Impact Assessment Study for PAT Cycle-I

Terms of Reference

BACKGROUND / CONTEXT

The Federal Republic of Germany and the Government of the Republic of India have, under the Indo-German Technical Cooperation, have agreed to jointly promote the "Indo-German Energy Programme" (IGEN) with the aim to promote energy efficiency/conservation in energy consumption so to use energy more efficiently and in turn improve the environment/climate protection.

GIZ is an international cooperation enterprise for sustainable development which operates worldwide, on a public benefit basis. GIZ is fully owned by the German Federal Government, GIZ implement development programs in partner country on behalf of the German Government in achieving its development policy objectives.

The Ministry of Power and Bureau of Energy Efficiency (BEE) are entrusted with the task of implementation for the National Mission on Enhanced Energy Efficiency (NMEEE) under National Action Plan on Climate Change (NAPCC). This mission has a component which deals with the market based mechanism to improve the energy efficiency in energy intensive large industries and facilitates through certification of energy savings which could be traded. This scheme known as Perform, Achieve and Trade (PAT) is expected to save about 6.686 million metric tonne of oil equivalent (mMtoe) by 2014-15. Eight industrial sectors namely Thermal Power Plant, Iron & Steel, Fertilizer, Cement, Aluminium, Pulp & Paper, Textile and Chlor-alkali have been included in PAT cycle I, where in about 478 industries (known as designated consumers (DCs)) are covered.

In PAT cycle-I, all the DCs were required to achieve a reduction of Specific Energy Consumption (SEC) from their baseline SEC within 3 years' time (2012-13 to 2014-15). After the M&V phase was completed in all respects the BEE had recommended to MoP to issue ESCerts. Thereafter MOP has issued ESCerts to those DCs who have over achieved. The DCs who have under achieved have been entitled to purchase ESCerts. The platform for trading is the power exchanges. During this period BEE had gathered information through sector specific pro-forma for arriving at the final Specific Energy Consumption of the DC. The data in all 8 sectors shall be analysed and presented in terms of Report for references.

Subsequently after adopting similar parameters as adopted in PAT-I; PAT II was notified with effect from 1st April 2016 for a three cycle ie up to 31st March 2019. PAT-II included 621 DCs covering 11 sectors including three new sectors (DISCOMS, Railways and Petroleum Refineries) with an overall estimated saving of 8.869 mtoe. PAT- III was notified as a rolling cycle with effect from 1st April 2017 upto 31st March 2020 covering 166 DCs with an estimated overall energy saving of 1.06 mtoe. As per the Schedule of the EC Act there are several industries which are energy intensive. Only a few of them have so far been covered under PAT. Moreover this is an ongoing process.

The Designated Consumers have also adopted several measures, technology and applied different management techniques in order to achieve their target. To capture the impact of achievement made by Designated Consumer, it is proposed to prepare Impact Assessment document of PAT. This document should cover all aspects of PAT in terms of target, achievement, methodology, impact, investment, etc. The document should be elaborated with the help of graphs, charts, pictures, tables, figures, etc. This document may be published and shall serve as the main document indicating the overall success of PAT scheme.

DESCRIPTION OF THE ASSIGNMENT

Broad Objective - Impact Assessment Study and Success Story document in all 8 sectors of PAT cycle I

The scope of work for the Impact Assessment Study is as follows:

A. Overall impact of PAT Cycle I
   a) Overview and current status of the PAT scheme (PAT-I,II,III), with its rolling scheme for notification of new PAT Cycles
   b) Quantification of impact of PAT scheme on energy intensity and GDP of the country due to these sectors. Representation of facts and figures comparing the scenarios with and without PAT
   c) Quantification of impact of PAT in achieving NDC commitments of India
   d) Quantification and graphical representation of Market transformation of Indian industry due to implementation of PAT scheme. Comparison of business as usual (BAU) and due to PAT in the industrial sector.
   e) Change in perspective of Indian industry for energy efficiency and energy management system with the implementation of PAT scheme.
   f) Technology barrier and other issues faced by the industry in accepting and implementing energy efficient technologies in India.
   g) Investments made for achievement of targets and statistical analysis of investment for reducing 1 tonne of oil equivalent.
   h) Impact of financial instruments, if any or opportunities for financial instruments in promotion of energy efficiency in India.
   i) Quantification of Energy Savings and emission reduction due to PAT cycle I in terms of toe, coal savings, and CO_2 emission reduction. Relating the same to day to day terminologies to make it lucid.

B. Sectoral impact and success story for each sector under PAT Cycle I (Separate report on each sector)
   a) Quantification of impact of PAT scheme on energy intensity and GDP of the country due to each sector. Representation of facts and figures comparing the scenarios with and without PAT in the sector
   b) Change in energy scenario w.r.t. baseline and future forecasting. Quantification and graphical representation of Market transformation of Indian industry due to implementation of PAT scheme in this sector. Comparison of business as usual (BAU) and due to PAT in the industrial sector.
   c) Quantification of impact of PAT in achieving NDC commitments of India
   d) Mapping of processes, technologies and energy consumption trends for the respective sector

e) Sectoral profile for the respective sector, trend analysis for energy efficiency, data analysis of sector specific proforma and policy framework for execution of subsequent PAT cycle in each sector, Change in perspective of sector for energy efficiency and energy management system with the implementation of PAT scheme

f) Sector wise benchmarking analysis (Global and India level)

g) Technology barrier and other issues faced by the industry in accepting and implementing energy efficient technologies in India.

h) Investments made for achievement of targets and statistical analysis of investment for reducing 1 tonne of oil equivalent.

i) Quantification of Energy Savings and emission reduction due to PAT cycle I in terms of toe, coal savings, and CO_2 emission reduction. Relating the same to day to day terminologies to make it lucid.

j) Use of Renewable/AFR by DCs and their impact on Specific Power consumption

k) Success story for each sector will have at least 2 case studies along with data analysis of sector specific proforma, where market transformations have occurred along with high quality photographs and statement from Plant head/CEO of the units regarding technology, analysis of projects implemented, investment made, monitory savings achieved, new Energy Efficiency technology applied

Note: All the data shall be collected by the selected bidder from the designated consumers or other resources. Data provided by BEE/GIZ shall be kept confidential and should not be copied/used any other place apart from this report. These data will be analyzed on the BEE/GIZ computer and only result will be copied. Any copying of data other than permitted by BEE/GIZ, will lead to the termination of the project.

REPORTING AND DELIVERABLES

S.No.	Deliverable	Timeline
1	Draft report on impact assessment and success story for each sector under PAT -1 (as per section 2.B)	5 months from award of contract
2	Draft report on overall impact of PAT -1 (as per section 2.A)	7 months from award of contract
3	Final report on impact assessment and success story for each sector under PAT -1 (as per section 2.B)	7.5 months from award of contract
4	Final report on overall impact of PAT -1 (as per section 2.A)	9 months from award of contract

OTHERS

1. GIZ may invite the qualified bidders to make presentations on their proposal w.r.t. the deliverables.
2. The bidder is required to submit the detailed schedule of activities for completion as per section 3 of this ToR
3. The schedule shall include the responsibility matrix as well, as shall indicate the areas where intervention/ support from GIZ/BEE is needed.
4. Successful bidder shall submit the status w.r.t. to schedule every 15 days.

5. Monthly review meetings should be held every month in Delhi to update on the proceedings, hold-ups, etc.
6. GIZ/ BEE shall provide the data available in the sector specific proforma and M&V reports in as received formats ,i.e., which shall be assessed and analyzed by the bidder. GIZ/BEE may also provide compiled data of these plants wherever available.
7. The data provided are related to baseline (2007-2010) and assessment year (2014-15) and shall be mainly
   a) Generation/ Production profile with equivalent product details
   b) Energy input profile
   c) Captive/ self-generation/ co-generation
   d) Import- export of energy and raw materials
   e) Sale and purchase details of intermediaries
   f) Any other data available with BEE/GIZ required for the analysis purpose
8. The data which are not available with BEE/GIZ shall be collected by the bidder from industries, associations, reference journals and other guide materials.
9. GIZ/BEE shall write letters to plants to facilitate the bidder in expediting the data/ documents from the plants, wherever necessary.
10. The bidder can make suitable assumptions where it is not possible to expedite the data. However, such assumptions shall have proper basis and prior approval shall be taken by GIZ/BEE
11. The bidder shall visit plant site to capture the case study on best practices and new technologies adopted in the industry.
12. The draft report shall be submitted in soft and one hard copy for each.
13. The final report shall be submitted in soft and three hard copies of each.

14. EXPERTS PROFILE

The Technical Consultant should possess the following minimum requirements:-

Lead Expert: The lead expert should

a) be engineering graduate with at least 25 years of work experience in industrial consultancy, market research, statistical analysis and techno-economic feasibility analysis.
b) Have experience in project management and consulting
c) have adequate work experience in the field of energy, energy efficiency, industrial energy needs, etc.
d) worked on energy issues in large scale industries
e) be well aware of the energy scenario of India and Indian industrial sectors
f) have the ability to work in a team and lead it.
g) Be fluent in English and Hindi

Senior Team Members: senior team members should

a) be engineering graduate with at least 15 years of work experience in industrial consultancy, market research, statistical analysis and techno-economic feasibility analysis.
b) Have experience in project management
c) have adequate work experience in the field of energy, energy efficiency, industrial energy needs, etc.
d) be well aware of the energy scenario of India and Indian industrial sectors.
e) Have worked on report writing and statistical analysis
f) be well versed with various analytical tools
g) have the ability to work in a team.
h) Be fluent in English and Hindi

Junior Team Members: junior team members should

a) be a graduate with at least 5 years of work experience in industrial consultancy
b) be well aware of database management and statistical analysis
c) have adequate exposure in the field of energy, energy efficiency, industrial energy needs, etc.
d) be well versed with various analytical tools.
e) Have worked on report writing and statistical analysis
f) have the ability to work in a team.
g) be fluent in English and Hindi

15. COMPANY PROFILE:

- Should have adequate experience on report writing and statistical analysis.
- The organization must have work experience in at least three industrial sectors out of 8 sectors under PAT cycle-I, which are, Thermal Power Plant, Cement, Textile, Aluminium, Chlor Alkali, Iron & Steel, Pulp & Paper and Fertilizer.
- The organization must have experience in project management & consulting, Market Research, Techno-Economic feasibility, statistical analysis and project planning area since last 10 years. (At least one project detail for each type as mentioned above shall be submitted with proposal)
- The organization should have Pan India presence with minimum 10 permanent professionals out of which 3 must be having Master's degree.
- Should have a minimum annual turnover of INR 2 crores (INR or its equivalent in foreign currency) from Consulting Fees in last two of the last three (3) years i.e. FY 2013-14, 2014-15 and 2015-16

The selection process has some pre-selection criteria for the bidders. Please refer to the bidding conditions for details. The bidders who are unable to meet the pre-selection criteria *(Ref: Grid for assessing the eligibility of consulting firms)* will not be evaluated any further. Hence, the bidder, will have to provide all the necessary documents/ evidence to meet the pre-selection criteria. The pre-selection process will be followed by the technical evaluation followed and then by the financial evaluation, if firms are found technically compliant.