Zhongji New Energy Tanzania Limited

LNG/CNG Production and Distribution Business Plan

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Executive Summary

Zhongji New Energy Tanzania Limited presents a compelling investment opportunity in Tanzania's emerging liquefied natural gas (LNG) and compressed natural gas (CNG) market. With Tanzania's proven natural gas reserves exceeding 57 trillion cubic feet and growing energy demand projected at 10% annually, the company is positioned to capitalize on the transition from traditional diesel and petrol fuel to cleaner, more cost-effective natural gas alternatives.

The project involves establishing a comprehensive LNG/CNG production and distribution network centered around a mother station in Mkuranga, Pwani region with an annual production capacity of 60,000 metric tons of LNG and 40,000 metric tons of CNG. The distribution network will comprise nine strategically located stations across Tanzania's major transportation corridors, serving fleet operators, industrial users, and the broader transportation sector.

The total investment requirement is $16.0 million, structured as 90% equity and 10% debt financing. The project offers attractive financial returns with projected gross margins exceeding 60%, EBITDA margins above 35%, and an internal rate of return (IRR) of 25% or higher. The payback period is estimated at 6-7 years, with cumulative cash flows turning positive by year four of operations.

Key competitive advantages include first-mover advantage in Tanzania's nascent LNG/CNG market, cost savings of 30-40% compared to diesel fuel, strong government support for natural gas utilization, and strategic partnerships with proven technology providers. The project aligns with Tanzania's national energy policy objectives and contributes to environmental sustainability through reduced emissions.

Implementation will occur in three phases: development and regulatory approval (2025), construction and equipment installation (2026-2027), and commissioning and commercial operations (2028). The phased approach ensures systematic risk management while building operational capacity to meet growing market demand.

Company Overview

Company Background

Zhongji New Energy Tanzania Limited is a joint venture company established to develop, construct, and operate LNG and CNG production and distribution facilities in Tanzania. The company combines Chinese technological expertise and capital with local Tanzanian knowledge and market access, creating a strategic partnership designed to serve the growing East African energy market.

The company was conceived in response to Tanzania's National Natural Gas Policy, which emphasizes the development of domestic natural gas resources for local consumption and economic development. With the government's commitment to increasing natural gas utilization

from the current 2% to 20% of the energy mix by 2030, Zhongji New Energy Tanzania Limited is positioned to play a pivotal role in this transformation.

Mission Statement

To provide clean, reliable, and cost-effective natural gas solutions that support Tanzania's economic development while contributing to environmental sustainability and energy security.

Vision

To become East Africa's leading provider of LNG and CNG solutions, setting the standard for operational excellence, environmental stewardship, and customer service in the natural gas industry.

Core Values

Safety First: Maintaining the highest safety standards in all operations, protecting employees, customers, and communities.

Environmental Responsibility: Promoting cleaner energy alternatives that reduce emissions and support sustainable development.

Operational Excellence: Delivering reliable, high-quality products and services through continuous improvement and innovation.

Community Partnership: Building strong relationships with local communities and contributing to Tanzania's economic development.

Integrity: Conducting business with transparency, honesty, and ethical practices in all stakeholder interactions.

Legal Structure and Ownership

Zhongji New Energy Tanzania Limited is incorporated as a limited liability company under Tanzanian law, with foreign investment approval from the Tanzania Investment Centre (TIC). The ownership structure reflects a **strategic partnership between Chinese investors (60%) and Tanzanian partners (40%),** ensuring compliance with local content requirements while bringing necessary technical expertise and capital.

The company has obtained all necessary preliminary approvals and licenses, including:

- Certificate of Incorporation from the Business Registrations and Licensing Agency (BRELA)
- Foreign Investment License from the Tanzania Investment Centre (in the process)
- Environmental Impact Assessment approval from the National Environment Management Council (NEMC)- Still on going

- Is in the process to apply for the approval from the Energy and Water Utilities Regulatory Authority (EWURA)

Strategic Partnerships

The company has established key strategic partnerships that provide technological expertise, operational support, and market access:

Sichuan …Co., Ltd.: Primary technology partner providing LNG liquefaction and CNG compression equipment, along with technical training and ongoing support.

Tanzania Petroleum Development Corporation (TPDC): Strategic partnership for natural gas supply and regulatory coordination.

Local Engineering and Construction Partners: Collaboration with Tanzanian firms specifically Licks International Co. Ltd. for facility construction, maintenance, and local content compliance.

Competitive Positioning

Zhongji New Energy Tanzania Limited enters the market with several distinct competitive advantages:

First-Mover Advantage: As one of the first companies to establish comprehensive LNG/CNG infrastructure in Tanzania, the company can capture market share and establish customer relationships before competitors enter.

Technology Leadership: Partnership with proven Chinese technology providers ensures access to state-of-the-art equipment and operational expertise.

Cost Competitiveness: Integrated production and distribution model enables competitive pricing while maintaining healthy margins.

Government Support: Strong alignment with national energy policy objectives provides regulatory support and potential incentives.

Local Partnership: Tanzanian ownership and management ensure cultural understanding, regulatory compliance, and community acceptance.

Market Analysis

Tanzania Energy Market Overview

Tanzania's energy sector is experiencing rapid transformation driven by economic growth, population expansion, and government policy initiatives. The country's total energy consumption

has grown at an average rate of 8-10% annually over the past decade, with projections indicating continued strong growth through 2030 and beyond.

The current energy mix is dominated by petroleum products (95%), electricity (3%), and natural gas (2%). However, the government's National Energy Policy targets a significant shift toward natural gas utilization, aiming to increase its share to 20% of the total energy mix by 2030. This represents a ten-fold increase from current levels, creating substantial market opportunities for natural gas infrastructure development.

Tanzania's proven natural gas reserves exceed 57 trillion cubic feet, with additional probable reserves estimated at over 100 trillion cubic feet. The majority of these reserves are located offshore in the Mtwara, Lindi, Mkuranga, Ruvuma and Nyasa basins. The government has prioritized domestic utilization of these resources to support economic development and reduce dependence on imported petroleum products.

Transportation Fuel Market

The transportation sector represents the largest opportunity for LNG and CNG market penetration in Tanzania. Current transportation fuel consumption is approximately 2.5 million metric tons annually, with diesel accounting for 68% of the market, petrol 25%, and other fuels 7%. The sector is characterized by:

Fleet Operators: Large transportation companies operating bus fleets, cargo trucks, and logistics vehicles represent the primary target market for LNG/CNG conversion. These operators are particularly sensitive to fuel costs and interested in alternatives that offer significant savings.

Industrial Transportation: Mining companies, agricultural processors, and manufacturing firms operating heavy-duty vehicles and equipment represent a growing market segment seeking cost-effective fuel alternatives.

Public Transportation: Government initiatives to modernize public transportation systems, including Bus Rapid Transit (BRT) projects, create opportunities for CNG-powered vehicles.

Cross-Border Transportation: Tanzania's strategic location as a gateway to landlocked countries in East and Central Africa creates opportunities for LNG/CNG supply to regional transportation markets.

Market Drivers

Several key factors are driving demand for LNG and CNG alternatives in Tanzania:

Fuel Cost Volatility: Diesel prices in Tanzania have experienced significant volatility, ranging from $0.90 to $1.40 per liter over the past five years. This volatility creates uncertainty for fleet operators and industrial users, making stable-priced natural gas alternatives attractive.

Government Policy Support: The National Natural Gas Policy provides a supportive regulatory framework for natural gas development, including tax incentives, streamlined licensing procedures, and infrastructure development support.

Environmental Regulations: Increasing focus on emissions reduction and air quality improvement, particularly in urban areas like Dar es Salaam, is driving demand for cleaner fuel alternatives.

Economic Development: Tanzania's GDP growth of 6-7% annually is driving increased transportation and industrial activity, creating demand for cost-effective energy solutions.

Infrastructure Development: Major infrastructure projects, including the Standard Gauge Railway and port expansions, are creating demand for heavy-duty transportation and industrial equipment that can benefit from natural gas fuel.

Competitive Landscape

The LNG/CNG market in Tanzania is in its early development stage, with limited existing infrastructure and few established competitors:

Existing Players: Currently, only a few small-scale CNG operations exist, primarily serving limited geographic areas around Dar es Salaam and Mtwara. These operations lack the scale and infrastructure to serve the broader market effectively.

Potential Competitors: Several international and regional companies have expressed interest in Tanzania's natural gas market, including:

- Puma Energy (regional fuel distributor with 50% government market share)
- Dalbit/Taqa JV
- Oryx Energies (regional fuel distributor)
- Total Energies (international oil and gas company)
- Sasol (South African energy and chemicals company)
- Local petroleum distributors considering diversification

Barriers to Entry: Significant capital requirements, regulatory complexity, technical expertise requirements, and infrastructure development challenges create substantial barriers to entry for new competitors.

Competitive Advantages: Zhongji New Energy Tanzania Limited's first-mover advantage, proven technology partnerships, and integrated business model provide strong competitive positioning.

Market Sizing and Projections

Based on current consumption patterns and growth projections, the addressable market for LNG and CNG in Tanzania is substantial:

Total Addressable Market (TAM): The entire transportation fuel market represents approximately $3.0 billion annually at current consumption levels and prices.

Serviceable Addressable Market (SAM): Fleet operators, industrial users, and public transportation represent approximately $1.2 billion of the total market, or 40% of total transportation fuel consumption.

Serviceable Obtainable Market (SOM): Conservative projections suggest capturing 15-20% of the serviceable market within 10 years, representing annual revenues of $180-240 million.

Market penetration is projected to follow a gradual adoption curve:

- Years 1-3: Early adopters and demonstration projects (5% market penetration)
- Years 4-6: Mainstream adoption by cost-conscious fleet operators (10-15% penetration)
- Years 7-10: Broad market acceptance and infrastructure maturity (15-20% penetration)

Regional Market Opportunities

Tanzania's strategic location provides access to broader East African markets:

Kenya: Neighboring Kenya has limited natural gas resources but significant transportation fuel demand, creating export opportunities for Tanzanian LNG/CNG production.

Uganda: Landlocked Uganda relies on imported petroleum products and represents a potential market for natural gas alternatives transported via Tanzania.

Rwanda and Burundi: These countries also depend on imported fuels and could benefit from natural gas alternatives supplied through Tanzania's infrastructure.

Democratic Republic of Congo: Eastern DRC's mining and transportation sectors represent potential long-term market opportunities.

The regional market opportunity could add 50-100% to the domestic market size over the long term, supporting expanded production capacity and improved project economics.

Technical Strategy

Production Technology Overview

Zhongji New Energy Tanzania Limited will employ proven liquefaction and compression technologies to produce both LNG and CNG from natural gas feedstock. The technical strategy emphasizes reliability, efficiency, and scalability to meet growing market demand while maintaining competitive operating costs.

LNG Production Technology

The LNG production facility will utilize a small-scale liquefaction process optimized for distributed production and local market supply. Key technical specifications include:

Liquefaction Process: Mixed refrigerant cycle technology providing high efficiency and operational flexibility. The process can handle varying feedstock compositions and production rates while maintaining product quality specifications.

Production Capacity: 60,000 metric tons per year of LNG, equivalent to approximately 164 metric tons per day at full capacity. The modular design allows for capacity expansion as market demand grows.

Storage Systems: Cryogenic storage tanks with total capacity of 2,000 cubic meters, providing approximately 12 days of production storage at full capacity. The storage system includes automated inventory management and safety systems.

Loading and Distribution: Truck loading facilities capable of filling LNG transport vehicles with capacities ranging from 20 to 40 cubic meters. The loading system includes automated safety interlocks and product quality monitoring.

CNG Production Technology

The CNG production facility will employ multi-stage compression technology to produce high-pressure natural gas suitable for vehicle fuel applications:

Compression Technology: Multi-stage reciprocating compressors with inter-stage cooling, capable of achieving pressures up to 250 bar (3,625 psi). The compression system includes redundancy to ensure continuous operation.

Production Capacity: 40,000 metric tons per year of CNG, equivalent to approximately 110 metric tons per day at full capacity. The system can operate at variable rates to match demand patterns.

Storage and Dispensing: High-pressure storage vessels with total capacity of 500 cubic meters at 250 bar pressure. Fast-fill dispensing systems for fleet refueling and cascade storage systems for efficient pressure management.

Quality Control: Integrated gas analysis and treatment systems to ensure product quality meets international standards for vehicle fuel applications.

LNG & CNG Mother Station (Mkuranga)

- **Location:** Strategically located in Mkuranga, Coast Region, leveraging proximity to the TPDC gas pipeline source.
- **Technology:** The project primarily consists of the filtration and pressure-regulating unit, purification unit, liquefaction unit, BOG (boil-off gas) compression unit, utilities and auxiliary systems, as well as electrical and control systems.

Process Units

1. Main Process System
2. Filtration and separation skid
3. Compression skid (not considered in this project for now)
4. Acid gas removal skid
5. Dehydration and mercury removal skid
6. Mixed refrigerant refrigeration compressor skid
7. Pre-cooling unit skid
8. Liquefaction cold box
9. BOG compression skid

Auxiliary Process Systems

1. Fuel gas unit
2. Heat transfer oil unit
3. Desalinated water unit
4. Air compression and nitrogen generation system

Electrical and Control Systems

(1) Electrical System

1. Equipment startup cabinet
2. Low-voltage switchgear

(2) Instrumentation and Automation System

1. Process unit monitoring devices and corresponding Distributed Control System (DCS)

2. Safety Instrumented System (SIS)

3. Uninterruptible Power Supply (UPS)

(3) Safety Control System

1. Combustible gas detection system

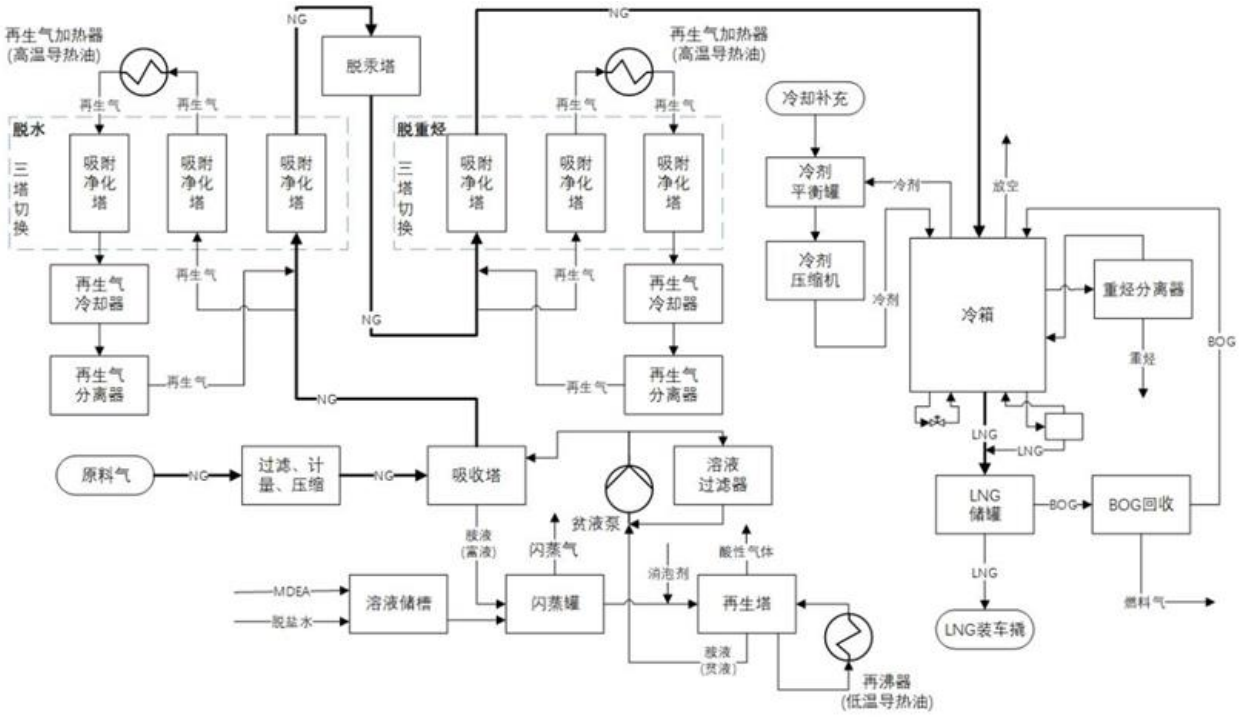
2. Fire detection system

(4) Analytical Instruments

1. Online analyzers (including water dew point, CO_2 , and H_2 S analysis)

2. Offline analyzers (offline gas chromatography, amine solution analysis)

Note: The following section contains the plant process flow diagram.



Feedstock Supply and Processing

The facility will receive natural gas feedstock through connection to Tanzania's national gas transmission system:

Gas Supply: Long-term supply agreement with Tanzania Petroleum Development Corporation (TPDC) for up to 150 million cubic feet per day of natural gas feedstock. The supply includes backup arrangements to ensure operational continuity.

Gas Treatment: Comprehensive gas processing facilities to remove impurities, adjust composition, and ensure feedstock meets production specifications. Treatment systems include dehydration, acid gas removal, and mercury removal as required.

Metering and Control: Advanced metering systems for accurate feedstock measurement and billing, integrated with automated process control systems for optimal efficiency.

Safety and Environmental Systems

Safety and environmental protection are paramount in the facility design and operation:

Safety Systems: Comprehensive safety systems including gas detection, fire suppression, emergency shutdown systems, and personnel safety equipment. All systems meet or exceed international standards for natural gas processing facilities.

Environmental Controls: Emissions monitoring and control systems to minimize environmental impact. The facility design includes provisions for vapor recovery, flare gas minimization, and noise control.

Emergency Response: Detailed emergency response procedures and equipment, including coordination with local emergency services and regular training programs for all personnel.

Distribution Infrastructure

The distribution network will comprise nine strategically located stations across Tanzania's major transportation corridors:

Northern Corridor Stations: Three stations serving the route from Dar es Salaam to Arusha and the Kenyan border, supporting cross-border transportation and tourism industry vehicles.

Central Corridor Stations: Three stations along the route from Dar es Salaam to Dodoma and western Tanzania, serving government transportation and regional commercial traffic.

Southern Corridor Stations: Three stations serving the route from Dar es Salaam to Mtwara and the Mozambique border, supporting agricultural transportation and regional trade.

Each distribution station will include:

- LNG and CNG storage facilities
- Vehicle refueling equipment
- Safety and monitoring systems
- Customer service facilities
- Maintenance and support equipment

Technology Partnerships

Strategic partnerships ensure access to proven technology and ongoing technical support:

Sichuan Jinxing Clean Energy Equipment Co., Ltd.: Primary technology partner providing liquefaction and compression equipment, process design, and technical training. The partnership includes:

- Equipment supply and installation supervision
- Operator training and certification programs
- Ongoing technical support and maintenance services
- Technology updates and optimization services

Local Engineering Partners: Collaboration with Tanzanian engineering firms for facility construction, local content compliance, and ongoing maintenance support.

Quality Assurance and Standards

All production and distribution operations will meet international quality standards:

Product Specifications: LNG and CNG products will meet ISO 16903 and ISO 15403 standards respectively, ensuring compatibility with international vehicle and equipment manufacturers' specifications.

Operational Standards: Facility design and operation will comply with relevant international standards including API, ASME, and NFPA codes for natural gas processing and distribution.

Certification and Testing: Regular third-party testing and certification to ensure ongoing compliance with quality and safety standards.

Technology Scalability and Future Development

The technical strategy includes provisions for future expansion and technology advancement:

Modular Design: Production facilities are designed with modular components that can be expanded or upgraded as market demand grows and technology advances.

Automation and Digitalization: Integration of advanced process control systems, predictive maintenance technologies, and digital monitoring systems to optimize efficiency and reliability.

Research and Development: Ongoing collaboration with technology partners to evaluate new technologies, process improvements, and market opportunities.

The technical strategy positions Zhongji New Energy Tanzania Limited to deliver reliable, high-quality LNG and CNG products while maintaining operational flexibility and cost competitiveness in the evolving East African energy market.

Marketing and Sales Strategy

Market Segmentation and Target Customers

Zhongji New Energy Tanzania Limited's marketing strategy focuses on three primary customer segments, each with distinct characteristics, needs, and value propositions:

Fleet Operators and Transportation Companies: This segment represents the largest and most immediate opportunity for LNG/CNG adoption. Target customers include:

- Long-haul trucking companies operating routes between major cities
- Urban bus operators, including public transportation authorities
- Logistics and delivery companies with regular route patterns
- Mining companies operating heavy-duty transportation equipment
- Agricultural transportation companies serving rural-urban supply chains

These customers are primarily motivated by fuel cost savings, operational reliability, and environmental compliance. The value proposition emphasizes 30-40% cost savings compared to diesel, reduced maintenance requirements, and improved environmental performance.

Industrial Users: Industrial customers represent a growing market segment with specific technical requirements:

- Manufacturing facilities requiring process heat and power generation
- Food processing companies needing clean-burning fuel for production processes
- Textile and garment manufacturers seeking cost-effective energy solutions
- Cement and construction material producers requiring high-temperature applications
- Power generation companies developing distributed energy projects

Industrial customers value fuel cost predictability, supply reliability, and technical support. The marketing approach emphasizes long-term supply contracts, technical consultation services, and customized delivery solutions.

Government and Public Sector: Government entities represent both customers and policy influencers:

- Central government vehicle fleets and transportation services
- Regional and local government transportation departments
- Public utilities and service providers
- Military and security services transportation needs
- Educational institutions and healthcare facilities

Government customers prioritize environmental benefits, energy security, and economic development impact. The marketing strategy emphasizes alignment with national energy policy objectives, local content development, and contribution to sustainable development goals.

Value Proposition Development

The core value proposition for each customer segment is built around four key pillars:

Cost Savings: LNG and CNG offer significant cost advantages compared to traditional diesel fuel:

- 30-40% lower fuel costs on an energy-equivalent basis
- Reduced maintenance costs due to cleaner combustion
- Longer engine life and reduced component replacement frequency
- Potential tax incentives and government support for natural gas adoption

Operational Reliability: The integrated production and distribution network ensures consistent fuel supply:

- Domestic production reduces dependence on imported fuels
- Multiple distribution points minimize supply chain risks
- 24/7 customer support and emergency response services
- Predictable pricing through long-term supply contracts

Environmental Benefits: Natural gas combustion produces significantly lower emissions:

- 20-25% reduction in CO2 emissions compared to diesel
- 90% reduction in particulate matter emissions
- Minimal sulfur dioxide and nitrogen oxide emissions
- Contribution to improved urban air quality

Technical Support: Comprehensive customer support services facilitate adoption:

- Vehicle and equipment conversion assistance
- Operator training and certification programs
- Ongoing technical support and maintenance services

- Performance monitoring and optimization consulting

Pricing Strategy

The pricing strategy balances market penetration objectives with profitability requirements:

Penetration Pricing: Initial pricing will be set at a 35-40% discount to diesel fuel on an energy-equivalent basis to encourage early adoption and market development. This aggressive pricing strategy aims to overcome customer inertia and demonstrate the economic benefits of natural gas fuel.

Value-Based Pricing: As the market matures and customers recognize the total cost of ownership benefits, pricing will gradually shift toward value-based models that capture a portion of the customer savings while maintaining competitive advantages.

Contract Structures: Multiple pricing and contract options will be offered to meet diverse customer needs:

- Spot pricing for occasional users and small customers
- Monthly contracts for regular customers with predictable usage
- Annual contracts for large fleet operators with volume discounts
- Long-term supply agreements for industrial users requiring price certainty

Volume Incentives: Tiered pricing structure rewards larger customers and encourages volume growth:

- Base pricing for purchases up to 100 metric tons annually
- 5% discount for purchases between 100-500 metric tons annually
- 10% discount for purchases between 500-1,000 metric tons annually
- 15% discount for purchases exceeding 1,000 metric tons annually

Sales Channel Strategy

A multi-channel sales approach will maximize market reach and customer accessibility:

Direct Sales: Dedicated sales team for large customers and strategic accounts:

- Key account managers for major fleet operators and industrial users
- Government relations specialists for public sector customers
- Technical sales engineers for complex industrial applications
- Regional sales representatives for geographic market coverage

Distribution Partners: Strategic partnerships with existing fuel distributors and service providers:

- Collaboration with petroleum product distributors seeking portfolio diversification
- Partnerships with vehicle maintenance and service companies
- Relationships with equipment manufacturers and conversion specialists
- Joint ventures with regional transportation and logistics companies

Digital Channels: Online platforms and digital tools to support customer acquisition and service:

- Company website with product information and customer portal
- Mobile applications for fuel ordering and account management
- Social media presence for brand awareness and customer engagement
- Digital marketing campaigns targeting specific customer segments

Customer Acquisition Strategy

The customer acquisition strategy emphasizes demonstration of value and gradual market development:

Pilot Projects and Demonstrations: Initial market entry will focus on high-visibility pilot projects that demonstrate the technology and economic benefits:

- Partnership with major transportation companies for fleet conversion pilots
- Collaboration with government agencies for public vehicle demonstrations
- Industrial customer trials with performance monitoring and case study development
- Public-private partnerships for infrastructure development projects

Customer Education and Awareness: Comprehensive education programs will address knowledge gaps and misconceptions:

- Technical seminars and workshops for fleet managers and operators
- Industry conference participation and thought leadership activities
- Publication of case studies and performance data from successful implementations
- Collaboration with industry associations and professional organizations

Conversion Support Services: Comprehensive support services will reduce barriers to adoption:

- Vehicle and equipment conversion financing assistance
- Technical consultation for optimal system design and implementation
- Training programs for operators and maintenance personnel
- Performance monitoring and optimization services during transition periods

Brand Positioning and Marketing Communications

Brand positioning emphasizes reliability, innovation, and partnership:

Brand Promise: "Powering Tanzania's Future with Clean, Reliable, and Affordable Energy Solutions"

Key Messages:

- Proven technology and operational expertise
- Commitment to customer success and long-term partnerships
- Contribution to Tanzania's economic development and environmental sustainability
- Reliable supply and comprehensive customer support

Marketing Communications Channels:

- Industry publications and trade media advertising
- Digital marketing including search engine optimization and social media
- Direct mail and email marketing to targeted customer segments
- Trade show participation and industry event sponsorship
- Public relations and media outreach highlighting company milestones and customer successes

Customer Retention and Loyalty Programs

Long-term customer relationships are essential for sustainable business growth:

Customer Service Excellence: Comprehensive customer service programs ensure satisfaction and loyalty:

- Dedicated customer service representatives for each major account
- 24/7 emergency response and technical support services
- Regular customer satisfaction surveys and feedback programs
- Continuous improvement initiatives based on customer input

Loyalty and Incentive Programs: Structured programs reward customer loyalty and encourage volume growth:

- Volume-based rebate programs for annual purchase commitments
- Early payment discounts and flexible payment terms
- Exclusive access to new products and services
- Customer advisory board participation for strategic input

Value-Added Services: Additional services that enhance customer relationships and create switching costs:

- Fleet management consulting and optimization services
- Predictive maintenance programs for customer equipment

- Environmental reporting and sustainability consulting
- Market intelligence and industry trend analysis

The marketing and sales strategy positions Zhongji New Energy Tanzania Limited as the preferred partner for customers seeking reliable, cost-effective, and environmentally responsible energy solutions in the East African market.

Operations Plan

Facility Operations Overview

Zhongji New Energy Tanzania Limited's operations plan encompasses the entire value chain from natural gas feedstock procurement through product delivery to end customers. The operational strategy emphasizes safety, reliability, efficiency, and customer service excellence while maintaining cost competitiveness and environmental responsibility.

Production Operations

Mother Station Operations: The central production facility in Mkuranga, Pwani region will operate on a continuous basis to maximize efficiency and meet customer demand:

Operating Schedule: 24/7 operations with planned maintenance shutdowns scheduled during low-demand periods. The facility will operate at varying capacity levels based on seasonal demand patterns and market conditions.

Staffing Structure: Four operating crews working 12-hour shifts to ensure continuous coverage. Each crew includes a shift supervisor, process operators, maintenance technicians, and safety personnel. Total operational staff of 32 personnel plus management and support functions.

Process Control: Advanced distributed control system (DCS) with supervisory control and data acquisition (SCADA) capabilities for remote monitoring and control. Automated systems manage routine operations while operators focus on optimization and exception handling.

Quality Control: Continuous monitoring of product quality with automated sampling and analysis systems. Laboratory facilities on-site for detailed product testing and quality verification. Quality management system certified to ISO 9001 standards.

Maintenance Operations: Comprehensive maintenance program ensures reliable operations and equipment longevity:

Preventive Maintenance: Scheduled maintenance activities based on manufacturer recommendations and operational experience. Maintenance management system tracks equipment performance and schedules activities to minimize operational disruption.

Predictive Maintenance: Condition monitoring systems including vibration analysis, thermal imaging, and oil analysis to predict equipment failures and optimize maintenance timing.

Emergency Maintenance: 24/7 emergency response capability with spare parts inventory and qualified technicians available for critical equipment repairs.

Distribution Operations

Transportation and Logistics: Efficient distribution network ensures reliable product delivery to customers:

Fleet Management: Company-owned and contracted transportation fleet including LNG tank trucks, CNG tube trailers, and support vehicles. Fleet management system optimizes routing, scheduling, and vehicle utilization.

Distribution Stations: Nine distribution stations strategically located across Tanzania's major transportation corridors. Each station operates with local staff and automated systems for customer service and inventory management.

Inventory Management: Integrated inventory management system tracks product levels at all locations and optimizes production and distribution schedules to minimize costs while ensuring product availability.

Customer Service: 24/7 customer service center with multilingual support staff. Mobile service units provide on-site support for major customers and emergency response capabilities.

Supply Chain Management

Feedstock Procurement: Reliable natural gas supply is critical for operational success:

Primary Supply: Long-term supply agreement with Tanzania Petroleum Development Corporation (TPDC) for natural gas feedstock. Contract includes take-or-pay provisions and price adjustment mechanisms.

Backup Supply: Secondary supply arrangements with alternative suppliers to ensure operational continuity during primary supply disruptions.

Supply Chain Optimization: Advanced forecasting and planning systems optimize feedstock procurement based on production schedules, market demand, and inventory levels.

Equipment and Materials: Strategic procurement approach ensures reliable equipment performance and cost optimization:

Strategic Suppliers: Long-term relationships with key equipment suppliers including Sichuan Jinxing Clean Energy Equipment Co., Ltd. for critical production equipment.

Local Procurement: Emphasis on local sourcing for non-critical materials and services to support local content requirements and reduce costs.

Inventory Management: Optimized spare parts inventory based on criticality analysis and supplier lead times. Just-in-time procurement for routine materials and strategic inventory for critical components.

Health, Safety, and Environmental Management

Safety Management System: Comprehensive safety management system based on international best practices:

Safety Policies: Written safety policies and procedures covering all aspects of operations. Regular safety training and certification programs for all personnel.

Risk Assessment: Systematic risk assessment and management processes including hazard identification, risk analysis, and mitigation measures.

Emergency Response: Detailed emergency response procedures and equipment including coordination with local emergency services. Regular emergency drills and training exercises.

Safety Performance: Continuous monitoring of safety performance with key performance indicators and regular safety audits. Target of zero lost-time incidents and continuous improvement in safety metrics.

Environmental Management: Environmental stewardship is integral to operational excellence:

Environmental Management System: ISO 14001 certified environmental management system with regular audits and continuous improvement processes.

Emissions Monitoring: Continuous monitoring of air emissions with automated reporting to regulatory authorities. Emissions control systems minimize environmental impact.

Waste Management: Comprehensive waste management program including waste minimization, recycling, and proper disposal of hazardous materials.

Water Management: Water conservation and treatment systems minimize water usage and ensure proper treatment of wastewater.

Quality Management

Quality Assurance Program: Comprehensive quality management system ensures consistent product quality:

Quality Standards: All products meet or exceed international standards including ISO 16903 for LNG and ISO 15403 for CNG.

Testing and Analysis: Regular product testing and analysis using certified laboratory facilities and procedures. Third-party verification of product quality on a regular basis.

Customer Feedback: Systematic collection and analysis of customer feedback to identify quality issues and improvement opportunities.

Continuous Improvement: Regular review and improvement of quality management processes based on performance data and industry best practices.

Information Technology and Digital Systems

Integrated IT Infrastructure: Modern IT systems support all aspects of operations:

Enterprise Resource Planning (ERP): Integrated ERP system manages all business processes including production planning, inventory management, financial reporting, and customer relationship management.

Process Control Systems: Advanced process control and SCADA systems provide real-time monitoring and control of production operations.

Customer Management Systems: Customer relationship management (CRM) system tracks customer interactions, orders, and service requirements.

Data Analytics: Advanced analytics capabilities provide insights into operational performance, customer behavior, and market trends.

Performance Monitoring and Optimization

Key Performance Indicators: Comprehensive KPI framework monitors operational performance:

Production Metrics: Production volume, efficiency, quality, and equipment utilization rates.

Safety Metrics: Lost-time incident rate, near-miss reporting, and safety training completion rates.

Environmental Metrics: Emissions levels, waste generation, water usage, and energy efficiency.

Customer Metrics: Customer satisfaction scores, delivery performance, and service quality measures.

Financial Metrics: Operating costs, margins, and return on assets.

Continuous Improvement: Systematic approach to operational optimization:

Performance Reviews: Regular performance reviews identify improvement opportunities and best practices.

Benchmarking: Comparison with industry best practices and peer companies to identify performance gaps.

Innovation Programs: Ongoing evaluation of new technologies and processes to improve efficiency and reduce costs.

Employee Engagement: Employee suggestion programs and continuous improvement teams engage staff in optimization efforts.

The operations plan ensures that Zhongji New Energy Tanzania Limited delivers reliable, high-quality products and services while maintaining the highest standards of safety, environmental responsibility, and operational efficiency.

Management and Organization

Organizational Structure

Zhongji New Energy Tanzania Limited is structured as a lean, efficient organization that combines international expertise with local knowledge and capabilities. The organizational design emphasizes clear accountability, efficient decision-making, and effective coordination across all business functions.

Board of Directors: The Board provides strategic oversight and governance, comprising seven members representing shareholder interests and bringing diverse expertise:

- Chairman: Appointed by Chinese shareholders, experienced in energy sector development
- Vice Chairman: Appointed by Tanzanian shareholders, with local market and regulatory expertise
- Three Chinese Directors: Representing technology, finance, and operations expertise
- Two Tanzanian Directors: Providing local market knowledge and stakeholder relationships
- Independent Director: International energy industry expert providing objective oversight

Executive Management Team: The executive team is responsible for day-to-day operations and strategic implementation:

Chief Executive Officer (CEO): Overall leadership and strategic direction, stakeholder relationships, and organizational development. Reports to the Board of Directors and serves as the primary interface with government authorities and major customers.

Chief Operating Officer (COO): Responsible for all operational activities including production, distribution, safety, and environmental management. Oversees facility operations, maintenance, and supply chain management.

Chief Financial Officer (CFO): Financial management, accounting, treasury, and investor relations. Responsible for financial planning, reporting, and compliance with regulatory requirements.

Chief Technology Officer (CTO): Technology strategy, engineering, and technical operations. Manages relationships with technology partners and oversees facility design and optimization.

Chief Commercial Officer (CCO): Sales, marketing, customer relationships, and business development. Responsible for revenue generation and market development activities.

Key Management Profiles

Chief Executive Officer - John Yunda….: Mr. Yunda brings over 15 years of experience in the energy sector, including 8 years in natural gas development and operations in China and Southeast Asia. He holds an MBA from Beijing University and has led multiple energy infrastructure projects with total investment exceeding $500 million. His experience includes regulatory affairs, project development, and international joint ventures.

Chief Operating Officer - Eng. Msingi: Mr Msingii is a Tanzanian engineer with 35 years of experience in oil and gas operations, including 6 years with Tanzania Petroleum Development Corporation. She holds a Master's degree in Chemical Engineering from the University of Dar es Salaam and professional certifications in process safety management. Her expertise includes facility operations, regulatory compliance, and local content development.

Chief Financial Officer - …….: Mr. ……. is a Chartered Accountant with 10 years of experience in energy sector finance, including project finance, financial planning, and investor relations. He previously worked with PwC Tanzania and has experience with international energy companies operating in East Africa. He holds an MBA in Finance from Strathmore University.

Chief Technology Officer - Dr. Li Ming: Dr. Li has 18 years of experience in natural gas processing technology, including 10 years with Sichuan Jinxing Clean Energy Equipment Co., Ltd. He holds a Ph.D. in Chemical Engineering from Tsinghua University and has led technology development for over 50 LNG and CNG facilities worldwide. His expertise includes process optimization, equipment design, and technology transfer.

Chief Commercial Officer - Grace Kimaro: Ms. Kimaro brings 14 years of experience in energy sector sales and marketing, including 8 years with petroleum product distributors in Tanzania. She holds a Master's degree in Business Administration from the University of Dar es Salaam and has extensive relationships with fleet operators, industrial customers, and government agencies.

Organizational Development Strategy

Talent Acquisition and Development: The company's success depends on attracting and developing high-quality talent:

Recruitment Strategy: Combination of international recruitment for specialized technical positions and local recruitment for operational and commercial roles. Partnership with universities and technical institutions for graduate recruitment programs.

Training and Development: Comprehensive training programs including technical skills development, safety training, and leadership development. Partnership with technology suppliers for specialized technical training.

Performance Management: Merit-based performance evaluation system with clear objectives and regular feedback. Career development planning and succession planning for key positions.

Compensation and Benefits: Competitive compensation packages including base salary, performance bonuses, and benefits. Employee stock ownership program to align interests with company success.

Governance and Compliance

Corporate Governance: Strong governance framework ensures accountability and transparency:

Board Committees: Audit Committee, Risk Committee, and Compensation Committee provide specialized oversight and recommendations to the Board.

Internal Controls: Comprehensive internal control systems including financial controls, operational controls, and compliance monitoring.

Risk Management: Enterprise risk management framework identifies, assesses, and manages business risks across all functions.

Ethics and Compliance: Code of conduct and ethics policies with regular training and monitoring. Whistleblower protection and investigation procedures.

Regulatory Compliance: Comprehensive compliance program ensures adherence to all applicable laws and regulations:

Legal Compliance: Regular legal review and compliance monitoring for corporate law, employment law, environmental law, and industry regulations.

Regulatory Affairs: Dedicated regulatory affairs function manages relationships with regulatory authorities and ensures ongoing compliance with licensing requirements.

Reporting and Documentation: Systematic documentation and reporting procedures ensure transparency and accountability to stakeholders.

Advisory and Support Functions

Technical Advisory Board: External technical experts provide guidance on technology strategy and operational optimization:

- International LNG/CNG industry experts
- Academic researchers in natural gas technology
- Regulatory and policy experts
- Environmental and safety specialists

Local Advisory Council: Local stakeholders provide guidance on community relations and market development:

- Community leaders and traditional authorities
- Local business associations and chambers of commerce
- Environmental and social organizations
- Academic institutions and research centers

Human Resources Management

Workforce Planning: Strategic workforce planning ensures adequate staffing for all operational requirements:

Staffing Levels: Total workforce of approximately 120 employees at full operations, including management, technical, operational, and support staff.

Skills Development: Ongoing skills development programs ensure workforce capabilities match operational requirements and technology advancement.

Local Content: Commitment to maximizing local employment and skills development in compliance with Tanzanian local content requirements.

Employee Relations: Positive employee relations support organizational effectiveness and employee satisfaction:

Communication: Regular employee communication through town halls, newsletters, and feedback sessions.

Employee Engagement: Employee engagement surveys and improvement initiatives to maintain high levels of job satisfaction and retention.

Labor Relations: Constructive relationships with labor unions and employee representatives based on mutual respect and shared objectives.

Organizational Culture and Values

Culture Development: Strong organizational culture supports business objectives and employee engagement:

Safety Culture: Safety-first culture with zero tolerance for unsafe practices and continuous focus on safety improvement.

Performance Culture: Results-oriented culture with clear expectations, accountability, and recognition for achievement.

Innovation Culture: Encouragement of innovation and continuous improvement with support for employee ideas and initiatives.

Diversity and Inclusion: Commitment to diversity and inclusion with equal opportunities for all employees regardless of background.

Community Engagement: Active engagement with local communities supports social license to operate:

Community Investment: Investment in local community development projects including education, healthcare, and infrastructure.

Local Procurement: Preference for local suppliers and service providers where quality and cost requirements can be met.

Environmental Stewardship: Active environmental protection and conservation initiatives in collaboration with local communities.

The management and organizational structure positions Zhongji New Energy Tanzania Limited for successful execution of its business strategy while maintaining the highest standards of governance, compliance, and stakeholder engagement.

Risk Analysis

Risk Management Framework

Zhongji New Energy Tanzania Limited employs a comprehensive enterprise risk management framework that identifies, assesses, monitors, and mitigates risks across all aspects of the business. The risk management approach is integrated into strategic planning, operational procedures, and performance monitoring to ensure systematic risk oversight and management.

Market and Commercial Risks

Market Development Risk: The primary commercial risk relates to the pace of market development and customer adoption of LNG/CNG technology.

Risk Description: Slower than anticipated customer adoption could result in lower revenues and extended payback periods. Factors contributing to this risk include customer resistance to change, lack of awareness about natural gas benefits, and competition from alternative fuels.

Impact Assessment: High impact on financial performance, potentially reducing revenues by 20-30% in early years and extending payback period by 2-3 years.

Mitigation Strategies:

- Comprehensive customer education and demonstration programs
- Pilot projects with major fleet operators to prove economic benefits
- Flexible pricing strategies to accelerate adoption
- Government partnership to promote natural gas utilization
- Conversion financing assistance for early adopters

Competitive Risk: Entry of new competitors or aggressive pricing by existing fuel suppliers could impact market share and profitability.

Risk Description: International oil companies or regional energy companies may enter the market with competing LNG/CNG infrastructure, potentially leading to price competition and market share erosion.

Impact Assessment: Medium to high impact depending on competitor capabilities and market positioning.

Mitigation Strategies:

- First-mover advantage through rapid market development
- Long-term customer contracts with volume commitments
- Continuous cost optimization to maintain competitive pricing

- Value-added services that create customer switching costs
- Strategic partnerships with key customers and suppliers

Pricing and Margin Risk: Volatility in natural gas feedstock costs or diesel fuel prices could impact profit margins.

Risk Description: Increases in natural gas costs or decreases in diesel prices could compress margins and reduce the economic advantage of LNG/CNG.

Impact Assessment: Medium impact on profitability, with potential margin compression of 5-10 percentage points.

Mitigation Strategies:

- Long-term feedstock supply contracts with price adjustment mechanisms
- Flexible pricing structures that pass through cost changes to customers
- Diversified customer base to reduce dependence on price-sensitive segments
- Operational efficiency improvements to reduce unit costs
- Financial hedging instruments for price risk management

Operational and Technical Risks

Equipment Reliability Risk: Production equipment failures could disrupt operations and impact customer service.

Risk Description: Critical equipment failures, particularly in liquefaction and compression systems, could result in production outages and customer supply disruptions.

Impact Assessment: Medium to high impact on operations and customer relationships, with potential revenue loss of $100,000-500,000 per major outage.

Mitigation Strategies:

- Proven technology selection from reputable suppliers
- Comprehensive preventive and predictive maintenance programs
- Strategic spare parts inventory for critical components
- Equipment redundancy for critical systems
- Emergency response procedures and backup supply arrangements

Safety and Environmental Risk: Industrial accidents or environmental incidents could result in operational shutdowns, regulatory penalties, and reputational damage.

Risk Description: Natural gas processing and distribution involve inherent safety risks including fire, explosion, and toxic gas exposure. Environmental risks include air emissions, water contamination, and waste management issues.

Impact Assessment: Potentially severe impact including operational shutdown, regulatory penalties, legal liability, and reputational damage.

Mitigation Strategies:

- Comprehensive safety management system based on international standards
- Regular safety training and certification for all personnel
- Advanced safety systems including gas detection and emergency shutdown
- Environmental management system with continuous monitoring
- Comprehensive insurance coverage for operational risks

Supply Chain Risk: Disruptions in natural gas feedstock supply could impact production and customer service.

Risk Description: Interruptions in natural gas supply from TPDC or transmission system failures could disrupt production operations.

Impact Assessment: High impact on operations with potential complete production shutdown during supply disruptions.

Mitigation Strategies:

- Long-term supply agreement with take-or-pay provisions
- Backup supply arrangements with alternative suppliers
- Strategic inventory management to provide supply buffer
- Close coordination with TPDC on maintenance and operational planning
- Emergency response procedures for supply disruptions

Regulatory and Political Risks

Regulatory Change Risk: Changes in government policies or regulations could impact operations, costs, or market opportunities.

Risk Description: Modifications to natural gas regulations, environmental standards, or tax policies could increase costs or reduce market attractiveness.

Impact Assessment: Medium impact on operations and profitability, depending on the nature and scope of regulatory changes.

Mitigation Strategies:

- Active engagement with regulatory authorities and policy makers
- Participation in industry associations and policy development processes
- Compliance excellence to maintain positive regulatory relationships

- Flexible operational design to accommodate regulatory changes
- Regular monitoring of regulatory developments and policy trends

Political Risk: Political instability or changes in government could impact business operations and investment security.

Risk Description: Political instability, changes in government policy, or deterioration in the investment climate could affect business operations and asset security.

Impact Assessment: Potentially high impact on long-term business viability and asset security.

Mitigation Strategies:

- Political risk insurance coverage for major assets and investments
- Diversified stakeholder engagement including government, opposition, and civil society
- Compliance with all local content and social responsibility requirements
- Regular assessment of political risk factors and contingency planning
- Strong relationships with diplomatic and development finance institutions

Financial and Currency Risks

Currency Risk: Exchange rate fluctuations could impact costs, revenues, and financial returns.

Risk Description: The project involves both USD-denominated costs (equipment, debt service) and TZS-denominated revenues, creating exposure to currency fluctuations.

Impact Assessment: Medium impact on financial performance, with potential 10-15% impact on returns from major currency movements.

Mitigation Strategies:

- Natural hedging through local cost structure and revenue denomination
- Financial hedging instruments for major currency exposures
- Flexible pricing mechanisms that adjust for currency movements
- Local financing to match currency exposure where possible
- Regular monitoring and management of currency exposure

Financing Risk: Inability to secure adequate financing or changes in financing costs could impact project development and returns.

Risk Description: Difficulties in raising equity or debt financing, or increases in financing costs, could delay project development or reduce returns.

Impact Assessment: High impact on project development and financial returns.

Mitigation Strategies:

- Diversified financing sources including equity investors and debt providers
- Strong project fundamentals and financial projections to attract investors
- Phased development approach to reduce financing requirements
- Relationships with development finance institutions and export credit agencies
- Conservative financial planning with adequate contingency reserves

Technology and Innovation Risks

Technology Obsolescence Risk: Advances in alternative technologies could reduce the competitiveness of LNG/CNG solutions.

Risk Description: Development of alternative fuel technologies such as electric vehicles or hydrogen could reduce demand for natural gas vehicles.

Impact Assessment: Medium to high long-term impact on market demand and business viability.

Mitigation Strategies:

- Continuous monitoring of technology developments and market trends
- Flexible facility design that can accommodate technology changes
- Diversified customer base across multiple applications and sectors
- Investment in research and development for technology advancement
- Strategic partnerships with technology providers for innovation access

Risk Monitoring and Management

Risk Assessment Process: Regular risk assessment and monitoring procedures ensure ongoing risk management effectiveness:

Quarterly Risk Reviews: Comprehensive quarterly reviews of all identified risks with updated assessments and mitigation strategies.

Key Risk Indicators: Monitoring of key risk indicators that provide early warning of potential risk materialization.

Scenario Planning: Regular scenario planning exercises to assess potential impact of multiple risk factors and develop contingency plans.

Risk Reporting: Regular risk reporting to management and Board of Directors with recommendations for risk management improvements.

Insurance and Risk Transfer: Comprehensive insurance program transfers appropriate risks to insurance markets:

Property Insurance: Coverage for physical assets including production facilities, equipment, and inventory.

Business Interruption Insurance: Coverage for lost revenues and additional expenses resulting from operational disruptions.

Liability Insurance: Coverage for third-party liability including environmental liability and product liability.

Political Risk Insurance: Coverage for political risks including expropriation, political violence, and currency inconvertibility.

The comprehensive risk management framework ensures that Zhongji New Energy Tanzania Limited can identify, assess, and manage risks effectively while maintaining focus on business objectives and stakeholder value creation.

Financial Projections

Financial Model Overview

The financial projections for Zhongji New Energy Tanzania Limited are based on detailed analysis of market demand, operational requirements, capital costs, and revenue potential. The model incorporates conservative assumptions while reflecting the significant growth potential in Tanzania's natural gas market. All financial projections are presented in US dollars to facilitate international investment evaluation.

Revenue Projections

Revenue Streams: The company will generate revenue from three primary sources:

LNG Sales: Revenue from LNG sales to transportation and industrial customers, representing approximately 60% of total revenue at full operations. LNG pricing is based on energy-equivalent pricing at a 35% discount to diesel fuel.

CNG Sales: Revenue from CNG sales primarily to fleet operators and public transportation, representing approximately 35% of total revenue. CNG pricing follows similar discount structure to diesel fuel.

Services and Other Revenue: Additional revenue from equipment conversion services, maintenance contracts, and consulting services, representing approximately 5% of total revenue.

Volume Projections: Production and sales volumes are projected to ramp up gradually over the first five years of operations:

Year 1 (2028): 30% of design capacity - 18,000 MT LNG, 12,000 MT CNG *Year 2 (2029)*: 50% of design capacity - 30,000 MT LNG, 20,000 MT CNG
Year 3 (2030): 70% of design capacity - 42,000 MT LNG, 28,000 MT CNG *Year 4 (2031)*: 80% of design capacity - 48,000 MT LNG, 32,000 MT CNG *Year 5+ (2032+)*: 85% of design capacity - 51,000 MT LNG, 34,000 MT CNG

Pricing Assumptions: Pricing strategy balances market penetration with profitability objectives:

LNG Pricing: $650 per metric ton in Year 1, escalating at 3% annually *CNG Pricing*: $600 per metric ton in Year 1, escalating at 3% annually *Price Escalation*: Annual price increases of 3% to reflect inflation and market development

Revenue Projections by Year:

- 2028: $21.6 million
- 2029: $34.2 million
- 2030: $45.8 million
- 2031: $51.2 million
- 2032: $54.1 million

Cost Structure and Operating Expenses

Cost of Goods Sold: Direct costs associated with production and distribution:

Feedstock Costs: Natural gas feedstock represents the largest cost component at approximately 40% of revenue. Feedstock pricing is based on long-term supply agreement with TPDC at $4.50 per MMBtu escalating at 2% annually.

Transportation and Distribution: Costs for product transportation and distribution operations, including fuel, maintenance, and driver costs, representing approximately 8% of revenue.

Utilities and Energy: Electricity and other utilities for facility operations, representing approximately 3% of revenue.

Operating Expenses: Fixed and variable operating costs:

Personnel Costs: Salaries, benefits, and training for operational staff, representing approximately 12% of revenue at full operations.

Maintenance and Repairs: Preventive and corrective maintenance for production and distribution equipment, representing approximately 4% of revenue.

Insurance: Comprehensive insurance coverage for operational risks, representing approximately 2% of revenue.

General and Administrative: Corporate overhead including management, finance, legal, and administrative functions, representing approximately 6% of revenue.

Operating Cost Projections by Year:

- 2028: $13.0 million (60% of revenue)
- 2029: $20.5 million (60% of revenue)
- 2030: $27.5 million (60% of revenue)
- 2031: $30.7 million (60% of revenue)
- 2032: $32.5 million (60% of revenue)

Capital Investment Requirements

Initial Capital Investment: Total project investment of $16.0 million allocated across major categories:

Production Facilities: $12.0 million for LNG liquefaction and CNG compression equipment, including installation and commissioning.

Distribution Infrastructure: $2.5 million for nine distribution stations including storage tanks, dispensing equipment, and safety systems.

Transportation Fleet: $1.0 million for LNG tank trucks, CNG tube trailers, and support vehicles.

Development and Contingency: $0.5 million for project development costs, working capital, and contingency reserves.

Ongoing Capital Expenditures: Annual capital expenditures for maintenance, expansion, and replacement:

Maintenance Capital: $0.5-0.8 million annually for equipment replacement and facility upgrades.

Growth Capital: Additional investments for capacity expansion and market development as opportunities arise.

Financing Structure

Equity Financing: $14.4 million in equity financing (90% of total investment):

Chinese Investors: $8.6 million (60% ownership) from Chinese energy companies and investment funds.

Tanzanian Investors: $5.8 million (40% ownership) from local investors and development finance institutions.

Debt Financing: $1.6 million in debt financing (10% of total investment):

Term Loan: 7-year term loan at 8% annual interest rate from local commercial bank.

Working Capital Facility: $2.0 million revolving credit facility for working capital requirements.

Profitability Analysis

Gross Profit Margins: Strong gross margins reflect competitive advantages and operational efficiency:

Year 1: 40% gross margin during ramp-up period *Years 2-3*: 40-45% gross margins as operations stabilize
Years 4+: 45-50% gross margins at full operations

EBITDA Margins: Healthy EBITDA margins demonstrate operational profitability:

Year 1: 25% EBITDA margin *Years 2-3*: 30-35% EBITDA margins *Years 4+*: 35-40% EBITDA margins

Net Profit Margins: Strong net profitability after all expenses:

Year 1: 15% net margin *Years 2-3*: 20-25% net margins
Years 4+: 25-30% net margins

Cash Flow Projections

Operating Cash Flow: Strong operating cash generation supports debt service and returns:

- 2028: $5.4 million
- 2029: $11.7 million
- 2030: $16.4 million
- 2031: $18.2 million
- 2032: $19.5 million

Free Cash Flow: Cash available for debt service and distributions:

- 2028: $4.6 million
- 2029: $10.9 million
- 2030: $15.6 million
- 2031: $17.4 million
- 2032: $18.7 million

Cumulative Cash Flow: Project generates positive cumulative cash flows by Year 4:

- 2028: -$10.4 million
- 2029: $0.5 million
- 2030: $16.1 million
- 2031: $33.5 million
- 2032: $52.2 million

Return Analysis

Internal Rate of Return (IRR): The project generates attractive returns for equity investors:

Project IRR: 28.5% based on 10-year cash flow projections *Equity IRR*: 32.1% based on equity cash flows and terminal value

Net Present Value (NPV): Positive NPV demonstrates value creation:

NPV at 12% Discount Rate: $18.2 million *NPV at 15% Discount Rate*: $12.8 million

Payback Period: Reasonable payback period for infrastructure investment:

Simple Payback: 6.2 years *Discounted Payback*: 7.1 years at 12% discount rate

Sensitivity Analysis

Key Variables Impact on IRR:

Revenue Volume (+/-20%): IRR range of 22.1% to 35.8% *Feedstock Costs (+/-20%)*: IRR range of 24.2% to 33.4%
Capital Costs (+/-20%): IRR range of 25.1% to 32.7% *Pricing (+/-10%)*: IRR range of 24.8% to 32.9%

Break-Even Analysis:

Volume Break-Even: 65% of design capacity in steady state *Price Break-Even*: 25% discount to diesel (vs. 35% base case) *Cost Break-Even*: 15% increase in total costs

Financial Ratios and Metrics

Liquidity Ratios: *Current Ratio*: 2.1x average over projection period *Quick Ratio*: 1.8x average over projection period

Leverage Ratios: *Debt-to-Equity*: 0.11x at project completion *Debt Service Coverage*: 4.2x average over loan term

Profitability Ratios: *Return on Assets*: 18.5% average over projection period *Return on Equity*: 24.2% average over projection period

Efficiency Ratios: *Asset Turnover*: 1.2x average over projection period *Working Capital Turnover*: 8.5x average over projection period

The financial projections demonstrate that Zhongji New Energy Tanzania Limited represents an attractive investment opportunity with strong returns, reasonable risk profile, and significant growth potential in Tanzania's emerging natural gas market.

Implementation Timeline

Project Development Phases

The implementation of Zhongji New Energy Tanzania Limited's LNG/CNG project will be executed in three distinct phases over a three-year period from 2026 to 2028. This phased approach ensures systematic risk management, efficient resource utilization, and timely achievement of operational milestones.

Phase 1: Development and Regulatory Approval (2026)

Duration: 12 months (January 2026 - December 2026)

Key Objectives: Complete all regulatory approvals, finalize financing arrangements, and prepare for construction activities.

Major Milestones and Activities:

Regulatory Approvals (Months 1-8):

- Environmental Impact Assessment completion and approval from NEMC
- Final operating license approval from EWURA
- Construction permits from local authorities
- Import permits for equipment and materials
- Land acquisition and use permits for all facility locations

Financing Arrangements (Months 3-10):

- Equity investment agreements finalization
- Debt financing documentation and closing
- Insurance arrangements and policy issuance
- Foreign exchange and hedging arrangements
- Working capital facility establishment

Detailed Engineering and Design (Months 4-12):

- Final engineering design for production facilities
- Distribution station design and specifications
- Safety and environmental systems design
- Procurement specifications and vendor selection
- Construction planning and scheduling

Project Management Setup (Months 1-12):

- Project management office establishment
- Key personnel recruitment and training
- Contractor selection and contract negotiation
- Quality assurance and safety program development
- Stakeholder engagement and communication programs

Phase 1 Budget: $2.0 million for development costs, regulatory fees, and preliminary activities.

Critical Success Factors:

- Timely regulatory approval processes
- Successful financing closure
- Effective stakeholder engagement
- Quality engineering and design work

Phase 2: Construction and Installation (2027)

Duration: 18 months (January 2027 - June 2028)

Key Objectives: Complete construction of all facilities, install equipment, and prepare for commissioning activities.

Major Milestones and Activities:

Site Preparation and Infrastructure (Months 1-6):

- Site clearing and preparation for mother station
- Access road construction and utility connections

- Distribution station site preparation
- Temporary facilities and construction support infrastructure
- Environmental and safety system installation

Equipment Procurement and Delivery (Months 1-12):

- LNG liquefaction equipment manufacturing and delivery
- CNG compression equipment manufacturing and delivery
- Storage tanks and pressure vessels delivery
- Transportation fleet procurement and delivery
- Instrumentation and control systems procurement

Facility Construction (Months 4-15):

- Mother station civil works and structural construction
- Equipment installation and mechanical completion
- Electrical and instrumentation installation
- Distribution station construction and equipment installation
- Safety and environmental systems installation

Testing and Pre-Commissioning (Months 12-18):

- Individual equipment testing and verification
- System integration testing
- Safety system testing and certification
- Environmental compliance verification
- Personnel training and certification

Phase 2 Budget: $13.5 million for construction, equipment, and installation activities.

Critical Success Factors:

- Timely equipment delivery and installation
- Quality construction and installation work
- Effective project management and coordination
- Safety and environmental compliance

Phase 3: Commissioning and Commercial Operations (2028)

Duration: 6 months (July 2028 - December 2028)

Key Objectives: Complete facility commissioning, achieve commercial operations, and ramp up production to target levels.

Major Milestones and Activities:

Commissioning Activities (Months 1-4):

- System commissioning and performance testing
- Safety system verification and certification
- Environmental compliance testing and approval
- Operational procedures development and testing
- Staff training and operational readiness assessment

Commercial Operations Startup (Months 3-6):

- First production and product quality verification
- Initial customer deliveries and service establishment
- Distribution network activation and testing
- Customer service systems activation
- Performance monitoring and optimization

Production Ramp-Up (Months 4-6):

- Gradual increase in production rates
- Customer base development and service expansion
- Operational optimization and efficiency improvement
- Quality assurance and customer satisfaction monitoring
- Financial performance tracking and reporting

Phase 3 Budget: $0.5 million for commissioning, startup, and initial working capital requirements.

Critical Success Factors:

- Successful commissioning and startup
- Achievement of design performance specifications
- Customer satisfaction and service quality
- Operational safety and environmental compliance

Detailed Implementation Schedule

2026 Development Phase Timeline:

Q1 2026:

- Project management office establishment
- Environmental Impact Assessment submission

- Detailed engineering design initiation
- Key personnel recruitment

Q2 2026:

- Regulatory approval processes
- Financing documentation and negotiation
- Equipment procurement planning
- Contractor selection and contracting

Q3 2026:

- Final regulatory approvals
- Financing closure and fund availability
- Equipment orders and manufacturing initiation
- Site preparation planning

Q4 2026:

- Construction planning finalization
- Long-lead equipment delivery scheduling
- Personnel training program development
- Stakeholder engagement and communication

2027-2028 Construction and Commissioning Timeline:

Q1 2027:

- Site preparation and infrastructure development
- Equipment manufacturing and quality control
- Construction contractor mobilization
- Safety and environmental program implementation

Q2 2027:

- Civil works and structural construction
- Equipment delivery and staging
- Utility connections and infrastructure completion
- Distribution station construction initiation

Q3 2027:

- Major equipment installation
- Electrical and instrumentation installation
- Distribution station construction continuation
- Transportation fleet delivery and preparation

Q4 2027:

- Mechanical completion and system integration
- Pre-commissioning testing and verification
- Personnel training and certification
- Regulatory inspection and approval preparation

Q1 2028:

- System commissioning and performance testing
- Safety and environmental compliance verification
- Operational procedures finalization
- Customer preparation and service planning

Q2 2028:

- Commercial operations startup
- Initial production and customer deliveries
- Distribution network activation
- Performance monitoring and optimization

Risk Management and Contingency Planning

Schedule Risk Mitigation:

- 10% schedule contingency built into each phase
- Critical path analysis and schedule optimization
- Regular progress monitoring and corrective action
- Alternative supplier and contractor arrangements

Resource Management:

- Dedicated project management team with proven experience
- Qualified contractors and suppliers with relevant expertise
- Adequate financial resources and contingency reserves
- Technical support from technology partners

Quality Assurance:

- Comprehensive quality management system

- Regular inspections and testing throughout construction
- Third-party verification and certification
- Continuous improvement and lessons learned processes

Success Metrics and Monitoring

Phase 1 Success Metrics:

- All regulatory approvals obtained on schedule
- Financing arrangements completed successfully
- Engineering design completed to quality standards
- Project team and management systems established

Phase 2 Success Metrics:

- Construction completed on time and within budget
- Equipment installation and testing successful
- Safety and environmental compliance achieved
- Personnel training and certification completed

Phase 3 Success Metrics:

- Commercial operations achieved on schedule
- Design production capacity and quality specifications met
- Customer satisfaction and service quality targets achieved
- Financial performance targets met or exceeded

Ongoing Performance Monitoring:

- Monthly progress reports and milestone tracking
- Quarterly financial and operational performance reviews
- Regular stakeholder communication and updates
- Continuous improvement and optimization initiatives

The implementation timeline provides a structured approach to project development that balances speed to market with quality execution and risk management. The phased approach allows for systematic progress monitoring and course correction as needed to ensure successful project completion and commercial operations startup.

Appendices

Appendix A: Market Research Data

Tanzania Energy Consumption Statistics:

- Total energy consumption: 12.5 million TOE annually
- Transportation sector: 2.8 million TOE annually (22% of total)
- Industrial sector: 1.8 million TOE annually (14% of total)
- Residential and commercial: 7.9 million TOE annually (64% of total)

Natural Gas Reserve Data:

- Proven reserves: 57.3 trillion cubic feet
- Probable reserves: 43.7 trillion cubic feet
- Possible reserves: 28.9 trillion cubic feet
- Current production: 2.1 billion cubic feet per day
- Domestic consumption: 0.8 billion cubic feet per day

Transportation Fuel Market Data:

- Total market size: $3.0 billion annually
- Diesel consumption: 1.7 million metric tons annually
- Petrol consumption: 0.6 million metric tons annually
- Average diesel price: $1.20 per liter
- Average petrol price: $1.35 per liter

Appendix B: Technical Specifications

LNG Production Facility Specifications:

- Design capacity: 60,000 metric tons per year
- Liquefaction technology: Mixed refrigerant cycle
- Storage capacity: 2,000 cubic meters cryogenic storage
- Product specifications: ISO 16903 compliance
- Operating pressure: Atmospheric to 10 bar
- Operating temperature: -162°C to ambient

CNG Production Facility Specifications:

- Design capacity: 40,000 metric tons per year
- Compression technology: Multi-stage reciprocating
- Storage capacity: 500 cubic meters at 250 bar
- Product specifications: ISO 15403 compliance
- Operating pressure: 1 bar to 250 bar
- Compression ratio: 250:1

Distribution Station Specifications:

- LNG storage: 100 cubic meters per station

- CNG storage: 50 cubic meters at 250 bar per station
- Dispensing capacity: 500 vehicles per day per station
- Safety systems: Gas detection, fire suppression, emergency shutdown
- Environmental controls: Vapor recovery, emissions monitoring

Appendix C: Financial Model Details

Revenue Model Assumptions:

- LNG pricing: $650/MT in Year 1, 3% annual escalation
- CNG pricing: $600/MT in Year 1, 3% annual escalation
- Volume ramp-up: 30% Year 1, 50% Year 2, 70% Year 3, 80% Year 4, 85% Year 5+
- Market penetration: 2% Year 1, 5% Year 3, 10% Year 5, 15% Year 10

Cost Model Assumptions:

- Feedstock cost: $4.50/MMBtu, 2% annual escalation
- Personnel costs: $1.8 million annually at full operations
- Maintenance costs: 4% of revenue annually
- Insurance costs: 2% of revenue annually
- General & administrative: 6% of revenue annually

Capital Investment Breakdown:

- Liquefaction equipment: $8.0 million
- Compression equipment: $2.5 million
- Storage and handling: $1.5 million
- Distribution stations: $2.5 million
- Transportation fleet: $1.0 million
- Development and contingency: $0.5 million

Appendix D: Regulatory Framework

Key Regulatory Authorities:

- Energy and Water Utilities Regulatory Authority (EWURA): Primary regulator for natural gas operations
- National Environment Management Council (NEMC): Environmental impact assessment and monitoring
- Tanzania Petroleum Development Corporation (TPDC): Natural gas supply and coordination
- Business Registrations and Licensing Agency (BRELA): Corporate registration and compliance

Required Licenses and Permits:

- Natural gas distribution license from EWURA
- Environmental impact assessment approval from NEMC
- Construction permits from local authorities
- Import permits for equipment and materials
- Operating permits for each distribution station

Regulatory Compliance Requirements:

- Annual reporting to EWURA on operations and safety
- Environmental monitoring and reporting to NEMC
- Tax compliance with Tanzania Revenue Authority
- Employment law compliance with Ministry of Labour
- Local content reporting and compliance

Appendix E: Environmental and Social Impact

Environmental Impact Assessment Summary:

- Air quality impact: Minimal impact with emissions controls
- Water resources impact: Low water usage with treatment systems
- Noise impact: Controlled through design and operational measures
- Waste management: Comprehensive waste minimization and disposal program
- Biodiversity impact: Minimal impact with mitigation measures

Social Impact Assessment Summary:

- Employment creation: 120 direct jobs, 300+ indirect jobs
- Local content: 40% local procurement target
- Community development: $200,000 annual community investment
- Skills development: Training programs for local workforce
- Economic impact: $50+ million annual economic contribution

Environmental Management Plan:

- Emissions monitoring and control systems
- Water conservation and treatment programs
- Waste minimization and recycling initiatives
- Biodiversity protection and restoration programs
- Environmental training and awareness programs

Appendix F: Technology Partner Information

Sichuan Jinxing Clean Energy Equipment Co., Ltd.:

- Established: 2008
- Headquarters: Chengdu, China
- Specialization: LNG and CNG equipment manufacturing
- Global installations: 200+ facilities worldwide
- Technology certifications: ISO 9001, ASME, CE marking

Technology Transfer Agreement:

- Equipment supply and installation supervision
- Technology transfer and training programs
- Ongoing technical support and maintenance
- Performance guarantees and warranties
- Continuous technology updates and improvements

Appendix G: Risk Assessment Matrix

Risk Categories and Ratings:

High Risk:

- Market development delays (Impact: High, Probability: Medium)
- Feedstock supply disruptions (Impact: High, Probability: Low)
- Major equipment failures (Impact: High, Probability: Low)

Medium Risk:

- Regulatory changes (Impact: Medium, Probability: Medium)
- Currency fluctuations (Impact: Medium, Probability: High)
- Competitive entry (Impact: Medium, Probability: Medium)

Low Risk:

- Environmental compliance issues (Impact: Medium, Probability: Low)
- Technology obsolescence (Impact: High, Probability: Low)
- Political instability (Impact: High, Probability: Low)

Appendix H: Implementation Gantt Chart

Phase 1 - Development (2026):

- Months 1-3: Regulatory submissions and approvals
- Months 4-6: Financing arrangements and closure
- Months 7-9: Detailed engineering and design
- Months 10-12: Procurement planning and contracting

Phase 2 - Construction (2027-2028):

- Months 1-6: Site preparation and infrastructure
- Months 7-12: Equipment installation and construction
- Months 13-18: Testing and pre-commissioning

Phase 3 - Commissioning (2028):

- Months 1-3: System commissioning and testing
- Months 4-6: Commercial operations startup and ramp-up

Appendix I: Financial Projections Summary Tables

10-Year Revenue Projections (USD Millions):

- 2028: $21.6M | 2029: $34.2M | 2030: $45.8M | 2031: $51.2M | 2032: $54.1M
- 2033: $57.3M | 2034: $60.7M | 2035: $64.3M | 2036: $68.1M | 2037: $72.1M

10-Year EBITDA Projections (USD Millions):

- 2028: $5.4M | 2029: $11.7M | 2030: $16.4M | 2031: $18.2M | 2032: $19.5M
- 2033: $20.9M | 2034: $22.4M | 2035: $24.0M | 2036: $25.7M | 2037: $27.5M

10-Year Cash Flow Projections (USD Millions):

- 2028: $4.6M | 2029: $10.9M | 2030: $15.6M | 2031: $17.4M | 2032: $18.7M
- 2033: $20.1M | 2034: $21.6M | 2035: $23.2M | 2036: $24.9M | 2037: $26.7M

Appendix J: Contact Information and Next Steps

Company Contact Information:

- Zhongji New Energy Tanzania Limited
- Address: Masaki, Dar es Salaam, Tanzania
- Phone: +255
- Email:
- Website:

Key Contacts:

- CEO:
- CFO:
- COO:

Next Steps for Interested Investors:

1. Review detailed financial model and due diligence materials
2. Site visit and management presentations
3. Legal and technical due diligence process
4. Investment term sheet negotiation
5. Final investment documentation and closing

Professional Advisors:

- Legal Counsel: Adv. Matola, Tanzania
- Financial Advisor: Standard Bank Tanzania
- Technical Advisor: Sichuan Jinxing Clean Energy Equipment Co., Ltd.
- Environmental Consultant: Energy market Consultants (Engineers Msingi, Magesa & George)

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