



**Ministry of Environment and Energy
Republic of Maldives**

**Development of Data Collection and Management System for Maldives Energy Authority
Terms of Reference**

1- BACKGROUND

Collection of Energy Statistics is a crucial exercise that is being carried out by the Government on a regular basis, not only as a means of assessing the sector performance but also to develop better planning tools and manage the sector related activities. Moreover, Maldives is obligated to report its Green House Gas (GHG) Emissions to the UNFCCC under the Kyoto Protocol which is directly related to energy use. Hence, there is a need to harmonise the energy sector statistical data collection and management process within the government in order to improve the efficiency of the process and improve the quality of the statistical data obtained.

Currently, Maldives Energy Authority oversees the annual statistics related to energy production, distribution and use. This is complementary to the National Energy Balance that is carried out on an annual basis by the government and the GHG inventory required under National Communication for UNFCCC. However, data collection process for the said purposes is a lengthy process due to the large number of data sources and stakeholders involved.

Thus to reduce the cost of resources required for above mentioned works MEA would like to implement a web enabled database where stakeholders of the relevant data sources will be able to submit the relevant information online directly. The main types of data collected will include (but not limited to) import/export statistics for various types of fuels (for the whole country), electricity production and use (island wise and economic sector wise), transport statistics of islands, energy usage statistics for cooking, large scale industrial activities such as manufacturing, etc.

2- OBJECTIVES OF ASSIGNMENT

The main objective of this assignment will be to develop a web enabled database as a tool that can be used to collect energy sector related data efficiently on a regular basis. This would achieve the following sub objectives:

- i. Reduction of surveys needed, reduced paperwork and overall reduced time required for data collection
- ii. Increased accuracy of collected data, and allow for a better quality data
- iii. Allow flexibility in the validation and analysis of the energy sector data
- iv. Development of a common platform to harmonise all energy sector related information

The database developed shall cater for regular data collection and analysis of the data.

3- TASKS OF THE CONSULTANTS

This assignment will be done in two parts. That is;

1. Development of the requirement specifications for the database, and
2. Development of a database and the website, based on the outcome of the first part.

The overall process will involve full coordination between Maldives Energy Authority and Ministry of Environment and Energy in order to harmonize the workflow.

The scope of this assignment will include (but not be limited) to the following, and will include inputs received from stakeholder consultations. **The work needs to be carried out by a team of a minimum of two individuals (an energy statistical expert and a web/database developer) or a firm with the necessary expertise.**

The tasks of those consultants are as below

Requirement specification to be developed by an Energy Statistical Expert

- i. Review of literature which will include mainly National Energy Balance reports, existing power sector data at MEA, and Greenhouse gas (GHG) inventories.
- ii. Consultation meetings (MEA/MEE/Stakeholders) where relevant.
- iii. Identification of data sources and types and proposes effective data collection routines
- iv. Development of survey forms and data structure, including standardisation of units of data/measurements
- v. Development of data collection methodology and a manual for data collection at different sources – inhabited islands and resorts, power houses, fuel importers, etc.

- vi. It is **not** required to conduct full surveys, but will be required to demonstrate the data collection process (such as visiting few sample islands and conducting data collection process) and by utilising data collected at MEA/MEE over the past.
- vii.
- viii. Obtain feedback from stakeholders with regard to the methodology to be in place to improve the methodology fulfilling their requirements.
- ix. Determine resource requirements (human resource, tools, financial, etc.) for surveys to be carried out (both for where a survey process is required and for case where a simple raw data entry process is need).
- x. Development of concepts for data analysis and information delivery for end user. This includes user interfaces for data entry, analysis, and basic statistics which might be needed by end users (both users who enter raw data and for users who process/analyse the data).
- xi. Development of data verification checks to be used during data collection, data entry and post data collection.
- xii. Development of long-term data collection and monitoring routine for the web-enabled database

Development of a database and website by a database/web developer

- i. Determine Hardware and software requirements based on the requirement specifications
- ii. Development of the database on the requirement specifications developed
- iii. Development of user interface for data entry points (User name/password login system, different forms for different types of users at the data sources, etc.)
- iv. Development of data validation techniques (both at user interface and back end)
- v. Development of user friendly query interfaces with ability for data export to excel (to be carried out in consultation with MEA/MEE)
- vi. Development of an interface to carry out basic data analysis (e.g. averages, usage time series etc... as per the requirement of MEE/MEA) for the website visitors to analyze.
- vii. Testing the database using data available at MEA/MEE and demonstration of the operation of end user interfaces.
- viii. Conduct a training workshops for end users and database managers on using and managing the software.
- ix.
- x. Propose a plan for technical support for a duration of 6 months

4- KEY DELIVERABLES

Energy Statistical Expert

- i. Report on initial findings of the data requirements after the literature review
- ii. Work plan for the tasks to be carried out
- iii. Report covering requirements specifications, data collection methodology , data collection plan and long term monitoring plan (the report also needs to cover areas of data fields/types with proper categorization, validation techniques/checks to assist the development of database), outcomes of the stakeholder consultations.
- iv. Workshop and a manual for training of trainers for the purpose of data collection. (This includes training on the data collection routines and also the use of the web application)
- v. Final report on summary of all work, plan for monitoring and for future development

Database and web developer

- i. Work plan and weekly progress report (brief)
- ii. Develop user manual for end user(user documentation)
- iii. Develop user manual for programmers (technical documentation)
- iv. Completion report summarizing the overall tasks work including recommendation for future development
- v. Database and the website
- vi. Complete source codes with clear comments for the database and the website

5- QUALIFICATION CRITERIA

The consultants (or team) shall be experienced on similar works particularly on energy sector related works, preferably statistical related. To be eligible for this assignment the consultants (or team) is expected to meet the following criteria.

Energy Statistical Expert

- i. Holds a Degree in relevant fields/thematic areas required to carry out the works as included in the scope of this study, with a minimum of 5 years experience;
- ii. Must have previous experience in statistical data collection and analysis in energy sector in small island context;
- iii. Experience in national energy balances and emission estimation of Greenhouse Gases in small island state will be considered as an added advantage.
- iv. Fluent in written and spoken English
- v. Excellent interpersonal skills and demonstrated ability to communicate with project stakeholders is essential.
- vi. Experience in policy planning and strategies development at national levels

Database and web developer

- i. Must hold a professional certification in web application development and/or database management or relevant fields/thematic areas required to carry out the works as included in the scope of this study, with 5 years experience
- ii. Experience and proven competency in system analysis
- iii. Proven experience and competency in PHP/MySQL database including web designing
- iv. Fluent in written and spoken English

6- REPORTING

The consultant is expected to work closely with the Maldives Energy Authority and/or SNC secretariat established in Climate Change and Energy Department of the Ministry of Environment and Energy will report directly to the persons designated during the assignment.

7. CONTRACT DURATION

The contract duration will be **3 months** from the commencement of the assignment.

8. SELECTION CRITERIA

The consultants will be selected based on the following criteria.

Rating Criteria	
Criterion	Rate
Energy Statistical Expert(s)	
Experience in development works related to energy statistics	18 points
Academic qualifications related to Science/Engineering related field	8 points
Database and web developer(s)	
Experience in development of databases involving extensive data analysis and verification	18 points
Academic qualifications	8 points
Proposed workplan/Schedule	8 points
Proposed financial values	40 points

9. APPLICATIONS

Interested consultants may submit their proposals on a sealed envelope indicating the following.

- Technical proposal stating the approach to be used for the work specified in the terms of reference, including a proposed workplan for the tasks;
- Proposed financial value for the assignment ;
- Curriculum Vitae (CV) of the consultants indicating the previous experiences on similar works performed in the past;
- Attested copies of academic certificates;

10. SUBMISSION

Interested consultants may submit their proposals **on or before 1430 hrs of 4th September 2012** to the following address.

Maldives Energy Authority
Ameenee Magu, Maafannu
Male', 20392
Republic of Maldives

Important Notes:

All bidders must provide contact information during submission. Date and time of the bid opening meeting will be informed accordingly. All bids will be opened during the bid opening meeting and a copy of the proposed financial values will be circulated to all bidders.

You can reach MEA staff by phone at 300 4217 or by email (secretariat@mea.gov.mv) if you have questions or require clarifications.