TEMA LIQUEFIED NATURAL GAS PROJECT
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
Final Scoping Report - Non-Technical Summary Presentation
Structure of the Presentation

• Introduction to the Tema LNG Project
• Introduction to the ESIA Process
• The Public Participation Process
• Potential Issues Identified During the Scoping Phase
• Next Steps
• Questions and Answers
Introduction to the Tema Liquefied Natural Gas Project
Quantum Power Ghana Gas Limited (Quantum Power) propose to develop the Tema Liquefied Natural Gas (LNG) Project, which will include all the necessary infrastructure to import, store, re-gasify and deliver re-gasified LNG to off-takers in the Greater Accra Area.

The proposed Project will include infrastructure in the sea (Marine) and on land (Terrestrial) and will cross two administrative districts in the Greater Accra Area, namely Tema (West and East) and Kpone Katamanso.

The proposed Project will be located almost exclusively in a Right of Way Servitude and Marine Exclusion Zones.

The proposed Project will provide LNG to Independent Power Producers in order to provide much needed electricity.
What is LNG and what will the Project entail?

• LNG is produced by cooling natural gas to a very low (cryogenic) temperature until the gas becomes a liquid. The process reduces the volume of the natural gas to 1/600th of its un-liquefied volume. This much smaller volume allows large amounts of natural gas to be transported economically over long distances by special ships called LNG carriers.

• When the LNG is offloaded at its destination (the Tema LNG Project location), it is then re-gasified by heating it, which allows it to return to its gaseous state. The resultant natural gas is then distributed to customers via natural gas pipelines which transport the gas to power stations which provide electricity to domestic and industrial users.
Raw Gas from Gas Fields

Co², water and other Impurities Removed

Stages of refrigeration to cool the gas turning it into liquid (Liquefied Natural Gas or LNG). This makes it easier to transport as it takes up less space.

LNG will be transported in LNG Carrier Ships to Tema where they will berth at the Floating Storage and Regasification Unit (FSRU) and Mooring Jetty located approximately 12km offshore.

The FSRU and Jetty will rest on piles or be anchored on the seabed and will be able to re-heat the LNG and return it to a gaseous state.

The gas will then be transported via a subsea gas pipeline to an onshore Landing Facility/Metering Station before it is distributed via a pipeline (in an existing servitude) to Power Stations who supply electricity to domestic and industrial users.

THE TEMA LNG PROJECT
What infrastructure will be needed?

- **Floating Storage and Regasification Unit (FSRU), Offshore Mooring and Supply Vessels** - The FSRU will berth at the offshore mooring jetty, located approximately 12 km off the coastline of Tema. It will have an overall length of 295m, a width of 44m and will be able to store approximately 170,000 m$^3$ of LNG.

- The Floating Units will be permanently held in position by a mooring jetty, which will be connected to a subsea pipeline via a flexible riser. The mooring system will rest on permanent piles in the seabed and support a permanently moored storage and re-gasification vessel, an LNG trading vessel and a riser from the subsea pipeline.

- **Subsea Gas Pipeline** – the subsea pipeline will be made from 18 inch carbon steel seabed pipe which will be laid on the seafloor in order to transport the gas from the FSRU to the onshore metering station. The pipeline will be designed to comply with international standards and will have concrete ballasts to prevent it from floating to the surface.
Landing Facilities and Distribution Pipelines to Power Stations in the Greater Accra Region - The subsea pipeline will run from the FSRU under the sea to a landing facility and a metering station. The subsea pipeline will be located in an existing exclusion zone where the West African Gas Pipeline (WAGP) is located. The metering station will also be located within close proximity to the WAGP metering station.

The metering station will be able to monitor the amount of gas being distributed to the six planned Independent Power Producers, who will then provide electricity to other parts of Ghana. The metering station will also be able to monitor the pressure of the gas in the pipeline to detect any possible leaks.

The gas will be distributed using underground pipelines that will be located in the existing Volta River Authority (VRA) Right of Way Servitude.
What is the project lifecycle

**Feasibility:** This phase involves planning for the proposed Project, preliminary designs and the ESIA study.

**Pre-construction:** This phase involves planning for construction, putting in place mitigation measures and resettlement (if necessary).

**Construction:** This phase involves construction activities to construct the Project and other required infrastructure. This phase also includes monitoring activities to make sure what is in the ESIA is implemented.

**Operational:** This phase involves importing and distributing LNG within Ghana.

**Closure:** This phase involves closing the Project, retrenching workers and rehabilitating the area.
The Environmental and Social Impact Assessment Process
What is the ESIA Process?

Before the Project can start, a study called an **Environmental and Social Impact Assessment (ESIA)** needs to be done.

An ESIA is a study to understand how the proposed Project will change the environment and affect the people living and working there.

It also identifies ways to manage any changes that may happen (mitigation).
The aim of this study is to advise the Ghanaian Government and international banks that may lend money to the proposed Project on the impact of the project and whether the Project should be allowed to be developed and under what conditions.

The ESIA also identifies the expected impacts of the proposed Project and suggests how these effects can be managed.
What is the Process?

**Screening** defines what environmental and social issues the study will focus on.

The report will be submitted to the Government of Ghana who will then issue a *Record of Decision*.

**Scoping** identifies the likely changes (impacts) that will happen because of the proposed Project. This phase includes a scoping report which is made available to the public and the Government of Ghana for comment. Scoping plans what areas need further investigation.

**Specialist Studies** collect information to understand what the environment and people in the area are like and how the proposed Project is likely to effect them.

**Impact Assessment** understands how significant the changes are likely to be, and identify ways to manage these changes.

This ESIA is at this stage.
The Public Participation Process
Objectives of Engagement

Objectives of Engagement:

- To provide information to all potentially affected and interested people;
- To give all stakeholders a chance to comment on the ESIA team’s work, including what impacts they have identified, how important they thought these impacts were and how they think the impacts can be managed;
- To manage expectations; and
- To meet the national and align with international requirements for impact assessments.
Who are our Stakeholders?

National Stakeholders:
- Environmental Protection Agency (Accra and Tema)
- Ghana Maritime Authority
- Ghana Ports and Harbours Authority (GHAPOHA)
- Volta River Authority (VRA)
- Ministry of Energy (MoEn)
- Energy Commission (EC)
- Ministry of Fisheries and Aquaculture Development-Fisheries Commission
- Independent Power Producers
- Ghana Highway Authority
- Electricity Company Ghana
- Ghana Water Company
Regional and District Stakeholders:
- Tema Metropolitan Assembly (TMA)
- Kpone Katamanso District Assembly
- Ningo Prampram District Assembly
- Tema Development Corporation (TDC)
- The Tema Ashaiman Golf Club

Local Stakeholders:
- Wonsom Fishing Association
- National Fisheries Association of Ghana (NAFAG)
- Ghana Canoe Fisheries Association
- Ghana Inshore Fishery Association-Tema
- Ghana Industrial Trawlers Association
- Dzigbordi Fish Mongers Association
- Enufa Enufa Canoe Association
- Directly Affected Parties
- The General Public: Communities living in close proximity to the servitude
How will stakeholders be involved?

- Some engagement has already taken place. There are four more opportunities for stakeholders to be involved:

  1. **Scoping Disclosure**: Meetings and workshops with national, regional and local stakeholders on the findings of the scoping phase in February 2015 – **THIS MEETING**. The Final Scoping Report is also available online and in a Non-Technical Summary (NTS). Stakeholders may comment at this meeting or in writing.

  2. **Data Gathering Activities**: Some stakeholders have been and will still be engaged directly by the ESIA team to obtain certain information to feed into the ESIA. Some of these activities have taken place already but the ESIA team is still collecting information as they write up the baseline reports and undertake the impact assessment.

  3. **Draft ESIA Report Disclosure**: Meetings to disclose the findings of the Draft ESIA. Again a NTS will be available. Stakeholders will be provided with an opportunity to comment on the predicted impacts and the acceptability of the mitigation measures.

  4. **Final ESIA Report Disclosure**: Last round of meetings with local communities and local authorities on the Final ESIA. The aim of this round is to understand the communities’ positions on the proposed Project so these can be communicated to Quantum Power and the national authorities.
Stakeholder Mapping to identify key Interested & Affected Parties (I&APs)
- Formal announcement of proposed Project to identified stakeholders (including government bodies and public organisations)
- Announcement letter and Background Information Document (BID) distribution
- Placement of site notices inviting I&APs to register
- Placement of newspaper adverts inviting I&APs to register
- Key I&AP focus group meetings

Announce availability of Draft Scoping Report for public review
- Lodge Draft Scoping Report available in the mass media
- Hold meetings with I&APs
- Update Draft Scoping Report, Comment and Response Report
- Submit Final Scoping Report to EPA for review
- Notify Stakeholders of the Final Scoping Report (THIS MEETING).
- Make the Final Scoping Report available at public locations and on the Project website for stakeholder reference

Share information with stakeholders during baseline studies
- Announce availability of Draft ESIA and ESMP Reports for review
- Draft ESIA and ESMP Reports available at public places and Project website for review and comment
- Hold public meetings with I&APs
- Update of Draft ESIA and ESMP Reports based on stakeholder comments
- Submit Final ESIA and ESMP for public review
- Submit Final ESIA and ESMP to the EPA for consideration

Annonce decision from competent authorities to I&APs.
- Provide the needed information for appeals process in announcement

Become Involved:
- by visiting the Project website - [http://www.knightpiesold.com/temaNG/](http://www.knightpiesold.com/temaNG/)
Here you can download the Final Scoping Report, updated Project information or fill out a comments and response form; and
- by contacting Knight Piésold and by registering an interest in the Project. Registration will allow you to receive further communication about the ESIA process and the proposed Project. Knight Piésold’s contract details are as follows:
Potential Issues Identified at the Scoping Phase
Summary of Potential Impacts Identified During the Scoping Phase

Summary of Potential Positive Impacts:

**Direct Impacts**
- Increased Income Generation Opportunities from Direct and Indirect Job Creation
- Supporting community development

**Indirect Impacts**
- Much Needed Electricity Supply (Indirect Impact)

Summary of Potential Negative Impacts:

**Direct Impacts**
- Marine Environment – The FSRU, associated infrastructure and activities may affect seawater quality, fish and other sea life. Restriction of ships and fishing boats.
- Terrestrial Environment – The pipeline, roads and metering station may effect plants and animals, surface water quality, traffic, air quality and noise in the Project area.
- Socio-Economic Environment - people living or undertaking activities in the servitude or close to the proposed Project may be effected.
- Possible physical and economic displacement (to be confirmed).
- Views for locals
Terms of Reference for the Next Phase

Based on the Scoping Phase findings, the following specialist studies have been commissioned:

- Marine Environment
  - Oceanography
  - Marine Water Quality
  - Benthic
  - Planktonic
  - Estuaries and Lagoons
  - Fish and Fisheries
  - Marine Mammals and Reptiles
  - Offshore Air Quality
  - Offshore Noise

- Terrestrial Environment
  - Hydrology
  - Aquatic Ecology
  - Terrestrial Ecology - Flora and Fauna
  - Traffic
  - Air Quality
  - Noise

- Socio-economic Environment
  - Governance and Administration
  - Demographic Profile
  - Social Infrastructure, Resources and Services
  - Education
  - Health
  - Cultural Heritage
  - Landscape and Visual
  - Livelihoods and Socio-Economics
  - Human Rights and Vulnerability
  - Stakeholder Perceptions and Attitudes.
Next Steps

• The Scoping Report has been approved by the Ghana Environmental Protection Agency.

• Knight Piésold is now reaching completion with baseline studies based on the Terms of Reference identified in the Scoping Report. These studies are being undertaken by specialists in their fields.

• Knight Piésold are in the process of assessing the impacts and proposing mitigation measures. Knight Piésold will then engage with stakeholders again at the national, regional/district and local level. The aim of engagement will be to present the draft ESIA report to stakeholders for comment. This will be undertaken in March. Based on stakeholders comments, the final ESIA will be amended and submitted to the Ghana Authorities for their consideration.
What should I do now?

- Give your comments in this meeting.
- Review the scoping report or the Non-Technical Summary (NTS) pamphlet – also available at http://www.knightpiesold.com/TemaLNGESIA.
- Contact George Lartey Young of Knight Piésold Consulting for more information if you would like.
- Come to the next meeting which will discuss the Draft ESIA Report
Questions and Answers
Thank You

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