



Solar Turbines

Gas to Power (and Gas to Liquid)

Issues and Options for Islands & Small Markets



Power generation for remote islands/areas with a view to promote sustainable energy production

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Meeting the demand

- § **Governments across the region have a policy and vested interest in reducing unsustainable long term fuel subsidies, especially diesel fuel based.**
- § **Governments are interested in providing the seeds for economic and industrial growth in remote areas / islands**
- § **Heavy fuel / electricity subsidies by governments demonstrate opportunity for more growth of industry sectors and sustainable energy production with a view to increase income of the local communities in these areas in the form of CSR**

Common issues for power generation technologies

- § Simplification of regulations for infrastructures required for small scale power producers (mooring points, port facilities, fuel storage facilities, shipping under foreign flag, piping to power plant)
- § Absence of retail LNG / LPG facilities for small scale power producers
- § Government set flare gas pricing (Flared gas pricing is left to the producing industry)
- § Simplification of CBM / shale gas mining rules (Coal mines need to apply for a separate license to extract CBM on their own mining site)

Gas Turbine and Reciprocating Engine Technology in CSR context

- § Power generation based on turbine technology is more viable in cogeneration configuration
- § Power generation based on reciprocating engine technology is more efficient in simple cycle applications
- § Not every simple cycle power generation application is suitable for Gas Turbines but every cogeneration project is.
- § Simple cycle reciprocating engines are suitable for dedicated power supply on redundant engine basis
- § Cogeneration as part of a CSR program provides facilities for local communities to generate sustainable income

Applications in remote areas leading to sustainable income for the local population

- § Cold storage facilities for perishable products like seafood
- § Drying application of locally harvested agricultural products
- § Production of fresh water for irrigation and human consumption
- § Salt by-product for commercial use from brine
- § District cooling and heating for tourism - and municipal facilities and hospitals
- § Co-generation for village size industrial estates

Delivery of sustainable fuel

Mini LNG facility



- § Single mooring point or container delivery
- § LNG storage and regasification facility
- § 4-5 MW capacity requires only 1,000 Tons storage / month

Co-generation packages



§ 8 MW cogen facility



§ 15 MW cogen facility

Sustainable cogeneration



Power generation applications



§ Cogeneration provides chilled water and power to cold storage



§ Typical 500 T cold storage for seafood products

Power generation applications



§ **Cogeneration system provides steam and power to desalination plant**



§ **Typical desalination plant 100 m³ / hr for human consumption and irrigation**

Power generation applications



§ Typical desalination plant 100 m³/hr for human consumption and irrigation



§ Typical 8000 m² solar salt pan for sea salt production from brine of desalination plant

Challenges ahead

- § Identification and separation of co-generation applications and simple cycle power production
- § Retail LNG supply for remote locations
- § Liquefaction of natural gas
- § Transport of LNG in mini-tankers suitable for shallow waters



THANK YOU

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