will need to be refreshed at key points throughout the project.

Findings reports
The evaluation is required to provide a series of findings reports throughout the evaluation contract. These are requested to support the development of the project as it progresses.
It is assumed that the all reports below will be published apart from the Project Learning reports, this is to ensure a transparent evidence base is available to support ongoing policy making decisions. Reports to be delivered:

- 3-4 process evaluation reports on lessons learnt should be generated to inform developing policy but also to improve the demonstration project. These should contain actionable suggestions initially to improve the delivery of the project, and later on dissemination of the project's findings and outputs. Bidders should propose timings for these reports to maximise their impact within the project.
- Interim impact evaluation report of roughly 40 pages in length, to be delivered roughly halfway through the trial monitoring period, during Q1 2021.
- Final impact evaluation report of roughly 70 pages in length, to be delivered at the end of the evaluation project in March 2022
- Final project report covering lessons learned from the project and key findings. To include an assessment of how different consumer groups could be better targeted and a qualitative assessment of the building blocks that lead to high consumer satisfaction. This report should also contain the final cost benefit analysis for the project as a whole.

~15 Case studies
These case studies should demonstrate where heat pumps can work successfully and where they have not worked successfully, including feedback from installers and consumers. These should form an accessible standalone report that can be disseminated widely to a range of stakeholders.

Publishable datasets
All quantitative data collected within this evaluation, for example through surveys, should be made available to BEIS in both anonymised and non-anonymised formats. This is to support additional internal analysis as well as external publication of the data.

Bids should specify the data that will be shared and the processes in place to sufficiently anonymise the data for external publication.

Presentations
The research team should also provide face to face presentations for

- The Initial Theory of Change
- The Process Evaluation reports, together with updates on the Theory of Change
- The interim and final findings reports, together with updates on the Theory of Change

Quality assurance and peer review:
All work completed for this research must be subject to appropriate quality assurance. Project milestones, research approach, outputs, quality assurance should be agreed by BEIS and the contractor at the start of the contract. Final outputs will be reviewed by BEIS before the project is signed off.

Sign-off for the quality assurance must be done by someone of sufficient seniority within the contractor organisation to be able take responsibility for the work done. BEIS reserves the right to refuse to sign off outputs which do not meet the required standard specified in this Invitation to Quote. The contractor must state how all work on the project will be quality assured within the proposal.

All analysis carried out as part of the project should be subject to quality assurance consistent with the Aqua Book[22] guidance.

BEIS may wish to appoint an external peer reviewer for the project. If we do this then we will endeavour (though cannot guarantee) to align timings of this of this with the first or second set of comments from BEIS on the first or second draft of the report.

Publication:
The final report for this research / evaluation project must be formatted according to BEIS publication guidelines, therefore within the Research paper series template and adhering to BEIS accessibility requirements for all publications on GOV.UK. The publication template will be provided by the project manager. Please ensure you note the following in terms of accessibility:

Checklist for Word accessibility
Word documents supplied to BEIS will be assessed for accessibility upon receipt. Documents which do not meet one or more of the following checkpoints will be returned to you for re-working at your own cost:

1. document reads logically when reflowed or rendered by text-to-speech software
2. language is set to English (in File > Properties > Advanced)
3. structural elements of document are properly tagged (headings, titles, lists etc.)
4. all images/figures have either alternative text or an appropriate caption
5. tables are correctly tagged to represent the table structure
6. text is left aligned, not justified
7. document avoids excessive use of capitalised, underlined or italicised text
8. hyperlinks are spelt out (e.g. in a footnote or endnote)
9. Please see Appendix C for BEIS Social Research Report Writing Guidelines.

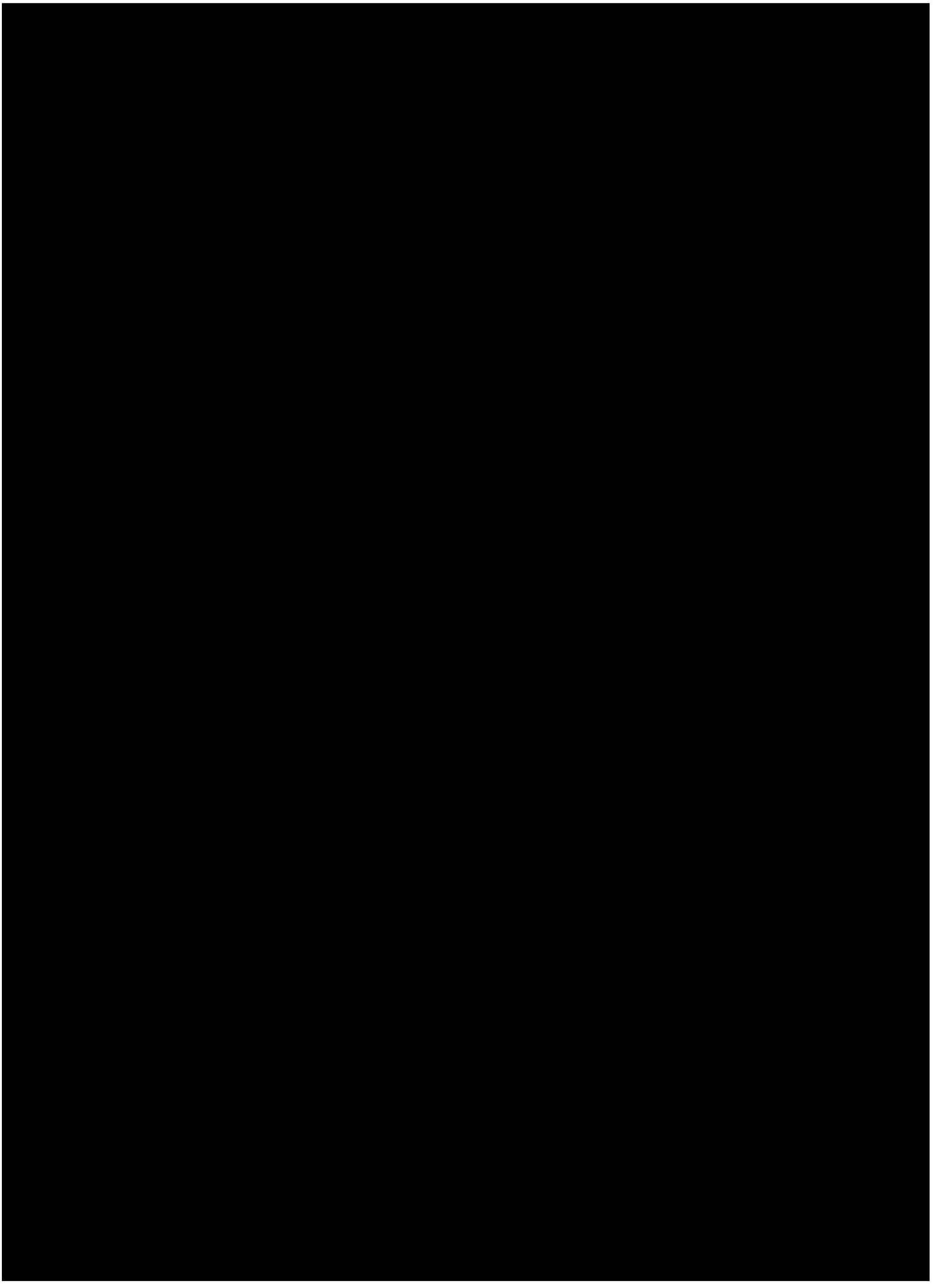
The initial term of the contract is expected to run from 14th February 2020 until 31st March 2022, unless terminated or extended by the Department in accordance with the terms of the contract. There is a possibility that the contract could be extended for up to a further 24 months in order to continue monitoring of properties. The possibility of extension will be at the discretion of BEIS and will depend on BEIS budgetary and approval processes

Terms and Conditions

[22] See: https://www.gov.uk/government/publications/the-aqua-book-guidance-on-producing-quality-analysis-for-government

Bidders are to note that any requested modifications to the Contracting Authority Terms and Conditions on the grounds of statutory and legal matters only, shall be raised as a formal clarification during the permitted clarification period.

ANNEX B



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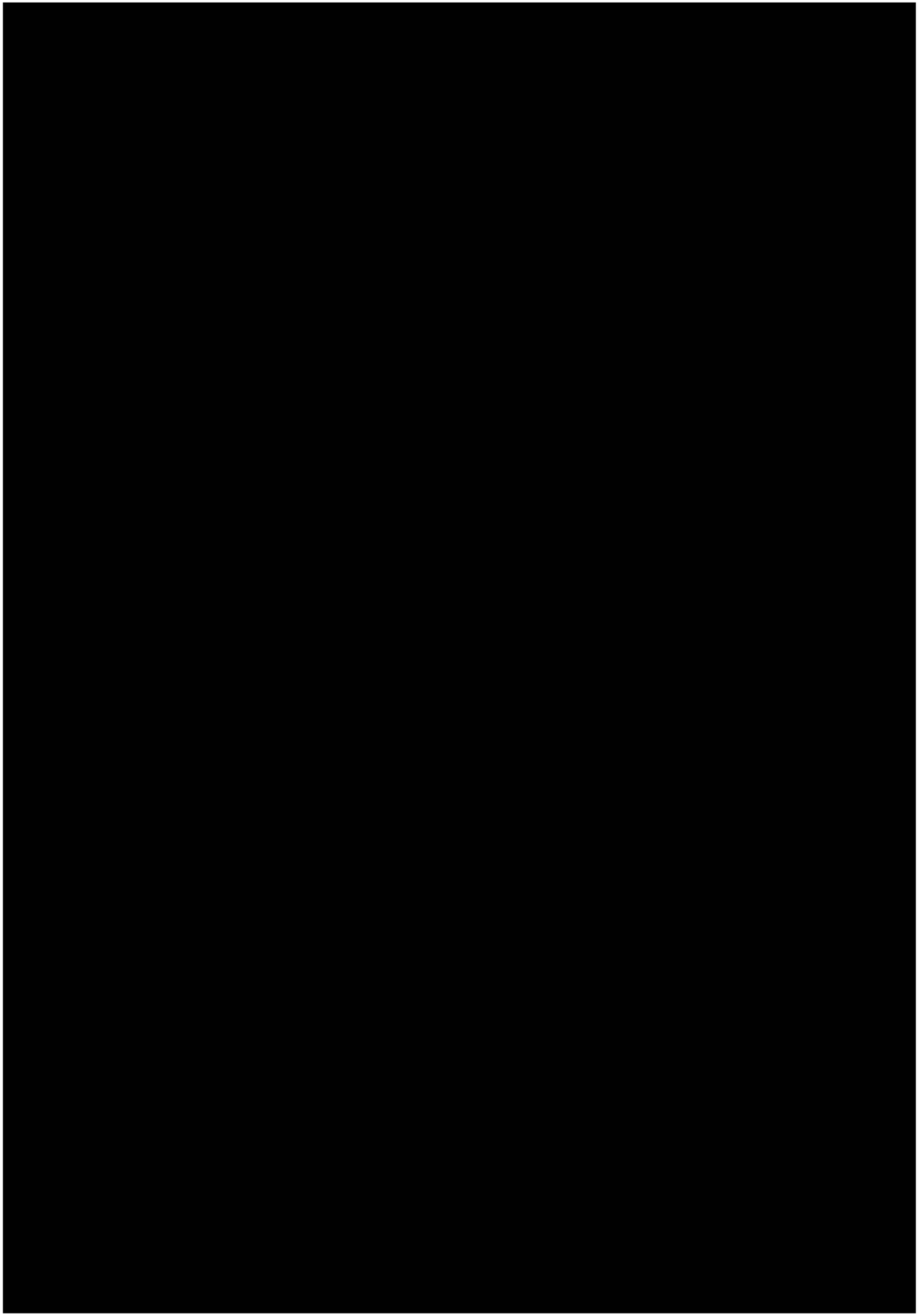

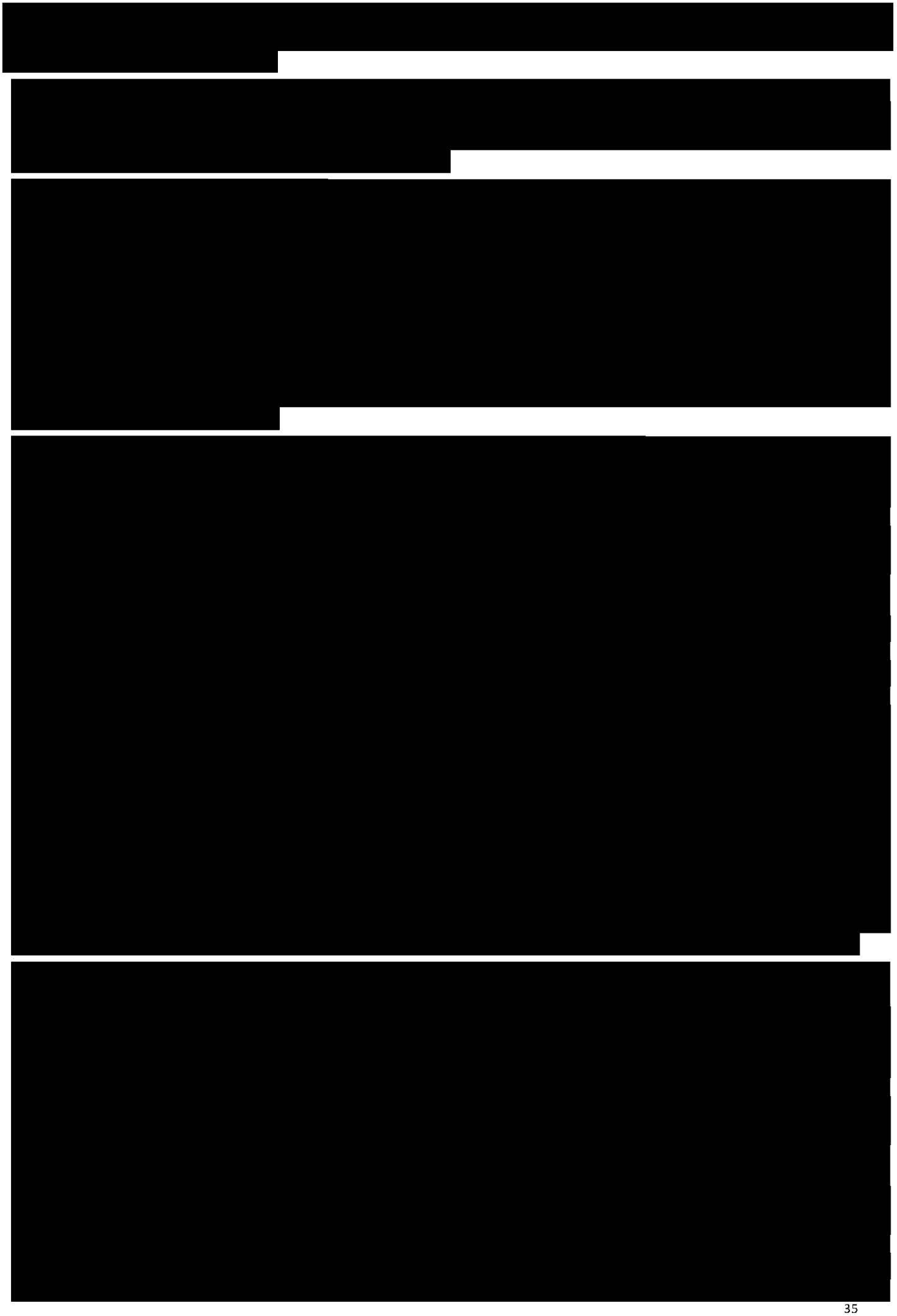

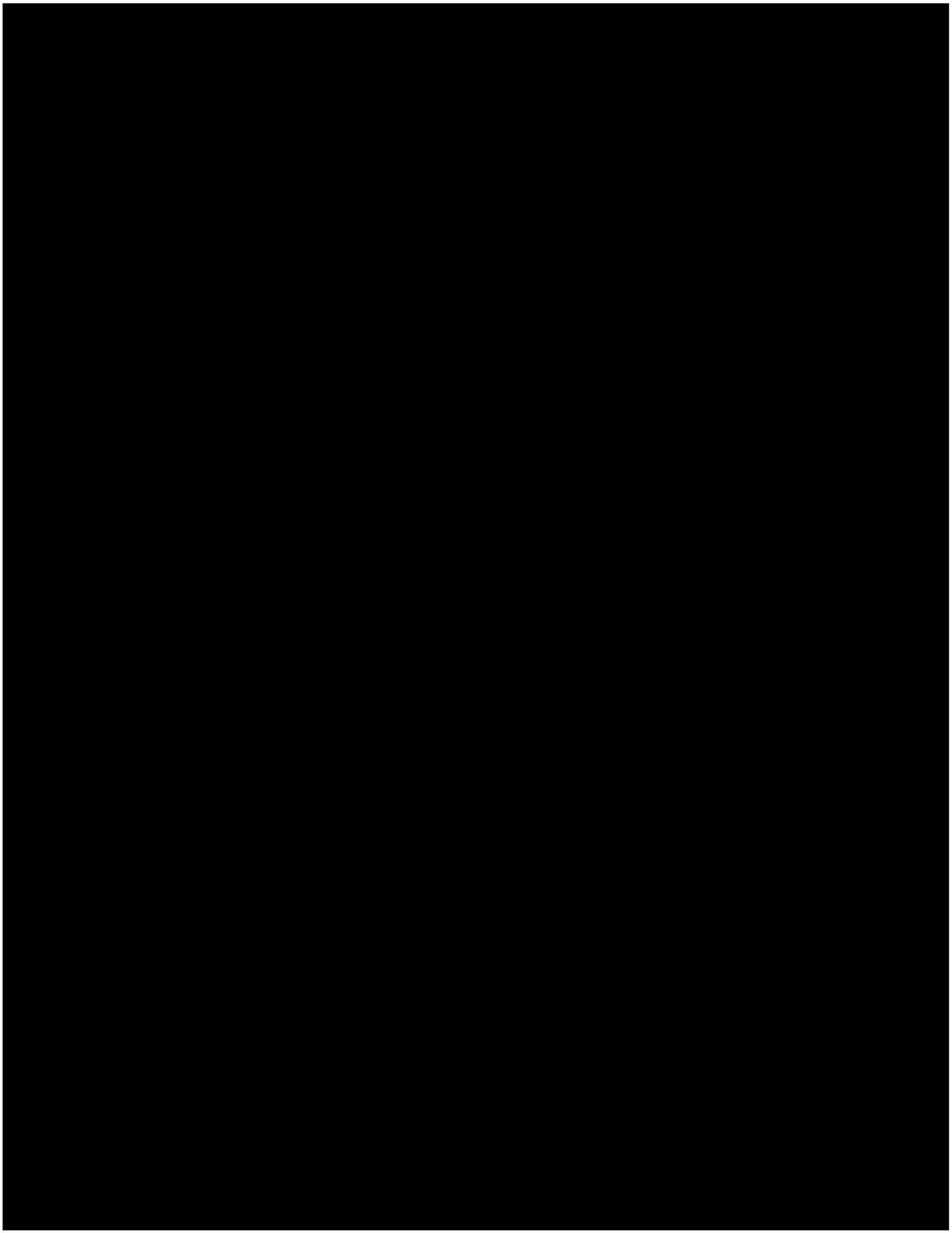

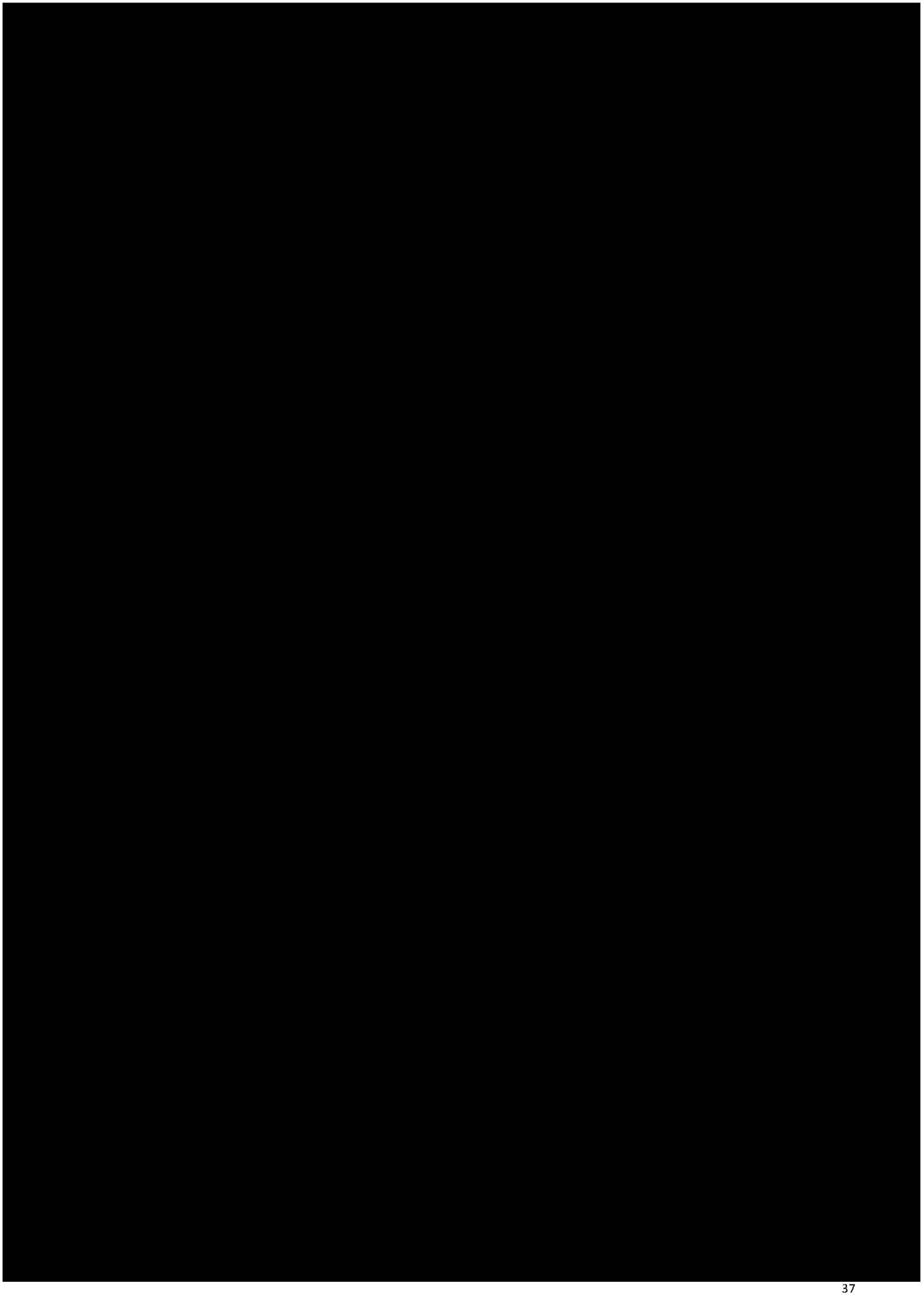

Part 2: Contract Terms

Contract Terms v6.0