REVIEW OF GOVERNMENT OF INDIA POLICIES FOR PROMOTION OF RENEWABLE AND BIOMASS ENERGY UTILISATION IN INDIA

1.0 Preamble

This report covers review of the policies and programmes of the Government of India, for promotion of the renewable and biomass energy utilisation in India.

1.1 Background of the Ministry of Non conventional Energy Sources

India's search for new and renewable energy resources that would ensure sustainable development and energy security began in early 70's of the last century. Consequently, use of various renewable energy resources and efficient use of energy were identified as the two thrust areas of the sustainable development. Realising the need for concentrated efforts in this sector, the Government of India established a Commission for Additional Sources of Energy (CASE) in the Department of Science and Technology, in 1981. The mandate of CASE is to promote research and development activities in the field of renewable energy. CASE was formally incorporated in 1982, in the newly created Department of Non-conventional Energy Sources (DNES). In 1992 DNES became the Ministry for Non-conventional Energy Sources, commonly known as MNES.

The Ministry continues to support the implementation of a large broad-spectrum programme covering the entire range of new and renewable energies. The Ministry has Regional Offices, three specialised research Institutions and a non-banking financial company – Indian Renewable Energy Development Agency (IREDA) - under its administrative control to promote its policy and programme initiatives.

The following sections cover Government of India's major programmes, policies and incentives for the promotion of renewable and non-conventional technologies in India.

2.0 Policies, Procedures and Incentives

2.1 Policies

The Prime Minister of India has announced a goal of 10% share for RE or 10,000 MW in the power generation capacity to be added during the period up to 2012.

2.2 Renewable Energy Policy

A comprehensive RE Policy for all-round development of the sector, encompassing all the key aspects, has been formulated by MNES. The broad objectives envisaged in the draft policy are:

- Meeting the minimum energy needs through RE;
- Providing decentralised energy supply in agriculture, industry, commercial and household sectors in rural and urban areas, and
- Providing grid quality power.

The policy envisages 10% of additional grid power Generation capacity to come from RE by 2012. The policy is awaiting approval by the Government.

2.3 Policy for All-round Development of Renewable Energy

Policy measures aim at overall development and promotion of RETs and applications. Policy initiatives encourage private as well as FDI including provision of fiscal and financial incentives for a wide range of RE programmes. Further, the procedures have been simplified, and provide excellent opportunities for increased investment in technology up-gradation, induction of new technologies, market-development and export promotion.

2.4 Foreign Investment Policy

- Foreign investors can enter into a joint venture with an Indian partner for financial and/or technical collaboration and for setting up of RE-based power generation projects
- Proposals for up to 100 per cent foreign equity participation in a joint venture qualify for automatic approval.
- Hundred per cent foreign investment as equity is permissible with the approval of the Foreign Investment Promotion Board (FIPB).
- Foreign investors can also set up a liaison office in India
- The Government of India also encourages foreign investors to set up RE-based power generation projects on BOO basis. Various Chambers of Commerce and industry associations in India provide guidance to the investors in finding appropriate partners
- The Government of India encourages foreign investors to set up power projects on Build, Own and Operate (BOO) basis. Investors are required to enter into a power purchase agreement with the concerned state government
- No prior approval of the government is required to set up an industrial undertaking with Foreign Direct Investment (FDI) by Non-Resident Indians (NRIs) or Overseas Corporate Bodies (OCBS)
- The Reserve Bank of India (RBI) has permitted Indian companies to accept investment under the 'automatic route' without obtaining prior approval from RBI. Investors are required to notify the regional office of RBI, of receipt of inward remittances within 30 days of such receipt and file required documentation within 30 days of issue of shares to foreign investors

2.4.1 Foreign Investment Promotion Board (FIPB)

- The FIPB has been revamped and made the nodal single window agency for all matters relating to FDI as well as for promoting investment into India
- The Board is chaired by the Secretary (Department of Industrial Policy & Promotion), Government of India
- It provides appropriate institutional arrangements, transparent procedures and guidelines for investment promotion and to evaluate proposals for foreign investment (other than those eligible for automatic approval by the Reserve Bank of India)
- FIPB would also monitor implementation of mega projects to facilitate further investment and remove bottlenecks
- The Board considers all investment proposals with or without technical collaboration and/or industrial license
- FIPB has made available a mailbox facility for filing applications: The e-mail address for the same is “siaapplication@ub.nic.in”. The format is available at www.indmin.nic.in

- This Board meets every week and considers all applications within 15 days of their receipt with the endeavour to communicate decisions to the applicants within four weeks

2.4.2 **Foreign Investment Implementation Authority (FIIA)**

- The FIIA has been set up in the Ministry of Commerce and Industry to translate FDI approvals and implementations
- It is headed by the Secretary (Department of Industrial Policy & Promotion) and is serviced by the SIA
- FIIA would provide a one-stop after-care service to foreign investors by helping them to expedite approvals and clearances and to sort out operational problems with other government agencies
- The FIIA will act as a single-point interface between the investors and government agencies including administrative ministries, state governments, Pollution Control Boards, Directorate General of Foreign Trade, regulatory authorities, tax authorities and Company Law Board among others
- Approval holders have been requested to get in touch with respective officers in FIIA

2.5 Industrial Policy

- MNES is promoting medium, small, mini and micro enterprises for manufacturing and servicing of various types of RE systems and devices.
- Industrial clearances are not required for setting-up of an RE industry
- No clearance is required from Central Electricity Authority (CEA) for power generation projects up to Rs 1,000 million
- A five-year tax holiday is allowed for RE power generation projects
- Soft loans are available through IREDA for RE equipment manufacturing
- Facilities for promotion of Export Oriented Units (EOUS) are available for the RE industry
- Financial support is available to RE industries for R&D projects in association with technical institutions
- Import of power projects are allowed
- Private sector companies can set up enterprises to operate as licensee or generating companies
- Customs duty concession is available for RE spares and equipment, including those for machinery required for renovation and modernisation of power plants. Excise duty on a number of capital goods and instruments in the RE sector has been reduced or exempted

2.5.1 **Simplified Mechanisms**

Under the existing Industrial Policy, a short list of only six industries is kept under licensing All applications for which approval is required from the government are to be filed with SIA and considered by subject specific committees or boards, and decisions are taken within the specified time. These Committees include the:

- Project Approval Board (PAB) for foreign technology agreement cases
- Board of Approval (BOA) for 100 per cent EOUs
- Licensing Committee (LC) for industrial license
- Inter-ministerial Committee for Electric Hardware Technology Park Sectors (EHTPS) and Electronic Software Technology Parks (ESTPS)
- Empowered Committee for granting concessions under the Income Tax Act for Industrial Model Towns, Industrial Parks, etc

2.5.2 **Secretariat of Industrial Assistance (SIA)**

- The SIA has been set up as an investor-friendly agency to provide a single window for entrepreneurial assistance, investor facilitation, and for receiving and processing applications, which require government approval
- They are also expected to convey the government's decisions on applications filed and for assisting entrepreneurs to set up projects and monitoring implementation
- SIAs promotional activities include dissemination of information and data on a monthly basis through the SIA newsletter and "SIA Statistics"
- SIA is also accessible through its website www.indmin.nic.in. It also assists potential investors in finding joint venture partners and provides information on relevant policies and procedures
- Advisory services are also provided on-line through the website, apart from information through meetings and promotional events

The SIA can be contacted by writing to:
Joint Secretary,
Secretariat of Industrial Assistance Department of Industrial Policy & Promotion
Ministry of Industry
Government of India
Udyog Bhawan
New Delhi - 110011
SIA website: www.indmin.nic.in
Tel: 011-2301 1983,
Fax: 011-2301 1034
E-mail: jssia@del3.vsni.net.in

2.5.3 **Joint Ventures**

- Joint ventures are the commonly used mode by foreign investors as it provides maximum visibility and presence in the country
- A joint venture is generally a financial as well as technical collaboration. Various Chambers of Commerce or the public accountants in India could guide the investor in finding an appropriate partner
- A foreign investor can enter into a joint venture not only for manufacturing RE products and systems, but also in setting up RE-based power generation projects
- A foreign investor can enter into a joint venture with an Indian partner who understands the local environment and can exploit the business opportunities. A feasibility study of the project should be done before entering into such a venture
- Joint ventures could be in the following forms:
  - Takeovers or strategic alliances with existing Indian companies: usually joint ventures are in the form of takeovers or strategic alliances with the existing reputed companies with a niche market
  - A Greenfield project is the one that is set up with new manufacturing facilities and new plant and machinery. For this purpose, an Indian joint venture company could be formed with up to 100 per cent equity being held by the foreign investor
  - Whether it is a Greenfield project, takeover or a strategic alliance, an Indian company is required to be formed for this purpose
- A foreign investor can set up a liaison office as an intermediate step before entering into a joint venture

2.6 Policies by State Governments

- A number of states have announced policy packages including wheeling, banking, third party sale and buy- back, which have been outlined in the respective technology or programme areas in this publication
- Some states are providing concessions or exemption in state sales tax and octroi. These rates vary widely from state to state for different technologies and devices and in periodicity
- Fourteen states have so far announced policies for purchase, wheeling and banking of electrical energy generated from various RE sources

2.7 Power purchase policy

2.7.1 Policies introduced by State Government for purchase of electricity from Biomass Power projects are given in Table 1.

2.7.2 Policies introduced/incentives declared by the State Governments for private sector Wind Energy projects are given in Table 2.

2.8 Policies for Small-scale Industries

- An industrial undertaking is defined as a small-scale unit if the investment in fixed assets in plant and machinery does not exceed Rs 10 million
- Small-scale industries (SSIs) are not permitted more than 24 per cent equity in its paid up capital from any industrial undertaking, foreign or domestic
- SSIs can get registered with the Directorate of Industries or District Industries Centre in the state government concerned
- SSIs are free to manufacture any item including those notified as exclusively reserved for the small-scale sector
- SSIs are free from locational restrictions, which are mandatory for large industries

2.9 The National Small Industries Corporation

RETs provide one of the best options for first-generation entrepreneurs and small-scale industries (SSIs) and enterprises. MNES and IREDA have drawn up financial and fiscal incentives to suit technology of varying sizes and scales for small- and medium-sized investors and entrepreneurs.

The National Small Industries Corporation (NSIC), under the Ministry of Industry and Commerce, also provides assistance through a number of schemes, which include financial and marketing services, technical services and training, and exports facilitation. Specifically NSIC:

- helps procure and deliver machinery and equipment, including imported equipments, at the doorsteps of entrepreneurs on Hire Purchase and Lease Terms
- stimulates marketing of products and services of SSIs to government departments and other agencies by identifying capable SSI units
- provides working capital, finance and term-loans schemes
- helps to create confidence in purchasing agencies about the SSI units they are dealing with
- facilitates exports for and on behalf of export-oriented entrepreneurs through network and infrastructure
- facilitates sourcing of critical raw materials and components required during production

- arranges training in technical trades, both traditional and high-tech
- provides common facility support through its technology centres located in different parts of the country and sensitises entrepreneurs to technology issues through technology missions abroad
- facilitates enterprise-to-enterprise cooperation through its international programmes

NSIC's Technology Transfer Centre (TTC) in New Delhi disseminates technological information to SMES. TTC can also undertake active technology search for SMEs nationally and internationally.

3.0 Incentives

3.1 Incentives for Investing in RETs

- MNES provides financial incentives, such as interest and capital subsidy
- Soft loans are provided through:
  - IREDA, a public sector company of the Ministry
  - Nationalised banks and other financial institutions for identified technologies/systems
- The government also provides various types of fiscal incentives for the RE sector, which include:
  - Direct taxes - 100 per cent depreciation in the first year of the installation of the project
  - Exemption/reduction in excise duty
  - Exemption from Central Sales Tax, and customs duty concessions on the import of material, components and equipment used in RE projects

3.2 Direct Taxes

Concession under Income Tax Rules

Under Income Tax Rules following concessions are available to the non-conventional energy sector:

- Section 32
  Accelerated 80% depreciation on specified RE- based devices/projects (see table Specified List).

- Section 80 IA
  Industrial undertakings set up in any part of India for the generation or generation and distribution of power at any time during the period beginning on the 1st day of April, 1993 and ending on the 31s' day of March 2003. A hundred per cent deduction is allowable from profits and gains for first five years and thereafter 30 per cent of the profits and gains. This benefit can be availed for any 10 consecutive assessment years failing within a period of 15 assessment years beginning with the assessment year in which that industrial undertaking begins generation or generation and distribution of power. The budget for 2001-2002 has proposed a 10-year tax holiday for the core sectors of infrastructure, including solid waste management systems. This may be availed during the initial 20 years. Further, the Budget has also proposed a 10-year tax holiday for the generation and distribution of power, to be availed during the initial 15 years.

- Section 115 J
  Exemption from MAT to industrial undertakings on profits derived from the business of generation and distribution of electricity.

- Section 80JJA
  Hundred per cent deduction in respect of profit and gains from business of collecting and processing biodegradable wastes.

- Section 10 (23G)
  Income by way of dividends, interest or long-term capital gains of infrastructure capital fund or infrastructure capital company from investments by way of shares or long-term finance in any enterprise wholly engaged in the business of developing, maintaining and operating any infrastructure facility and which has been approved by the Central Government on an application made by it in accordance with the rules made in this behalf and which satisfies the prescribed conditions.

For the purpose of this clause among other things, infrastructure facility means a project for generation or generation and distribution of electricity or any other form of power where such project starts generating power on or after April 1, 1993.

MNES extends financial incentives for renewable energy power generation. The incentives vary at different levels for special category of states and other states. The details are given in Table3 below:

3.3 Financial Incentives

Details of various schemes on financial incentives and promotional measures provided for different renewable energy technologies are given in Annexure 3 categorised as under:

3.3.1 Energy from Waste
3.3.2 Solar Photovoltaic Power
3.3.3 Solar Thermal Systems
3.3.4 Biogas Plants

4.0 Grid Power from Renewables

4.1 Introduction

The estimated potential in the country to generate power from wind, small hydro and biomass is around 80,000 MW. Electricity generation from these sources is becoming increasingly competitive with some preferential treatment being meted out to them. The Ministry's aim is that 10 percent of the additional grid interactive power generation capacity should come from renewable sources during the 10^{th} & 11^{th} Plan periods. The challenge is to mainstream renewable based power generation in terms of reliability, quality and cost. This can be met to a large extent by addressing issues pertaining to the need to lower the cost of equipment, increase its reliability and set up projects in areas which give the maximum advantage in terms of capacity utilisation.

The installed capacity from grid-interactive renewable power, which stood at 3500 MW at the end of the 9^{th} Plan, has now risen to around 6050 MW with a share of 5.5 % of the total installed capacity in the country. As much as 18% of the additional grid interactive renewable power capacity, i.e., 2602 MW that was commissioned during the first 3 years of

the 10th Plan came from renewables. Of this, three fourth or 13.5 % has come from wind power with the balance 4.5% coming from small hydro power (2 %) and bio energy (2.5%). It has been estimated that around Rs.30, 000 crores has so far been invested in renewable power sector in the country. Around 90% of the investment has come from the private sector. Wind and biomass power and of late SHP have grown largely on account of private investment.

Under the Electricity Act, 2003, the Central Government, from time to time, is responsible for preparing the national electricity policy and tariff policy, in consultation, among others, with the State Governments for the optimal utilization of all resources, including renewable sources of energy. The National Electricity Policy has been recently issued by the Government.

The Act 2003 has several enabling provisions, with a view to promote accelerated development of non-conventional energy based power generation, as summarised below:

- *Section 86(1) (e), "The State Commission shall promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licence"*

- *Section 3 (1), Government of India (GoI) shall, from time to time, prepare the National Electricity Policy and Tariff Policy, in consultation with the State Governments for developing the power system based on optimal utilisation of resources such as coal, natural gas, nuclear, hydro, and renewable sources of energy.*

- *Section 4, GoI shall, after consultation with the State Governments, prepare a national policy, permitting stand-alone systems (including those based on renewable sources of energy) for rural areas.*

This contains the broad principle of action. The Government would announce the tariff policy. These policies will have to be given effect by the State Electricity Regulatory Commissions (SERCS) for announcing tariffs, charges for wheeling and banking etc., within the respective States. While preferential tariffs may continue for some time, purchase of electricity by distributing companies would sooner or later be through a competitive bidding process. Table 4 below shows the renewable energy in India at a glance:

4.2 Implementation and delivery mechanism

The Ministry is encouraging the setting up of grid-interactive power projects based on renewable energy through private investment route. The State Nodal Agencies are responsible for promotion and development of private sector projects by way of providing necessary clearances, allotment of land, allotment of potential sites in case of SHP projects and facilitating power purchase agreements etc. SERCs are determining tariffs by taking into account the submissions of all stakeholders, including consumers. A number of leading financial institutions and banks are financing renewable energy based power projects.

4.3 Status of State Polices

The Electricity Act 2003 provides that cogeneration and generation of electricity from Non-conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. 17 States have so far announced policies of inviting private sector participation and allowing wheeling, banking and buy-back of electricity to attract private sector entrepreneurs. Regulatory Commissions in 4 states namely Andhra Pradesh, Maharashtra, Karnataka and Madhya Pradesh have declared the policies for wind power development. SERcs in other States are determining tariffs for the sale of electricity based on renewable energy. Some states are also awarding the projects based on competitive bidding process for the rate for purchase of electricity. Salient features of state policies for grid interactive renewable power are given at Annexure-1.

4.4 Targets during 10th and 11th Plan

Following Table 5 shows the targets for grid interactive power generation from various renewable energy sources for the 10^{th} Plan.

5.0 Biomass Energy

5.1 Biomass Gasification

Biomass gasification is the process in which solid biomass materials are converted by a series of thermo-chemical reactions, to a combustible gas called producer gas. The combustible gas comprises mainly of carbon monoxide (18-22%), hydrogen (15-20%), methane (1-5%), carbon dioxide (10-12%) and nitrogen (45-55%). The calorific value of gas is 1000-1200 kcal/cubic metre. The gas can be used for generation of motive power either in dual fuel engines along with diesel or in 100% gas engines. The gas can also be used directly for heating and cooking. However, due to high toxicity of carbon monoxide, extensive safety provisions are a must for domestic applications which perhaps explains the reason for lack of individual use of these systems. The biomass gasification process can utilize woody biomass materials such as wood, cotton stalks, coconut shells, etc., or powdery biomass such as husks, saw dust, etc.

Ministry of Non-Conventional Energy Sources is implementing National Biomass Gasifier Programme for mechanical, electrical, thermal heating applications and lot village electrification since mid 80s. Financial incentives for installation of gasifier systems are provided under the programme. Biomass gasifiers in the capacity range of 5 kW to 1 MW equivalent electric capacity have been developed indigenously and are being manufactured by around 15 manufacturers in the country. The systems being proposed for village electrification applications are based on 100% producer gas which is a recent technological development.

The estimated cost of gasifier systems is about Rs.10, 000/- to Rs. 15,000/- per kWh for thermal applications and Rs. 30,000/- to Rs. 45,000/- per kWe for mechanical and electrical applications. The estimated cost of village electrification projects with biomass gasification systems is about Rs. 50,000/- to Rs. 80,000/- per kWe in capacity range of 5 KW to 50 KW including the cost of land, civil works, distribution lines and development. The biomass gasification systems have necessary versatility for use in a diverse range of applications in rural areas. Apart from use as a cooking fuel and for electricity generation, the gas can be used for heating applications in village industries.

Biomass Gasifiers in India are being made in capacities ranging from a few kWs to MW scale. For heating applications, the current upper limit on unit size is equivalent to 300-500 Kg/hour of oil consumption (which is equivalent of 1200 to 2000 kg. of biomass per hour). There are about 12 manufacturers who offer gasifiers up to 1 MW capacity. Technology for these systems has been developed by the research institutions with the support of government. Some biomass gasifiers have also been exported to the USA, South Asia, Europe and Latin America.

5.1.1 **Testing, Certification and Capacity Building**

In the field of biomass gasification, a lot of emphasis is being put on testing and capacity building. The key activities include:

- Development of specifications and tests for quality marking
- Specialized training and awareness programmes
- Patent filing and working
- Nurturing specialized institutions for testing and certification

5.2 Biomass Combustion and Co-Generation

The technology for generation of electricity from biomass materials is similar to conventional coal-based thermal power generation, and is fairly well established in the country. Recent trends include the use of air-cooled condensers to reduce consumptive use of water.

Biomass fired boilers for power projects can be of suspension firing type with travelling grate/dumping grate, or, the fluidized bed type. Capabilities for manufacturing spreader stoker fired, travelling grate/dumping grate boilers; atmospheric pressure fluidised bed boilers and circulating fluidized bed boilers needs strengthening. Boilers with multi-fuel capabilities for firing coal/biomass, or a combination of biomass materials, higher pressure boilers with dual fuel firing capability and computerized control systems for monitoring combustion, feed water and emissions needs development at commercial level.

5.3 Biomass energy and co-generation (Non-Bagasse) in industry

- The industrial sector today consumes approximately 35% of total electricity generated in the country. At the same time, high quality stable power is required to attain the higher growth rate projected for this sector. Majority of industries in India require both electrical and thermal energy. Today, they either buy power from the State Electricity Boards, or generate their own power (largely through diesel generators). They meet their thermal energy requirements through captive means mostly utilizing fossil fuels such as coal, oil or natural gas. As fossil fuels are limited, and have adverse environmental impact, it would be appropriate to use non-conventional energy sources including biomass resources such as crop residues and agro-industrial wastes for generation of energy in the industries mainly through biomass gasification technology for meeting their total / partial requirements for both electrical and thermal energy.
- There are several industries such as sugar, paper & pulp, textiles, fertilizers, petroleum, petrochemicals and food processing, etc. which require electrical as well as thermal energy for their operations. These requirements can either be met through different energy sources, or from a single source, which is capable of generating electricity as well as producing thermal energy. Simultaneous production of power and thermal energy from a single fuel source is termed as co-generation. The power generated from

such co-generation plants can be used for meeting the captive requirements and the surplus power produced can be exported to the grid.

- Industrial co-generation has in the past not received adequate attention, as cheap power and fuel were abundantly available. However, with increasing tariffs, and unreliable supply of grid power, there is considerable opportunity for the industrial sector needs to tap the potential for producing electricity and thermal energy in the co- generation mode. As per certain estimates, there is a potential for power generation of about 15,000 MW (including sugar industry) through co-generation in various core industries in the country. In particular, there is significant potential in breweries, caustic soda plants, textile mills, distilleries, fertilizer plants, paper and pulp industry, solvent extraction units, rice mills, petrochemical plants, etc. Furthermore, co-generation projects based on conventional fuels such as coal, oil, lignite, gas and un/semi-utilized wastes / rejects like dolochar, coal rejects and refinery mud, etc. can also be installed in industry for meeting their power and energy requirements.
- The main objectives of the Biomass Energy and Co-Generation Programme are given below:
  - To encourage the deployment of biomass energy systems in industry for meeting thermal and electrical energy requirements.
  - To promote decentralized / distributed power generation through supply of surplus power to the grid.
  - To conserve the use of fossil fuels for captive requirements in industry.
  - To bring about reduction in greenhouse gas emissions in industry.
  - To create awareness about the potential and benefits of alternative modes of energy generation in industry.
- MNES is implementing a bagasse co-generation programme in the sugar industry and biomass power in the country. However, in view of good potential for the generation of heat and power in co-generation mode by utilizing other biomass resources, a separate scheme has been evolved to provide thrust to biomass co-generation in industry. To attract investments to this sector under the modified scheme, it is proposed to provide capital subsidy of US$44,500 to 55,600 per MW depending upon the technology employed for captive biomass gasification, biomass power / co-generation projects in industry. In case of gasifiers systems based on 100% producer gas engines, higher subsidy @ US$ 178,000 per/MW shall be provided. Subsidy will be released to the Financial Institutions / banks upon successful commissioning of the projects. It is proposed to facilitate harnessing of the potential for industrial cogeneration through awareness creation, training and project preparation support.
- The following types of projects will be covered :-
  - Biomass gasifiers for thermal and electrical applications in industry
  - Biomass power / co-generation (non-bagasse) projects
  - Industrial Co-generation Projects based on conventional fuels and their rejects

Sources:

1. Background Paper at a Brainstorming Session titled "Mainstreaming of Renewable Energy in the country and attaining Global Leadership" held by MNES on 16.06.05 at New Delhi.

2. Renewable Energy in India: Business Opportunities – published by MNES in February, 2004.

3. Letter No.3/1/2005/UICA (SE), Government of India, Ministry of Non-conventional Energy Sources (Urban, Industrial and Commercial Applications Group), Block No.14, CGO Complex, Lodi Road, New Delhi 110003, and dated 24.08.2005.

4. The Electricity Act, 2003 (No.36 of 2003) by Ministry of Law and Justice, Government of India, published in The Gazette of India Extraordinary Part II-Section I, at New Delhi on 2nd June, 2003.

5. Case Study on Biomass, published by MNES, Government of India.

N.B. Throughout this document (excepting the Annexure) the currency mentioned is @ INR 45.00 equals to US$ 1.00.