



## BARGE MOUNTED CNG TRANSPORTATION SYSTEM

### Conceptual Framework and Operation

#### 1. Overview

Though Bangladesh has an abundance of natural gas compared to its present consumption levels, till now major cities along with numerous chars, islands and remote places do not have piped natural gas.

As piped gas supply is capital intensive and protracted, a mechanism should be in place to supply gas not by pipes but by tanks containing compressed natural gas (CNG) mounted on barges to these remote islands. This will make possible to meet up ensured market in power generation along with other industrial and domestic uses with relatively cheaper energy sources

#### 2. Remote Area Power Supply Systems (RAPSS)

The RAPSS projects being developed in the off-grid areas by IIFC are presently at the pre-qualification stage for two sites. These are the islands of Sandwip and Kutubdia. Under the Off-grid RAPSS concept, the two islands would be given to private sector investors who would be allowed to generate and distribute electricity within the islands. But power generation using diesel fuel is costly and this will be reflected in a high electricity tariff that the island residents will need to pay, unless somehow subsidized. If gas were available on the islands, it would have four primary uses:

1. Power generation
2. Process industries
3. Domestic cooking
4. Vehicles

The Off-grid RAPSS projects would serve as a base load of gas consumption for the Barge Mounted CNG transportation system and lead to development of the other uses of gas.

#### 3. Project Concept

The project concept comprises three basic components:

1. CNG Filling Station
2. Barge mounted CNG tank or tanks
3. CNG Receiving Station

**CNG Filling Station:** This facility would be located on-shore and be very similar to a CNG filling station that is seen around Dhaka for vehicles, with the exception that it would need to be close to a river or

sea terminal where the barge would replenish its tanks with CNG. In order to make it viable, it could be possible to combine it with a vehicle filling station rather than make it dedicated for supplying to the barge only.

**Barge mounted CNG tank or tanks:** The barge would be of a self-propelled type and have fastened on its deck/hold, a CNG tank or a number of small CNG tanks connected together by a common header. It would need to have a compressor to ensure that all gas is evacuated to the tanks at the Receiving Station.

**CNG Receiving Station:** This facility would be very similar to a CNG Filling Station but would be located off-shore. It would also need to be close to a river or sea terminal. The barge would discharge its tanks and fill up stationary tanks at the terminal. In order to make it viable, it could be possible for the receiving station to supply gas in other uses, apart from the gas needed for the power generation.

**Business Functions:** It can be envisaged that there would be three types of business involved:

- (a) A CNG Filling Station serving one or more barges
- (b) Barges having ability to receive CNG from any filling station and discharge in receiving station.
- (c) The CNG Receiving Station

The above three components of function would be taken up as a whole or separate businesses to be invested by private entrepreneurs. CNG receiving station could be under RAPSS operator.

Government should only carry out a business function if the private sector does not step forward to carry out that function.

#### 4. Technical Aspects

CNG is a proven technology all over the world. It has recently seen a boom in Bangladesh, with cars, auto rickshaw (CNG) and buses being rapidly converted for CNG operation and CNG filling stations.

CNG tanks, compressor stations, pipe-work, nozzle, filling stations are in use commercially in Bangladesh, and hence do not require research but application of the already proven components

## Business Model: CNG Transportation System

