DPS FRAMEWORK SCHEDULE 4: LETTER OF APPOINTMENT AND CONTRACT TERMS

Part 1: Letter of Appointment

[redacted]

Letter of Appointment

This letter of Appointment dated Friday 16th July 2021, 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:	PS21049 – Global projections of emissions from land use and marginal abatement cost curves – RAF009/2122
From:	Department for Business, Energy & Industrial Strategy (BEIS) of 1 Victoria Street Westminster, London SW1H 0ET ("Customer")
To:	International Institute for Applied Systems Analysis (IIASA), Schlossplatz 1, Laxenburg, Austria, A-2361 ("Supplier")

Effective Date:	Monday 20th September 2021
Expiry Date:	Thursday 31st March 2022

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 Deliverables and Agreed Payment Terms in Annex C

Key Individuals:	[redacted]

Contract Charges (including any applicable discount(s), but excluding VAT):	The customer shall pay the supplier the sum of £119,680.00 excluding VAT for delivery of these services in alignment with Annex D. For the avoidance of doubt, the contract charges shall be inclusive of all third-party costs
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 million indemnity Additional professional indemnity insurance adequate to cover all risks in the performance of the Contract with a minimum limit of indemnity of £1 million for each individual claim. Product liability insurance cover all risks in the provision of Deliverables under the Contract, with a minimum limit of £5 million for each individual claim.
Liability Requirements	**Suppliers limitation of Liability** (Clause 18.2 of the Contract Terms);
Customer billing address for invoicing:	All invoices should be sent to should be sent to: finance@services.uksbs.co.uk or Billingham (UKSBS, Queensway House, West Precinct, Billingham, TS23 2NF).

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

FORMATION OF CONTRACT

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

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

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

For and on behalf of the Supplier: **For and on behalf of the Customer:**

[redacted]

ANNEX A

Customer Project Specification

1. Background

The Department for Business, Energy and Industrial Strategy (BEIS) was created in July 2016, to bring together responsibilities for business, industrial strategy, science, innovation, energy, and climate change. To find out more about our work visit the BEIS website at https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy

One of BEIS's priorities is to drive ambitious action on climate change at home and abroad.

The Global Carbon Finance Model (GLOCAF) is BEIS's in–house model of global decarbonisation scenarios and international carbon markets. It is used to provide a robust evidence base to inform:

(i) UK international climate change policy
(ii) Domestic climate change policy

From an international perspective, outputs from the GLOCAF model are used to inform the UK's positions on the implementation of the Paris Agreement and other aspects of the UNFCCC negotiations processes.

Domestically, GLOCAF outputs are used to inform analysis of measures to meet emissions targets included in domestic legislation, as set out in the carbon budgets orders and in the net zero 2050 target.

GLOCAF currently allows modelling of up to 26 countries/regions (including emissions from international aviation and maritime transport as separate countries). Together, these countries/regions provide global coverage. For example, the Americas are currently split into six countries/regions: Canada, USA, Mexico, Rest of Central America, Brazil, and Rest of South America.

GLOCAF can currently model up to 27 sectors. The aim of this project is to provide an updated dataset of agriculture, forestry and other land use [AFOLU] carbon dioxide and non-carbon dioxide emissions and abatement costs across the regional disaggregation. These will be used as inputs to the GLOCAF model for the AFOLU sector and basket of sub sectors within it such as deforestation, afforestation, e.t.c..

Policy Context to The Requirement

Just under a quarter of global GHG emissions come from AFOLU, also estimated to contribute between 20 and 60% cumulative abatement identified within transformative pathways up to 2030[1]. Forestry, land use and carbon markets (incl. agriculture) programmes have been a key focus of International Climate Finance, and will continue to be in future. The Forestry and Land Use sector is responsible for approximately 56% of the monetary value in voluntary carbon markets in 2019[2].

This year is our biggest year for international climate engagement to date, as the UK will be hosting the 26th Conference of Parties (COP26) to the United Framework Convention on Climate Change in November. There is particular emphasis on ambition and the evidence base to support an assessment of where emissions reductions can come from,

[1] IPCC AR5: https://www.ipcc.ch/report/ar5/syr/

[2] Ecosystem Marketplace Insights brief, Donofiro et al, December 2020: State of the voluntary carbon markets 2020 second instalment featuring core carbon & additional attributes offset prices, volumes and insights .

which this data will help with. Carbon markets and nature-based solutions are also key components of COP26 and beyond.

2. Aims and Objectives of the Project

Up-to-date estimates on emissions and abatement potentials within AFOLU sectors will be used in support of policy programmes and initiatives within BEIS and update the GloCaF model and its applications. Up-to-date estimates on emissions and abatement potentials within AFOLU sectors will be used to model **climate scenarios consistent with the Paris Agreement temperature objective** (e.g. well below 2 degrees above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees above pre-industrial levels) reflecting the latest developments and projections in markets, land use management and agri-technology, and behaviour change as well as country commitments to tackle climate change.

Historic data and projections of emissions from agriculture, Forestry and other land use and the costs of reducing them are required, at global coverage. Projections of a Business as Usual [BaU] emissions scenario are required. The costs of reducing emissions need to be modelled in the form of marginal abatement cost curves [MACCs] for at least the period 2020-2050.

At a minimum, coverage including historical emissions for the years 1990 – 2050 should be provided at 5 yearly intervals. Reduced accuracy for outputs relating to later years (e.g. greater uncertainty associated with longer future horizons) or path dependencies across time periods (e.g. future abatement options being precluded by historical abatement decisions) should be clearly described.

<u>Emissions data</u>

<u>(i) Historical emissions data</u>

The dataset needs to include emissions data from 1990 to 2019 (or as recent as possible).

<u>(ii) BaU projections</u>

The dataset needs to include BaU projections to at least 2050, at a minimum of 5-yearly intervals. An extension of BaU emissions projections beyond this would be desirable, but not essential.

<u>Abatement data</u>

<u>(iii) Marginal Abatement Cost Curves</u>

The dataset needs to include MAC curves at a minimum of 5-yearly intervals: 2025, 2030, 2035, 2040, 2045 and 2050. Although the scope of the project is up to 2050, an extension of MAC curves beyond this would be desirable but not essential.

a. Abatement data should be in:
    i. CO_2 for carbon dioxide emissions
    ii. CH_4 and CO_2-equivalent [CO_2e] for Methane emissions
    iii. N_2O and CO_2e for nitrous oxide emissions
    iv. The global warming potential conversion factors [GWP] for non-CO_2 emissions should be stated explicitly. It is a requirement that non-CO_2 emissions CO_2-equivalent are expressed in GWP100 from IPCC AR4.
b. MAC curve outputs need to be broken down into increments to be agreed between BEIS and the contractor.
c. As a rough guide MACCs should cover a range from \$0/tCO_2e to \$1000/ tCO_2e, or up to what can reasonably be considered a maximum relevant carbon price, at a minimum \$545 (USD 2015). Justification needs to be given for the choice of maximum carbon price.
d. Maximum carbon prices will be agreed between BEIS and the contractor. Maximum carbon prices can differ between AFOLU sectors.
e. A range of MAC curves are required to illustrate abatement pathways indicative of different approaches to mitigating climate change. There needs to be a

meaningful difference in abatement approach between the different modelled MACC pathways. At a minimum they must approximate, with justification given as to how this is achieved:

i. An early action abatement strategy maximising cumulative reductions
ii. A progressive policy abatement strategy,
iii. A delayed action abatement strategy.

<u>All emissions data and MACCs should be disaggregated by Country/region, sector and emissions type</u>:

1. Individual countries/regions which are essential are:
- **a.** all G20 Countries, including the EU.
- **b.** The following countries are highly desirable: All Member States and EEA-EFTA countries covered by the EU ETS shown separately and Ukraine. Additional individual countries and disaggregation is desirable but not essential.
- **c.** Emissions from other geographical regions are also needed so that all countries and regions sum to give global coverage. Other regions presently used in the GLOCAF model are Middle East, Northern Africa, Oceania, Rest of Central America, Rest of Europe (i.e. non-EU), Rest of Former Soviet Union, Rest of South America, Rest of South Asia, Rest of South East Asia, and Rest of Sub Saharan Africa. Similar – or the same – regions are required. It would be an advantage if additional breakdowns within these regions could also be provided, specifically Democratic Republic of Congo and Malaysia.

2. AFOLU sectors which are essential are:
   a. Agriculture
      i. Enteric fermentation and manure management
      ii. Other emissions reported in the agriculture sector of the inventory such as direct and indirect N2O emissions from agriculture soils, rice cultivation, emissions from liming, field burning of agriculture residues.
   b. Forestry
      i. Afforestation
      ii. Deforestation
      iii. Forestry Management
      iv. Reforestation
   c. Land Use
      i. Cropland / grassland management and conversions between cropland and grassland
      ii. Non-forest land converted to settlement
      iii. Other land use and land use changes, including wetlands – mitigation potentials beyond those covered by country inventories e.g. enhancement of sinks in coastal wetlands.
   d. And peatland emissions within the aforementioned AFOLU sectors.
3. Emissions which are essential are:
   a. Carbon Dioxide [CO_2] emissions from AFOLU sectors for each region
   b. Non-CO_2 emissions from AFOLU sectors for each region
      i. Methane [CH_4]
      ii. Nitrous Oxide [N_2O]
   c. Units of emissions should be in megatonnes
      i. CO2 for carbon dioxide emissions
      ii. CH4 and CO_2e for Methane emissions
      iii. N2O and CO_2e for nitrous oxide emissions

d. The GWP for non-CO_2 emissions where converted to CO_2e should be stated explicitly. It is a requirement that non-CO_2 emissions CO_2-equivalent are expressed in GWP100 from IPCC AR4.

Additional coverage would be desirable but not essential.

3. Suggested Methodology

We anticipate the contractor will derive projections using land use / land cover/ management systems models drawing on GDP, population and bio-energy assumptions for macro-economic drivers of population growth, economic development and technical progress rates. This is likely to require a detailed sector and country specific land use model with detailed underlying information on land-use based activities, biophysical parameters and technical costs, permitting, for example, attribution of deforested areas to different commodity generation (i.e. palm oil, soy, beef, leather, timber, pulp and paper) and associated emissions.

GDP and population data will be calibrated to the latest IEA's World Energy Outlook. Modelled market equilibriums of competing land uses must reflect real-world possibilities. Assumptions on bioenergy and interactions with the energy sector must be made clear, and if necessary this can be a suggested area to agree assumptions with BEIS.

Emissions data must be aligned to an internationally recognised and accepted source for historical and projected emissions. Below we list examples in order of preference:

- Greenhouse Gas Inventory reporting to UNFCCC
- National Communications submitted to UNFCCC
- FAO Forest Resource Assessment
- FAOSTAT
- US EPA
- EDGAR
- Intergovernmental panel on climate change AR 6 and other special reports
- Peer-reviewed literature

We anticipate contractors may have modelling approaches previously aligned with one or more options listed above. The feasibility and choice of internationally recognised and accepted source must be agreed with BEIS. The degree of robustness and reliability of outputs in reference to the benchmark data source, as listed above, and any differences across countries and sectors must be clearly explained. For instance, any data limitations or policy uncertainty for particular sectors and/or countries which make particular outputs more or less accurate or reliable than others should be clearly described, with an evaluation of the difference between national inventories and IAM and bookkeeping models.

The contractor needs to indicate how close their projections will be to the internationally recognised source's totals.

All model and data assumptions must be agreed with BEIS and a log provided for quick reference. A full list of variable and abatement option definitions must be shared with BEIS.

Further to this we invite tenders to make the case for significant enhancements and sensitivities within their bids, especially those which will prolong the lifetime of this dataset (this data is typically procured at 5-year intervals). These enhancements will be evaluated as part of the value for money. Suggestions include:

- The possibility to exclude mitigation options that may pose the highest challenge for food security, ecosystem services or other potential trade-offs in land use inkeeping with sustainable development goals

- Behavioural change
- Convention of reporting of emissions and removals for AFOLU
- An alternative scenario based on an alternative emissions data source.
- Marine based mitigation / sequestration

Format of data

All emissions, MAC curves and other data should be provided to BEIS in a format/template to be agreed between BEIS and the contractor in the course of the project. This could include but is not limited to data in .xlsx, .csv or other format suitable for directly ingesting into a database.

Accompanying report

Datasets need to be accompanied by a report covering the following areas:

- Underlying assumptions and background information which is necessary for understanding the outputs
- Review and comparison of internationally recognised and accepted data sources and methods of AFOLU estimation such as satellite imagery, national inventories, NGO estimations, which will include the one(s) agreed for use, as well as alternatives not used. This should cover strengths, limitations and key features of the different sources.
- Methodology used in analysis, including derivation of BaU emissions projections and MAC curves
- Brief qualitative discussion of outputs, explaining any anomalies and/or counter intuitive results, and residual emissions / constraining factors to further mitigation
- Robustness and reliability of outputs and any differences in this
    a. over time
    b. across countries / regions
    c. across sectors
- An assessment of what is driving BAU emissions, abatement potential and costs for key countries/regions.
- Any limitations to the inputs, approach and/or model used to produce the BAU emissions projections and MAC curves.
- Quality Assurance plan and an explanation of calibration used to internationally recognised source and GWP factors used for conversion of non-CO_2 emissions.

4. Deliverables

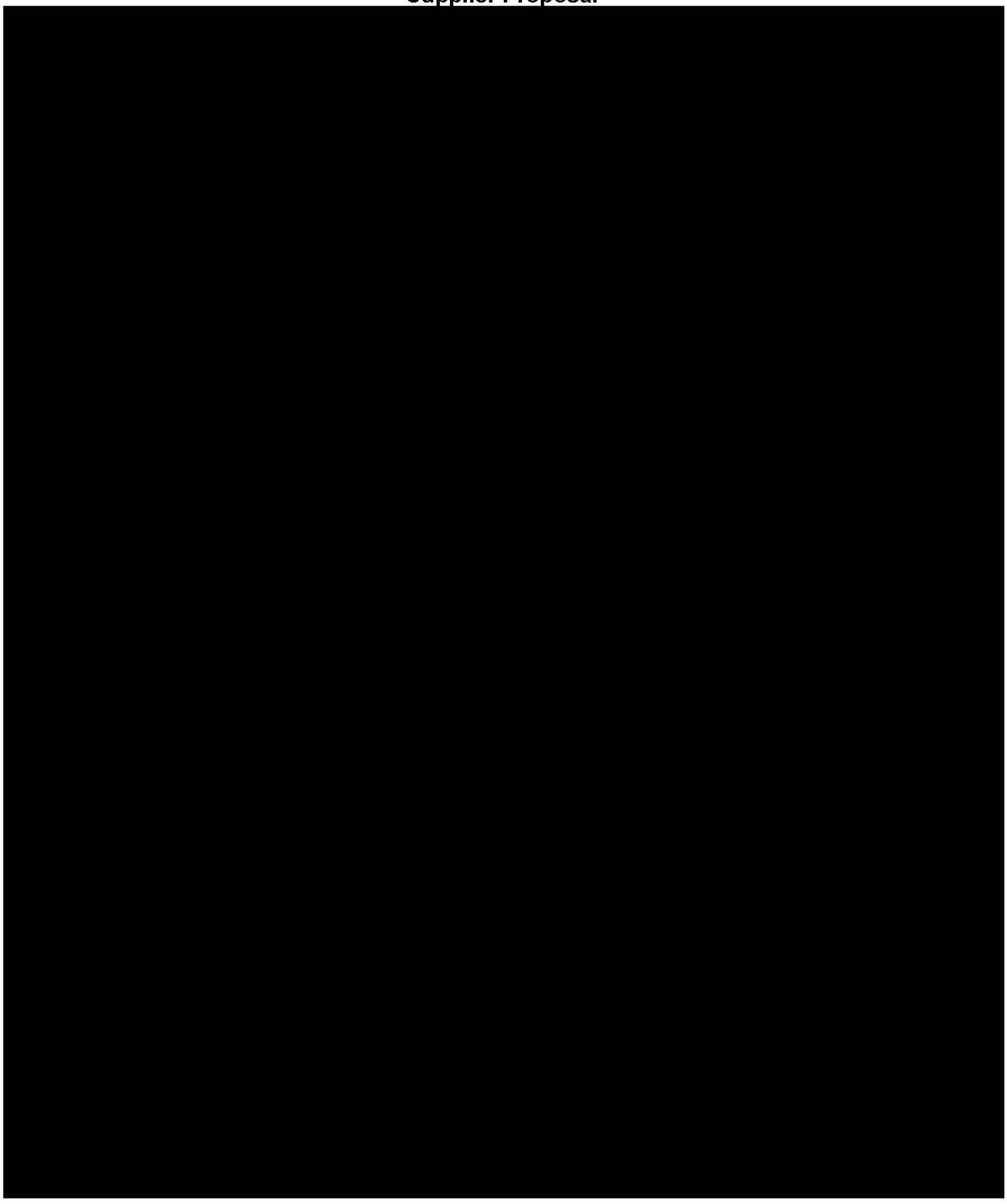
The outputs from the study will as a minimum be the following:

(i) Historical data on all sectors and regions provided;
(ii) Dataset of BaU emissions meeting the specifications outlined in this tender;
(iii) MAC curve data meeting the specifications outlined in this tender;
(iv) A detailed analytical report will accompany the data outlining details of methodological approach and quality assurance, including:
    a. underlying assumptions and background information in order to understand outputs,
    b. the methodology behind the derivation of BaU and MACCs,
    c. quality assurance examining the causes of any discrepancies between different forestry data sources or counter-intuitive results
    d. and discussion of estimates in terms of evaluating robustness, reliability, external validity, limitations and constraining factors;
    e. The review of data sources

(v) Powerpoint and Data presentations to steering board at key project milestones, giving opportunity for constructive engagement and feedback on data and approach;
(vi) Concluding Summary Workshop by the contractors on their modelling and assumptions.

ANNEX B

Supplier Proposal



Part 2: Contract Terms

Contract Terms v6.0