

## CALL FOR TENDER

### BIOENERGY REVIEW UPDATE

The IEA Bioenergy Technology Collaboration Programme (IEA Bioenergy TCP) is seeking tenders from well qualified contractors to undertake an overhaul of the 2009 bioenergy report ‘*Bioenergy – a sustainable and reliable energy source: A review of status and prospects*’<sup>1</sup>. Working closely with and building on the expertise within the IEA Bioenergy Tasks<sup>2</sup>, the review will place the transformation of bioenergy towards a future sustainable use at its centre. While primarily directed at policy and decision makers, it will also be an authoritative reference for a broad stakeholder audience. The work will commence in early June 2021 and be completed by March 2022 with publication at the end of May 2022.

#### INTRODUCTION

The IEA Bioenergy TCP, ([www.ieabioenergy.com](http://www.ieabioenergy.com)) is a global network that focuses on research and implementation of bioenergy, established under the International Energy Agency’s (IEA) Implementing Agreement mechanism (IEA - <http://www.iea.org/tcp/>)<sup>3</sup>.

#### **MISSION**

*The mission of the IEA Bioenergy TCP is to increase knowledge and understanding of bioenergy sources and systems in order to facilitate the commercialisation and market deployment of environmentally sound, socially acceptable, and cost-competitive bioenergy systems and technologies, and to advise policy and industrial decision makers accordingly. The TCP provides a platform for international collaboration and information exchange in bioenergy research, technology development, demonstration, and policy analysis with a focus on overcoming the environmental, institutional, technological, social, and market barriers to the near- and long-term deployment of bioenergy technologies.*

Active since 1977, Bioenergy TCP membership (Contracting Parties, or CPs) has increased as a result of the steadily growing worldwide interest in the benefits of bio-based energy sources and systems. As of 25<sup>th</sup> February 2021 there were 26 CPs representing: Australia, Austria, Belgium, Brazil, Canada, China,

Croatia, Denmark, Estonia, Finland, France, Germany, India, Ireland, Italy, Japan, the Republic of Korea, the Netherlands, New Zealand, Norway, South Africa, Sweden, Switzerland, the United Kingdom, the United States of America, and the European Commission.

<sup>1</sup> <https://www.ieabioenergy.com/wp-content/uploads/2013/10/MAIN-REPORT-Bioenergy-a-sustainable-and-reliable-energy-source.-A-review-of-status-and-prospects.pdf>

<sup>2</sup> <https://www.ieabioenergy.com/our-work-tasks/>

<sup>3</sup> The Technology Collaboration Programme (TCP) for a Programme of Research, Development and Demonstration on Bioenergy.

The Executive Committee (ExCo), which is composed of one representative from each of the CPs, acts as the ‘board of directors’ of IEA Bioenergy. The TCP goals, plans and proposed actions are articulated in well-defined three-year programme plans. The TCP also collaborates with other relevant international organisations including such bodies as the FAO (Food and Agriculture Organization of the United Nations<sup>4</sup>), GBEP (Global Bioenergy Partnership<sup>5</sup>), IRENA (International Renewable Energy Agency<sup>6</sup>), SEforALL (Sustainable Energy for ALL<sup>7</sup>), the Biofuture Platform<sup>8</sup> and Mission Innovation<sup>9</sup>.

For a more complete understanding of the IEA Bioenergy TCP please consult the 2019 Annual Report, which can be downloaded from <https://www.ieabioenergy.com/wp-content/uploads/2020/05/IEA-Bioenergy-Annual-Report-2019-Rev-26-May-2020.pdf>. Reference should also be made to the current IEA Bioenergy Strategic Plan which is attached as Appendix 1.

## **RATIONALE**

The 2009 IEA Bioenergy report *Bioenergy – a sustainable and reliable energy source: A review of status and prospects* gave an authoritative review of the entire bioenergy sector aimed at policy and investment decision makers. It provided a global perspective of the potential for bioenergy, the main opportunities for deployment in the short and medium term and the principal issues and challenges facing the development of the sector. The report is now rather dated and in a style that is not suited to current communications’ formats.

## **OBJECTIVE OF THE CALL**

The objective is to undertake an overhaul of the 2009 bioenergy report: The work will place the **transformation** of bioenergy towards a future sustainable use at its center. Bioenergy has to be understood as part of a renewable (carbon) economy and has to be discussed within this context. Important aspects will thus include a sustainable resource base within bioeconomy and circular economy approaches as well as the need for carbon management, including negative emission technologies. This transformation concerns shifting from fossil fuel substitution to renewable energy integration, among others.

The role and advantages of bioenergy in the energy system (also by responding to critical issues discussed in the public debate recently) in the medium to long term (including providing system flexibility and stability) has to be shown, aiming to facilitate communication at a global level.

The outputs of the project, founded on scientific evidence-based analysis, would be tailored to modern communications, including website ready e-Chapters and Infographics that are readily accessible to a broad stakeholder audience and allow viewers to delve into different aspects of the bioenergy value chain covered by the report.

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<sup>4</sup> <http://www.fao.org/home/en/>

<sup>5</sup> <http://www.globalbioenergy.org/>

<sup>6</sup> <https://www.irena.org/>

<sup>7</sup> <https://www.seforall.org/>

<sup>8</sup> <http://www.biofutureplatform.org/>

<sup>9</sup> <http://mission-innovation.net/>

## SCOPE OF WORK

The Scope of work would cover the entire value chain of the different bioenergy pathways (to heat, electricity and to transport fuels) and discuss within a global comparative approach their respective potential and deployment issues and opportunities within the renewable (carbon) economy, and their contributions to the Sustainable Development Goals. This would be founded on science-based evidence and include at least the following:

- **Setting the scene - Important developments since 2009**
  - Political framework (framework conditions worldwide, climate target commitments, country strategies on circular economy & bioeconomy, SDGs, etc.)
  - Technological developments (trends in other renewable energy technologies like solar or wind, new technologies like hydrogen or CCS, new system approaches etc.)
  - Economic developments (prices, market uptake, creation of new markets etc.)
  - Points of debate
- **Upstream – feedstock supply:**
  - Feedstocks, their technical potential and cost indications also in the context of competing/synergetic uses (cascading/circularity)
  - Local and regional synergies with agriculture and forestry – positive land use changes
  - Environmental and social issues, including governance to reduce the risks (standards, certification etc.)
  - Supply chains and logistics, including biohubs
- **Conversion technologies and concepts:** R&D status and deployment horizon, preferred scale, conversion efficiency, carbon footprint, co-products, reliability & lifetime, flexibility, cost, etc.,
  - pretreatment technologies
  - power and/or heat production (small, medium, large scale)
  - hybrid systems of bioenergy and other RE technologies
  - renewable gas production
  - transport biofuels
  - integration of CCS or CCU in bioenergy systems
  - biorefining
- **Down-stream – bioenergy markets:**
  - Bioenergy markets and opportunities (e.g., providing flexibility; negative emissions; sectors difficult to electrify; link with other bioeconomy applications, e.g., materials and chemicals)
  - Role of biomass in future mid-term and post-2050 energy systems (links to long-term energy scenarios) and the bioeconomy
  - Barriers to deployment and market risks
  - Environmental and socioeconomic aspects
- **Contribution of bioenergy to policy objectives**
  - Bioenergy's potential for climate change mitigation (incl. carbon sequestration), taking due account of IPCC guidelines / messages
  - Bioenergy within a circular bioeconomy, and link with food & feed, biomaterials, and ecosystem services
  - Other environmental and socioeconomic aspects

- **Evidence based analysis of sustainability issues**
  - Environmental sustainability along value chains (from feedstock to products and end uses)
  - Socio-economic sustainability including competitive industries
- **Policy lessons** for bioenergy deployment, including the integration of the findings from the IEA Bioenergy Countries' Report and the input from relevant international organizations (e.g., Biofuture Platform, FAO, GBEP).

Furthermore, the report would focus on the biomass sources, conversion technologies, sustainability issues and markets likely to be able to make a significant contribution to energy and environmental goals. This should be shown by means of a few selected examples from around the world.

### **DELIVERABLES**

The deliverables would include the following for upload to the website:

- a final report and separate 2-page summaries per chapter
- a series of e-chapters covering specific aspects of the value chain
- a series of infographics presenting information in a clear and accessible format

### **MANAGEMENT AND REPORTING**

The project will be managed on behalf of the IEA Bioenergy TCP by a Review Panel formed from members of the Executive Committee and Task Leaders and will be led by the IEA Bioenergy Technical Coordinator.

### **PROJECT MILESTONES AND PAYMENTS**

The project milestones and payment schedule will be follows:

- A kick-off meeting with the Review Panel within 2 weeks of contract award
- A detailed project plan and deliverables specification to be produced within 6 weeks of contract award, for review and agreement (20% payment of contract value). The project plan shall detail engagement with IEA Bioenergy TCP Tasks, and clarify respective funding issues.
- A set of draft outputs to be produced within 20 weeks of contract award, for review and agreement (20% payment of contract value)
- A draft of the final outputs from the project to be produced within 32 weeks of contract award, for review and agreement (40% payment of contract value)
- Presentation of the completed project with final outputs to the IEA Bioenergy TCP Executive Committee ExCo89 meeting in May 2022 (20% payment of contract value on approval by ExCo)

### **OWNERSHIP**

All outputs associated with this project will be the property of the IEA Bioenergy TCP and the IEA Bioenergy TCP will retain all rights. The IEA Bioenergy TCP will cite the Contractor whenever the work is referred to.

### **TENDER PROCESS**

The Tenders should be submitted by 18:00 CEST on **26 April 2021** and should include a written presentation of the following elements:

- an understanding of the scope of work

- a description of experience relevant to the scope of work
- the approach that the tenderer would adopt to complete the work, including the proposed approach to engagement with the IEA Bioenergy TCP Tasks
- initial ideas on how the outputs would be structured
- a schedule for carrying out the work including milestones and a Gantt Chart
- name(s), qualifications(s) and experience of the person(s) who will carry out the work and accompanying CV(s)
- a fixed tender price, including all overheads and taxes, in US\$, which will be the basis of payment for the work.
- a breakdown showing how the firm price has been calculated including person-hours and costs for key personnel, travel and other related costs
- three references with contact details (please confirm that they can be contacted)

Tenders should be emailed to the Secretary of IEA Bioenergy - *Pearse Buckley* [pbuckley@odbtbioenergy.com](mailto:pbuckley@odbtbioenergy.com).

### **EVALUATION PROCESS**

Tenders will be evaluated by a working group nominated by the Executive Committee of IEA Bioenergy based on the following criteria (with corresponding weighted scores):

- demonstrated understanding of the specifications of the call and the requirements of the IEA Bioenergy TCP that led to this call (10%)
- extent to which the proposal specifically and convincingly demonstrates how the tenderer will execute the scope of work in a timely way, including application of appropriate methodology and engagement with IEA Bioenergy TCP Tasks (30%)
- demonstrated experience of the individual(s) or the proposed team to address all aspects of the proposed work with a high probability of success (15%)
- demonstrated experience of the individual(s) or the proposed team in the bioenergy sector, covering the range of technical, economic, environmental and socio-political issues which are involved, preferably in an international setting (15%)
- quality of initial ideas presented as examples of the outputs that could be anticipated from the work (10%)
- cost benefit and value for money (20%)

Following their evaluation, the working group will make the final selection for approval by ExCo. It is expected that a contract for the work will be awarded by early June 2021. The work should start within 2-weeks of being awarded.