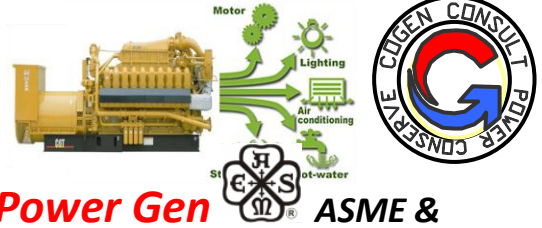


COGEN™ CONSULT



Alternate Fuels - Self Produce- Self Power Gen
ENERCON - TRAINED – DESIGNER – Engr. KHALID SAEED

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Gas & Electric Power Load Shedding Bye Bye.
SELF PRODUCED GAS & SELF POWER GEN.

Turnkey Projects Designs from Cogen Consult

**Alternate Fuels - Prepare Your Industry for 100% Gas Shedding
& produce your own in house synthetic Gas Fuels from Coal or Biomass
Agricultural waste,rubber & Tyres,Hydrogen gas, Fuel cell, Syn Gas Generators.**

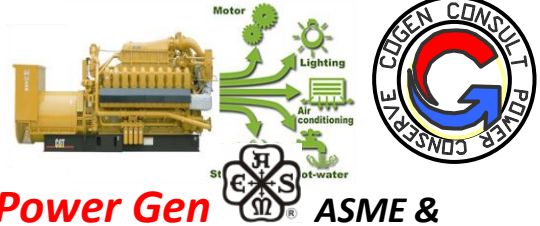
1- BIOMASS (AGRICULTURE WASTE) - SYN- GAS POWER PLANT

BIOMASS GASIFICATION & GAS GENSET POWER

- = Agriculture/Rice Husk/Grass/Baggase based Bio Mass Gasifier,
- = 1500 Kg Biomass = 3000 M3/hr.Syngas.Biogas
- = 1000 Electric Genset
- = 1MWe capacity Biomass Gasifier Cost 1,75,000 US \$
- = 1 MWe Gas Gen using SynGas cost = 3,50,000 US \$
- = 1 MWe self produced Synthetic gas System Power Plant cost = 5,50,000 US \$
- = unit gen rate using BioMass Gas Gen Power= 4.5 Rs/ekwh
- = 1500 Kg/hr Biomass Gas brunt in Steam Boiler produce= 4 Ton/Hr Steam at 10 Bar
- = Investment PYBACK wrt Wapda/KESC = 2 Years
- = Self Produced gas,Clean n Un interrupted,with Carbon Credit advantage.

2- COAL GAS = SYNGAS POWER PLANT

- = 750 Kg Coal Balochistan = 2000 M3/hr.Syngas.Coal Gas @3.79 Kwth/Kg LHV
- = 1000 Electric Genset
- = 1MWe capacity Coal Gasifier Cost 1,75,000 US \$
- = 1 MWe Gas Gen using SynGas cost = 3,50,000 US \$
- = 1 MWe self produced Synthetic gas System Power Plant cost = 5,50,000 US \$
- = Power Gen Unit Rate using Coal Gas Gen Power= 7.5 Rs/ekwh
- = 1500 Kg/hr Biomass Gas brunt in Steam Boiler produce= 4 Ton/Hr Steam at 10 Bar
- = Coal Rate Bulk Supply Baluchistan @ 8000 Rs/Ton,
- = Coal rate Bulk Imported Malaysia @ 10000 Rs/Ton (20% efficiecnt than Local)
- = investment Payback wrt Wapda/KESC = 2 Years
- = Self Produced gas,Clean n Un interrupted,with Carbon Credit advantage.



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3- DOMESTIC GARBAGE FIRED (MSW) POWER PLANT

= 1Ton Garbage =1000 KWe @ 3000 Kcal/Kg LHV
= Electricity Unit Rate @ 3 Rs/unit
= 1 Ton Garbage = 6 Ton/Hr Steam @ 30 Bar (A) 350 C,
= 1000 KWe Project Capital Cost @ 15,00,000 /= US \$ /MWe
= investment Payback wrt Wapda/KESC = 2 Years
= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

4 – COAL FIRED THERMAL POWER PLANT

= 700 Kg Coal (Local Lignite) =1000 KWe @ 5.0 KWth/Kg LHV
= Electricity Unit Rate @ 6.5 Rs/unit
= 1 Ton Coal Desi = 4 Ton/Hr Steam @ 30 Bar (A) 350 C,
= 1000 KWe Project Capital Cost @ 15,00,000 /= US \$ /MWe
= Capital Investment Payback wrt WAPDA / KESC = 2 Years
= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

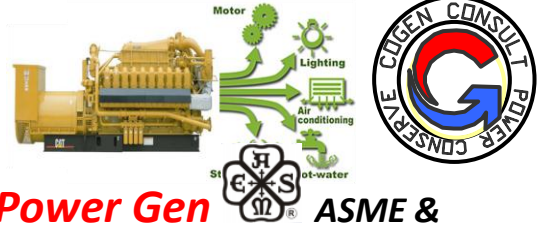
5- RUBBER TYRE WASTE - POWER PLANT

= 500 Kg Used Rubber Tyres = 1000 KWeh @ 8 KWth/Kg LHV
= Electricity Unit Rate @ 8.5 Rs/unit
= 100 Kg Rubber Tyres = 1 Ton/Hr Steam @ 30 Bar (A) 350 C, for Steam Turbine Gen Systems
= 1000 KWe Project Capital Cost @ 15,00,000 /= US \$ /MWe
= investment Payback wrt Wapda/KESC = 3 Years
= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

6 – BAGGASE (GANNEY KA BHUS) - POWER PLANT

= 1200 Kg Baggase = 1000 KWeh @ 3.26 KWth/Kg LHV
= Electricity Unit Rate @ 6.5 Rs/unit (Baggase @ 5 Rs/Kg)
= 300 Kg Baggase = 1 Ton/Hr Steam @ 30 Bar (A) 350 C, for Steam Turbine Gen Systems

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= 1000 KWe Project Capital Cost @ 15,00,000 /= US \$ /MWe

= investment Payback wrt Wapda/KESC = 2 Years

= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

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7 – RICE HUSK /WOOD CHIPPS FIRED THERMAL POWER PLANT

= 1000 Kg Rice Husk = 1000 KWeh @ 3.8 KWth/Kg LHV

= Electricity Unit Rate @ 4.0 Rs/unit (Rice Husk @ 3 Rs/Kg)

= 250 Kg Rice Husk = 1 Ton/Hr Steam @ 30 Bar (A) 350 C, for Steam Turbine Gen Systems

= 1000 KWe Project Capital Cost @ 15,00,000 /= US \$ /MWe

= investment Payback wrt Wapda/KESC = 2 Years

= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

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8- CO = CARBON MONO OXIDE GAS FIRED POWER PLANT

= Produce CARBON DI OXIDE GAS from Air/Coal/Rice husk/Wood

= Generate 1000 KWe using CO₂ Gas @ 0.37 KWth/Kg Gas

= Electricity Unit Rate @ 7.5 Rs./ekwh

= Produce your own in house CO carbon Mono Oxide Gas

= Project Investment @ 750,000/- US \$

= Made in China plant with safeties controls staff training

= Project investment payback = 2 Yrs

= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

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9- HYDROGEN GAS FUEL CELL- POWER PLANT

= Produce Hydrogen Gas from Water

= Generate 1000 KWe using Hydrogen gas+Air Oxygen

= Electricity Unit Rate @ 12 Rs./ekwh

= Produce your own in house Fuel Hydrogen Gas

= Project Investment @ 50,00,000/- US \$

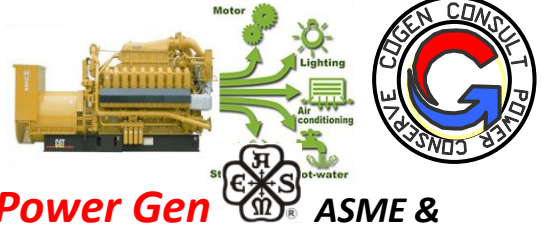
= Made in Italy plant with safeties controls staff training

= Project investment payback =4 Yrs

= Self Produced Steam & Power Gen ,Clean n Un interrupted,with Carbon Credit advantage.

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