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INDUSTRIAL DEVELOPMENT ORGANIZATION

Central African Centre for Renewable Energy and Energy Efficiency
Centre pour les Energies Renouvelables et l'Efficacité Energétique pour Afrique Centrale
Centro de Energias Renováveis e Eficiência Energética para a África Central

TERMS OF REFERENCE (TOR)

Development of a standard and compliance framework for low-emission transport and an electric mobility roadmap for São Tomé and Príncipe

UNIDO Project Title:
"Building institutional capacity for a renewable energy and energy efficiency investment programme for São Tomé and Príncipe" (ID 200158)

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1. Project context

As Small Island Developing State (SIDS) and Least Developed Country (LDC), located in Central Africa, São Tomé and Principe faces specific challenges in relation to its size, remoteness from large markets, as well as dependence on imports and a small number of economic sectors. The mainly agricultural economy is highly vulnerable to natural and external shocks. Like other SIDS, it is significantly affected by climate change and the current economic downturn due to the COVID-19 crisis.

The United Nations Industrial Development Organization (UNIDO) in partnership with the General Directorate for Natural Resources and Energy (DGRNE) of the Ministry of Infrastructure and Natural Resources (MIRN, former MOPIRNA) and the National Designated Authority (NDA) at the Ministry of Planning, Finance and Blue Economy (MPFEA) are implementing the GCF readiness project "Building institutional capacity for a renewable energy and energy efficiency investment programme for São Tomé and Principe".

It is being executed in close coordination with the ongoing GEF funded UNIDO project "Strategic program to promote renewable energy and energy efficiency investments in the electricity sector of São Tomé and Príncipe". It is also linked with the regional activities of the Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC), which was recently established by UNIDO and the Economic Community of Central African States (ECCAS) in Angola, Luanda.

The project contributes to the nation's Vision 2030 "São Tomé e Príncipe 2030: the country we need to build", which aims to transform the country into a climate-resilient and vibrant island hub for blue economy business, financial services and tourism, benefitting from the growing regional market of the ECCAS. The success of the vision highly depends on a power sector reform and a transformational shift of the entire energy system from a nearly complete fossil fuel import dependency to renewable energy and energy efficiency.

Therefore, the GCF project aims to strengthen the capacities of the Government of Sao Tome and Principe (STP) to formulate and implement a paradigm-shift renewable energy (RE) and energy efficiency (EE) investment program, which will enable the country to achieve its climate mitigation targets in the Nationally Determined Contribution (NDC) and the 3rd National Communication on Climate Change (NCCC). Through RE&EE improvements, the country aims at reducing its GHG emissions significantly in comparison to the reference scenario 2012-2030.

The GCF project addresses demand and supply-side barriers, which hinder the market introduction of new sustainable energy technology products, services and business models in STP. The readiness project applies a holistic approach and focuses on a paradigm-shift of the entire energy sector. It builds on past and ongoing readiness activities and will complement and/or upscale existing support and close existing gaps in the sectors ranging from government ministries, private sector, energy producers/consumers and other stakeholders.

The GCF project includes support for RE&EE policy and regulation, knowledge management, capacity building, as well as investment and business facilitation. The focus regarding renewables lies on specific regulations and practical documents/procedures, which aim to reduce risks for private participation (e.g. IPPs, PPPs, auto-producers, mini-grids) and project finance (equity, concessional and non-concessional finance), particularly in the area solar photovoltaics (PV) and run-off-river micro/small hydro power.

Moreover, the support also taps on innovative areas such as the application of solar thermal systems in the health, tourism and industrial sector, energy storage and smart grids, as well as ocean energy technologies in the context

of the blue economy. The activities in the land transport sector focus particularly on the introduction of standards to improve the fuel economy (e.g. vehicle emissions, fuel quality) and electric mobility uptake.

2. Specific context of the assignment

The current policies and regulations regarding low-carbon transport in STP need to be strengthened. With this assignment, UNIDO and the Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC) are supporting the Government of STP to improve the policy, regulatory and practical framework for the land transport fuel economy and low emission vehicle uptake, including electric and hybrid vehicles. Due to the limited budget available, the assignment will only focus on land transport. The activities are closely linked with the joint efforts to move towards renewable energy electricity generation. The latter opens up future opportunities for integrated power and e-mobility systems and decentralised solar energy vehicle charging.

The envisaged transport activities are part of the National Renewable Energy and Energy Efficiency Action Plans (NREAP, NEEAP), which were developed under the above mentioned GEF project. Both documents provide the Government with practical guidance on how to make the energy transition a reality by 2030 and 2050. The scenario includes also the introduction of fuel and vehicle standards, as well as a gradual uptake of electric mobility solutions, starting in the tourism sector and with value chains for two- and three wheelers. The undertaken Technology Needs Assessment (TNA) on appropriate climate mitigation and adaptation solutions in STP defines the introduction of electric motorcycles, electric waste cars and buses as a priority. The transport standards will complement the previous work of UNIDO and DGRNE on minimum energy performance standards and a compliance framework regarding electric appliances (lighting, refrigeration, air conditioning).

STP within the global and African context

The UNIDO support comes timely, as already in a few years STP will need to cope with and manage the increased import of second-hand light and heavy-duty vehicles with EURO 4/IV vehicle emission standard, which require fuels with lower sulphur contents than today imported pre-dominantly from Angola, Nigeria and Equatorial Guinea. Without proper management of both issues, there is risk that fuel-efficient vehicles become incompatible with the quality of fuels sold on STP market.

In line with the African trends, some of the electric mobility options, particularly for two- and three wheelers with decentralised solar charging, may become an attractive option for individuals and potential suppliers. Internationally, there is increasingly pressure on suppliers and importers to switch to 50 ppm or below petrol and diesel fuel standards, as well as EURO 4/IV or better restrictions. The development of the market in Africa highly depends on trends towards more efficient second-hand cars coming from Europe, US or Japan.

Globally, there are many proven policies, regulations and incentives which can improve the fuel economy of a country's vehicle fleet. The impact of fiscal or non-fiscal measures such as fuel and emission standards, the ban or higher taxation of imported aged second-hand cars is well known. Also the challenges regarding the enforcement of such standards, including the creation of required quality infrastructure to undertake conformity assessments and testing are well studied. Moreover, some African countries, make progress regarding the introduction of duty exemptions and tax incentives for electric vehicles, particularly for two- and three wheelers and e-buses. There also an emerging local value chain regarding the assembly and servicing of the industry.

Valuable lessons can be drawn from ongoing regional and national processes regarding fuel and vehicle standards in the East African Community (EAC), the Economic Community of West African States (ECOWAS) and the Southern African Development Community (SADC), as well as other SIDS such as Cape Verde or Mauritius. The latter have made significant advancement in previous years. ECOWAS and EAC have adopted regionally harmonized low sulphur petrol and diesel fuels (mostly aiming at 50 ppm) and equivalent EURO 4/IV vehicle emission standards. SADC has adopted a Ministerial decision for low sulphur diesel to be implemented by 2022.

The issue of fuel and vehicle standards will be also taken up regionally by UNIDO and the Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC), which was recently established in Luanda, Angola. As member state of ECCAS, the developed regulations in STP could become a model for other countries in Central Africa. So far only a few countries have made progress regarding the low-emission transport and electric mobility agenda.

It shall be noted that despite harmonised regional standards, by 2022 only twenty (20) of the fifty-four (54) African countries - Morocco, Kenya, Uganda, Tanzania, Rwanda, Burundi, Djibouti, Ghana, Benin, Cape Verde, Mauritius, Malawi, Mozambique, Zimbabwe, Namibia, Seychelles, Botswana, Eswatini, Lesotho, Zambia – have achieved 50 ppm or lower diesel fuel and in some cases also petrol fuel. In addition, only two countries, Morocco and Rwanda, have implemented Euro 4/IV vehicle emission standards. Several countries have however moved to intermediate levels of sulphur in fuel as they progress towards 50 ppm Sulphur fuels.[1]

Various socio-economic and environmental benefits are expected from the UNIDO intervention in STP. Like in many African countries also in STP the transport sector is a significant contributor to negative health impacts due to air pollution particularly in the capital (e.g. pollutants such as SO2, O3, CO, NOx, PM2.5). In the NDC of STP, the transport sector was identified as the second largest contributor to GHG emissions after the energy sector.[2] Moreover, global interruptions, such as the COVID-19 pandemic and the conflict between Russia and Ukraine, and their impacts of on fossil fuel supply chains and price reliability, have once again demonstrated the need to act.

Access to affordable and reliable energy and transport services are of high importance for the urban and rural industrial development of the island, including for blue economy activities within its large exclusive economic zone (EEZ). Such essential services are a precondition for the country to move up from a supplier of agricultural commodities to higher-added value manufacturing and servicing. Fossil fuel imports consume significant parts of the hard currency income of the country.

Specific context of STP

São Tomé and Príncipe has an automobile fleet of approximately 1219 vehicles according to the IGEE[3] 2020 report data. Generally, there is a huge data gap on the vehicles in circulation in STP. Nevertheless, customs conduct stocktaking from the port of entry as vehicles enter STP. The different vehicle types recognised at the time of registration in STP are light vehicles, heavy vehicles, motorcycles and mopeds. As of January 2023, plans are underway to also include the registration of bicycles. Light and heavy-duty vehicles import originates from Europe, mostly Portugal (mostly second-and cars). While motorcycles are imported from mainland African countries and Asia. The below table displays the segregated data of vehicles entering STP accounting from 2017-2020. Currently, there is no notable import of electric vehicles.

Years	Light duty Vehicles	Motorcycles	Heavy Duty Vehicles	Total
2017	770	606	54	1430
2918	695	542	69	1306
2019	822	589	24	1435
2020	678	483	58	1219

The current compliance framework is not sufficient to support the introduction of low-carbon measures. It is the same case for the vehicle fleet monitoring system to support monitoring of progress. Such as in most countries in Sub Sahara Africa, the majority of vehicles entering the fleet for the first time are second-hand vehicles sourced from different countries. The different standards with which these vehicles have been built makes it difficult to adopt a simple, universal approach for STP. Majority of used vehicles in STP have an average life of 10-20 years. These aged second handed vehicles in operation also underpins the considerations of other parameters needing coherent regulations in STP. These parameters includes *inter alia* the following: Roading, Safety, Security, Fuel Quality and other challenges.

***Roading*:** There is approximately 1400 kilometers of paved asphalt roads in São Tomé and Principe. The lack of proper road maintenance presents challenges to existing vehicles and in facilitating the applications of new technologies. A satellite (google earth) search displays images indicating a reasonable quality/class of roading within main centres. Quality roading is an enabler of the use of modern vehicles and smaller format vehicles (such as 2-wheelers, bikes, e-bikes and micro mobility).

[1] Outcomes of the African Petroleum Ministers at the Cleaner Fuels Meeting, organised by UNEP between 29 and 30 November 2022
[2] It shall be noted that the net-balance of the STP emissions is negative
[3] National Inventory of Greenhouse Gases (IGEE)

***Inspections*:** Routine checks are conducted on vehicles conforming with the below parameters, checks on the year of manufacture, box, frame number, engine number, engine capacity, fuel, make, model, tire size, number of tires, gross weight, capacity, colour, service, vehicle condition, number of previous registrations, date of registration and country of registration. Aside these rudimentary registration procedures, there is lack of an operational system for regular or periodic inspections in STP. The sector also lack a digital procedure for vehicle registrations and inspections.

Safety: The safety level of in-service vehicles and the frequent suspension of the supervision, inspection and monitoring by the responsible entities in STP indicate the gaps of vehicles' poor level of safety. Additionally, in Sao Tome and Principe vehicles insurance is not mandatory – this is partly due to the high cost of safety insurances and partly to the reluctance of enforcing these policies.

***Security*:** The challenges with vehicle security in STP are manifold, ranging from the problems with tax payment evasions (even from higher income citizens), to the issues face in the regulation and imposition of compulsory insurance for vehicles, the importation and circulation of very old and outdated vehicles,

Fuel quality: Regarding fuel quality in STP, there are multiple challenges stemming from fuel quality degradation, to high lead or sulphur content. High sulphur fuels are unsuitable for modern vehicle engines as it leads to corrosive wearing of metal surfaces of an engine. No quality control is in place on the fuels that enter STP. With the major suppliers being Angola, Equatorial Guinea and Nigeria. The contractor will therefore address this aspect by assessing establishing a routine laboratory and ensure setting policies and providing recommendations to the STP government through assessment conducted. Angola and Nigeria have committed to reduce to 50 ppm sulphur contents in fuels and refinery products under the SADC and ECOWAS regulations. According to latest statistics, the ppm content exceeds still 500 ppm nationwide in diesel fuels.

3. Specific context for the assignment

Therefore, UNIDO seeks advisory support of a consultancy company or consortia for the development of a regulatory, standard and compliance framework for promoting low emission land transport fuels and vehicles, including for electric ones. The consultant can base its work on the existing information and available data of ANP and other sources. The main deliverables of the assignment are:

- *Baseline reports on the fuel economy and electric mobility (part A)*
- *Roadmaps on fuel economy and electric mobility enhancement (part B)*
- *Fuel and vehicle standards, compliance framework and regulations (part C)*
- *Consultations and trainings on fuel economy and electric mobility policy options (part D and E)*

Part A and B of the assignment will focus on the collection of substantive gender-sensitive and aggregated data that will feed into the roadmaps and the development of low-carbon transport policy regulations. The contractor will coordinate with the responsible experts of the STP energy information system on the required format, so the data can be easily integrated later on.

Part C will focus on the development of two documents and regulations related to vehicle emission standards and quality fuel standards in line with ISO/ASTM/IEC practice, as well as a compliance and implementation framework.

Part D will focus on capacity building and replication activities. The expert will organize two training workshops on the baseline reports, roadmaps, as well as the standards. These trainings will be combined with validation workshops, which will feature the participation of the key stakeholders. The meetings will be facilitated by the local UNIDO team at DGRNE and NDA. Finally, UNIDO will facilitate the organization of a GN-SEC webinar, which will inform the National Focal Institutions (NFIs) of CEREEAC and other GN-SEC centers on the results of the assignment. The STP deliverables could be an interesting model for other ECCAS countries.

Part E focuses on consultations with key stakeholders of the energy, petroleum and transport sector to collect reliable data and analyze the causality of the current situation and possible feasible modalities to address potential conflicts or open resistance against the proposed legislation. In this context, it is important to analyze the impact on various stakeholders, industries and interest groups, including low-income groups, women and youth in rural and urban areas. A multi-sectoral technical committee will be established by UNIDO/DGRNE and will review

the deliverables of the contractor. The local team at DGRNE will assist the consultants to organize meetings and logistics. The bidders shall include USD 9.200 in the financial offer to cover the costs of DGRNE in this context.

A. Sub-tasks related to the fuel economy baseline and roadmap:

A.1 Characterisation of the current vehicle fleet in São Tomé and Principe, including:

- The current number of registered and unregistered road vehicles by the different vehicle classes recognised by the government of São Tomé and Principe, including electric vehicles if in existence (e.g. tourism sector in Principe);
- A 10-year forecast of vehicle population by vehicle type, with justification for the assumptions made. The analysis shall also take the findings of the LEAP scenario of the NREAP/NEEAP into account; moreover, the analysis will take into account any findings of the AfDB support for the Green Energy Acceleration Plan for STP;
- An age profile of the fleet, as best as can be determined using available data, also by vehicle class;

A.2 Review of vehicle imports into São Tomé and Principe, including:

- A proportional breakdown of the current source countries of vehicle imports, by vehicle class;
- An understanding of the different vehicle homologation jurisdictions that imported vehicles are built to meet, and the implications of this for measures that call on a specific model's fuel economy result;
- Information on restrictions currently in place for imported vehicles, including any minimum vehicle specifications or minimum age requirements, if any;
- A breakdown of the tax, import duties or any other fees charged before a vehicle enters the country;
- Information on tax incentives or duty exemptions for fuel-efficient vehicles or electric vehicles;

A.3 Review of the in-service requirements for road vehicles, including:

- A description of any in-service inspection requirements;
- A breakdown of any annual fees charged;
- A description of any on-road performance requirements (for example, specifications concerning the amount of visible smoke emissions);
- An opinion on the robustness of policing of compliance to such in-service requirements are in place;

A.4 Review of the supply of automotive fuels, including providing information on the following:

- The current and short-term forecast of liquid fuel imports into São Tomé and Principe;
- The proportional split of end users of current liquid fuel consumption;
- The proportional split of source countries or source regions of automotive fuels;
- The quality standard requirements for automotive fuels, if any and what checks are provided on the quality of fuels in the country, if any;
- The availability of higher quality automotive fuels to São Tomé and Principe and the likely consequences of stipulating the import of high-quality automotive fuels; check current trends regarding the reduction of sulphur contents and analyse potential negotiation positions of STP regarding a shift to higher quality fuels.

A.5 Review existing vehicle-related policy, standards and quality infrastructure processes, including:

- A description of any minimum standards that considered by the Government of São Tomé and Principe, including any policy related to minimum safety standards, air quality emissions standards, and fuel economy, if any.
- A description of the monitoring of vehicle specifications already carried out, if any (for example, information gathered about age and distance travelled of vehicles entering the fleet for the first time).
- Review the existing quality infrastructure, including standards, conformity assessments and testing procedures, as well as qualification of personal (incl. for electric mobility).

A.6 Development of a roadmap with attainable objectives and proposed fuel economy measures:

- If feasible, set quantifiable goals for fuel economy improvements by 2030 and 2050;
- Based on a cost-benefit and feasibility assessment, identify vehicle fuel economy measures and minimum standards that are expected to be economically and practically suitable for deployment in the São Tomé and Principe environment and that would also bring about a measurable improvement in the fuel economy of the São Tomé and Principe vehicle fleet;
- Analyse carefully the potential socio-economic impact of fuel economy policies and standards for different segments of the industry, as well as population and income groups in urban and rural areas;
- Identify key elements of a compliance and implementation framework for the enforcement of the proposed fuel economy measures;
- Provide a risk assessment of the fuel economy and supporting measures identified and an assessment of their expected value and effectiveness;
- The measurable assessments will provide recommendations for those that seem most appropriate for the Government of São Tomé and Principe to deploy, and provide a plan and proposed timelines for their introduction (forming the "fleet fuel economy roadmap").

B. Sub-tasks related to the electric mobility baseline and roadmap:

B.1 As part of the fuel economy assessment, provide the status of e-mobility in São Tomé and Principe including providing information on:

- Any existing e-mobility examples, projects or proposed projects;
- Any existing or proposed EV-related policy measures, regulations or incentives;
- An opinion of the understanding of e-mobility across São Tomé and Principe's vehicle sector;
- An opinion on the capability of the vehicle sector in São Tomé and Principe to provide servicing and maintenance support for micro- and small-format (2- and 3-wheeler) electric vehicles, hybrid electric vehicles, plug-in hybrid electric vehicles, and full battery-electric vehicles;
- An opinion on potential local added value creation of e-mobility in terms of jobs and revenues;

B.2 Provide a forecast for the expected proportion of renewable electricity (RE) generation in grid-supplied electricity and provide an opinion on the expected future availability of RE for e-mobility charging.

B.3 Provide an opinion on the main barriers to e-mobility uptake in São Tomé and Principe and for each, describe how these barriers could be managed in manners appropriate for São Tomé and Principe. This review should consider all aspects in the life of EVs, charging equipment and getting electricity to the charger, from their design through to end-of-life.

B.4 Identify e-mobility demonstration projects that are recommended to be deployed in the short term (i.e., over the next 5 years) and provide justification for their deployment including cost-benefit analysis.

B.5 From the above reviews, develop an EV roadmap that paves a way for a national e-mobility future, including providing recommendations for early, appropriate demonstrations of e-mobility. If feasible, the roadmap should include also quantifiable goals by 2030 and 2050 in line with the NREAP and NEEAP. The analysis should demonstrate the potential economic benefits created through fuel costs savings over the vehicle lifetime (usually 15 to 20 years in the case of e-cars in comparison to 10 to 15 years for ICEVs), localized parts of the value chain and new business models (e.g. servicing, charging, V2G and G2V services). Possibilities for local manufacturing and assembling shall be studied. The analysis will also discuss potential environmental benefits through reduced air, noise and GHG emission reductions.

C. Sub-tasks related to fuel economy standards, compliance framework and regulations

The contractor is expected to draft and propose policies, standards, regulations and recommendation adaptable to STP context (including on standards). These documents will be reviewed and discussed with the established technical committee comprising local and international partners. Specifically,

- The contractor will develop two documents and regulations related to vehicle emission standards and automotive quality fuel standards (gasoline, diesel) in line with ISO/ASTM/IEC practice. In this context,

the contractor can potentially adapt existing documents from similar processes (e.g. in EAC, ECOWAS, Cape Verde);

- The vehicle standard will limit common pollutants found in exhaust emissions of motor vehicles, namely carbon monoxide, particulate matter (PM), oxides of nitrogen (NOX), and hydrocarbons. The standard should cover emission all types of vehicles namely, passenger cars, light commercial vehicles, heavy-duty vehicles, motorcycles and motor tricycles. This standard covers only vehicle with internal combustion engines. The standard shall be well aligned with the implementation period of the fuel quality standard and shall take into account social and economic considerations for key stakeholder, including women and low-income groups in urban and rural areas.
- The quality fuel standard will only focus on automotive gasoline and diesel. It will be well aligned with the vehicle standard implementation and include clear roadmap for the reduction of sulphur content ppm levels taking into account the characteristics of the STP fuel economy and particular needs of key stakeholders. Best practice and practical documents from other SIDS (e.g. Cape Verde, Mauritius) and regions (ECOWAS, SADC, EAC) will be taken into account.
- The contractor will develop two regulations for the approval of the standards in line with STP requirements. Potential experiences and model documents from Cape Verde or Portugal might be interesting.
- The contractor will develop a compliance and implementation framework focused on the enforcement and incentive issues. It will include suggestions for specific fiscal and non-fiscal actions and incentives (ban, taxation or age limit for imported vehicles), including for electric vehicles.
- At the end of this assignment, the contractor shall propose standard mechanisms and verification systems for efficient vehicle emission and imports to be adopted. The contractor will make concrete suggestions how to improve the quality infrastructure and conformity assessment and testing capacities in STP.
- All documents will be prepared with the view of a potential replication in other CEREEAC countries.

3. Detailed tasks, deliverables and time-line

All produced end-products need to be provided by the contractor fully edited, designed (incl. graphs) and ready to be developed in English and Portuguese. All The documents are subject to several rounds of quality reviews and feedback loops, which might take some time and cause longer delays. The documents will be reviewed by UNIDO, DGRNE/NDA, CEREEAC, as well as the technical committee comprising local and international experts.

The work will require close coordination with the national stakeholder responsible for energy, transport, petroleum, the regulator, as well as the national standard bodies and testing centers (as available). The list of direct beneficiaries includes DGRNE, the NDA, the National Road Service (SENAE), the National Petroleum Agency (ANP), the National Water and Electricity Company (EMAE), the General Regulatory Authority (AGER), national standard bodies (if applicable) and the Autonomous Region of Principe (RAP). Fiscal proposals related to the import or taxation of second-hand or electric vehicles will require discussions with the Ministry of Planning, Finance and Blue Economy (MPFEA).

Tasks/Activities	Deliverables	Tentative Working Days	Location
1. Inception meeting and work plan validation The contractor will provide an inception report, incl. detailed work-time diagram, applied methodology, list of key literature, stakeholders, schedule of consultations, indicative tables of content for the baseline studies. The inception report and commencement of the assignment requires approval by UNIDO, DGRNE and NDA. At least two online inception meetings will be required.	Inception report in Portuguese incl. detailed activity plan, time schedule, list of key literature, applied methodologies, schedule of stakeholder consultations, indicative tables of content of assessment reports in Portuguese;	5	Virtual

2. Develop a baseline reports on the fuel economy and electric mobility The contractor will focus on the collection of substantive gender-sensitive data that will feed into the road maps and development of low-carbon transport policy regulations. The contractor will coordinate with the responsible expert of the STP energy information system on the required format, so the date can be integrated easily later on. In line with international best practice ISO/IEC/IEEE for the transport sector and examples of other countries (e.g. EAC, ECOWAS, Portugal, Cape Verde, Mauritius), the contractor will propose gender-sensitive modalities by considering their potential social economic impact and expressed needs of key stakeholders. If useful, both reports could be also merged to one report.	Two (2) baseline reports (or one report with two chapters) on the fuel economy and electric mobility in STP (max. 60 A4 pages in total), fully edited and designed, ready to be published in Portuguese and English. Set of data in xls format provided for integration in the STP energy information system.	25	Home based and in São Tomé and Príncipe
3. Develop roadmaps on fuel economy and electric mobility enhancement Starting from the baseline reports, the contractor will develop two gender-sensitive roadmaps for the improvement of the fuel economy and electric mobility uptake. The proposed roadmaps will require detailed consultations with the key stakeholders of the various sectors, as well as the established technical committee by UNIDO/DGRNE. If useful, both documents can be merged to one roadmap. If feasible the documents shall include quantifiable goals by 2030 and 2050. The roadmaps will propose feasible fiscal and non-fiscal measures and incentives by taking social and economic impacts and needs of industries and stakeholders (women, low-income groups in urban and rural areas) into consideration. Best practices shall be taken into account (e.g. Portugal, Cape Verde, ECOWAS, EAC).	One presentations on best practice and feasible modalities, tools and quality standards in Portuguese Two (2) roadmaps (or one with two chapters) fully edited, designed and ready to be published in Portuguese and English (max. 40 A4 pages in total)	25	Home based and in São Tomé and Príncipe
4. Development of two standards, regulations and compliance/implementation framework Starting from the baseline reports and roadmaps, the contractor will develop two documents and regulations related to vehicle emission standards and quality fuel standards in line with ISO/ASTM/IEC practice. Such documents may be adapted from existing ones in other countries or regions (Cape Verde, Mauritius, ECOWAS, EAC, SADC). The proposed standards will require detailed consultations with the key stakeholders of the various sectors, as well as the established technical committee by UNIDO/DGRNE. The contractor will also develop a compliance and implementation framework as described above. **5.**	▪ Two standard and regulations documents in Portuguese and English ▪ Compliance and implementation framework in English and Portuguese	25	Home based and in São Tomé and Príncipe

6. Undertake two trainings on fuel economy improvements and electric mobility The expert will organize two training workshops on the baseline reports, roadmaps, as well as the standards. These trainings will be combined with validation workshops, which will feature the participation of the key stakeholders. The meetings will be facilitated by the local UNIDO team at DGRNE and NDA. Finally, UNIDO will facilitate the organization of a GN-SEC webinar, which will inform the National Focal Institutions (NFIs) of CEREEAC and other GN-SEC centers on the results of the assignment. The STP deliverables could be an interesting model for other ECCAS countries.	▪ Two trainings at validation workshops ▪ Reports on trainings and validation workshops ▪ Presentations related to the roadmaps, standards and compliance framework ▪ Training materials and list of participants including feedback form ▪ Documentation and recorded webinar to be disseminated	15	Home based and in São Tomé and Príncipe
7. Stakeholder consultations The assignment requires intensive consultations with key stakeholders of the energy, petroleum and transport sector to collect reliable data and analyze the causality of the current situation and possible feasible modalities to address potential conflicts or open resistance against the proposed legislation. In this context it is important to analyze the impact on various stakeholders, industries and interest groups, including low-income groups, women and youth in rural and urban areas. The assignment includes at least to travels to STP. Such travel shall include trips to RAP-Principe. The contractor through its provided budget shall cover the costs for flights and per diem. The local team at DGRNE will assist the consultants to organize meetings and logistics. The bidders shall include USD 9.200 in the financial offer to cover the costs of DGRNE in this context.	▪ Mission reports ▪ Evidence on Stakeholder consultations	5	Home based and in São Tomé and Príncipe
Total		**100 WDs**	

4. Deliverables Time Distribution

The activities under this contract shall be completed within a period of ten (10) months from the effectiveness of the contract. It is understood that the process might delay due to local circumstances or longer review times of documents. The tentative plan for implementation of activities and deliverables is as follows:

Deliverables	Months												Payment Schedule
	1	2	3	4	5	6	7	8	9	10			
Deliverable 1: Inception Report													20%
Deliverable 2: Fuel Economy and Electric Mobility Baseline Reports													20%
Deliverable 3: Fuel Economy and Electric Mobility Roadmaps													20%
Deliverable 4: Standards and Compliance framework													20%
Deliverable 5: Training workshops and webinar													20%
Deliverable 6: Stakeholder Consultation													

All documents will be provided by the contractor fully edited, designed (incl. graphs) and ready to be published in Portuguese and English; In addition, the contractor will be required to deliver the following:

- Item **High-resolution photographs (min. 3 MB, at least 20)** – that illustrate the undertaken activities. The consultants will cede all appertaining rights to unlimited use of the respective pictures to UNIDO and the Government of São Tomé and Príncipe.
- Item **All used raw files and calculation sheets** in editable form (e.g. xls). All files need to be handed over and become property of DGRNE and UNIDO. Collected data will be distributed through the national energy information system.

5. Coordination and Reporting

Project coordination and communication

The contractor will report to the UNIDO Project Manager and his Team in Headquarters (Vienna) and the National Project Coordinator and his team at DGRNE and NDA in São Tomé and Príncipe. The contractor will coordinate with other international partners as needed, including CEREEAC. All draft and final deliverables are subject to approval by UNIDO and DGRNE. The contractor will coordinate on a week-to-week basis closely with the local UNIDO team at MIRN. The local team will support the contractor but it is the overall responsibility of the contractor to collect reliable quality data through its local team. Relevant information will be shared openly. The employment of a local expert is required by the contractor.

Coordination with local and international stakeholders and programs

All relevant documents developed by the contractor undergo a review and quality assurance by the relevant national and international stakeholders and partners. The contractor will present relevant deliverables to UNIDO and the technical committee (TC). By this opportunity, the contractor will strengthen the expertise of the TC to guarantee the participation of industry, professional associations, government, trade union, and other stakeholders during the process. The assignment requires close cooperation and coordination with the national key stakeholders of the EE market in STP, particularly ANP, EMAE, AGER, MIRN/DGRNE, MPFEA/NDA, AFAP, EMAE, national standard bodies, as well as international partners.

The assignment requires close cooperation with ongoing World Bank (WB) funded “STP Transport Sector Development and Coastal Protection Project” and the African Development Bank (AfDB) funded “The Energy Transition and Institutional Support Program for STP” and the “Project for the rehabilitation, reinforcement and expansion of transport networks and electricity distribution (Electricity I)”. Moreover, the contractor shall closely coordinate with AfDB regarding electric mobility elements within the envisaged STP Green Energy Acceleration Plan and Green Mobility for Africa Program (GMFA).

The contractor shall support UNIDO in connecting STP to major international partners and partnerships driving the low-emission transport agenda, including UNEP, IEA, the Global Fuel Economy Initiative (GFEI), the Electric Vehicle Initiative of the Clean Energy Ministerial (CEM) and the Partnership for Clean Fuels and Vehicles (PCFV).

6. Available budget

The available all-inclusive budget for this assignment is **USD 120,000.00** (US Dollar one hundred twenty thousand), including USD 9.200 to cover the costs of DGRNE regarding the organization of logistics of meetings and technical committees.

7. Qualification, evaluation and language criteria

Received technical bids need to comply with and will be evaluated according to the following criteria:

	MINIMUM ELIGIBILITY REQUIREMENTS	VALUE	SCORE
1	Registered consulting company of institution with at least five (5) years of public and private consulting experience in the area of renewable energy, transportation and e-mobility in Sub Sahara Africa (please provide a copy of the Certificate of Incorporation if company).	Yes	qualify
		No	does not qualify
2	Immediate availability of the contractor; ability to implement the assignment despite the COVID-19 travel restrictions; to ensure data collection and local buy-in the employment of local experts in STP is a requirement.	Yes	qualify
		No	does not qualify
3	Financial Strength of the company. Please provide the completed and signed UNIDO Financial Statement Form. **Profitability** Profit Margin Ratio or Return on Assets Ratio should be preferably positive. **Solvency** A solvency ratio should be preferably more than one (1). In case of negative profit margin ratio or solvency, UNIDO may request additional documents and/or adapt payment terms and conditions. **Turnover** The average annual turnover for the past three (3) years (or for the period of time the bidder has been in business, if it has not yet reached three (3) years) should be at least 1 time more than anticipated value of the contract.	Yes	qualify
		No	does not qualify
4	Completed and signed Statement of Confirmation (Annex 1 to the TOR).	Yes	qualify
		No	does not qualify
5	Completeness of the technical and separate financial offer (e.g. CVs, track record, legal and financial documents, all-in price incl. all taxes).	Yes	qualify
		No	does not qualify
	CRITERIA FOR THE QUALITY ASSESSMENT OF TECHNICAL OFFERS	**VALUE**	**SCORE**
1	Quality and coherence of the overall technical offer and efficiency of the proposed execution modality and team set-up; technical offers shall reflect the analytical capacity of the project team and avoid just a repetition of the text in the TOR). The proposed project team includes international specialists and at least one local STP expert. The team shall have a proven track record and relevant experience related to: *a.) Fuel economy methodologies and tools, incl. for electric mobility (e.g. IEA, UNEP)* *b.) Fuel and vehicle standards and compliance frameworks and their implications for the eco-system* *c.) Electric mobility issues in Africa* *d.) Ideally knowledge of the political dimension of the fossil fuel relations in lusophone Africa and negotiation of quality fuel supply* *e.) Knowledge and good contact network in STP to get access to the relevant data, Ministeries and institutions* *f.) Ability to draft legislation in line with STP and lusophone practice is required* Full proficiency in Portuguese is required. At least one team member (preferable the team leader) is proficient in English. Not all experts need to speak Portuguese but the team composition needs to ensure a smooth communication with the local team predominantly speaking Portuguese. Ideally (but not compulsory) documents are prepared first in Portuguese and are translated afterwards to English. • The Team Leader holds at least a master's degree in a relevant academic field and demonstrates at least seven (7) years of consulting/advisory experience in the field of energy efficiency and standards, including in the transport sector; the Team Leader needs to demonstrate relevant experience with similar complex assignments in	good	25
		regular	10
		poor	0

	Africa and/or SIDS. The work-time diagram reflects the substantial involvement of the Team Leader. • At least one Transport Expert with an advanced degree in engineering, science, energy or another relevant training is part of the project team. The expert has a minimum of seven (7) years of professional experience regarding transport, particularly standards related to vehicle emissions, automotive fuels and ideally also electric mobility. • The team shall include at least one local expert in STP, who has access to transport data and demonstrated contacts with the main institutional players, including energy, transport, regulator, petroleum and quality bodies. The budget demonstrates sufficient working time and renumeration of the local experts in line with local fees. • The team shall include one expert with experience in drafting legislation in line with lusophone and STP practice.		
2	Quality of the proposed methodologies and (software) tools (at least 2 tools are applied) to elaborate the main deliverables of this assignment (e.g. baseline reports, roadmaps, standards, training); offer demonstrates the application of fuel economy and electric mobility tools (e.g. IEA, UNEP) and international ISO/ASTM/IEC standards; offer describes how the contractor will create links to international partnerships, such as the Global Fuel Economy Initiative (GFEI), the Electric Vehicle Initiative of the Clean Energy Ministerial (CEM) and the Partnership for Clean Fuels and Vehicles (PCFV).	good regular poor	20 10 0
3	More than fifteen (15) years of accumulated work experience of the project team and quality track-record of assignments related to the transport sector, low-carbon emission assessments, policies, regulation, standards, as well as compliance and implementation frameworks (please provide examples/evidence of documents co-authored by team members); Experience with fiscal and non-fiscal measures to promote low-carbon land transport is required (e.g. emission standards, fuel standards, ban or taxation of imported second-hand or aged cars, incentives for electric vehicles); Familiarity with international ISO/ASTM/IEC standards needs to be demonstrated; knowledge of electric mobility issues is required;	good regular poor	25 10 0
4	Provided track-record of more than six (6) high-quality technical studies, assessments, publications and documents of the project team regarding low-carbon transport, emission vehicle and fuel standards and electric mobility.	good regular poor	20 10 0
5	More than five (5) years of accumulated work experience of the project team on transport issues in Africa; experience in lusophone countries or SIDS and good contact network with the main institutional players of the transport sector is an asset;	good regular poor	10 5 0
	MAXIMUM SCORE		**100**

In accordance with UNIDO procurement rules the technically acceptable bid with the most competitive (**all-inclusive**) price will be awarded. Only technical proposals with a quality score of 70 or more, while a minimum score for each technical evaluation criterion is no less than the respective regular point (5 or 10 depending on items), will qualify for the commercial evaluation. UNIDO reserves the right to request additional information from bidders if necessary.

8. Application Procedure

Interested and qualified bidders shall submit their written proposals in English or Portuguese providing the following information:

- Technical proposal (including proposed approach and methodology, work and activity plan, detailed CVs of experts, copies of university degrees, certifications, licenses as well as a proven track record of implemented assignments); the proposal shall refer to best practice examples of similar grid stability and commercial losses reduction regulation processes;
- Separate financial proposal in USD including all costs and taxes (includes a detailed work-time-expert-diagram indicating daily rates for individual team members); offers without clearly stating the all-in price

will be rejected; The bidders shall include USD 9.200 in the financial offer to cover the costs of DGRNE regarding the organization of logistics of meetings and technical committees;

- Documents demonstrating the quality of the track-record of the project team with regard to areas such as RE and Transport standards design, on fuels, engine and vehicle standards and/or fuel economy measures, including knowledge on the legal framework of standardization bodies.

Bidders are requested to submit their proposals by registering on the UNIDO e-procurement portal (https://procurement.unido.org/). In case of difficulties, please contact the UNIDO Help Desk at procurement@unido.org.

9. Further information

- GCF-UNIDO Concept Note: https://open.unido.org/projects/ST/projects/200158
- GEF-UNIDO CEO Endorsement Document: https://open.unido.org/projects/ST/projects/150124
- GEF/GCF Project Website: https://dgrne.org
- NREAP, https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe
- NEEAP, https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe
- EE standards and compliance framework for electric appliances in STP: https://www.gn-sec.net/pt-pt/node/12581
- World Bank: STP Transport Sector Development and Coastal Protection Project
- São Tomé and Príncipe Renewable Energy and Energy Efficiency Status Report UNIDO- ALER
- UNIDO Energy Policy and Data Gap Analysis (2021) for São Tomé and Príncipe
- African Development Bank "STP- Project for the rehabilitation, reinforcement and expansion of transport networks and electricity distribution (Electricity I).
- Least-Cost Power Development Plan for São Tomé and Príncipe, Agência Fiduciária de Administração Projetos (AFAP) and World Bank
- www.unido.org and www.gn-sec.net