Dongo Kundu Green Hydrogen Project

East Africa's flagship sustainable energy initiative by KOACH Energies Ltd

Project Owner & Representative

KOACH Energies Ltd (acting through the SPV **Dongo Kundu Energy**) is spearheading the development of utility-scale **solar**, **green hydrogen**, and **integrated clean-energy systems** for industrial and transport decarbonisation at the Dongo Kundu Special Economic Zone in Mombasa, Kenya.

Project Owner & Company Profile

KOACH Energies Ltd

Headquarters: Woodlands Business Park, Upper Hill, Nairobi, Kenya

Core Business: Development of utility-scale solar, green hydrogen, and integrated clean-energy systems for industrial and transport decarbonisation

Strategic Role: Ownership & investor relations; partner onboarding; governance of the SPV; stakeholder engagement with SEZA, Ministry of Energy & Petroleum, and Kenya Ports Authority

Vision & SPV Relationship

Make Kenya a **regional leader in clean hydrogen** by building bankable, scalable, export-ready projects

KOACH Energies Ltd owns and represents **Dongo Kundu Energy Ltd (DKE)**, the project SPV incorporated in Kenya

The SPV serves as the vehicle for investor participation, project financing, and operational management of the Dongo Kundu Green Hydrogen Project

Our Mission & How We Build

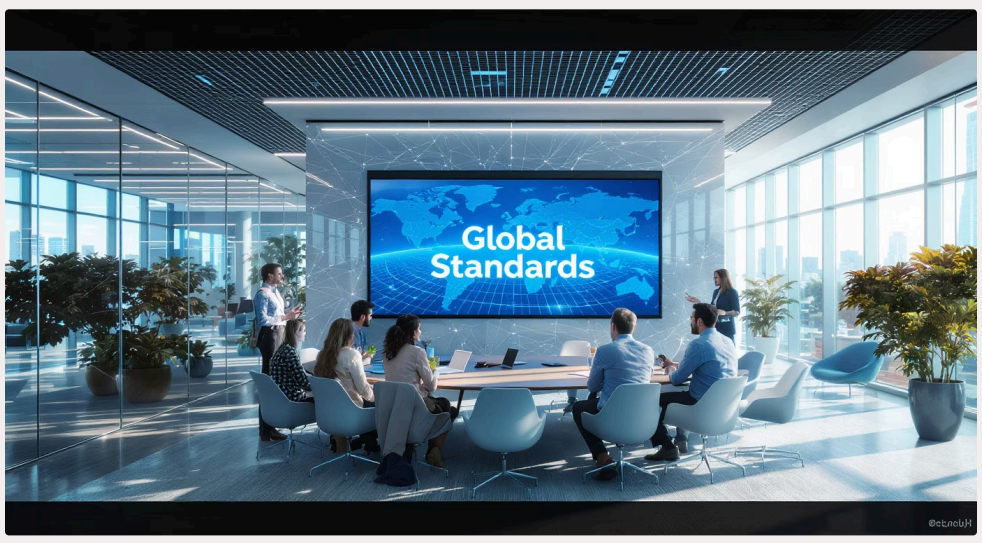
Mission

Deliver **sustainable, affordable, reliable** clean energy for East Africa; strengthen energy security; reduce emissions; generate local economic value

How We Build

Local Impact

- Jobs creation
- Skills transfer
- STEM training
- Community equity



Global Standards

- Bankable engineering
- Transparent governance
- International safety protocols
- Best practice compliance

Sustainability

- Credible emissions reductions
- Long-term operations
- Environmental stewardship
- Circular economy approach

Development Approach

Site Selection

Identification & screening of optimal locations

Permits & Agreements

Permits, EOI, land & interconnection

Operations

O&M and performance optimization

Feasibility

Techno-economic feasibility & bankable design

Construction

EPC & QA/QC protocols

Portfolio & Strategic Fit for Hydrogen

Portfolio Highlights

KOACH specialises in utility-scale solar (e.g., 100 MW class), hydrogen pilots & commercial systems, hybrid solar-storage, and microgrids for remote clients.

Strategic Fit

Dongo Kundu hydrogen is the **flagship hydrogen project** in KOACH's pipeline to decarbonise **ports, steel, logistics**, and support future **export** opportunities.

Capability Stack

1. Project finance structuring
2. EPC partnerships
3. Electrolyzer & storage procurement
4. Operations & maintenance
5. Stakeholder & community engagement

The Dongo Kundu project integrates policy incentives (SEZ), logistics advantages (port/SGR), and targeted offtake opportunities with bankable project finance structures to create a scalable green hydrogen ecosystem.

Dongo Kundu Green Hydrogen Project – Overview

Project Essentials

Location: Dongo Kundu Special Economic Zone (SEZ), Mombasa (Indian Ocean coast)

Start: October 2022

Current Phase: Fundraising → Financial Close

Status: On Track (per July 2024 report)

End-Use Focus

- Industrial hydrogen (steel production)
- Maritime & port ecosystem (shipping, shore-to-ship)
- Grid-support electricity
- Oxygen for medical/industrial markets

Creating East Africa's hydrogen hub at a strategic coastal location with multimodal connectivity

Strategic SEZ Location & Incentives

SEZ Specifications

Size: 1,214 hectares

Planning: Master planning supported by Japan since 2015

Site Resource: GHI ≈ 2,023 kWh/m², DNI ≈ 1,593 kWh/m²

Available Land: 120 ha for ground-mounted PV

Connectivity

- Mombasa Port (international shipping)
- Moi International Airport
- Mombasa Southern Bypass
- Standard Gauge Railway terminus

SEZ Incentives

- Full VAT/excise/import duty exemptions
- 10-year tax holiday; corporate tax 10% (first 10 yrs), 15% (next 10), 30% thereafter
- Perpetual stamp duty exemption; 5% withholding on interest/royalties
- 100% investment deduction over 20 years
- Preferential electricity tariffs for green hydrogen

Technical Setup – Current (12 MW PEM)

Current Configuration

Solar PV

33 MW ground-mounted

Electrolyzer

12 MW PEM (pressurized)

H₂ Storage

5 tons capacity

H₂ Production

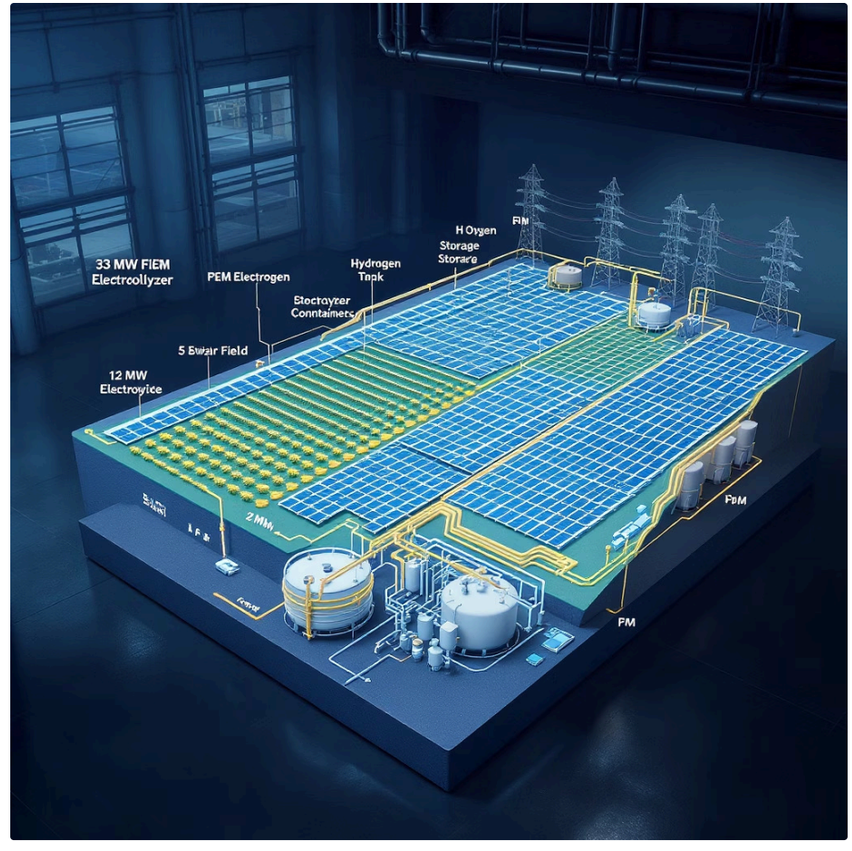
≈ **550 t/year**

Excess Electricity

≈ **15 GWh/year** to KPA or grid

Oxygen Sales

Yes (medical/industrial)



The current technical configuration optimizes for balanced production of hydrogen, oxygen, and excess electricity, creating multiple revenue streams while maintaining operational efficiency.

Alternative Model – 10 MW & Energy Balance

10 MW Reference Case

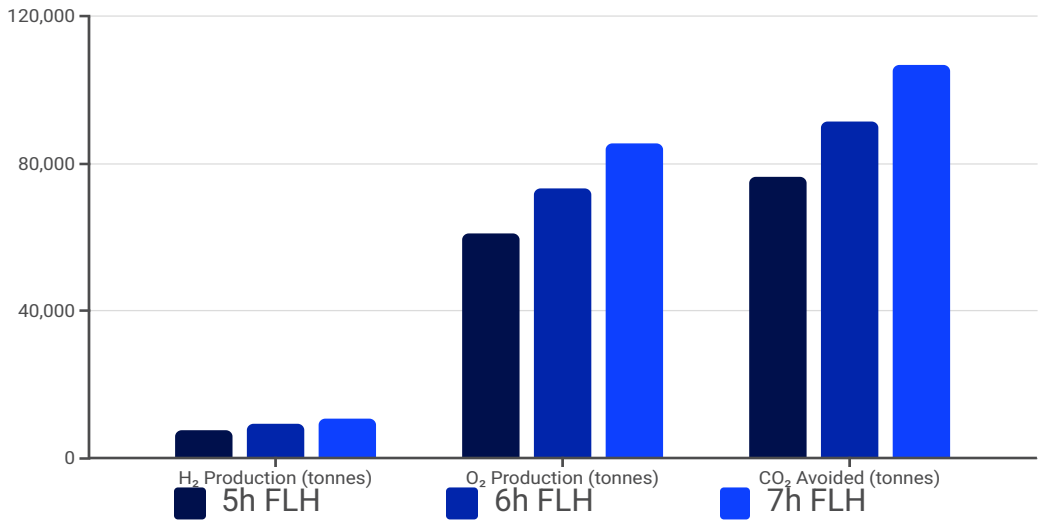
PV installed: 13.82 MWp

Electrolyzer: 10 MW

Annual net electricity generation: 22,570,489 kWh

Electrolysis consumption: 16,385,458 kWh/year

Compression: ≈ 5,344–7,482 MWh over scenarios



Note: Full-load hours (FLH) significantly impact production capacity. The model projects performance over 25 years, accounting for equipment degradation and maintenance requirements. Electricity produced after degradation ranges from 519,609 MWh (5h FLH) to 727,453 MWh (7h FLH).

CAPEX Benchmarks (1 MW vs 10 MW)

1 MW Configuration

Total CAPEX: USD 5.0M

PV+Battery

USD 1.0M

Electrolyzer

USD 2.5M

Compressor

USD 0.135M

H_2 Storage

USD 0.185M

Import Tax

USD 0.18M

Contingencies

USD 1.0M

10 MW Configuration

Total CAPEX: USD 45.0M

PV+Battery

USD 12.0M

Electrolyzer

USD 24.0M

Compressor

USD 1.35M

H_2 Storage

USD 1.85M

Import Tax

USD 1.8M

Contingencies

USD 4.0M

Funding Structure

Both configurations follow a **15% equity / 85% debt** structure per project report, allowing for efficient capital deployment while maintaining appropriate risk allocation.

CAPEX & Cost Structure – 12 MW Case

Financial Structure

Total CAPEX: ≈ USD 48M

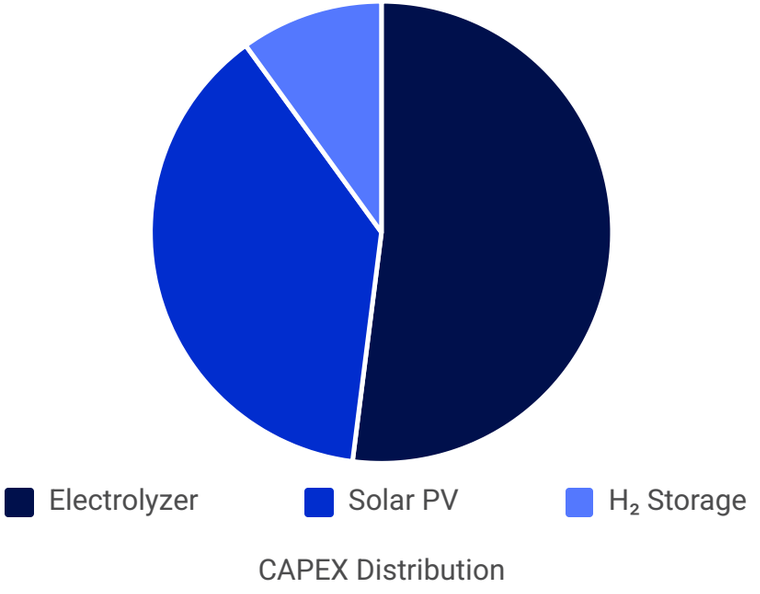
OPEX Year 1: ≈ USD 1.0M

Debt/Equity Ratio: 70/30

Loan Terms: 8.5%, 10 years

Price Assumptions

- H_2: USD 8/kg
- O_2: USD 1/kg
- Electricity: USD 0.08/kWh



CAPEX Distribution

Financial Results (Post-Tax)

15.9%	$9M	5.7yr	1.80
IRR	**NPV**	**Payback**	**DSCR**
Internal Rate of Return	Net Present Value	Simple Payback Period	Average Debt Service Coverage Ratio

Year 1 Income Distribution: USD 9.2M

H_2: 33% | O_2: 53% | Electricity: 14%

CAPEX Comparison Across Scenarios

Scaling Strategy

The USD 48M configuration represents the current official case, offering the optimal balance between initial investment and early operational viability. This approach allows for modular scaling in either direction based on offtake demand and investor appetite.

USD 45M (Kenya Report 10 MW)

- Mid-scale entry configuration
- ~25 MW PV capacity
- Basic hydrogen storage
- 15%/85% equity/debt ratio
- Initial market entry approach

USD 48M (Dossier 12 MW)

- Current official design
- 33 MW PV + 2 MWh battery
- 5 tonnes hydrogen storage
- 70%/30% debt/equity ratio
- IRR ≈ 15.9%

USD 100-120M (Expansion)

- 20+ MW electrolyzer capacity
- Larger PV/wind hybrid system
- Desalination capability
- Port bunkering infrastructure
- Export-ready configuration

Financial Highlights – Expansion (≈ USD 120M)

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Scope Assumption

- **Electrolyzer:** 20-25 MW PEM
- **Solar PV:** ~65-70 MW
- **H_2 Production:** 1,100-1,200 t/yr
- **Electricity Export:** 30-35 GWh
- **Oxygen:** ~2× the 12 MW case

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Year-1 Financials

Revenues: USD ~19-22M

(H_2: 7-8M; O_2: 10-12M; Elec: ~2.5M)

OPEX: USD ~2.5-3.0M

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Returns (Post-Tax)

- **IRR:** ~14-15%
- **NPV:** ~USD 15-20M
- **Payback:** ~7-8 years
- **DSCR:** ~1.5-1.6

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Lifetime Revenue (25 yr)

Total: USD ~500-570M

(H_2: 180-220M; O_2: 250-280M; Elec: 60-70M)

Note: Expansion economics depend on export/offtake agreements, desalination capabilities, and port infrastructure financing arrangements

Approvals & Attestations

What We Have

SPV Incorporation: Dongo Kundu Energy Ltd

Certificate PVT-5JUEJVG2, 15 Feb 2023

Tax Compliance: KRA PIN P052195763J

Tax Compliance Certificate valid to 28 Apr 2024

SEZA Land: Provisional allocation

Ref SEZA/DK-ENERGY LIMITED. VOL 1. (2), 2 Mar 2023

EOI Pre-qualification: DKE pre-qualified in SEZ

KPA Onboarding: SEZA → KPA referral

Ref SEZA/BDS/DK/VOL.3/(2), 17 Oct 2023

Ministry Approval: Captive PV-Hydrogen (Power-to-X)

Ref MOE/7/20, 14 Sep 2023

What's Pending

Grid PPA: Not yet signed

Captive use framework supported by EOI approval; grid sale path under review

O_2 Offtake Contracts: None yet

Major revenue stream requiring dedicated sales strategy