

**FINANCIAL ASSISTANCE SCHEME FOR  
POWER GENERATION & UTILIZATION  
FROM**

# **WASTE HEAT RECOVERY**



**MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)**  
(Government of Maharashtra Undertaking)  
**2nd, Floor Mhada Commercial Complex,  
Opp. Tridal Nagar, Yerawada,  
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### **About MEDA**

MEDA is a Government of Maharashtra Undertaking Agency established in the year 1985. MEDA is a 'Nodal Agency' for promotion of renewable energy sources and 'Designated Agency' for implementation of Energy Conservation Act, 2001 in the State of Maharashtra.

The main objectives of MEDA are:

- To promote and develop, Non-conventional, Renewable and Alternate Energy Sources and Technologies
- To assist GOI and GOM in Renewable Energy Programmes
- To install Demonstration Projects
- To pursue Power Projects, based on Renewable Energy
- Rural Electrification through Renewable Energy (remote villages)
- To Implement Energy Conservation Act , 2001 and related schemes

### **Need for Energy Conservation:**

Power shortage hampers the economic growth of any state. Energy Conservation is the cheapest, easiest and cleanest way for bridging the gap between demand and supply. It is estimated that energy conservation projects requires only 1/5<sup>th</sup> investment against for installation of new power project.

### **Potential for Energy Conservation:**

Some studies indicated the followings are the potential for energy conservation in various sectors of the state.

<b>Sr. No.</b>	<b>Sector</b>	<b>Conservation potential (%)</b>
1	Industrial Sector	Up to 25
2	Agriculture Sector	Up to 30
3	Domestic Sector	Up to 20
4	Commercial Sector	Up to 30

### **Objective of Waste Heat Recovery Scheme:**

Waste heat is heat, which is generated in a process by way of fuel combustion or chemical reaction, and then "dumped" into the environment even though it could still be reused for some useful and economic purpose. The essential quality of heat is not the amount but rather its "value". The strategy of how to recover this heat depends in part on the temperature of the waste heat gases and the economics involved. Large quantity of hot flue gases is generated from Boilers, Kilns, Ovens and Furnaces. If some of this waste heat could be recovered, a considerable amount of primary fuel could be saved. The energy lost in waste gases cannot be fully recovered. However, much of the heat could be recovered and loss minimized by adopting various measures.

The high temperature heat recovery potential is available in many industries. The high temperature waste heat available can be utilized for power generation, utilization of waste heat for heating of water, air, increase in process temperature etc.. Considering the acute shortage of power this ready source can prove a boon to the industry in more than one way. Hence to encourage power generation, utilization of waste heat for heating of water, air, increase in process temperature etc. from waste heat MEDA has proposed to provide financial aid to industries for preparation of

detailed project report (DPR) for power generation, utilization of waste heat for heating of water, air, increase in process temperature etc. from waste heat recovery.

### **Methodology of the scheme:**

1) Registration of the project :

The interest industry/ Government organization should register with MEDA their willingness to carry out the study and prepare a DPR for power generation, utilization of waste heat for heating of water, air, increase in process temperature etc. from waste heat recovery. Registration format as per Annexure 1 Registration will be on “First come, First serve” basis. MEDA will maintain the list of proposals on first come first basis. MEDA will issue the registration letter after due consideration of proposal.

2) Detailed Project Report :

The DPR should be prepared from a consultancy organization/consultant empanelled with MEDA. Guidelines for preparation of DPR should be followed as per Annexure 2.

3) Scrutiny of DPR:

The DPR would be scrutinized by the scrutiny committee formed by MEDA. The scrutiny committee would release an approval of the DPR along with its recommendations.

4) Release of subsidy:

Industry should submit two hard copies of the detailed project report and a copy of work order mentioning the scope of work as “Detailed Project Report for Power Generation, utilization of waste heat for heating of water, air, increase in process temperature etc. from Waste Heat”.

100% subsidy would be released to the industry after the approval from the scrutiny committee is obtained.

### **Validity of the Program:**

This program is valid till **31<sup>st</sup> March, 2009**. Director General, MEDA reserves the right for issuing amendments or cancellation of the program without any reason.

### **Eligibility Criteria:-**

- A Unit / facility should be situated in Maharashtra state.
- A Unit/ facility should be regular payer of electricity bill
- The Detailed Project Report (DPR) should be prepared by MEDA’s empanelled consultant.
- In case of Semi Govt./ Government Undertaking/ Local Self Government Buildings/ Buildings of Urban Local Bodies & Maharashtra Industrial Development Corporation (M.I.D.C.) supporting documents to clarify the undertaking of State/ Central Govt. is necessary.
- If the unit is already availing financial assistance from any Government organization for preparation of detailed project report study then the unit is not eligible for this assistance.

**Financial Assistance:-**

Financial Assistance will be given as below:

- Of Rs. 1, 00, 000/- (One Lakh) per project or 50% of consultant fee for preparing DPR, whichever is less for power generation.
- Of Rs. 50, 000/- (Fifty thousand only) per project or 50% of consultant fee preparing DPR, which is less for other purpose of heating.

(On letter head of the unit)

**Application for Registration under Waste Heat Recovery Scheme**

To,  
Director General,  
Maharashtra Energy Development Agency  
2<sup>nd</sup> Floor, MHADA Commercial Complex,  
Opp. Tridal Nagar,  
Yerwada  
Pune 411 006

**Sub:- Application for registration under 'Waste Heat Recovery Scheme'**

Dear Sir,

This in reference to above subject, M/s\_\_\_\_\_ is willing to register under Waste Heat Recovery Scheme. Our Unit's annual energy bill is Rs.\_\_\_\_\_ and summary of last twelve months is as given in attached format. We are regular payer of the Electricity Bill. Also we are not availing any financial assistance from any other organization for preparation of detailed project report for power generation, utilization of waste heat for heating of water, air, increase in process temperature etc. from waste heat recovery. We hereby agree to abide by the terms and regulations of Waste Heat Recovery Scheme.

Hence request you to kindly request to sanction our proposal.

Thanking You,

Yours Faithfully

(Signature of Unit Head)

Encl:-

1. Copies of Energy Bill of last 12 Months (Including oil, gas, coal etc.)
2. Summary of Energy Bill
3. Company Profile

## **GUIDELINES FOR DETAILED PROJECT REPORT FOR AN ENERGY CONSERVATION PROJECT**

1. The report must be based on the factual data regarding present energy consumption figures and the project energy consumption in first three years of implementation.
2. The report should contain following information as minimum–
  - 2.1. Technical Feasibility
  - 2.2. Economic Feasibility
  - 2.3. Space and other constraints for implementation
  - 2.4. Status of technology available for implementing the project
  - 2.5. Names of the probable vendors giving details about their specific expertise and experience in the relevant field
  - 2.6. Project Implementation Schedule
  - 2.7. Performance Evaluation and Monitoring Procedure
  - 2.8. Preventive and Routine Maintenance Requirements
  - 2.9. Impact on Environment
  - 2.10. Availability of resources such as make up water etc.
  - 2.11. Technological obsolescence.

Simple projects such as installation of energy efficient lamps, high efficiency motors, variable frequency drives, energy efficient steam traps, condensate collection systems etc. which are based on commonly known energy conservation practices will not qualify under this scheme.

3. Risk identification and mitigation with respect to following should be covered in DPR.
  - 3.1. The DPR should cover sensitivity analysis particularly with reference to following points -
    - a) Variations in various inputs and outputs their costs, prices etc and their impact over payback period of the project or for a period of initial 10 years whichever is higher.

This needs to be done particularly with reference to technical and commercial trends anticipated in concerned Industries, Environment, public systems etc. Necessary supporting documents from surveys carried out by reputed institutions in this regard need to be provided in the DPR.
    - b) Viability of the project with reference to trends in globalization, GATT treaty, WTO norms, competition from overseas and inland, from organized and unorganized sector etc.

- c) Impact of changes in regulations, laws of land etc. recently brought into force and likely to be brought in future.
  - d) Prediction of trends in costs, prices, specifications, demand etc and its impact on viability of the project.
- 3.2. Part load performance of the project.
- 3.3. The DPR should provide techno-commercial information on operation and maintenance requirements for all critical equipments in the project. This is important particularly to fix the responsibility of critical equipment suppliers and avoid any dispute arising out of day to day operation and maintenance of the plant.
- 3.4. The DPR should provide details of National and International manufacturing stage inspection and final performance testing standards which will be referred and relied upon for validation and performance tests of critical equipments involved in the overall project.
- 3.5. The DPR should provide detailed specification of pollution abatement equipments with particular reference to the pollution control norms which may come into force during the pay back period of the project or life of project whichever is higher. The DPR should cover various national and international standards stipulated to ensure that the project complies to the sustainable Development initiatives. This is particularly important on the background that Indian Pollution control norms are rapidly getting evolved and are being brought in line with those followed in developed countries. The DPR must therefore give detailed treatment regarding compliance to the sustainable development initiatives and environment impact statement.
- 3.6. The DPR should include layout of the project particularly with reference to material handling, movement and transfer various inputs and output from the plant as well as ease of O & M of plant.
- 3.7. The DPR should give in tabular form list of equipments that will be replaced or changed within the plant.
- 3.8. The DPR should give the detailed statement of various auxiliary consumptions. This statement will be certified and ratified by Certified Auditors.
- 3.9. The DPR should provide for commercial contingencies (like foreign exchange currency fluctuation, custom duty tariff etc.) for all imported as well as local items to be paid in foreign currency or in Rupees.
- 3.10. The DPR should provide detailed guarantee and warrantee statements of major / critical equipments in the project. It is advisable to provide in DPR

“Terms and conditions of sale” as stipulated by the equipment suppliers, EPC contractors, consultants. DPR should clearly recommend and stipulate responsibility and accountability of all vendors, EPC Contractors, Consultants, Users and other Stake-holders/interested parties.

- 3.11. The environment impact assessment should be the integrated with reference to effluents generated the project. This should be put together along with viability assessment of the project.
  - 3.12. The DPR should provide detailed impact analysis with respect to changes in process, quality and safety.
  - 3.13. DPR should cover all points that are critically important for a financier / financial Institutions to have comfort for providing finance at the attractive terms and conditions. This is more so, if efforts for overseas finance arrangement are to be made.
4. A Bank Guarantee or Performance Bond should be obtained of amount equivalent to the cost of DPR preparation till the DPR is implemented and found to be implemented successfully. The agency who prepared DPR should be held responsible under the Bank Guarantee till such period.
  5. All statistics, tables, technical data, specifications etc should be provided with its references, source of information clearly bringing out its authenticity, how it is verified, any novelty or innovation involved or considered its validation, its providers, ownership, patents, other IPR related issues, its special benefits to investors, society at large etc should be clearly spelled out.