

## TERM OF REFERENCE FOR CONSULTANT (INDIVIDUAL)

The purpose of the study is to undertake a pre-feasibility study for the conversion of coal to gas, coal to liquid and urea and to highlight the benefits of utilization of indigenous coal for the manufacturing of coal derived products.

2. To accomplish the task, the department tends to engage an individual expert to conduct in-depth study to achieve following tasks;

- Overall responsible for pre-feasibility study
- Collection of available data relevant to the subject and its review
- Preparation of road map to achieve pre-feasibility study objectives
- Compiling current scenario of;
  - Hydrocarbon imports, production, consumption and its utilization etc.
  - Urea Production, import and demand & supply and future forecast
  - Agriculture industry demand and supply, Fertilizer
  - Compilation of data on Conversion of Coal in to Liquids / petrochemical products
- Designing of protocols for coal sample collection and processing
- Identification of company/laboratory/services to conduct various chemical testing of coal.
- Review/analyze of testing reports and reporting to Sindh Coal Authority
- Propose various options including various types of plants for Coal conversion in gas, liquid and urea. To provide up-to-date information on investment requirements, production costs, and profit potentials of several commonly sized models of plants.
- Cost estimation for the installation of Coal to Gas to Liquid or Coal to Gas to Urea Production facility
- To achieve comprehensive data on coal characteristics for its utilization in terms of plants manufacturing and market
- Recommending way forward to Sindh Coal Authority for Coal to Gas, Liquid and Urea based on pre-feasibility study.

