6. DESCRIPTION AND ANALYSIS OF PROJECT ALTERNATIVES

6.1 STATEMENT OF NEED
Nigeria has rich and diverse resources including petroleum, natural gas, mineral resources – precious metals, base metals and industrial/construction materials. The Project will enable and promote the utilization of Nigeria’s substantial natural gas resources most of which is currently flared – constituting an environmental hazard. The will also have substantial beneficial effects on economy (local and national), employment and generate foreign exchange revenue for the country.

6.2 CONSIDERATION OF ALTERNATIVES AND JUSTIFICATION FOR THE PREFERRED ALTERNATIVE

6.2.1 THE ‘NO ACTION’ ALTERNATIVE
The “No-Action” Alternative (not constructing the facility) is not a feasible alternative, as it would lead to loss of significant foreign direct investment of circa US$400 million as well as significant employment opportunities – direct employment opportunities are currently estimated at 1,000 (on average) during the 2.5 years of construction and 250 (on average) during operations for 25 years. The Project would produce during Phase I an estimated 1,700 metric tons per day of urea from feedstock of natural gas, to be marketed in the domestic market and exported to international markets.

From an environmental perspective, the proposed facility is to be constructed in a designated industrial site within an existing significant oil and gas producing province.

Should the “No-Action” Alternative be selected, the Project location will remain designated for petrochemical industrial activity.

6.2.2 ALTERNATIVE SITES
The Ossiomo industrial site has already been granted a license for the development of a Greenfield ammonia urea plant in [xx] 2008.

The key environmental and economical driving the site selection are as follows:
- Environmental Considerations
- Permits
- Plot Size of minimum 175 acres (plus consideration for future expansion)
- Land Tenure
- Site Constructability
- Access to substantial Natural Gas Supply
- Access to Water
- Cooling Water Piping
- Availability of Construction Material
- Access to Infrastructure for Product marketing and Distribution
- Local Community Support

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Based on extensive evaluation and international project development experience of the Sponsors in setting up similar projects, the current site is deemed to be perhaps the best location for the Project.

6.2.3 ALTERNATIVE PROCESS, DESIGN AND TECHNOLOGIES

6.2.3.1 ALTERNATIVE PROCESS AND TECHNOLOGY FOR AMMONIA AND UREA PRODUCTION

The philosophical approach of the Sponsors is to select the best-in-class technology and engineering partners for all their petrochemical projects.

The current global leading licensors of ammonia production technology are as follows:

- Casale
- Uhde
- KBR
- Snamprogetti

The current global leading licensors of urea production technology are as follows:

- Stamicarbon
- Snamprogetti
- Toyo

If the Project was based on new technology and equipment, the choice of technology and licensors would come from these international industry leaders.

In any event, the licensors for the KNO ammonia and urea plants are Casale and Stamicarbon respectively. In essence, the Project design is based on well proven leading process and technology design which has been successfully operated in Kenai, Alaska for decades. The licensing support arrangements will be extended to the relocated plant at Ossiomo’s site in Nigeria.

6.2.3.2 ALTERNATIVE WATER INTAKE

An ammonia and urea plants requires cooling of process and cooling. There is abundant alternative water supply at the Project site more than sufficient for the Project’s requirements. The alternatives are to utilize underground water from the rich aquifers at the Project site or to collect from the Ossiomo river.
OSSIOMO AMMONIA-UREA PROJECT

*Environmental Social Impact Assessment*

The two alternatives were evaluated to determine and select the best technical and economic alternative. Both options are deemed to be equally technically, environmentally and economically feasible. Accessing water from the Ossiomo river has been chosen as it is physically and environmentally benign.