# Oilbi LNG Project Basic Plan

**April 2025**

**Oilbi Ltd.**

## Key Points

## 1. Project Introduction

### A. Overview

a. Oilbi Ltd., an independent energy company based in Tanzania, is pursuing the construction of an LNG plant with a target of initial production in 2030 and operation for 28 years.

b. Project Name: **Mvua Kubwa Project**

- "Mvua Kubwa" means " Heavy Rain" in Swahili.

c. The project, which will be fully launched with the signing of the PSA, involves extracting natural gas from offshore blocks in Tanzania, where Oilbi holds 100% exploration and operating rights, to establish an onshore LNG complex with an annual production capacity of 2.5 million tons.

d. The MVUA Kubwa Project constitutes a landmark reciprocal collaboration between Tanzania and Korea, with the potential to emerge as a pivotal force in the international LNG energy marketplace.

### B. Oilbi-Controlled Block Reserves

- **Proven Reserves (P1):** Approximately 3.5 trillion cubic feet (TcF).
- **Probable Reserves (P2):** Over 30 trillion cubic feet.

### C. Legal Basis for Project Execution

a. The signing of a Production Sharing Agreement (PSA) between Oilbi and the Tanzanian government is expected soon..

**b.** This agreement secures the legal rights to exclusively explore and develop gas resources within the designated blocks.

## 2. Market Analysis

### A. Global LNG Market Outlook

a. Projected to grow by approximately 60% or more by 2040.

b. Asian markets, including China and India, are expected to drive global demand.

c. Oversupply is expected for the time being due to large-scale LNG facility expansions led by the U.S. and Qatar.

d. By the 2030s, demand is forecasted to exceed supply (according to the analysis by Shell, Woodside, etc.).

### B. Target Markets

a. South Korea, alongside other Asian and European markets.

b. Plans to secure off-take agreements with Korean energy companies.

## 3. Proceeding Plan

### A. Establishment of Joint Venture (JV) with Korean Energy Companies such as KOGAS, POSCO International

a. Oilbi will contribute in-kind (development rights), while Korean major energy companies will provide technology and capital.

b. The JV will lead the formation of a consortium with other Korean companies and establish a Special Purpose Company (SPC).

### B. Plant Construction

a. Daewoo Engineering & Construction and Hyundai Engineering & Construction, with proven global LNG plant construction experience, will be pursued as main contractors.

b. Global EPC companies such as JGC and Saipem will participate as

collaborators.

# 4. Financial Analysis

## A. Estimated Total Project Cost

- Approximately $3.3 billion

## B. Funding Strategy

1) Equity sales by Oilbi, capital increase through the consortium, institutional investor recruitment, and debt financing.

## C. Key Metrics (Estimates)

- **Annual Revenue:** $1.75 billion (2.5 million tons × $700/ton).
    - Per-ton price based on JKM LNG futures market as of February 2025.
- **Oilbi Net Present Value (NPV):** Approximately $3.57 billion
- **Total Cumulative Profit (28 years):** Approximately $9.7 billion
- **Internal Rate of Return (IRR):** 12.08%.
    - Weighted Average Cost of Capital (WACC): 6.97%.
- **Break-Even Point (BEP):** Around 2035.

# I. Project Overview

## A. Background and Objectives

### 1. Background

#### a. Project Description

1) This project involves constructing a complex in the Mtwara region of southeastern Tanzania to produce 2.5 million tons of LNG annually.
The project promoter, Oilbi Ltd., has been engaged in offshore gas exploration and development in Tanzania since 2011.

2) A Production Sharing Agreement (PSA) is expected to be signed soon between Oilbi and the Tanzanian government for the exploration and development of natural gas in offshore Blocks 2R and 3R, establishing the legal foundation for the project.

3) Block 3R, where Oilbi holds development rights, contains approximately 3.5 trillion cubic feet (TcF) of proven recoverable reserves (P1), deemed economically viable, with an estimated 30 TcF or more of probable reserves (P2) across the controlled blocks.


### 2. Objectives

#### a. Project Goals

1) The project is expected to be the first production target by 2030, and strategic partnerships with Korean companies that have established strong value chains across all sectors of the energy industry, including production (upstream),

transportation (midstream), and distribution (downstream), are expected to be the most important key factors for the success of the project.
2) The combination of Oilbi's substantial gas reserves, the long-term growth of the global LNG market, Tanzania's strategic location and potential, the technology and capital of Korean companies, and Oilbi's robust network in Tanzania is expected to generate strong synergies.

# B. Company Introduction and Activity History

## 1. Company Introduction

### a. Overview of Oilbi

1) Oilbi is an independent energy company focused on oil and gas exploration, development, and production (E&P).

2) Operating initially as Apex Group since the early 2000s in Namibia, the Republic of Congo, and Tanzania, it established its current headquarters in Dar es Salaam, Tanzania, in 2011 and rebranded as Oilbi Ltd. in 2015.

3) Founded by Chairman Lee Jae, who began his career in South Africa's diamond business in his 40s, Oilbi has developed extensive experience and networks in Africa's oil and gas sector over approximately 30 years.

## 2. Key Activities in Tanzania

### a. Milestones

1) In 2011, Oilbi formed a partnership with Tanzania Petroleum Development Corporation (TPDC) and BG Group (UK), participating as a strategic investor in exploration projects.

2) In 2012, the BG Group and Ophir Energy consortium discovered the Papa-1 gas field in Block 3 (recoverable reserves of approximately 3.5 TcF).

3) In 2015, Oilbi submitted PSA applications to the Tanzanian government for Blocks 2R and 3R.

4) In 2019, Oilbi acquired 100% of Ophir Energy's stake in Block 3, securing full ownership.

- Subsequently, in 2019, Oilbi collaborated with the Tanzanian government to draft a PSA model for Blocks 2R and 3 (integrated as Block 3R in the PSA).

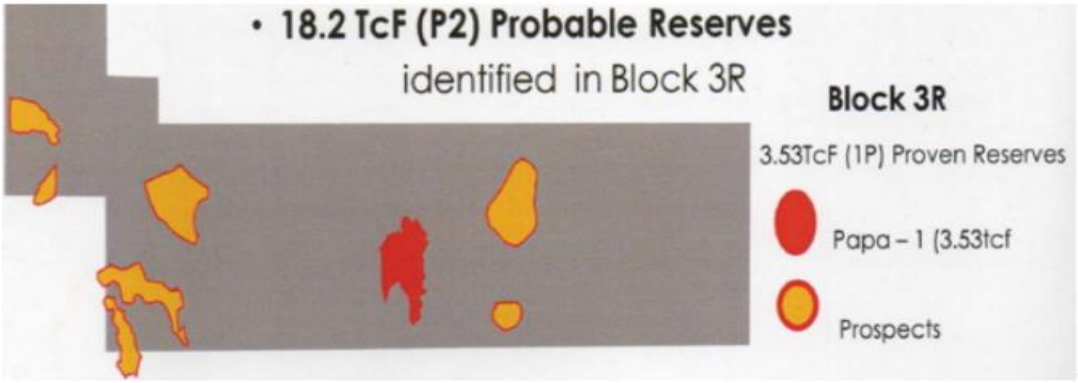
5) This collaboration led to the initiation of pre-feasibility studies and basic design for the LNG plant.

## C. Oilbi-Controlled Block Reserves Information

### 1. Proven Recoverable Reserves (P1)

#### a. Papa-1 Reserves

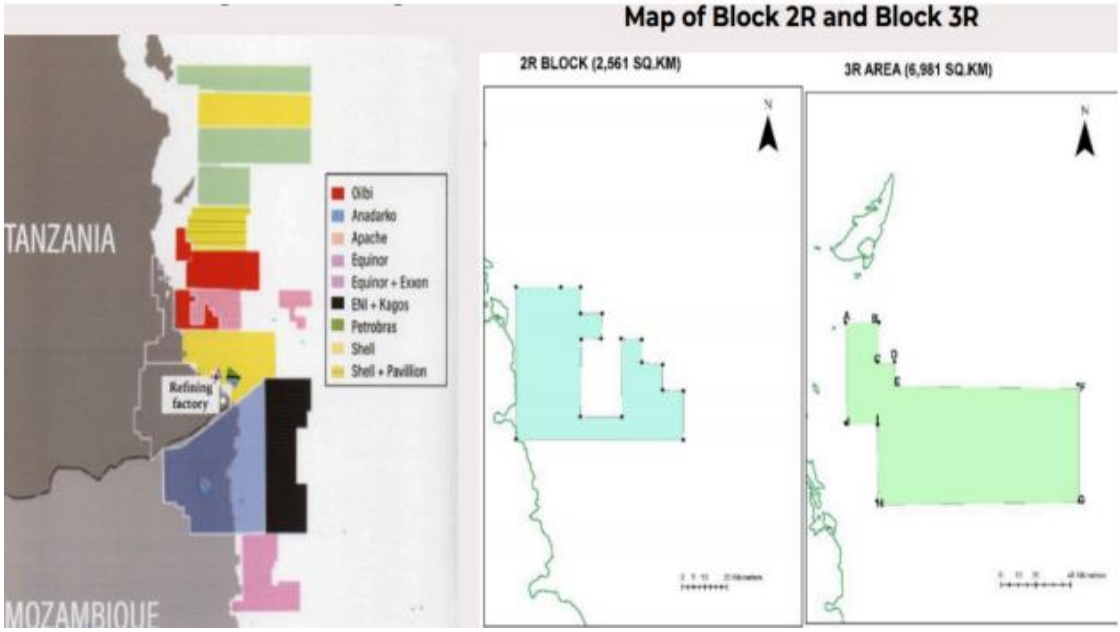
- Papa-1 (Block 3R): 3.53 trillion cubic feet (TcF).
  3.53 TcF of natural gas can be converted into approximately 70 million tons of LNG through refining, sufficient for 28 years of production at 2.5 million tons annually.




### 2. Probable Reserves (P2)

**a. Estimated Reserves**Approximately 36 TcF, equivalent to approximately 718 million tons of LNG.

## 3. Block Location




### a. Geological Context

1) Tanzania's offshore region is known for its geologically promising characteristics, resulting in relatively high success rates in gas exploration and drilling.

2) Detailed exploration and drilling data for Oilbi's gas blocks are maintained by Schlumberger, a global energy services company.

## D. Production Sharing Agreement (PSA)

### 1. Agreement Status

Currently waiting for the signing

### 2. Key Contents

#### a. Purpose

- The purpose is to ensure optimal long-term development of oil and gas resources based on international environmental, social, and sustainable economic principles.

#### b. Contracting Parties

1) Tanzanian Ministry of Energy.
2) Tanzania Petroleum Development Corporation (TPDC).
3) Oilbi Ltd.

#### c. Contract Duration

- The contract is divided into exploration and development phases;

  The exploration period is 4 years, extendable twice.

#### d. Exclusive Exploration and Development Rights

- Oilbi holds exclusive authority to explore and develop oil and natural gas in Blocks 2R and 3R.

#### e. Royalty / 7.5%

#### f. Cost Recovery Limit

1) Up to 75% of total production is allowed for cost recovery.
2) Covering operating costs, exploration costs, plant construction costs, insurance, legal advisory fees, etc.,
3) Recoverable in that order (operating costs, exploration costs, development costs).

#### g. Gas Profit Sharing Ratio

- 300–449.999 MMSCFD: TPDC 70%, Oilbi 30% (equivalent to 2.5 Mt/year).

- 600–749.999 MMSCFD: TPDC 80%, Oilbi 20% (equivalent to 5.0 Mt/year).
- Over 750 MMSCFD: TPDC 85%, Oilbi 15% (equivalent to 7.5 Mt/year).

### h. Development Costs

- TPDC may bear at least 25% of development costs, requiring a joint operating agreement if applicable.

### i. Rights Transfer

- With prior written consent from the Minister of Energy, Oilbi may transfer all or part of its rights and obligations to affiliates or third parties.

### j. Dispute Resolution

- If unresolved through consultation or third-party mediation, disputes will be settled under the International Chamber of Commerce (ICC) mediation and arbitration rules.

## 3. Significance of PSA Signing

### a. Legal Foundation

Secures exclusive rights to explore and develop natural gas in Blocks 2R and 3R, providing a legal basis for resource development without competition.

### b. Royalty Comparison

The 7.5% royalty is relatively low compared to other African and Latin American PSAs (e.g., Nigeria 10%, Brazil 12%), though varying by country and condition (onshore/offshore, shallow/deep water).

### c. Cost Recovery Benefits

The cost recovery clause of up to 75% of production enables early recovery of investment and a rapid break-even point.

### d. Financial Forecasting

Clear profit-sharing ratios between Oilbi and the Tanzanian government allow for short- and long-term financial forecasting.

### e. Dispute Resolution Mechanism

International-standard contract terms enable dispute resolution through global arbitration if needed.

### f. Project Execution Foundation

Establishes a foundation for full-scale project execution, including partnerships with global firms.

### g. Scalability Potential

Opens possibilities for additional exploration and drilling, ensuring long-term scalability through resource development.

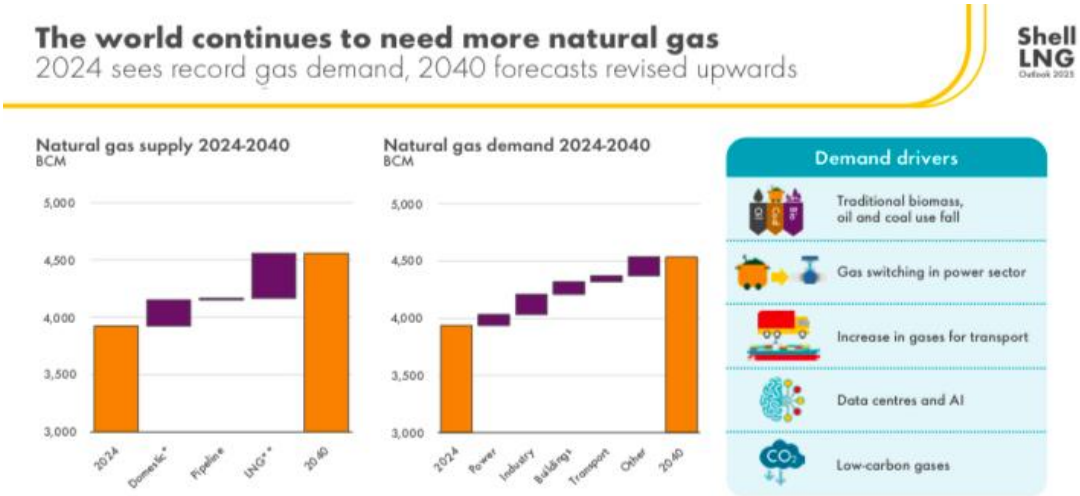
# II. Market Analysis

## A. Global LNG Market Trends and Outlook

### 1. Overall Demand Increase

#### a. Demand Forecast

- According to Shell's 2025 LNG Outlook, global LNG demand is expected to rise by approximately 60% by 2040, driven by Asia's economic growth and the industrial sector's need to reduce greenhouse gas emissions.
- Global demand is projected to reach 630–718 million tons annually by 2040.



## 2. Key Market Trends

### a. Rising Demand in Asia

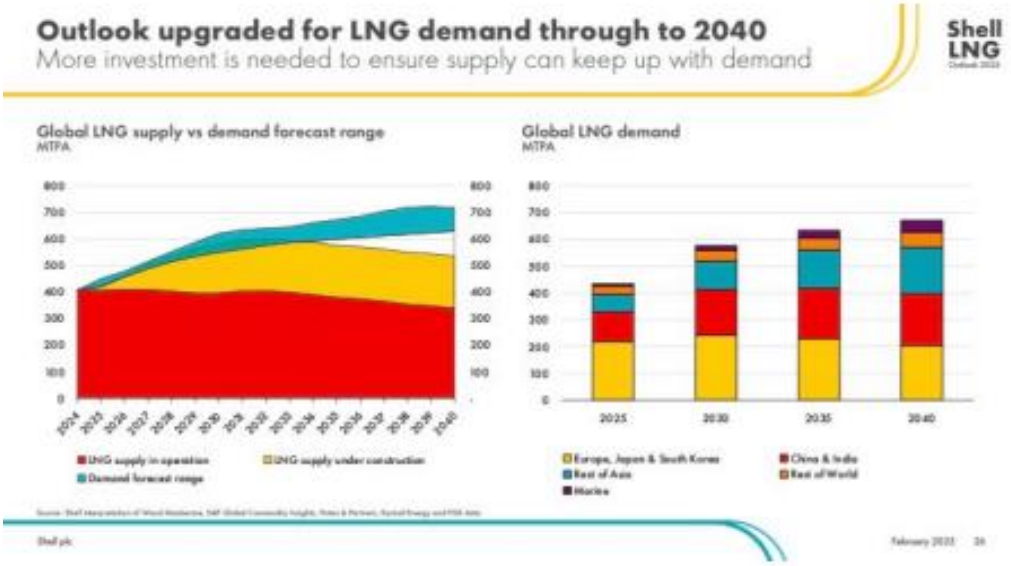
LNG demand is expected to surge due to infrastructure development and economic growth in Asia, positioning it as a key driver of global demand.

### b. China and India

According to Wood Mackenzie's analysis, a global energy and natural resources data firm, Asia's LNG demand is expected to double within 25 years, with China maintaining its position as the world's largest LNG importer and India significantly increasing imports.

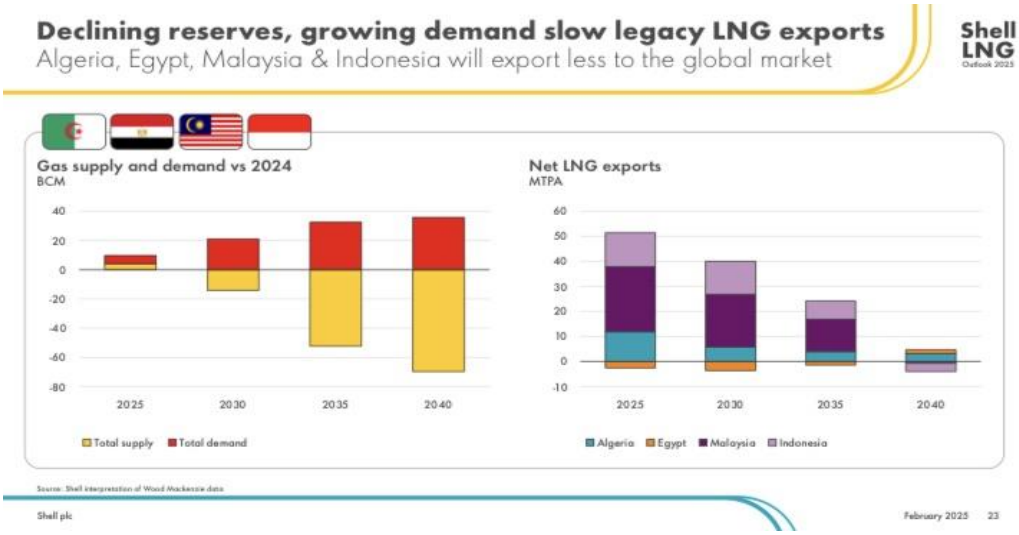
### c. Europe's Energy Transition

Europe is anticipated to increase LNG reliance to address reduced gas imports from Russia and enhance energy security.




### d. Southeast Asian Countries

Thailand, the Philippines, Vietnam, and others are expected to see rapid LNG demand growth due to declining domestic gas production and the need for renewable energy expansion.
Traditional exporters like Indonesia and Malaysia are gradually transitioning to importers.




## B. Target Markets

### 1. Primary Market

Most of the LNG produced by Oilbi's plant will primarily target the South Korean market.

Several major Korean companies are expected to join the Oilbi project as consortium members, with plans to secure long-term off-take agreements in advance.

### 2. Secondary Markets

After supplying South Korea, surplus volumes will be exported to China, India, Southeast Asia, Europe, and other regions through the global networks established by the Korean energy companies such as KOGAS and POSCO International.

## C. Competitive Analysis

### 1. Global Competitors

#### a. Qatar

- Qatar is the world's largest LNG exporter, dominating the global market with large-scale, low-cost production.
- State-owned Qatar Energy has an annual capacity of approximately 77 million tons, with plans to expand to 140 million tons by 2030 (an 85% increase) via

the North Field Expansion Project.

### b. United States

- As of 2024, the U.S. boasts an annual capacity of approximately 88 million tons, leveraging technological innovation and large-scale facilities for competitiveness.
- It targets Europe and Asia, continuously expanding LNG facilities.

### c. Australia

- Australia traditionally holds a strategic position in the Asian market, supplying stable, high-quality LNG.

### d. Mozambique

- Though not yet a prominent global player, Mozambique aims to expand capacity to 50 million tons, potentially emerging as a major LNG hub in Africa.

### e. Major Players

- ExxonMobil, Shell, and Total dominate the global market, while in China, CNOOC, Sinopec, and PetroChina collectively hold approximately 45% of the market.

## 2. Technological and Infrastructure Competition

### a. Technological Advancements

Global energy companies maintain efficiency and sustainability through digital automation and floating LNG platforms (FLNG).

### b. Infrastructure Expansion

The U.S. and Qatar focus on expanding large-scale LNG terminals to enhance export capabilities.

### c. Supply Dynamics

Competition between the U.S. and Qatar for global LNG market dominance is driving large-scale facility expansions, and it will result in prolonged period of

supply.

### d. Long-Term Outlook

However, Shell's analysis suggests that by the 2030s, demand will outstrip supply, necessitating additional facilities.

## 3. Strategies for Market Competitiveness and Differentiation

### a. Technological and Price Competitiveness

To compete with global energy companies in the highly competitive Asian and European markets, securing technological innovation and price competitiveness is critical.

### b. Strategic Partnerships

Strategic partnerships with major Korean energy companies will leverage their globally established value chains across production and distribution for competitiveness.

### c. Cost Reduction

Price competitiveness will be maintained by reducing transportation costs through partnerships with Korean shipping companies that operate high-efficiency vessels and global networks.

### d. Environmental Advantage

Tanzanian natural gas has a low CO2 content, making it an environmentally friendly fuel compared to LNG from other countries.
This aligns with Europe's Carbon Border Adjustment Mechanism (CBAM) and ESG goals, providing a differentiated competitive edge.

### e. Location Advantage

Tanzania's strategic location, with excellent access to Europe and Asia, contributes to price competitiveness by reducing transportation costs.

### f. Financial Stability

The PSA's provision for up to 75% annual cost recovery ensures early capital

repayment, financial stability, and ease of attracting additional investment, enhancing the Oilbi plant's competitiveness.

#### g. ESG Contribution

The strong ESG practices of Korean companies, highly regarded internationally, enhance Oilbi's reputation and competitiveness.

#### h. Cost and Pricing Flexibility

Reduce production costs and maintain flexible pricing based on the above factors.

Competitiveness and investment attraction create a virtuous cycle, leading to long-term competitive strength.

# III. Proceeding Plan

## A. Partnership with Korean Conglomerates

### 1. Phase 1: Establishment of a Joint Venture (JV) with Domestic Energy-Related Companies

#### 1) Targets

Targets include Korea Gas Corporation (KOGAS), POSCO International, and SK Energy.

#### 2) Method

Oilbi contributes development rights to its 100% controlled offshore blocks in-kind, while Korean companies provide capital and technology.

#### 3) Process

- Initial discussions
- MOU/MOA signing
- Equity structure and role definition
- Joint feasibility study
- JV establishment

## 2. Phase 2: Consortium Formation

### a. Consortium Structure

A consortium will be formed, centered on the JV, with domestic and international companies interested in participating in the Oilbi project.
Consortium participants will join as strategic investors (SI) and contribute to capital increases.

### b. SPC Establishment

Alongside consortium formation, a Special Purpose Company (SPC) will be established with participation from all stakeholders.

## 3. Expected Benefits

### a. Maximizing Complementarity

- Leverage the extensive experience and technical expertise accumulated by Korean companies in global LNG projects.
- Utilize Oilbi's 15-year network and operational experience in Tanzania.

### b. Seamless Integrated Supply Chain

Maximize the use of the value chain established by Korean companies across production to distribution.

### c. Enhanced Financial Stability

Participation of domestic and international conglomerates strengthens the project's financial structure and fosters a favorable environment for additional investment.

### d. Energy Transition and Project Sustainability

Korean energy companies like KOGAS are focusing on clean energy transitions, such as hydrogen, contributing to the project's long-term sustainability.

## B. LNG Plant Construction

### 1. Plant Details

#### a. Overview

Construction of a mid-to-large-scale LNG complex with an annual capacity of 2.5 million tons.

#### b. Location

Located in Mtwara, southeastern Tanzania (site already secured).

#### c. Facility Components

- LNG refining facility.
- Approximately 200 km subsea pipeline from offshore platforms to onshore facilities.
- Power plant.
- Support facilities for operation and maintenance.

#### d. Mtwara Port

- An export hub for coal, iron, and gas, undergoing steady infrastructure improvements.
- Recent pier additions have a draft of over 13m, suitable for large LNG carriers.
- However, new facilities for LNG vessel berthing are required.

#### e. Operational Duration

- Planned for 28 years, assuming depletion of the 3.5 TcF proven reserves in Oilbi's blocks (initial production targeted for 2030).
- If additional drilling increases proven reserves (P1) and appropriate maintenance, upgrades, modernization, and expansions occur, the operational period could extend significantly.

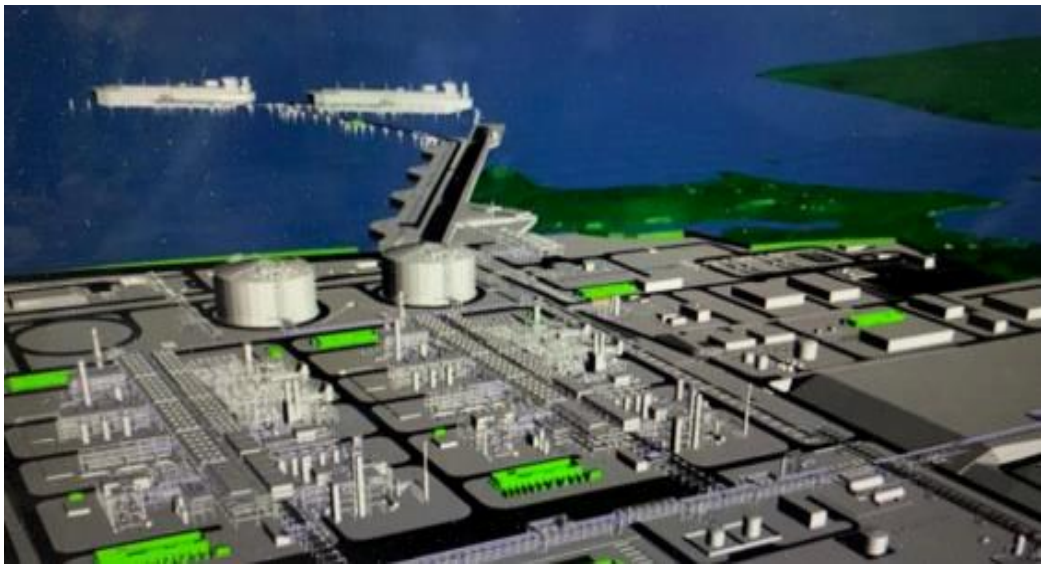
#### f. Contractors and Construction Period

- Korean construction companies will be selected as main contractors, with an

estimated construction period of approximately 2–3 years.

- Recent advancements in LNG plant construction technology are progressively shortening construction timelines.

### g. Perspective Drawing



(Baker Hughes perspective drawing designed for 7.5 million tons annual production.)

## 2. Contractors (Main Contractor)

### a. Korean EPC Companies

Daewoo Engineering & Construction and Hyundai Engineering & Construction, Korean EPC companies, will be pursued as main contractors for the plant.
These companies are major players in the global LNG plant construction market, with proven technical expertise and successful completion of numerous large-scale projects.

☞ **Daewoo:** Participated in 10 LNG projects, including Nigeria, Algeria, Papua New Guinea, and Indonesia.

☞ **Hyundai:** Involved in multiple LNG projects, including Kuwait, Saudi Arabia, and Papua New Guinea.

### b. Global Collaborators

While Korean EPC company oversee the entire process, global engineering and consulting companies such as JGC (Japan) and Saipem (Italy) will join the consortium to handle detailed design, technical support, and quality control.

## C. The Role and Function of Oilbi

**1) Oilbi Tanzania Headquarters**

- Overall project management and operations oversight at the local level
- Establishment of collaborative relationships with global energy companies operating in Tanzania
- Direct negotiations with the Tanzanian government and TPDC, leading legal and administrative procedures
- Management of local human networks, workforce and supply chain management, and building cooperative relationships with local communities

**2) Oilbi Korea**

- Development of detailed strategies for each project phase and promotional activities
- Partnership building with major Korean corporations and financial institutions
- Technology and capital procurement, investor attraction, and promotion of off-take contracts in the Korean market
- Support for and participation in the establishment of Korean corporate consortiums and Special Purpose Company (SPC)
- Serving as a communication channel with investors and stakeholders within Korea

# IV. Financial Matters

## A. Estimated Total Project Cost

### 1. Total Cost Estimate

#### a. Overview

Approximately $3.3 billion

### 2. Detailed Breakdown

**a. CapEx (Capital Expenditure)** $3 billion

- Engineering Costs: $150 million (5%).
- Equipment and Material Costs: $600 million (20%).
- Construction Costs (including 200 km subsea pipeline): $1.8 billion (60%).
- Logistics Costs: $150 million (5%).
- Contingency and Permitting Costs: $300 million (10%).

**b. Indirect Costs** $300 million

- Feasibility Study Costs: $30 million (10%).
- Consulting Costs: $75 million (25%).
- Administrative, Management, and Sales Costs: $60 million (20%).
- Financing Costs: $45 million (15%).
- Local Permitting, Tanzanian Government, and Community Cooperation Costs: $15 million (5%).
- Contingency: $75 million (25%).

## B. Total Project Cost Funding Strategy (Portfolio)

### 1. Equity Sales (15–20%)

- Partial sale of Oilbi's stake to domestic and international energy companies.
- Limited to a portion of equity to balance long-term profit reduction and maintain management control.

### 2. Capital Increase through Consortium (30–35%)

- Capital increase through equity investments from consortium partners participating in the Oilbi project.
- Establishment of an SPC to clearly define roles among stakeholders.

### 3. Institutional Investor Recruitment (20–25%)

- Secure long-term, stable funding from global funds and pension schemes.

Target institutional investors interested in energy infrastructure projects.

### 4. Debt Financing (20–30%)

a. Funding through the Export-Import Bank of Korea (EXIM Bank) and other international financial institutions.
    - A Korean construction company to be selected as the construction company will play a role in financing the project in cooperation with a policy financial institution (ECA) such as the Export-Import Bank
    - Beyond EXIM Bank, institutions like the Korea Trade Insurance Corporation will provide financial guarantees.

b. Issuance of project bonds to secure long-term fixed-rate funding, appealing to international investors.

## C. Investor Exit Strategies

### 1. Initial Public Offering (IPO)

Planned around 2035, when the project matures, achieves stable cash flows, and reaches the break-even point (BEP), coinciding with the global LNG market's growth trajectory.

### 2. Exit Strategies

#### a. IPO Benefits

Secure a premium through equity sales in the public market at the IPO stage.
Oilbi will provide corresponding benefits to first-mover investors.

#### b. Strategic Sales

Sell stakes to major energy companies seeking to expand LNG portfolios, infrastructure funds pursuing stable long-term cash flows, or consortium members aiming to increase their stakes.

#### c. Secondary Sales to Financial Investors (FI)

Sell stakes to pension funds, sovereign wealth funds, and other long-term profit-

oriented financial investors.

## D. Operating Costs and Revenue Analysis

### 1. Estimated Operating Costs

#### a. Annual Costs

**Annual: $350 million**, recurring throughout the plant's operational period.

- Labor Costs: $122.5 million (35%).
- Energy Costs: $105 million (30%).
- Maintenance Costs: $52.5 million (15%).
- Chemicals and Consumables Costs: $35 million (10%).
- Insurance Costs: $17.5 million (5%).
- Miscellaneous Costs: $17.5 million (5%).

### 2. Estimated Revenue Analysis

#### a. Key Metrics

- **Oilbi Net Present Value (NPV):** Estimated at ~$3.57 billion
- **Total Cumulative Net Profit (28 years):** Estimated at ~$9.7 billion
- **Internal Rate of Return (IRR):** 12.08%. *Refer to WACC (Weighted Average Cost of Capital): ~6.97%.*
- **Break-Even Point (BEP):** Expected late 2034.

# V. Potential Risk Factors and Mitigation Measures

## A. Regulatory Risks

### 1. Regulatory Risks

#### a. Historical Context

Regulations from 2017 emphasizing strong resource sovereignty and disadvantageous to foreign investors were significantly alleviated by the Tanzania Investment Act 2022:

- Guarantees 5-year incentives for strategic investors.
- Ensures free transfer and transactions of capital, loan repayments, profits, and dividends.
- Allows dispute resolution through the International Centre for Settlement of Investment Disputes (ICSID).

### b. Legal Safeguards

Detailed legal provisions will be addressed through the PSA and Host Government Agreement (HGA) to establish comprehensive safeguards, supplemented by Korea–Tanzania bilateral economic agreements if necessary (e.g., 1998 Investment Protection Agreement, EDCF Agreement, EPA Declaration).

### c. Additional Measures

Additional measures include strengthening legal compliance, dialogue and negotiation with the Tanzanian government, proactive localization strategies, and building trust with the government and local communities through ESG practices.

## B. Financial Risks

### 1. Risk Factors

#### a. Cost Increases

Potential increase in total project costs due to rising investment, inflation, construction, and labor expenses.

#### b. Funding Challenges

Risks in global financial markets and potential failure to secure investors.

#### c. Operating Cost Increases

Annual plant operating costs of approximately $350 million (OpEx) and potential increases.

### d. Market Volatility

Negative impacts on projected profits from global LNG market oversupply, price fluctuations, and geopolitical tensions.

## 2. Mitigation Measures

### a. Utilizing PSA-Based Cost Recovery Structure

- Leverage the PSA's allowance of up to 75% cost recovery from annual production to expedite investment recovery and repayment.
- Expected to reach BEP by late 2034, reducing initial investment risks and supporting stable cash flows.

### b. Partnerships with Korean Conglomerates

- Establish JVs with KOGAS, POSCO International, etc., to secure capital.
- Raise capital and distribute risks through consortium participation.

### c. Debt Financing Optimization

- Secure financial guarantees and optimize loan terms through public export credit agencies (ECAs) like EXIM Bank and Korea Trade Insurance Corporation in collaboration with plant contractors.
- It is common practice in Korea to require confirmation of ECA financial support as a bidding condition for overseas construction projects.
- The Export-Import Bank of Korea is actively responding to overseas orders and is increasing its loans significantly.

### d. Long-Term Purchase Agreements

Securing stable revenue streams and responding to market volatility by signing long-term purchase agreements (off-take) centered on Korean energy companies.

### e. Equity Sales to Financially Robust Global Energy Companies

Pursue stake sales to global energy companies that have expressed interest in the PSA and project progress between Oilbi and the Tanzanian government over recent years.

## C. Other Risk Factors

### 1. Supply Oversaturation Due to Competition Among Suppliers

- The global LNG market is expected to see oversupply from 2025, driven by rapid facility expansions in North America and reduced demand in key importing countries.
- **Mitigation:** Major energy companies like Shell and Woodside forecast that by the 2030s, demand will exceed supply, necessitating additional production facilities.

### 2. LNG Price Instability Due to Market Volatility

- Risks from energy market imbalances, recessions, exchange rate fluctuations, and geopolitical tensions affect global energy price volatility.
- **Mitigation:** Oilbi's blocks contain 3.5 TcF of proven reserves and significant probable reserves, enabling long-term production sustainability through additional exploration and drilling.
  Additionally, Tanzania's strategic location and Korean shipping partnerships reduce transportation costs to address price volatility.

### 3. Local Infrastructure Deficiency

- While Tanzania has relatively good infrastructure among African nations, regions like Mtwara lack the facilities needed for large-scale LNG development.
- **Mitigation:** The nearby Lindi region's TLNGP project, led by a global energy consortium (IOC), is nearing Final Investment Decision (FID).
  Once underway, it will significantly improve Lindi's infrastructure, positively impacting Mtwara.

Prioritize improvements to project-related roads, ports, and power grids.

### 4. Local Supply Chain and Skilled Labor Shortages

- Potential cost increases and delays due to local supply chain deficiencies.
- Challenges in performing work to international standards due to a lack of skilled labor.
- **Mitigation:** Provide technical support to enhance local supplier capabilities and strengthen ties with global supply chains.
  Use modular construction for key facilities abroad to save costs and time.
  Develop LNG training programs with local technical schools and universities.

### 5. Community Conflicts

- Potential local opposition due to land use and environmental concerns during project execution.
- Negative impacts on long-term, stable operations due to insufficient trust-building with communities.
- **Mitigation:** Establish communication channels with residents and implement comprehensive CSR programs, including community development initiatives and enhanced ESG practices.
  Leverage Oilbi's robust local network and cultural understanding

# VI. Project Timeline

## A. Overview and Schedule

### 1. Overview

#### a. Flexibility

- The actual schedule may adjust based on local conditions, stakeholder negotiations, and regulatory requirements.
- At Oilbi's request, General Electric (GE) and Baker Hughes conducted pre-feasibility studies and basic design several years ago.

### 2. Project Schedule Summary

#### a. Year 1

- **First Half (Months 1–6):**
    - Sign MOA with KOGAS and conduct a joint feasibility study.
    - Update the feasibility study to reflect market conditions and project specifications.
    - Conduct an Environmental Impact Assessment (EIA) concurrently with the feasibility study.
- **Second Half (Months 7–12):**
    - Establish a JV with KOGAS.
    - Initiate HGA negotiations with the Tanzanian government.
    - Prepare and distribute Invitation to Bid (ITB).
    - Select main contractors and begin off-take agreement negotiations.
    - Start forming a consortium with major Korean energy companies.

#### b. Year 2

- **First Half (Months 13–18):**

- Reach Final Investment Decision (FID) and perform detailed engineering design (DED).

- **Second Half (Months 19–24):**
  - Proceed with equipment procurement processes.
  - Secure multiple permits.
  - Finalize consortium formation procedures.

### c. Year 3

- **First Half (Months 25–30):**
  - Commence basic infrastructure works.

- **Second Half (Months 31–36):**
  - Begin full-scale plant construction, including LNG terminal, subsea pipeline, port, and power plant.

### d. Year 4

- **First Half (Months 37–42):**
  - Continue plant construction.
- **Second Half (Months 43–48):**
  - Start preparations for commissioning.

### e. Year 5

- **First Half (Months 49–53):**
  - Enter the commissioning phase.
- **Second Half (Months 54–59):**
  - Commence production.

# VII. Reference Information

## A. Tanzania LNG Project (TLNGP)

### 1. Progress Trends

#### a. National Development Plan

A key objective of Tanzania's Third Five-Year Development Plan (2021/22–2025/26).

#### b. Lindi Region Project

In the Lindi region (~100 km from Mtwara), a consortium of Shell, Equinor, ExxonMobil, and others are advancing the TLNGP project.

- Aims for 20 million tons of LNG annually by 2030, with HGA negotiations with the Tanzanian government targeted for conclusion by June 2025 (total cost ~$42 billion).

#### c. Economic Impact

Standard Bank Group estimates the project could generate at least $7 billion in annual revenue for the Tanzanian government, varying with fiscal structures (PSA, tax rates, fees), production/export volumes, and international gas prices.

### 2. Relevance to Oilbi Project

#### a. Positive Impacts

The TLNGP is expected to positively impact Oilbi's LNG project in nearby Mtwara by enhancing infrastructure development, supply chain efficiency, skilled labor influx, economic growth, technical/knowledge sharing, and regulatory support.

#### b. Investment Validation

Successful execution of such a large-scale project validates the investment feasibility of LNG projects in the region, potentially fostering a favorable regulatory

environment and government support for subsequent projects.


## B. KOGAS Participation in Mozambique Resource Development

### 1. Area 4 Offshore Gas Field Exploration and Development

#### a. Stake Acquisition

KOGAS acquired a 10% stake from Italy's ENI in 2007 to participate in exploration and development in Mozambique's offshore Area 4.

### 2. Participation in Area 4 Coral South FLNG Project

#### a. Project Overview

Targets 3.37 million tons of LNG annually through 2047, with a consortium including KOGAS, ENI (Italy), ExxonMobil (USA), CNPC (China), ENH (Mozambique), and Galp (Portugal).
Total project cost: $7 billion; KOGAS holds a 10% stake (joined 2017).

#### b. Production and Revenue

Produced 2.66 million tons of LNG in 2023, with KOGAS securing 0.266 million tons, generating approximately $130 million in revenue (per media reports).

#### c. Significance

Marks KOGAS's first full participation across exploration, gas field development, and LNG production.


### 3. Participation Trends in Area 4 Coral North FLNG Project

#### a. Investment Intent

In 2025, KOGAS officially announced its intent to invest in this project.

#### b. Funding Structure

Total investment will be proportionate to the Coral South FLNG project, funded according to partner equity ratios.

## C. Korea–Tanzania Economic Cooperation Trends

#### a. Strategic Cooperation

In recent years, Korea and Tanzania have strengthened economic cooperation across various sectors, laying the foundation for mutual growth and development.

- South Korea pledges to provide $2.5 billion in EDCF to Tanzania over five years from 2024 to 2028
- On the occasion of President Hassan's visit to the Republic of Korea in June 2024, the two countries adopted a joint declaration to conclude the Economic Partnership Agreement (EPA).
- Korean companies recognize Tanzania as a gateway to East Africa and seek investment opportunities focusing on energy, construction, and infrastructure.

### b. Development Assistance

Korea provides ongoing development aid to Tanzania through KOICA programs in technical cooperation, capacity building, education, healthcare, and agriculture.

### c. Energy Collaboration

- During a June 2024 visit to Korea, President Samia Suluhu Hassan proposed natural gas development cooperation at a Korea–Tanzania summit.
- The success of the Oilbi project is expected to contribute significantly to the mutual benefits of both countries, as well as to the promotion of follow-up projects to develop Tanzania's resources, which have considerable potential.

## D. Participation Trends of Korean Companies in Mozambique LNG Projects

### a. Overview

- Korea Gas Corporation, Samsung Heavy Industries and Daewoo Engineering & Construction are participating in offshore and onshore LNG projects in Mozambique's Rovuma Basin.
- When these companies participate in the Oilbi project, the experience they have gained in the Mozambique project is expected to contribute greatly to the successful implementation of the Oilbi project.

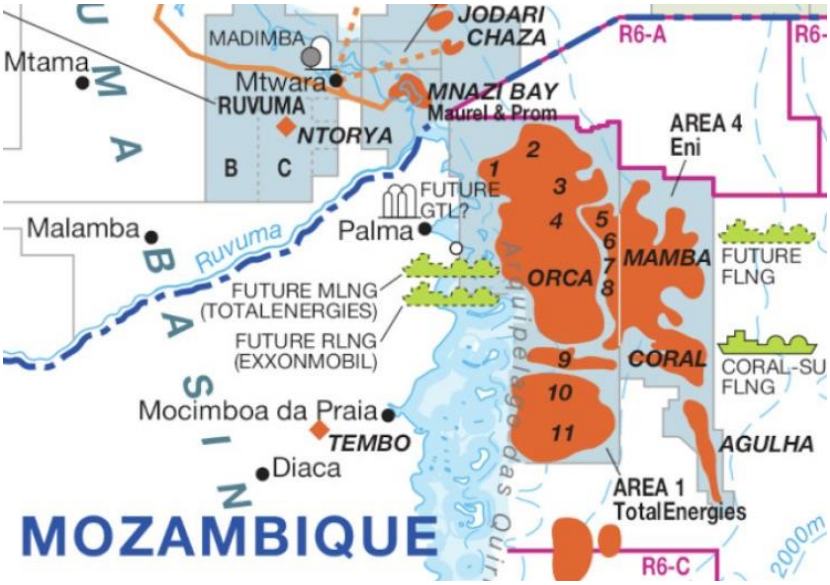
### b. KOGAS (see aforementioned content)

### c. Samsung Heavy Industries

- A leading Korean shipbuilding and offshore plant engineering firm, actively involved in the Coral South FLNG project.
- Played a key role in designing and constructing the FLNG vessel.
    - Began construction in 2018, delivered to Mozambique in April 2022; a second FLNG vessel contract for Rovuma Basin Area 4 is imminent.

### d. Daewoo Engineering & Construction

- Participating in TotalEnergies' Afungi LNG plant project in Area 1.
- Project aims to construct a 13 million ton/year LNG facility in Cabo Delgado's Afungi Peninsula (total cost $20 billion, with Mitsui & Co. and others in the consortium).
- FID reached in 2019, but construction halted in March 2021 due to an attack by Islamic insurgents near Palma; resumption expected in 2024 remains delayed due to security concerns.




## E. Key Political and Economic Trends in Tanzania

### 1. Political Trends

#### a. Political Stability

- Compared to other African nations, Tanzania enjoys relative political stability, with no significant post-election violence.
- The ruling CCM (Chama Cha Mapinduzi, Party of the Revolution) has maintained power since its founding in 1977 with strong organizational strength.

#### b. 2025 October Presidential and General Election Outlook

- CCM's presidential candidate, current President Samia Suluhu Hassan, is

expected to win comfortably.

- President Hassan enjoys broad public support due to democratic reforms and economic growth, aligning with Tanzania's political tradition of re-electing presidents.

### 2. Economic Trends

#### a. Economic Performance

- Showing overall positive performance, with approximately 6% economic growth projected for 2025.
- Stable inflation management (3%), trade and foreign exchange market stability, and improved trade balance.
- Services (tourism, finance, telecom) account for approximately 40% of GDP.
- Under the Third Five-Year Economic Development Plan (2022–2026), focus is on developing infrastructure such as railways, roads, and ports.

# VIII. Appendices

## A. Appendix 1: Oilbi NPV Calculation Method

### 1. NPV Calculation: Oilbi LNG Project ($3.57 billion)

#### a. Definition

NPV represents the present value of future cash flows; for the Oilbi project, it is calculated as $3.57 billion based on cash flows from 2030–2057 (28 years).
This is derived through standard financial formulas and step-by-step calculations for transparency to investors.

### 2. Formula

#### a. NPV Formula

$$NPV = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t}$$

- CFt : Cash flow at time t.

- r : Discount rate (10%).
- n : Total period (28 years).

## 3. Key Assumptions

### a. Assumptions

- Annual Revenue: $1,750M (2.5 million tons × $700/ton).
- Royalty: $131.25M (7.5%).
- CapEx (Capital Expenditure): $3,300M (fully financed through debt).
- OpEx (Operating Costs): $350M/year.
- Debt Repayment: 60% of revenue excluding royalty.
- Corporate Profit Distribution: 30% of the remaining 40%.
- Discount Rate: 10%.
- Calculation Period: 2030–2057 (28 years).

## 4. Step-by-Step Calculation Process

### a. Step 1: Annual Debt Repayment Calculation

- $3.3 billion CapEx repaid using 60% of revenue after royalty deduction.
- Revenue after royalty:
  Available Revenue=Total Revenue–Royalty=1,750–131.25=1,618.75M
- Annual debt repayment:
  Debt Repayment=1,618.75×0.60=971.25M/year
- Repayment period:
  Repayment Years=CapEx÷Annual Debt Repayment=3,300÷971.25=3.398 years
- Schedule:
  - 2030–2032: $971.25M × 3 = $2,913.75M.
  - 2033: Remaining $386.25M ($3,300M – $2,913.75M).

- Debt fully repaid by 2033 (3.4 years).

### b. Step 2: Annual Cash Flow (CF) Calculation

- Oilbi's cash flows vary based on debt repayment status:
    - During Debt Repayment (CFt):
      = (Available Revenue–Debt Repayment–OpEx)×0.30
    - After Debt Repayment (CFt ):
      = (Available Revenue–OpEx)×0.30

- (1) During Debt Repayment (2030–2032):
    - Remaining Amount: 1,618.75 – 971.25 = 647.5M.
    - After OpEx: 647.5 – 350 = 297.5M.
    - Cash Flow:
      CFt=297.5×0.30=89.25M/year

- (2) 2033 (Final Debt Repayment Year):
    - Remaining Amount: 1,618.75 – 386.25 = 1,232.5M.
    - After OpEx: 1,232.5 – 350 = 882.5M.
    - Cash Flow:
      CF3=882.5×0.30=264.75M

- (3) After Debt Repayment (2034–2057):
    - Remaining Amount: 1,618.75 – 350 = 1,268.75M.
    - Cash Flow:
      CFt=1,268.75×0.30=380.625M/year

### c. Step 3: Discounted Cash Flows (DCF)

- Each year's cash flows discounted at 10% annual rate.

$$\mathrm{DCF}_t = \frac{\mathrm{CF}_t}{(1+0.10)^t}$$

- (1) 2030–2032:

- t = 0:

$$\frac{89.25}{(1.10)^0} = 89.25M$$

- t = 1:

$$\frac{89.25}{(1.10)^1} = 81.136M$$

- t = 2:

$$\frac{89.25}{(1.10)^2} = 73.76M$$

**(2) 2033년 (t = 3)**

$$\frac{264.75}{(1.10)^3} = \frac{264.75}{1.331} = 199.13M$$

- (3) 2034–2057:
    - Annual $380.625M discounted over 24 years (geometric series formula used):

$$\text{DCF 합계} = CF \times \left(\frac{1-(1+r)^{-n}}{r}\right) \times (1+r)^{-t_0}$$

- $n = 24,\ t_0 = 4$
- $\frac{1-(1.10)^{-24}}{0.10} = \frac{1-0.095}{0.10} = 9.046$
- 최종 합:

$$= 380.625 \times 9.046 \times (1.10)^{-4} = 380.625 \times 9.046 \times 0.683 = 3,128.43M$$

### d. Step 4: Net Present Value (NPV) Aggregation)

$$\text{NPV} = DCF_{2030} + DCF_{2031} + DCF_{2032} + DCF_{2033} + \sum_{t=4}^{27} DCF_t$$

- 89.25 + 81.136 + 73.76 + 199.13 + 3,128.43 = **3,571.716M**

## 5. Conclusion

### a. Facility Value

**The LNG facility's value (present value) is approximately $3.57 billion.**

## 6. Investor Takeaway

### a. Why NPV is $3.57 billion?

Result of conservatively evaluating rapid debt repayment (3.4 years) and 28 years of

stable cash flows at a 10% discount rate.

### b. Investment Appeal

Positive NPV derived from $3.3 billion CapEx signals high value creation potential.

## B. Appendix 2: Oilbi Revenue and Cumulative Profit (Unit: Million USD)

| Year | Annual Revenue (M USD) | Royalty (M USD) | Debt Repayment (M USD) | Remaining CapEx (M USD) | Annual Operating Costs (OPEX, M USD) | Net Income After OPEX Deduction (M USD) | Oilbi Profit (30%, M USD) | Cumulative Profit (M USD) |
|---|---|---|---|---|---|---|---|---|
| 2030 | 1,750 | 131.25 | 971.25 | 2,328.75 | 350 | 297.5 | 89.25 | 89.25 |
| 2031 | 1,750 | 131.25 | 971.25 | 1,357.50 | 350 | 297.5 | 89.25 | 178.5 |
| 2032 | 1,750 | 131.25 | 971.25 | 386.25 | 350 | 297.5 | 89.25 | 267.75 |
| 2033 | 1,750 | 131.25 | 386.25 | - | 350 | 882.5 | 264.75 | 532.5 |
| 2034 | 1,750 | 131.25 | - | - | 350 | 1,268.75 | 380.625 | 913.125 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **2057** | **1,750** | **131.25** | **0** | **0** | **350** | **1,268.75** | **380.625** | **9667.5** |

- Approximately $9.7 billion in net profit generated.

## C. Appendix 3: IRR (Internal Rate of Return)

### 1. IRR basic formula

$$NPV = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t} - C_0 = 0$$

| Symbol | Meaning |
|---|---|
| NPV | Net Present Value |
| Ct | Cash Flow at year *t* |
| C0 | Initial Investment |
| r | Internal Rate of Return (IRR) |
| n | Total Investment Period (Project lifespan, in years) |

### a. IRR Calculation

- **Given Data:**
    - Initial Investment (CapEx + Indirect Costs):
      C0=–3,300millionUSD
    - Annual Cash Flows (Ct):
        - 2031~2034: [89.25 / 178.5 / 267.75 / 532.5] (million USD).
        - 2035~2056: Annual 380.625 (million USD).
        - 2057: 9,667.5 (million USD).
- **IRR Calculation Application:**
    - Solve the following equation to find the IRR (Internal Rate of Return)
    - Need to find the r(IRR) value that satisfies this equation.

$$0 = \frac{89.25}{(1+r)^1} + \frac{178.5}{(1+r)^2} + \frac{267.75}{(1+r)^3} + \frac{532.5}{(1+r)^4} + \sum_{t=5}^{27} \frac{380.625}{(1+r)^t} + \frac{9667.5}{(1+r)^{28}} - 3300$$

## 2. IRR Calculation Method

### a. Methodology

- IRR cannot be solved algebraically; numerical methods (e.g., Newton-Raphson or binary search) are used.
- Assume the initial discount rate (r) = 10%.
- Adjust r iteratively until NPV = 0.
- IRR = 12.08% when NPV = 0.

# D. Appendix 3-1: WACC (Weighted Average Cost of Capital)

## 1. Definition

WACC reflects the average cost of capital, incorporating debt and equity costs.

## 2. Formula

### a. WACC Formula

$$WACC = \left(\frac{E}{V} \times Re\right) + \left(\frac{D}{V} \times Rd \times (1 - Tax)\right)$$

- E : Equity.
- D : Debt.
- V : Total Capital (E+D).
- Re : Cost of Equity.
- Rd : Cost of Debt.
- Tax : Corporate Tax Rate.

## 3. Step-by-Step Calculation

### a. Given Data

- Assume 70:30 debt-to-equity ratio:
- Debt Ratio (D/V): 70%.
- Equity Ratio (E/V): 30%.
- Cost of Debt (Rd): 7%.
- Cost of Equity (Re): 11.8%.
- Corporate Tax Rate (Tax): 30%.

### b. Step 1: Calculate Cost of Equity (Re) using CAPM

Cost of Equity (Re) is calculated using the Capital Asset Pricing Model (CAPM)

- $Re = Rf + \beta(Rm - Rf)$
- Rf : Risk-free rate (e.g., U.S. Treasury yield).
- Rm : Market return.

- β: Project risk coefficient.
- Apply the given values:
    - Rf= 4% (U.S. Treasury yield).
    - Rm−Rf=6% (market risk premium).
    - β=1.3 (typical LNG project beta).
        - **Re=4%+(1.3×6%)=11.8%**

### c. Step 2: WACC Calculation

The following is a calculation that assigns a given value to a WACC formula:

$$WACC = \left(\frac{30}{100} \times 11.8\%\right) + \left(\frac{70}{100} \times 7\% \times (1 - 0.30)\right)$$

**First Term (Equity Contribution):**

$$\frac{30}{100} \times 11.8\% = 3.54\%$$

**Second Term (Debt Contribution, Reflecting Tax Savings):**

$$\frac{70}{100} \times 7\% \times (1 - 0.30) = 3.43\%$$

**As a result, WACC=3.54%+3.43%=6.97%**

# E. Appendix 4: Break-Even Point (BEP)

## 1. Appendix 4: Break-Even Point (BEP)

### a. Step 1: Preconditions Setting

| Item | Value | Description |
|---|---|---|
| Initial Investment | $-3,300M$ | CAPEX + Indirect Costs (Subject to Cost Recovery) |
| Annual Operating Costs (OPEX) | $-350M$ | Annual operating cost reduction (Applied after Cost Recovery) |
| Profit (Oilbi Profit) | Varies by year | Refer to the table below for annual profit details |

### b. Step 2: Calculation Principles

- (1) **Cost Recovery Application Stage:**
    - Until the initial investment ($3.3B) is recovered, profits are not offset by OpEx; all used for cost recovery.
    - Remaining profits, if any, offset OpEx thereafter.
- (2) **Post-Cost Recovery:**
    - After recovery, deduct OpEx ($350M) from profits to calculate net cash flow.
    - Accumulate net cash flow until cumulative cash flow ≥ 0 → BEP.

### c. Step 3: Annual Oilbi Profit Data

| Year | Oilbi Profit (M USD) |
|---|---|
| 2030 | 89.25 |
| 2031 | 178.5 |
| 2032 | 267.75 |
| 2033 | 532.5 |
| 2034 | 913.125 |
| 2035–2056 | 380.625 (average/year) |
| 2057 | 9,667.5 |

### d. Step 4: Annual Calculation & Cumulative Cash Flow Table

| Year | Oilbi Profit | Cost Recovery Applied | Remaining Profit | OPEX | Net Cash Flow | Cumulative Cash Flow |
|---|---|---|---|---|---|---|
| 2030 | 89.25 | 89.25 | 0 | -350 | -260.75 | -3,210.75 |
| 2031 | 178.5 | 178.5 | 0 | -350 | -171.5 | -3,032.25 |
| 2032 | 267.75 | 267.75 | 0 | -350 | -82.25 | -2,764.5 |
| 2033 | 532.5 | 532.5 | 0 | -350 | 182.5 | -2,232.0 |
| 2034 | 913.125 | 832.0 | 81.125 | -350 | -268.875 | **+431.125** |

### e. Step 5: Conclusion

- **Break-Even Point (BEP):** Late 2034 or early 2035.
- From this point, net profits accumulate after deducting OpEx.
- Cost recovery structure accelerates BEP attainment.