SRI LANKA

THE EMERGING WONDER OF ASIA

DEVELOPING SRI LANKA THROUGH CLEAN ENERGY

A NATURAL GAS SUPPLY HUB AND LNG POWER PROJECT IN SRI LANKA

PROPOSAL

Our Proposal is to set up a 4 MMTPA Floating Storage and Regasification Unit (FSRU) at Hambantota Port which will supply Natural Gas (NG) for various applications including Power Generation. This will also include the installing of gas pipelines connecting it to Colombo & other major cities.

WHAT IS LNG

It is 95 % Methane.
Liquefied form of Natural Gas (NG) at -161^0 C.
Liquification decreases volume of NG to 1/600 hence facilitating long distance transportation.
Carried in cryogenic LNG tankers from Midlle-East, Australia, Russia.

LNG IS THE FUTURE OF POWER

FLOATING REGASIFICATION TERMINALS

There are 8 Floating LNG regasification terminals around the world at present and 27 are Proposed / under construction including the one we are proposing in Sri Lanka.

WHY LNG

Cheap

- Costs less than 2/3 compared to other liquid fuels

Clean

- 99 % methane, negligible SO_X & NO_X emissions
- Since it is clean will bring in Carbon Credits
- Conforms to Kyoto Protocol commitments

Safe

- 100 % safety record for the last 20 years worldwide
- Stable
- Lighter than air hence dissipates unlike LPG.

ECONOMIC BENEFITS TO SRI LANKA

The proposed LNG Unit will be in a position to supply LNG / NG for various requirements. Some of the sectors which could benefit from this are listed below.

TRANSPORT SECTOR

All transport vehicles could be converted and run on Compressed Natural Gas (CNG). Metro cities in India like New Delhi, Mumbai and Hyderabad have implemented this, where all buses and transport vehicles are run with CNG thereby reducing atmospheric pollution and bringing down the cost of transport.

CNG will bring down the cost of transport by about 40 %. It will also reduce the CO2 Emissions by up to 90 % . Exhaust fumes of CNG is water vapour.

When CNG is used by SLTB and Private Buses, they can bring down their fuel cost by about 40 % which will result in bus commuters having to pay less for transport.

When CNG is used by Sri Lanka Railways train commuters will have to pay lower fares and freight costs will also come down and Sri Lanka Railways will be run as a profitable venture.

All lorries, trucks and vans could be run on CNG. This will greatly reduce the transport cost. All commodities and vegetables could be transported at a cheaper price. This in effect will bring down the cost of essential commodities, food items and vegetables thereby bringing down the overall daily cost of living of the people.

A large number of people in Sri Lanka use three wheelers as a mode of transport. When three wheelers use CNG the commuters will get a lower and more affordable fare.

Most of the existing diesel / petrol vehicles including two wheelers could be converted to bi-fuel vehicles by using a simple CNG conversion kit.
Many automobile companies are now manufacturing vehicles to run on CNG.

Over 12 million vehicles are operating on CNG worldwide . This number is increasing rapidly since production of NG has increased, distribution and storage

of NG has improved and as well as due to the high cost of diesel and petrol and the atmospheric pollution caused by diesel and petrol.

TOURISM INDUSTRY

All tourist hotels regardless of five, four or three star category are spending huge amounts on electricity. Most of the electricity is required for Air-conditioning , Cooking , Washing and Water Heating purposes.

When tourist hotels use natural gas for their energy requirements their operating costs on account of energy will come down by about 40 %.

This will also make them more Eco Friendly hotels as they are using clean energy.

APPAREL INDUSTRY

Apparel Industry consumes a substantial amount of electricity for operating machines and air conditioning. The cost of electricity and labour are the two main factors which are driving many apparel manufacturers to countries like Bangladesh where natural gas is available.

When apparel factories use natural gas for their energy requirements they could bring down their operating costs making them more competitive internationally.

FISHING INDUSTRY

Fishing industry requires a lot of cold storage, freezer rooms and ice. Cold storage facilities, freezer rooms and ice plants could be powered by Natural Gas thereby bringing down the cost of operation substantially.

Fishing boats / trawlers and freezer trucks could also operate on natural gas.

By improving the storage and distribution of sea food products through cold storage facilities, freezer rooms and freezer trucks post harvest losses can be reduced and quality improved resulting in an increase in the availability of sea food. This will result in fish and other seafood prices coming down thereby bringing down the cost living and making fish more affordable to the prople

It will also benefit the sea food export industry by cutting down their costs and thus increasing sea food exports and foreign exchange earnings.

Imports of canned fish too would be eliminated saving about USD 32 Mn in foreign exchange annually.

FERTILIZER INDUSTRY

About 97 % of synthetic fertilizer produced worldwide is derived from natural gas. Natural Gas is the main feedstock used in the manufacture of Ammonia (Urea)

Currently Sri Lanka is spending about USD 200 Mn on the import of fertilizer.

Sri Lanka's entire requirement of synthetic fertilizer could be produced locally using natural gas. The surplus production could be exported.

This will bring down the cost of fertilizer, save substantial foreign exchange thereby reducing the pressure on the balance of payments, lower the cost of government subsidy on fertilizer and provide food security and bring down the cost of living.

CHEMICALS INDUSTRY

Natural Gas is a primary feedstock for the production of most chemicals.
Natural gas accounts for about 60 % of the value of chemicals made.

Some of the chemicals produced from natural gas are Methanol, Nitric Acid, Butanes, Ethylene, propane, Formaldehydes, Olefins, Acetic Acid, Acetylene, Ammonium Nitrate, Ammonium Sulphate etc.

Currently Sri Lanka is spending about USD 300 MN on import of chemicals.
This can be substantially reduced if chemicals are produced locally.

PHARMACEUTICAL INDUSTRY

Sri Lanka imports about 86 % of its requirement costing about USD 175 Mn annually and about 14 % is produced locally.

Natural Gas is an ingredient to manufacture pharmaceutical products.

Using Natural Gas, the local production of pharmaceutical products can be increased to over 50 % of the country's requirements thereby saving about USD

100 Mn in foreign exchange annually and making medicines more affordable to the people resulting in a healthier nation.

DAIRY INDUSTRY

Currently about USD 200 Mn is being spent annually on the import of milk and milk products.

The chilling and processing cost of production of fresh milk can be substantially brought down by operating these centres on natural gas.
By increasing the chilling centres from the current level of 80 to 300 units and the processing centres from the current level of 2600 to 10,000 units Sri Lanka can achieve self sufficiency in milk production thereby bringing down the cost of milk and making it affordable to all the people of Sri Lanka and saving forex.

INDUSTRIAL ZONES

If Natural Gas is available it will attract a lot of investors to come in to such zones and set up industries. Naturally a large Industrial Zone could be set up in Hambantota. We could also set a Gas hub in the port town of Trincomalee to provide gas to the Industrial and Tourism Zones there.

Some of the Industries that could be attracted are :

- Chemicals
- Pharmaceutical Products
- Rubber and Leather products
- Furniture
- Tiles
- Ceramics
- Iron & Steel
- Cement
- Glass
- Yarn / Fabric / Fabric Processing
- Food and Beverage Products
- Dairies
- Sugar Refining
- Paper / Pulp
- Paint

- Detergents
- Petro Chemicals
- PVC / Polythene

COLD STORAGE CHAIN

A cold storage chain using natural gas could be established throughout the country to store sea food, milk products, vegetables and other perishable food items thereby reducing spoilage which in turn would bring down the cost of these products thereby reducing the daily cost of living of the common man.

CITIGAS – PIPED GAS TO HOUSES & COMMERCIAL ESTABLISHMENTS

Natural Gas is cheap and very safe for household use. We are proposing to lay a pipeline system initially in Hambantota and later to other cities to deliver gas directly to houses and commercial establishments. Many cities around the world have this facility of getting gas through pipelines direct to the consumer.

Piped natural gas will avoid the problem of transporting cylinders.

Since natural gas is lighter than air it will evaporate immediately if it leaks and is much safer than LPG which will explode in flames when leaks occur.

As Sri Lanka is a small country, Gas pipeline grids could be set up all over the country. Cities like New Delhi, Mumbai etc in India have gas pipeline grids. Comparing these cities to Sri Lanka, it will be much easier to set up such a grid in Sri Lanka.

This will also bring down the price of cooking gas which will benefit the consumers in bringing down their cost of living.

TELECOMMUNICATIONS SECTOR

Our gas pipelines will be equipped with fibre optic cables to monitor the flow of gas constantly.

Only 25% of the capacity of this fibre optic cables are required for the monitoring purpose. The balance 75 % could be used by Sri Lanka Telecom to provide ADSL facilities throughout the country.

OTHER COMMERCIAL USES OF NATURAL GAS

Hospitals : Cooking, washing, refrigeration, air conditioning, water heating
Office Buildings / Shopping Malls/ Super Markets : Air conditioning, refrigeration
Waste treatment plants
Water pumping for municipalities
Combined Heat and Power (CHP) applications
Combined Cooling, Heat and Power (CCHP) Applications
Powering Generators, Turbines and Fuel Cells

POWER PLANTS – PROVISION OF ELECTRICITY

Consumption of Natural Gas by all the aforesaid sectors will very little considering the capacity of an Off-shore Floating Storage and Regasification Unit (FSRU).
In order to have a viable consumption and ensure a steady supply of natural gas we need to set up at least one Power plant with a capacity of 1050 MW

Currently, Sri Lanka is heavily dependant on thermal (diesel) : 48 % and hydro : 45 % for generating its electricity. Diesel generation is costly resulting in heavy subsidies by the Government as well as contributing to global warming and atmospheric pollution. Due to the uncertain weather patterns due to global warming over-dependency on hydro sources for electricity generation could lead to frequent disruptions in electricity supplies.

The only viable alternative for clean and cheap electricity is to generate power through LNG.

In the Power and Energy sector we propose the following :

- Setting up a 1050 MW LNG Power project in Hambantota
- Conversion / Replacement of 3 CEB power plants at Kerawalapitiya – Total 350 MW
- Natural Gas supply through pipe lines to existing 270 MW duel fuel West Coast IPP at Kerawalapitiya & 163 MW AES IPP at Kelanitissa