

## ANNEXURE D SCOPE OF WORK

### Techno-Economic Analysis (TEA) of Bioenergy Production from various crops and waste in South Africa

#### **1. Purpose and scope of TEA study**

CEF SOC requires the services of a consultant/s to conduct a comprehensive Techno-Economic Analysis (TEA) study that will assess the technical feasibility and economic viability of integrating various crops and waste into bioenergy production in South Africa. The study must include a comparison of different scenarios that will be modelled in order to draw conclusions on technologies and final product mix that will be economically and technically feasible.

The definition of bioenergy will cover biofuels i.e bioethanol, biodiesel, biogas, as well as bioelectricity production from biomass.

Biomass will include organic waste, crops/crops residues (e.g sugar cane, sweet sorghum, hemp, bagasse etc).

The scope of work for the Techno-Economic Assessment will include the following stages:

- Selection of the processing technology
- Feedstock and output analysis
- Scenario modelling and economic analysis
- Sensitivity analysis
- Environmental and social impact analysis
- Regulatory & policy analysis
- Risk assessment
- Interpretation of results and recommendations

#### **2. Deliverables**

- **Detailed final report** (Word format; PDF format and summarised PowerPoint version) – Must cover all aspects as per the scope of work
- **Excel based or PIMS model** of scenarios assessed
- Fortnightly **presentations** on progress will be required

#### **3. Duration of Study**

3 months

#### **4. Evaluation criteria**

Bidders will be evaluated according to the below technical evaluation criteria. Minimum Technical Threshold is 70%. It must be noted that if the Bidder does not meet the 70% minimum threshold, the bidder will be disqualified and not be evaluated further.

Criteria	Weightings
<p><b>Company Experience</b></p> <ul style="list-style-type: none"> <li>• <b>reference letters</b> of techno economic assessment (preferably in the energy sector) work previously done <ul style="list-style-type: none"> <li>○ No letter = score of 0</li> <li>○ 1 letter = score of 1</li> <li>○ 2 letters = score of 2</li> <li>○ 3 letters = score of 3</li> <li>○ 4 letters = score of 4</li> <li>○ 5 letters = score of 5</li> </ul> </li> </ul>	<b>25%</b>
<p><b>Experience of Project team (CVs of following resources to be attached)</b></p> <ul style="list-style-type: none"> <li>• <b>Project lead with Master's or PhD</b> (in Engineering or Science related field) level of education and <b>project management</b> skills <ul style="list-style-type: none"> <li>○ Below Masters WITHOUT project management experience = score of 0</li> <li>○ Below Masters WITH project management experience = score of 1</li> <li>○ Master's level WITHOUT project management experience = score of 2</li> <li>○ Master's level WITH project management experience = score of 3</li> <li>○ PhD level WITHOUT project management experience = score of 4</li> <li>○ PhD level WITH project management experience = score of 5</li> </ul> </li> <li>• <b>Chemical/Process Engineer with PrEng (ECSA) or Scientist with PrSciNat (SACNASP)</b> <ul style="list-style-type: none"> <li>○ Below 5 years working experience WITHOUT Professional registration = score of 0</li> <li>○ Below 5 years working experience WITH Professional registration = score of 1</li> <li>○ 5-10 years working experience WITHOUT Professional registration = score of 2</li> <li>○ 5-10 years working experience WITH Professional registration = score of 3</li> <li>○ 11-15 years working experience WITHOUT Professional registration = score of 4</li> <li>○ 11-15 years working experience WITH Professional registration = score of 5</li> </ul> </li> <li>• <b>Financial modeller with a relevant degree</b> <ul style="list-style-type: none"> <li>○ Below 5 years financial modelling experience = score of 0</li> <li>○ 5-10 years financial modelling experience = score of 3</li> <li>○ 11-15 years financial modelling experience = score of 5</li> </ul> </li> </ul>	<b>25%</b>
<p><b>Methodology/Approach</b></p> <ul style="list-style-type: none"> <li>• Bidder must provide a written <b>methodology and approach</b>, indicating their understanding of the scope of work and how they will execute against the requirements. A comprehensive methodology will include:</li> </ul>	<b>25%</b>

<p><b>Stages/phases of the study, methodologies and tools used per stage/phase and activities per stage/phase until completion</b></p> <ul style="list-style-type: none"> <li>○ Methodology covers all critical aspects of the scope of work in a comprehensive manner, showcasing the bidder's deep understanding of the requirements = score of 5</li> <li>○ Methodology partially addresses critical aspects of the scope of work = score of 3</li> <li>○ Methodology does not address many of the scope of work elements. The methodology is weak in important areas = score of 0</li> </ul>	
<p><b>Detailed project execution plan</b></p> <ul style="list-style-type: none"> <li>● The bidder must demonstrate thorough understanding of the objectives and deliverables of the study by providing a <b>comprehensive execution plan</b> to be utilised in delivering the work. The bidder must clearly demonstrate that they can deliver the scope or requirements within the stipulated timeline of <b>3 months</b> <ul style="list-style-type: none"> <li>○ The timelines meet the targeted duration of 3 months = score of 5</li> <li>○ The timelines do not meet the targeted duration of 3 months = score of 0</li> </ul> </li> </ul>	<b>25%</b>

### 5. Pricing schedule

Consultant	Day Rate	Estimated Days	Total
Project lead		60	
Engineer/Scientist		60	
Financial Modeller		60	
<b>Disbursements</b>			
<b>VAT</b>			
<b>Sub-total</b>			
<b>Total</b>			

Disbursement fees must be at a fixed and firm capped lump sum cost, no rates will be accepted.