



**T.S.Tewatia, Member
Haryana Electricity Regulatory Commission**

Haryana at a Glance

Area : 44212 Square Kilo Meters.

Districts : 21

Block : 116

Villages: 6955

Population : 211.45 Lakhs

Haryana at a Glance (Contd)

- **Total Installed capacity is 4033 MW out of which 20 MW is from Renewable Energy sources.**
- **Per Capital Consumption of Electricity is 550 Units.**
- **Consumption for Agriculture Purpose is about 38%.**
- **First in the country to achieve 100% electrification.**

Potential of Generation through Renewable Energy sources as per HAREDA

- **Biomass : 1400 MW**
- **Bagasse Cogeneration : 100 – 150 MW**
- **Small Hydro Projects : 45 MW**
- **Municipal Solid Waste : 17 MW**
- **Solar Energy : 5.5 MW to 6.5 MW**
- **Wind Energy: Being Mapped**

Renewable Energy Potential

- Haryana has vast canal network which offer potential for small hydro power projects. HAREDA, after identifying sites invites proposal from Independent Power Producers (IPP) through press for setting up these projects.
- The state has some pockets in the Arawali Hills and Morni Hills which have the required wind speed for wind power generation.
- In Haryana substantial potential exists for biomass based generation. 24 blocks have been identified with a potential of 206 MW each.
- The financial incentives as per Ministry of New and Renewable Energy (MNRE), Government of India is available to the developers in Haryana.

Present Status of Biomass Based Projects in Haryana

<u>Name of the Firm</u>	<u>Capacity (MW)</u>	<u>Status</u>
Turboatom	60 MW (5X12 MW)	DPR approved / land acquired (2)
Starwire	37 MW (4X8 & 1X5 MW)	DPR approved / land acquired (2)
Gammon	44 MW (4X8 MW, 2X12MW)	DPR approved, land acquisition
WSB Energy	7.5 MW	DPR approved, land acquisition in progress
Jyoti Energy	7.5 MW	DPR approved, land acquisition in progress.
Tecpro	15 MW (2X7.5)	DPR approved, land acquisition in progress
True Fab	6 MW	MOU signed

TOTAL 21 SITES ADDING UP TO 189 MW

Biomass Mix & Estimated Price in Haryana

Type	Minimum Price (Rs / Tonne)	Maximum Price (Rs / Tonne)
Rice Husk	2508	3467
Rice Straw	988	1400
Wheat Straw	1672	2579
Cotton Stalk	1013	1425
Mustard Stalks	1725	2625
Arhar Stalks	1117	1542

- (As per data provided by HAREDA, the Commission for working out the biomass based tariff considered an average rate of Rs. 1600 / MT for the biomass mix.

Renewable Portfolio Obligations as per HERC

- Percentage of electricity from non-conventional sources of total consumption of electricity.**

FY 2007-08	upto 3%
FY 2008-09	upto 5%
FY 2009-10	upto 10%

- The Commission is in the process of issuing RPO for FY 2010-11 and beyond.

Tariff Determined by HERC

- ◆
- ◆ **Biomass**
- ◆ Tariff (Rs/kWh) base year FY 2007-08
- ◆ Rs. 4.0 / Unit.
- ◆ Annual Escalation of 2% from FY 2008-09 (revised to 3% on prospective basis in FY 2009-10).
- ◆

Major Assumption for working determining Tariff

◆ Items	Biomass
◆ Capital Cost (Rs Mln)	42.9
◆ Debt (%) capital cost	70
◆ Equity (%) capital cost	30
◆ ROE (%) on Equity Capital	16%
◆ PLF / CUF (%)	80
◆ Auxiliary Consumption (%)	10
◆ Fuel (Rs/kg)	1.60
◆ Specific Fuel Consumption (Kg/kWh)	1.36

Other Major Charges

Wheeling Charges:

The wheeling charges shall be levied @ 2% of the energy fed to the grid irrespective of the distance from the generating stations.

Grid Connectivity:

The state transmission utility / distribution licensee will bear the cost of EHV/HV transmission line up to a distance of 10 km from the point of energy metering. Beyond the 10 km distance, the balance cost of the transmission line shall be shared equally between the developer and the STU / distribution licensee.

Banking:

The banking facility shall be allowed anytime of the day and night subject to condition that surplus energy at the end of the financial year shall not be carried over to the next year.

Carbon Credit

- ◆ **Incentive for setting up renewable energy based generation projects that may lead to reduction in Green House Gas Emission any carbon credit earned by the project developer shall be shared in the ratio of 25:75 i.e. 25% to the distribution licensee and 75% shall be retained by the project developer. The benefits of carbon credit passed on to the distribution licensee shall be utilized to reduce their power purchase cost.**

Third Party Sale

In an event the distribution licensee (UHBVNL & DHBVNL) refuses in writing to off take power at the tariff determined by the Commission then third party sale can be considered.

Constraints

- ◆ Price of biomass is extremely uncertain, as and when the biomass based generation projects come up the un – organized biomass market may see a rapid surge in price.
- ◆ As the tariff is single part the project developers would be subjected to fuel risk both in terms of price and quantity. Unlike conventional projects i.e. coal where price of coal including transportation is a pass through, hence fuel risk is not borne by the developer.
- ◆ Carbon credit market is also uncertain and hence any sharing is pre – mature.
- ◆ The rising transmission cost, connectivity cost etc. payable to the transmission company or State Transmission Utility and evacuation cost may make the project unviable.