

GASIFIERS

TO CONVERT AGRI & MUNICIPAL WASTE INTO ENERGY

CE Certified Approved



In JOINT-VENTURE with TERI , New Delhi



Approved by MNRE (Government of India) & IIT, New Delhi

WHAT IS GASIFICATION



A Gasifier converts fuel such as wood, briquettes, agri & municipal waste into a gaseous fuel through a thermo-chemical process and the resultant gas can be used for heat and power generation applications.

The overall thermal efficiency of this process is more than 75%. The combustible gas mixture, known as 'producer gas', typically contains carbon monoxide (18% - 22%), hydrogen (15% -18%), nitrogen (48% - 52%), carbon dioxide (10% -12%) and methane (2% - 4%). The producer gas has relatively low calorific value, ranging from 1000 to 1100 k Cal. Nm³ (5500 KJ/Nm³).

TYPE OF GASIFIERS



Down-Draft Gasifiers: In which you can use woody biomass, Briquettes / Pellets of loose biomass & RDF (derived from MSW). Gas generated by this gasifier is clean and suitable for power generation as well as for thermal applications where clean gas is required.



UP-Draft Gasifiers: In which you can use Coal, Charcoal, briquettes of loose biomass. Gas generated by this gasifier is not very clean and suitable only for thermal applications. Updraft Gasifiers are Multi-fuel Gasifiers

CPW is perhaps the only company in the world, who are supplying all types of gasifiers. CPW provides the complete solution once customer inform their application & raw material. CPW identifies the suitable gasifier for the customer then design, supply and do the erection & commissioning of the Gasifiers. (complete Turnkey solution)



Fuels used



High Density Material :

Wood chips, Bamboo, Coconut shells, Briquettes of several residues, Lantana



Low Density Material :

Pellets, Mustard stalk ,
Cashew-nut shells,
Wheat/ Rice husk
, Pine Needle



RDF (derived from MSW)



Wood chips



Whole tree chips



Sugarcane bagasse



Switchgrass



Corn stover

TECHNOLOGY

We are manufacturing Gasifiers from 20 kWe to 1200 kWe capacity. Our gasification technology depends upon the Fuel Type, Fuel Size, Application, Atmospheric Condition. For gasification of any fuel , we test the Calorific value, Density, Volatile Matter, Ash Content, Fixed Carbon, Moisture, Melting Point, Caking index, Swelling Index, Silica of that fuel. For checking the Performance of our gasifiers, we test the Gas Composition, Tar and Solid Particulate Matter (SPM). We have fully equipped testing laboratory, lab scale gasifier and 40 kw gasifier with 100% producer gas engine to test the materials at different scales. We also provide the following services to our customers :

- Plant Layout, Civil Designing, Preparation of DPR
- Guiding & helping them to get the various approval i.e. sanction of subsidy from Government bodies, for getting permission for grid connection for sale of power as well as for captive generation, to get the REC certificate, to get the loan from different financial institutions.

POWER APPLICATION

Our Gasifiers can be used for power requirements for Village, Colonies, Farm Houses, Hotels and captive generation for industries etc. To produce power with Gasifiers, there are two routes available:



Dual fuel application: In this system Diesel Generator sets are used. Producer gas is fed to D. G. sets which replaces upto 60%-70% of the diesel consumption. After modification, D.G. sets will be use upto 60%-70% gas and 30%-40% diesel.



100% producer gas application: In this system Spark Ignition Engines are used and the engine runs on 100% gas. These are similar engines used in CNG applications.

We are also having arrangement for converting existing Diesel Engines into Gas Engines.



THERMAL APPLICATION

- Petro-fuel replacement in industrial kilns
- Stainless steel Re-Rolling Industries
- Lime Kilns and other Kilns
- Hot Air Generators
- Galvanizing Industries
- Hot Water Generator
- Glass Melting & Annealing
- Aluminum Die-Cast
- Heat Treatment Furnaces
- Copper / Brass Sheet Industry
- Resorts/Hotels/Farm Houses
- Food Processing
- Bakeries
- Charcoal Production
- Gasifier can be used in any application where LPG, Diesel or any other Petro-fuel is use



SALIENT FEATURES

- ☑ We are approved manufacturers of Gasifiers from Ministry of New & Renewable Energy(MNRE), Government of India
- ☑ Our Gasifiers are "CE" marked.
- ☑ We are in Joint-Venture with TERI (The Energy & Resources Institute, New Delhi) for Gasification Division.
- ☑ Gasifier is designed with low specification rate, which facilities smooth fuel flow and avoids bridging.
- ☑ Multi-fuel capability
- ☑ For Bigger Size Gasifiers, we provide following equipment
 - Wet ESP
 - Water Management system
 - Waste Management system
 - Auto Flame igniter
 - PLC/SCADA system
 - Auto Gasifier feeding system
 - Gas Chilling & heating system
 - Fine Filters and special design fabric filters
- ☑ Air pre-heating for gasification maintains high temperatures resulting in better quality of gas for power applications.
- ☑ Insulated firebox, which maintains high temperatures resulting in a better quality of gas and longer service life.
- ☑ Our gasifier work on different atmospheric conditions :
 - Temperature : -20 to 47 Degree C
 - Pressure : We have supplied gasifiers at sea level an also upto 5000 feet altitude
 - Humidity : From dry weather to 100% humid weather





ADVANTAGES OF BIOMASS GASIFICATION

- ✓ Low cost per kW of energy generated among all renewable energy sources. Easy to operate and maintain
- ✓ Extremely Clean emission, Environmentally sound technology
- ✓ Replace fossil fuels and treated them as renewable energy products. Therefore gasifiers are eligible for Carbon Credits under the CDM mechanism *.
- ✓ Eligible for a capital subsidy from Government bodies of India.
- ✓ Eligible for accelerated depreciation as the gasifier converts the waste into energy, whether it is thermal energy or electrical energy
- ✓ Eligible for entitlement for all the benefits of producing renewable energy i.e. renewable energy certificate.

(The above benefits are only applicable on waste to energy gasifiers)

We also guide our customers to complete their documents, for availing the above benefits.



SOME REFERENCES, WHERE OUR GASIFIERS ARE WORKING ON DIFFERENT PARAMETERS

- Elephant Energy Pvt. Ltd., Shimla (Model: 750 L, 100% Producer Gas Based, 1500000 Kcal/hr.). This Gasifier runs on RDF (derived from MSW)
- Verde Energia LLC, Japan (2-Stage Gasifier for power application). This Gasifier runs on wood chips & produces 30 kWh power
- Bindal Paper, Muzaffarnagar (Model:4000UD, for thermal application,7500000 Kcal/hr.). This Gasifier is running on coal fuel.
- CRPL Ltd, Ambala (Model - 1200T Model, 100% Producer Gas Based, 3150000 Kcal/hr) . This Gasifier runs on RDF / Biomass fuel and produces power 1 MWH for grid supply.
- Onyx S.R.O., Slovakia (Where temperature remains between -20 to 25 degree Celsius),(Model:600TR, 100% Producer Gas, 1500000 Kcal/hr). This gasifier runs on RDF.
- Ramlakhan & Sons, Guyana (Model: 480T, for power generation, 1400000 Kcal/hr). This Gasifier runs on Rice husk fuel. The application is Dual Fuel Power.
- BIOCON S.R.O, Slovakia (Model: 1200T, 100% Producer Gas Based, 3150000 Kcal/hr). This Gasifier runs on wood chips.
- Novel Energy, Rwanda (Model: 120T, 100% Producer Gas Based, 315000 Kcal/hr). This Gasifier runs on wood chips.
- TATA Power Ltd, Mumbai (Model: 25T, 100% Producer Gas Based, 66000 Kcal/hr) This Gasifier runs on wood chips.
- Vienna Spol S.R.O., Slovakia (Where temperature remains between -20 to 25 degree Celsius), (Model: 850TR, 100% Producer Gas Based, 2100000 Kcal/hr). This gasifier runs on Pellets of wheat straw.
- INCDT-COMOTI Institute, Romania (Model: 75T, 100% Producer Gas Based, 197000 Kcal/hr) . This Gasifier runs on wood chips fuel.
- Husk Power Ltd, Uttrakhand (Model: 180T, 100% Producer Gas Based, 472500 Kcal/hr). The design of this Gasifier's grate is different, for running pine needles (fuel).
- Pyrolyza 5 S.R.O, Snina, Slovakia (Model: 750T, 100% Producer Gas Based, 15,00,000 kcal/hr). This Gasifier runs on RDF and is suitable to generate 500kW power.
- Starlit Ltd, Haryana (Model: 180 T, for thermal application, 472500 Kcal/hr) . This Gasifier is running on wood chips fuel.
- Deccan Wires Ltd, Banglore (Model: 270T, 100% Producer Gas Based, 710000 Kcal/hr). This Gasifier is running on coconut shell fuel.
- CIAE, Bhopal (Model: 50T, 100% Producer Gas Based, 125000 Kcal/hr). This Gasifier runs on wood chips fuel.
- DSG Paper, Patiala, (Model: 1800UD, for thermal application, 1560000 Kcal/hr). This Gasifier runs on coal fuel



COUNTRIES WHERE WE HAVE SUPPLIED OUR GASIFIERS



 **INDIA**

 **FINLAND**

 **SOUTH AFRICA**

 **SLOVAKIA**

 **THAILAND**

 **NEPAL**

 **ROMANIA**

 **RWANDA**

 **BULGARIA**

 **CANADA**

 **GUYANA**

 **MYANMAR**

 **UNITED KINGDOM**

 **USA**

 **JAPAN**



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