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| Proposal for an appraisal of options for an innovation intervention in industrial decarbonisation including industrial carbon capture and storageDepartment of Energy and Climate Change |
| **Customer Reference:** TRN 1105/11/2015**Date of issue:** 2015-12-16**Date of last revision:** 2015-12-16 |

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About this document

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| for DNV KEMA Ltd |
| Prepared by: |  | Approved by: |
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# Introduction

DNV GL, as prime contractor on the Energy Technical Specialists Framework (Lots 15 and 21), and its subcontract partners Carbon Limiting Technologies (CLT) and WSP | Parsons Brinckerhoff are pleased to submit this proposal to the Department of Energy and Climate Change (DECC) in response to its Invitation to Tender (ITT) for an appraisal of options for an innovation intervention in industrial decarbonisation including industrial carbon capture and storage.

Based on our understanding of the study objectives, we have assembled a uniquely qualified team with the skills and expertise required to delivery this project. The following key points reflect our team’s experience and approach:

* DNV GL and WSP | Parsons Brinckerhoff experience and understanding of industrial decarbonisation from co-managing the DECC/BIS Industrial Decarbonisation and Energy Efficiency 2050 Roadmap project
* CLT’s 10 years’ experience of low-carbon innovation, management of multi-year innovation support programmes, including DECC’s Energy Entrepreneurs Fund, and support to over 200 innovators
* New, low-carbon technology solutions for energy intensive industries will have to be adopted by established suppliers and end-users. Asset replacement timeframes are typically long and therefore technology innovators need to pre-sell their solutions into established industry players to ensure they are targeting specific needs and adoption challenges.
* A Technology Challenge competitions can be issued if consultation with industry and innovators has identified the key barriers to performance or adoption. Barriers may include: environmental, core technology, engineering solutions, systems integration, operational changes or costs.
* A key benefit of a Directed Challenge is that it can allow selection of the “best" combinations of companies rather than selecting from just the best grant applicants. Challenges can also be tailored to reduce adoption risk, for example by requiring that projects include partners from along the supply chain and end-users.  Funding mechanisms can then also be matched to fit the type of challenge e.g. grants for R&D or equity funds for an onsite demonstrator project.
* In principle, government could set up a £25-50m equity fund to invest its funds in a small portfolio of project vehicles (SPVs) set up to develop first-of-a-kind (FOAK) demonstrators of specific Challenges to adoption of ICCS and other other low-carbon technologies. Co-investment could be from project partners providing the match in terms of seconded resources and facilities , and/or cash.

Our budget for conducting this research is estimated at £78,990 (ex VAT and expenses) and represents a level of effort that is consistent with DECC’s requirements, and offers considerable value-for-money (VFM) in that we have the ability to leverage DECC’s recent, relevant work in the of decarbonisation roadmaps and innovation. In addition, our overall approach, team structure, and budgeting assumptions provides DECC with flexibility to respond to developing requirements and emerging priorities.

# Technical Approach

## Methodological approach and consistency with stated objectives

The main objectives for this project, as set out in the tender – together with the section in which our methodology addresses each objective, are as follows:

1. Design the selection and eligibility criteria for deciding which industrial decarbonisation technologies (and projects) should be prioritised (section 2.1.4); and then
2. Create a prioritised list of technologies, identify the main challenges to be overcome and types of project needed to move technical and/or commercial readiness forward (section 2.1.2); and
3. Review and design options for the structure of the innovation interventions that DECC can use to encourage industry to address the gaps and challenges, and remove barriers to adopting the prioritised technologies (section 2.1.3)
4. Identify alternative or complimentary funding sources (section 2.1.3)
5. Identification and assessment of potential bidders (section 2.1.5)
6. Determine the main factors for success of the industrial decarbonisation innovation programme (Section 2.1.5)
7. Canvas views of a range of stakeholders on the above points (section 2.1.5).

We note that criteria could include such factors as: TRL, time-to-market, scalability, complexity, emissions impacts (within specific sectors) and time-to-impact (noting the findings of the pathways), quality of technology development team / attitude of IP owner, cost per tonne-abated, breadth of market application, UK capability and expertise, current investor interest, feasible no-regrets pilot sites, cost of interventions and value-for-money.

We also note that appropriate innovation interventions will depend on the type and stage of the priority technologies. For example, if a priority technology is relatively well-developed but the barrier/challenge to adoption is integration complexity and cost, then the intervention may be to encourage pilot projects that develop simplified integration. Alternatively if consultation with industry suggests that a particular technology will never get support until its core efficiency or lifetime reaches a particular benchmark, the focus for intervention may be on core technology development.

### Proposed technical approach

The overall approach will follow a clear strategic choice process, which is analysis, option development, choice and implementation. This will ensure that robust intervention options are produced within the required timescales. We will incorporate elements of new *product (or service) development (NPD)*, which ensures that there is interaction throughout the process between market-based insights (from stakeholders, potential beneficiaries and funders) and the form of the intervention. This process will deliver more innovative intervention design (compared to a reductionist approach where evidence is selectively sought for pre-conceived interventions). The project technical approach will consist of the stages in the flow chart opposite. These steps are not a once-through, serial process. There will be feedback in particular between steps 2, 3 and 4, as well as between steps 5 and 6. Overall project management will ensure that the above steps are co-ordinated and are delivered to the project deadlines and budget.

The table in section 2.1.7 sets out how the research methodology will answer the key research questions in the tender.

The study will combine desk-based research, telephone interviews, surveys and stakeholder roundtables, as well as the team’s own considerable knowledge of industrial decarbonisation and innovation-focussed interventions.

### Project initiation

The project will commence with a project inception meeting (at DECC offices). An agenda and attendee list will be agreed with DECC in advance of the meeting but is expected to cover the following:

* Review the project approach, scope and objectives, as well as receive any updates
* Agree dates for project review meeting and milestones, as well as reporting formats
* Ensure the project team is aware of all relevant documentation
* Agree an initial list of interviewees (to ensure that key contacts can be made early and thereby meet the project timeline).

The project initiation meeting will be attended by subject experts from the project team with direct experience of:

* The relevant industrial sectors and technologies
* Industrial decarbonisation, including the previous studies
* Innovation interventions

A key outcome of this project initiation stage will be a clear understanding of the objectives of the study by all parties, including the detailed nature of the output from the study. Clarity over the study output will ensure that DECC has the insights and documents that it needs to highlight the likely future policy direction and innovation intervention(s) design and structure, as well as the contents of an evidence base to support both the intervention choice and design. This could also be used to support Phase 2 of the Industrial Roadmaps Project.

The project team is flexible on the involvement of external stakeholders in the project initiation meeting. Our recommendation however is that the above meeting is first held between DECC and the project team at which the timing, location and attendee list can be agreed for a wider project initiation meeting involving external stakeholders.

The **deliverables** from this stage are:

* 1. Project initiation meeting at DECC offices attended by DECC and the project team
	2. Project initiation meeting with external stakeholders
	3. Write-up of agreed actions from project initiation meeting(s)
	4. An agreed project plan (including meeting schedule).

### Existing evidence analysis – technology & sector studies

The review of the existing evidence base will focus on two areas: the technology & sectors and the interventions. This stage will focus on reviewing the evidence base relating to the priority industrial decarbonisation technologies (including ICCS) and the related needs of the main industrial sectors to which they can be applied (as described in the industrial decarbonisation and energy efficiency 2050 roadmaps). The next section (delivered in parallel) focuses on the various interventions that have been used across a range of challenges, including an analysis of the needs of financiers. Our team will be able to start this task with extensive knowledge of the Phase 1 Roadmaps project and the EEF project. In addition, the project will build on the considerable amount of research we have been involved in coupled with work undertaken by DECC and other organisations into industrial decarbonisation. This will be achieved through:

* An appraisal of the existing reports relating to the priority industrial decarbonisation technologies (including ICCS) as set out in the tender, as well as any more recent reports or specific reports that deal with particular gaps in the tender reports list.
* Working closely with the DECC team to ensure all the key studies and stakeholders are included
* Inclusion of experts in the project team that have been directly involved in several of the key studies
* Interviewing authors of the key research where additional information or clarity is required (examples of the organisations that may be contacted are listed in the table in section 2.1.5)

The appraisal of the existing evidence base will seek to both analyse the body of evidence developed by DECC and other UK organisations, and also seek out any significant research undertaken outside of the UK (for example in Norway on industrial decarbonisation and industrial CCS).

The analysis of the existing evidence will seek to develop a number of insights relating to:

* The nature of the decarbonisation **challenge** and barriers, how these differ by sector and how they may evolve (with and without support), as well as potential impacts if challenges are overcome (e.g. reduced costs and risks, increased energy efficiency and carbon reduction, increase energy security).
* The characteristics of the potential **solutions** (e.g. ICCS, electricity grid decarbonisation, biomass, energy efficiency and heat recovery, electrification of heat, material efficiency and fuel switching), including the current deployment levels of priority technologies.
* The characteristics of the potential solution **providers** e.g. micro/SME or corporate, supply chain position and sector focus.
* **Names** of companies (in the UK and elsewhere) that may benefit from interventions, as well as key stakeholders (both of which would be potential interviewees for later stage research).

Contact will be made with report authors or organisations to answers queries relating to reports and also gain updates for older reports or information about unpublished material (such as the upcoming TINAs on Industrial Decarbonisation and ICCS). Organisations not listed in the tender but active will also be researched (for reports and/or input) in order to identify and fill any gaps e.g. UKCCSRC, SCCS, CCSA, EPSRC/RCUK Energy Programme, IEA, Committee on Climate Change, Teesside Collective, UNIDO, CSSA and the industrial trade associations. ). Some technology companies have also produced reports by working with corporate R&D centres and these reports will (where available) be analysed and/or their authors contacted.

The **deliverables** from this stage are:

2.1 A documented summary of all the reports listed in the tender and contact made with authoring organisations

2.2 A summary of other reports (where appropriate) not listed in the tender from organisations such as IEA, Committee on Climate Change and CSSA

2.3 Answers to 4.3 (i) to (iv) and initial answers (to be added to by later stages) to questions (v) to (vii)

2.4 Identification of potential interviews and intervention recipients (answering question 4.5 (i)

### Existing evidence analysis – alternative intervention and funding structures

The focus of this section is to identify and analyse the range of potential innovation intervention options. These could include a range of technology choices but also collaborative R&D, feasibility studies, pre-FEED studies and pilot/demonstration technologies.

This analysis will seek to segment schemes by type and delineate their strengths and weakness, as well as their applicability to different innovation barriers, resource requirements and likely outputs/impacts. The previous section will generate some information on interventions applied, or recommended to be applied, to support industrial decarbonisation (including ICCS). This section will in addition examine interventions that have been successfully used to support innovation in other sectors. Such schemes will include those already used by DECC and other UK funders, such as EU funded projects, EEF (grants & incubation), Innovate UK (grants), Manufacturing Advisory Service (advice), EU streams such as NER 300/400, Horizon 2020, any new funds following COP21, foundations, corporate technology companies, and corporate R&D.

This section will also analyse investors and investor-based interventions that have, or could, support industrial decarbonisation, as well as their likely appetite for risk and technology/sectoral-focus. This review will encompass:

* Corporate-based funding e.g. balance sheet to corporate venturing
* Financial investors e.g. project and equity funding
* Public sector funds (UK, EU and international funds applicable to UK-based activity)
* Mixed investor e.g. corporate funds, public-private funds, private incubators.

Intervention information will be sourced via both desk-based research, from extensive team member experience and telephone interviews. Further detailed information will be gathered on the selected intervention(s) in the latter stages of the process.

The **deliverables** from this stage are:

3.1 Systematic analysis and segmentation of intervention scenarios/options that could be used to support industrial decarbonisation – determination of pros/cons and applicability to differing innovation needs – including interventions set out in sector-based reports (analysed in previous section) and used in other sectors/countries (not all interventions but one or two specific schemes of each type).

3.2 Systematic analysis and segmentation of complementary funding sources available for innovation in industrial decarbonisation including ICCS.

### Intervention option development & selection

In this work stage, the project team will draw together the findings of the previous sections into a format that enables the project team, DECC and other stakeholders to both understand clearly the industrial decarbonisation innovation challenges and the characteristics of potential intervention schemes. This will enable the selection of the preferred intervention(s) for further investigation and development.

Intervention characteristics will be summarised against a consistent set of criteria e.g. resource requirements, private-sector leverage potential and delivery timescale. A model will also be developed to allow a consistent comparison of scheme inputs, outputs and impacts, as well as modelling intervention combinations under different funding levels. Inputs to the model could include, for example, number of companies supported, intervention rate, total project cost, whilst outputs/impacts could include total costs and companies supported. (This model will be extended further for the selected intervention(s) in the final stage of the project – see section 2.1.6).

The project team will then review the findings to date and options with the DECC team. The feedback from this meeting will be used as preparation for stakeholder roundtables. The project team plans to hold roundtable meetings with key stakeholders at which the evidence will be examined, further insight obtained of the innovation challenges the technologies/sectors face (in terms of industrial decarbonisation) and feedback taken on the potential innovation intervention options. The project team is flexible on the timing and attendees at these roundtables but we recommend two roundtables – one in London and one in the North of England (e.g. Manchester or Leeds).). The stakeholders invited to the roundtables would include technology providers, industry representatives, supply chain partners, academics, public sector bodies and sector organisations.

The insights and feedback from the roundtables will be documented and reviewed with DECC. The project team will work with DECC to select the preferred intervention scenarios/options (from the output in 3.1 above) for further development.

The **deliverables** from this stage are:

4.1 A presentation of the key findings to date, industrial decarbonisation innovation challenges and intervention segmentation and characterisation

4.2 Facilitation of two roundtables external stakeholders to gain further insights to the sectors’ challenges and gain feedback on the preferred intervention options under low (£10m) and high (£50m) funding scenarios (addressing question 4.4 in the ITT)

4.3 Two meetings with DECC (before and after the stakeholder roundtables) to develop and then agree the preferred intervention(s).

4.4 Write-up of meeting and roundtable findings.

### Intervention market testing & stakeholder review

In this work stage the project team will gather detailed information relating to the preferred intervention(s) selected in the previous stage. This and next section, covering detailed intervention design, will include some iteration to ensure feedback between intervention design and market/stakeholder feedback.

Before starting the detailed research the information required will be agreed with DECC. This research will answer the research questions set out in the tender and build on the valuable information gathered from the roundtables in the previous section. Indeed, the attendees will form a core part of the quantitative research that will be conducted in this section.

A survey will be conducted amongst potential intervention recipients and stakeholders to garner both answers to research questions and scoring on the preferred intervention(s) design dimensions. The questionnaire will be designed by the project team and passed to DECC for comment before dispatch. The survey will be sent out electronically where possible or administered by phone where no email address is available (or requested at the roundtable events). The industrial trade associations will be used as a source of feedback and for the distribution of surveys.

The target recipients for any intervention will determine the survey target population. This population will then be segmented and representative target samples numbers confirmed for each sub-population (e.g. company size, sector and geography). The use of DECC, the project team and the industrial trade associations brands, as well as the potential to help determine how funding may be spent, will encourage survey recipients to responds. The survey will also be designed to be easy to answer in under 20 minutes. Response rates cannot however be guaranteed. As a back-up, interviews with sector organisations will be used to gather proxy data. The number of interviews will be confirmed at the inception meeting, however, this will be subject to change depending on how the project progresses.

Survey recipients will be identified from the project team’s network, DECC’s network, existing reports, industry organisations and research, as well as the roundtables. It is planned that roundtable attendees will be handed the surveys at the workshop and asked, if possible, to complete them on the day. Examples of potential survey recipients, interviewees and attendees at the roundtable are listed in the tables below.

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It should be noted that our team will be able to quickly establish contact with a targeted group of stakeholders. For larger organisations, care is needed to make contact with the research / innovation decision makers who may be based overseas in senior R&D positions. See also Section 3.2 on Ability /Capability to establish contacts with industry.

The **deliverables** from this stage are:

5.1 Agreed research questions and intervention details

5.2 Agreed survey questionnaire and recipient list

5.3 Administration of a survey to agreed recipients (up to 50) follow up telephone interviews (if necessary)

5.4 Statistical analysis of survey responses

5.5 Answers provided to each of the research questions listed in the tender.

### Detailed intervention design & reporting

A final report will be produced that will document the research methodology, findings, analysis, options, selection and detailed intervention design, as well as next steps. This report will include:

* A summary of the priority industrial decarbonisation technologies and A review of the potential industrial decarbonisation innovation interventions
* A summary of stakeholder interviews
* The detailed design of the selected intervention(s), including selection criteria, resource inputs, outputs and impacts (captured in a model to enable modelling of funding scenarios).
* The funding sources available for industrial decarbonisation innovation
* The success factors for industrial decarbonisation innovation interventions
* Anonymised raw data and summary
* Potential bidders for any innovation support.

The table in section 2.1.7 sets out how the study will answer each of the research questions set out in the tender. The rows set out all of the ITT requirements, questions, and deliverables. These have been categorised against 6 proposed stages of the project, showing at what stage they will be addressed. The 6 stages will take from January – March 2015. An allocation of time and individuals needed for each area/question/ stage has been compiled separately.

These finding, insights and recommendations will be set out in the final report.

The **deliverables** from this stage are:

6.1 A draft final report will submitted for review by DECC and then any comments will be incorporated into a final report. This report will document the research methodology, findings, analysis, options, selection and detailed intervention design, as well as next steps

6.2 Attendance by the project team at a project closeout meeting (at DECC offices) to answers any questions and comments on the report

### DNV GL Approach compared to DECC Requirements

**REDACTED**

### Project plan/schedule

The following project plan shows the delivery of the project that meets the timescales set out in the tender. The project plan includes the following key milestones:

* A project inception meeting in the week beginning 11th January 2016
* Regular Project Team – DECC meetings: weekly progress emails, bi-weekly telephone updates and face-to-face meetings to review key findings
* Roundtable meetings with stakeholders by the end January/beginning of February 2016
* Draft report submitted for review by DECC and key stakeholders by the end February 2016
* A final report and presentation submitted by 31st March 2016.

The timescales are met through the use of an experienced team with existing knowledge of both the industrial decarbonisation and industrial CCS sectors, familiarity with the key existing reports, first-hand experience of a wide range of innovation interventions and considerable experience of working with DECC. In addition, the team will work in parallel on several tasks, to ensure timescales are met, with co-ordination via robust project management.

**REDACTED**

The project risks and intended management of these risks to the delivery of the project are set out in Appendix D.

## Quality assurance approach

A considerable amount of information will be made available, in the course of the assignment, via various research activities, review of existing reports, qualitative interviews with stakeholders and report authors as well as a quantitative survey with potential intervention recipients and stakeholders. It is, therefore important that the correct levels of quality are attained.

In many projects DNV GL has performed the role of independent third party, independent third party inspector, as well as project manager, specialist, consultant and testing agent. Irrespective of the role, DNV GL strives to deliver high quality services and is an ISO 9001 certified company. All documents and deliverables will have an internal quality assurance check before submission to DECC and REDACTED will provide this quality assurance overview for this project acting as the Chief technologist contact for the purposes of this assignment. Part of her role will be to manage the consortium partners, which will ensure a multi-disciplined approach to exploring innovative ideas, providing feedback and sense-checking progress as well as ensuring control of the quality of the reports submitted for each specified task.

The thorough research process designed and proposed for this assignment will cover qualitative and quantitative analysis techniques, which will need to ensure a credible and impartial outcome. This requires flexibility and coordination, which we consider is given through our key appointments and the governance structure of our proposed team, described in the Project Management Approach section below. We have assigned REDACTED as the primary data collection lead. REDACTED has a wide range of experience managing the collection and analysis of information from commercial and other organisations including situations with limited sets of data where using best available evidence have been key.

While we feel the level of effort for data collection described in the previous paragraphs is appropriate given the likely gaps in the existing data sources, we will revisit this plan during the project initiation phase to ensure we have matched the appropriate method and source of data with emerging information needs.

Specific to the qualitative interviews with stakeholders and authors as well as the quantitative survey with innovative companies, funders, etc., obtaining participation from all sample groups is essential to reduce the risk that respondents differ from the sample as a whole (response bias). There are two key elements to this. First, good sample management is needed to ensure all potential respondents are given an equal opportunity to take part in the research effort. And second, good recruitment and interviewing practices will be followed to ensure the right person in the organisation is selected for interview, including providing advance warning of the interview and highlighting the value of their contribution. The purpose of the interview will be explained in a clear and compelling way, we will use senior interviewers with excellent communication skills, and we will arrange interviews at convenient times and our research team will be flexible as changes are needed. We will aim to achieve responses rates of over 50% with similar respondent groups, which should be sufficient to ensure there is no or limited bias.

# Experience of Project Team

The project team organogram is show below (REDACTED). The project will be led by REDACTED and managed on a day-to-day basis by REDACTED. REDACTED and REDACTED will deliver the majority of the tasks relating to the analysis of the existing evidence on technologies and sectors with the support of REDACTED, whilst REDACTED, REDACTED and REDACTED will undertake the intervention research and analysis. The whole team will contribute to interviews, stakeholder roundtables and report preparation.

The following table highlights the skills and expertise of our core project team members. We believe we have assembled a uniquely qualified leadership team that, when supported by the full range of experts from within our respective firms, demonstrates to DECC that we possess the breadth and depth needed to succeed in carrying out this research.

Mapping of Required Skills to Core Team Members’ Areas of Expertise (REDACTED)

## Technical capability of team

### DNV GL

DNV GL has developed a strong reputation as a prime contractor that is highly capable of managing large-scale, multi-faceted contracts with multiple subcontractors. DNV GL is currently and has recently managed several large-scale contracts for both governmental bodies (DECC, Ofgem) and private organisations (Utilities, investors, generators) in the energy sector. We have in place well-developed contract management procedures and tools to efficiently support this project in a cost-effective manner. Thus, there will be cost efficiency from the very start of the contract through lower start-up costs and well-established contract management and work authorization procedures.

In addition, as prime contractor, DNV GL will manage and coordinate the subcontractor’s activities, and we will provide quality assurance such that all subcontractor deliverables meet the requirements of the study plan and that the products meet our standards of excellence. We will also manage the allocation of work to the subcontractor to ensure that the needs of the project are met in the most appropriate and cost-effective manner.

DNV GL also has considerable experience in conducting market assessments either as part of or in support of our more traditional process and impact evaluation projects. These market assessments have included baseline studies, qualitative and quantitative research and attribution analyses. DNV GL will lead the data collection tasks, with an analysis framework based on robust primary and secondary research.

As a contractor for Phase 1 Industrial Decarbonisation and Energy Efficiency Roadmaps, DNV GL has an extensive background in the technologies and pathways and also the barriers and enablers assessed within the roadmaps.

### WSP | Parsons Brinckerhoff

WSP | Parsons Brinckerhoff provides technical assistance and project development services for power and industrial projects for industry, investors, lenders, multi-national developers, public utilities, national governments and EU. This includes power generation, transmission and distribution, energy storage assessment, carbon capture and storage and industrial energy efficiency.

As lead contractor for the Phase 1 Industrial Decarbonisation and Energy Efficiency Roadmaps, the company has an extensive background in the technologies and pathways and also the barriers and enablers assessed within the roadmaps.

The company also has a wealth of experience of innovation projects:

* supporting innovators (for example within the DECC Energy Entrepreneurs Fund project)
* undertaking engineering feasibility assessments for a very wide range of technologies including novel carbon capture technology
* through owning patents: REDACTED

### CLT

CLT are well placed to design Directed Technology Challenges. We have very relevant prior experience for designing, setting-up, and managing innovation interventions in low-carbon technology. This includes designing and running grant application competitions, designing directed research challenges undertaking sector specific landscape studies of the UK innovation community and activity, running sector workshops and facilitating companies (corporate and SME) to scope sole or collaborative project proposals, design and managing project appraisal processes at EoI and full proposal stages, liaising with project proposers to review strengths and gaps and shape RD-D projects so they are suitable for government funding, and monitoring projects in progress. Specifically CLT designed, managed, and delivered the following multi-year low-carbon innovation programmes: REDACTED

Further details are given in Appendix B, including an assessment of the strengths and weaknesses of various intervention schemes by type.

**Experience assessing Low-carbon innovation projects** REDACTED

**Expertise Innovative Financing** REDACTED

## Ability/capability to establish contacts with industry REDACTED

# Pricing schedules

DNV GL is pleased to submit a fixed price quote of £78,990 (excluding VAT and expenses). Expenses will be charge in addition and at cost. If DECC would like to fix expenses, we are willing to fix the expenses at £1,500 (excluding VAT). Expenses will relate to travel to London and a roundtable proposed in the North of England. The additional cost of room hire may be necessary if DECC or the project team cannot provide a suitable room.

The split of project costs by day are shown below and by person in Annex A (all excluding VAT). REDACTED

# Declaration 1: Statement of non-collusion

To: The Department of Energy and Climate Change

1. We recognise that the essence of competitive tendering is that the Department will receive a bona fide competitive tender from all persons tendering. We therefore certify that this is a bona fide tender and that we have not fixed or adjusted the amount of the tender or our rates and prices included therein by or in accordance with any agreement or arrangement with any other person.

2. We also certify that we have not done and undertake not to do at any time before the hour and date specified for the return of this tender any of the following acts:

1. communicate to any person other than the Department the amount or approximate amount of our proposed tender, except where the disclosure, in confidence, of the approximate amount is necessary to obtain any insurance premium quotation required for the preparation of the tender;
2. enter into any agreement or arrangement with any other person that he shall refrain for submitting a tender or as to the amount included in the tender;
3. offer or pay or give or agree to pay or give any sum of money, inducement or valuable consideration directly or indirectly to any person doing or having done or causing or having caused to be done, in relation to any other actual or proposed tender for the contract any act, omission or thing of the kind described above.

3. In this certificate, the word “person” shall include any person, body or association, corporate or unincorporated; and “any agreement or arrangement” includes any such information, formal or informal, whether legally binding or not.

Signature (duly authorised on behalf of the tenderer)

Print name

**DNV KEMA Ltd**

On behalf of (DNV GL)

**16/12/2015**

Date

# Declaration 2: Form of Tender

To: The Department of Energy and Climate Change

1. Having considered the invitation to tender and all accompanying documents

(including without limitation, the terms and conditions of contract and the Specification) we confirm that we are fully satisfied as to our experience and ability to deliver the goods/services in all respects in accordance with the requirements of this invitation to tender.

2. We hereby tender and undertake to provide and complete all the services required to be performed in accordance with the terms and conditions of contract and the Specification for the amount set out in the Pricing Schedule.

3. We agree that any insertion by us of any conditions qualifying this tender or any unauthorised alteration to any of the terms and conditions of contract made by us may result in the rejection of this tender.

4. We agree that this tender shall remain open to be accepted by the Department for 8 weeks from the date below.

5. We understand that if we are a subsidiary (within the meaning of section 1159 of (and schedule 6 to) the Companies Act 2006) if requested by the Department we may be required to secure a Deed of Guarantee in favour of the Department from our holding company or ultimate holding company, as determined by the Department in their discretion.

6. We understand that the Department is not bound to accept the lowest or any tender it may receive.

7. We certify that this is a bona fide tender.

Signature (duly authorised on behalf of the tenderer)

**DNV KEMA Ltd (DNV GL)**

On behalf of (organisation name)

**16/12/2015**

Date

# Declaration 3: Conflict of Interest

I have nothing to declare with respect to any current or potential interest or conflict in relation to this research (or any potential providers who may be subcontracted to deliver this work, their advisers or other related parties). By conflict of interest, I mean, anything which could be reasonably perceived to affect the impartiality of this research, or to indicate a professional or personal interest in the outcomes from this research.

Signed

Name

Position

Please complete this form and return this with your ITT documentation - Nil returns **are** required.

**\*** These may include (but are not restricted to);

* A professional or personal interest in the outcome of this research
* For evaluation projects, a close working, governance, or commercial involvement in the project under evaluation
* Current or past employment with relevant organisations
* Payment (cash or other) received or likely to be received from relevant organisations for goods or services provided (Including consulting or advisory fees)
* Gifts or entertainment received from relevant organisations
* Shareholdings (excluding those within unit trusts, pension funds etc.) in relevant organisations
* Close personal relationship or friendships with individuals employed by or otherwise closely associated with relevant organisations

***All of the above apply both to the individual signing this form and their close family / friends / partners etc.***

If your situation changes during the project in terms of interests or conflicts, you must notify DECC straight away.

A DECLARATION OF INTEREST WILL NOT NECESSARILY MEAN THE INDIVIDUAL OR ORGANISATION CANNOT WORK ON THE PROJECT; BUT IT IS VITAL THAT ANY INTEREST OR CONFLICT IS DECLARED SO IT CAN BE CONSIDERED OPENLY.

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# Appendix A - Price schedule (excluding VAT) - redacted

# Appendix B – Consortium overview - redacted

# Appendix C - Curricula Vitae (CV’s) - Redacted

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# Appendix D - DNV GL Management System - REDACTED

# Appendix E – CLT innovation intervention experience - redacted

About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organisations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.