Biogas applications for the Brazilian agro-industry

WBS

<table>
<thead>
<tr>
<th>Title:</th>
<th>Back-end Developer</th>
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<tbody>
<tr>
<td>Main Duty Station and Location:</td>
<td>Brasília</td>
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<td>Mission/s to:</td>
<td>As and if required</td>
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<tr>
<td>Start of Contract (EOD):</td>
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<td>End of Contract (COB):</td>
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<tr>
<td>Number of working Months:</td>
<td>03 months (renewable)</td>
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ORGANIZATIONAL CONTEXT

TEMPORARY APPOINTMENT OF PROJECT PERSONNEL. This appointment is limited to the specified project(s) only and does not carry any expectancy of renewal. ONLY nationals of this country or permanent residents of this country are eligible to apply. Female candidates are particularly encouraged to apply.

The United Nations Industrial Development Organization (UNIDO) is a specialized Agency of the United Nations. Its mandate is to promote and accelerate sustainable industrial development in developing countries and countries in transition, and work towards improving living conditions in the world’s poorest countries by drawing on its combined global resources and expertise. The Renewable and Rural Energy Unit, under the Energy and Climate Change Branch is responsible for implementing UNIDO’s approach to promoting renewable energy markets and industry at a systemic level in order to address the challenges of energy poverty, energy security and climate change simultaneously.

In May 2017, the Global Environment Facility (GEF) endorsed the full-sized project under its Climate Change Focal Area entitled “Biogas applications for the Brazilian agro-industry” for which UNIDO will act as the implementation agency and Ministry of Science, Technology, Innovation and Communication will act as the leading institution.

PROJECT CONTEXT

While Brazil only accounts for 1.4% of global GHG emissions, these have increased in the last decade, totaling 739,671Gg of CO2eq in 2010. The agricultural sector, representing 48% of national GHG
emissions, is the main source, thereby offering opportunities for mitigation actions to achieve substantial impact and introduce a more low-carbon development path by incorporating renewable energy systems. Brazil has played a leading role in global environmental discussions since the Rio Summit in 1992 and was the first signatory to the UNFCCC. Brazil’s National Policy on Climate Change (PNMC), adopted in December 2008, established voluntary commitment to cut projected GHG emissions between 36.1% and 38.9% by 2020.

Moreover, it is recognized that the energy potential of biomass and biogas feedstock in agro-industries, specifically the beer breweries (90.1%), is hardly exploited, which translates into a lost opportunity to add value to the production chain and to address environmental issues related to agro-industrial residues and effluents. Currently though the introduction of biogas energy technologies into small and medium-sized agro-industries is hampered by a range of specific barriers.

In order to address these barriers, the present GEF Project will take a broader approach to the biogas market in Brazil by (i) facilitating investment in market segments which are ready to take off; (ii) expanding professional capacities and skills for scaling-up; and (iii) providing technical assistance and disseminating best practices, thereby reducing project costs and accelerating penetration of biogas technology downward the market pyramid.

The overall objective of the project “Biogas applications for the Brazilian agro-industry” is to reduce GHG emissions and dependence on fossil fuels through the promotion of biogas-based energy and mobility solutions within agro-industrial value chains in Southern Brazil and strengthening of national biogas technology supply chains.

The project has three substantive components:
- Policy framework and information.
- Biogas and biomethane technology and value chain.
- Demonstration and optimization of biogas projects.

The project counts with a budget of USD 7,000,000 in GEF grant funding and USD 58,392,070 in co-financing to be mobilized from different stakeholders. The total duration of the project is 60 months.

**FUNCTIONAL RESPONSIBILITIES**

The Back-end developer will work under the supervision of the UNIDO project manager, in cooperation with the Data Analyst, executing best practices for: the core application logic, creating efficient data pipelines, securing user data, modeling databases and implementing APIs for easy interaction with the information generated by the project, as well as other activities essential to the success of the work.

The Back-end developer will work on the development of web applications and other digital tools in the context of the GEF Brazil Biogas Project. They are expected to be involved in the entire application lifecycle, assisting in the requirement gathering, in the development of its modules and functionalities, in the documentation and testing of the software, as well as, in its maintenance and in subsequent updates.

The Back-end developer will be responsible for the following key functions:

a) The conceptual design and the actual implementation of data storage solutions, such as databases models for the different web applications and digital tools;

b) The implementation of methods, processes and protocols for data protection and user/project information security;
c) Server-side code optimization seeking good performance and availability;

d) Implementation of modules, APIs, data pipelines, and others, that will integrate the client-side application developed by the Front-end developer with server-side services;

e) Functional and sustainable software built with clean code practices and vast documentation, with emphasis in modular code, seeking reusability;

f) Collaborate with a designated group of stakeholders to validate the services delivered;

g) Organize and input all reports, information and data generated by activities under his/her responsibilities or requested by the Project Management Unit (PMU) on the Biogas Information Platform (BIP);

h) Support those responsible for Project Communication to develop communication materials and pieces with content relevant to the activities, including availability for interviews, data provision and the identification of the appropriate means and language for dialogue with stakeholders and partners;

i) In line with UNIDO and GEF requirements and templates, the Back-end developer will have to prepare and update planning and monitoring documents regarding the development of the activities.

MINIMUM ORGANIZATIONAL REQUIREMENTS

The Back-end Developer is an expert with proven competence in:

- Node.js or Python.
- Express.js or Django.
- SQL.
- MySQL or PostgreSQL.
- Git and GitHub.
- Desirable knowledge in Mongodb.
- Desirable knowledge in PHP.
- Experience in designing geospatial application is an asset.
- Experience with postGIS is an asset.

Education: A qualified professional with an university degree in the fields related to the activities to be carried out, e.g. computer science, statistics, Natural Sciences, information technology (IT), engineering or other relevant discipline with preferably a specialization in engineering, or computer sciences;

Technical and Functional Experience:

- 5 years or more of proven professional or academic experience in Web development, with at least 5 years of experience in back-end development.
- Large professional experience in Back-end development and data driven applications;
- Ability to draft, edit and produce meaningful reports.
- Proven experience on the development of relevant publications for the different audiences.
- Knowledge of GEF, UN organization project/programme management processes and procedures are additional assets.

UNIDO Languages:
English (Fluent, verbal and written) required, Portuguese (Fluent, verbal and written) required.
REQUIRED COMPETENCIES

Core Values

WE LIVE AND ACT WITH INTEGRITY: work honestly, openly and impartially.
WE SHOW PROFESSIONALISM: work hard and competently in a committed and responsible manner.
WE RESPECT DIVERSITY: work together effectively, respectfully and inclusively, regardless of our differences in culture and perspective.

Key Competencies

WE FOCUS ON PEOPLE: cooperate to fully reach our potential—and this is true for our colleagues as well as our clients. Emotional intelligence and receptiveness are vital parts of our UNIDO identity.
WE FOCUS ON RESULTS AND RESPONSIBILITIES: focus on planning, organizing and managing our work effectively and efficiently. We are responsible and accountable for achieving our results and meeting our performance standards. This accountability does not end with our colleagues and supervisors, but we also owe it to those we serve and who have trusted us to contribute to a better, safer and healthier world.
WE COMMUNICATE AND EARN TRUST: communicate effectively with one another and build an environment of trust where we can all excel in our work.
WE THINK OUTSIDE THE BOX AND INNOVATE: To stay relevant, we continuously improve, support innovation, share our knowledge and skills, and learn from one another.

Managerial and Leadership Competencies (as applicable)

WE ARE STRATEGIC, DECISIVE, PRINCIPLED, AND INSPIRATIONAL: As managers, we are strategic and fair in driving our team’s performance. As leaders, we are a source of inspiration, stand for norms and standards established in the UN Charter and duty bound to defend these ideals with a principled approach.
WE ARE INCLUSIVE AND ACCOUNTABLE: As managers, we are inclusive in our approach and maintain constructive engagement with all our stakeholders. As leaders, we embrace all personnel and stakeholders and are accountable mutually within UNIDO, within the system, to beneficiaries and the public and beyond.
WE ARE MULTI-DIMENSIONAL AND TRANSFORMATIONAL: As managers, we go beyond conventional methods to help our organizational units strengthen their own agility and adaptability to change. As leaders in the UN system, we have a vision which is integrated and engaged across the pillars of Peace and Security, Human Rights and Development.
WE ARE COLLABORATIVE AND CO-CREATIVE: As managers, we foster a team spirit and create meaningful opportunities to hear the voices of those around us, while realizing that only by working together can we accomplish our mission. As leaders we see the inter-dependency of
imperatives of the UN Charter and personally champion a collaborative inter-agency, multi-stakeholders, and cross-thinking approach.