



INVICTUS  
ENERGY LIMITED

# Mukuyu-2 Appraisal Well Program and Phase 2 Exploration Commences

24 February 2023

- **Appraisal program commences with Mukuyu-2 spud targeted for early Q3 2023**
- **Well services and long lead process tendering commenced**
- **Mukuyu-1 post well analysis of pressure data indicates potential for significant gas columns in Pebbly Arkose and Upper Angwa**
- **Industry interest received to partner in project and forward work program**
- **2D seismic acquisition planned to mature multiple leads in proven fairway**

Invictus Energy Limited ("Invictus" or "the Company") is pleased to provide an update on operations at its 80% owned SG 4571 licence in Zimbabwe's Cabora Bassa Basin.

## Comments from Managing Director Scott Macmillan:

*"Preparations for the Mukuyu-2 appraisal well have commenced, with drilling currently targeted to commence in early Q3.*

*"We will take the learnings from the successful Mukuyu-1/ST1 well to optimise the well design for the drilling conditions encountered and the ability to evaluate multiple hydrocarbon bearing intervals.*

*"Post well analysis of Mukuyu-1 indicates potential for significant gas columns in the Pebbly Arkose and Upper Angwa formations, based on significantly elevated pressures in interpreted gas bearing sands above normal hydrostatic gradient.*

*"Preliminary processing of the side wall cores obtained in the Mukuyu-1 well have also provided further encouragement for the Company.*

*"Additional fluorescence observed in the upper Pebbly Arkose reservoir sections has increased the gross interval with hydrocarbon charge throughout the Pebbly Arkose and Upper Angwa to 1,500 metres and substantially expands the play interval in the Cabora Bassa Basin.*

*"Following success at Mukuyu-1/ST1, which confirmed a working hydrocarbon system in the basin, we have received industry interest to participate in the Cabora Bassa Project and the Company is considering a range of options to manage forward exploration, appraisal and development programs.*

## ABOUT INVICTUS ENERGY

Invictus Energy Ltd is an independent oil and gas exploration company focused on high impact energy resources in sub-Saharan Africa. Our asset portfolio consists of a highly prospective 360,000 hectares within the Cabora Bassa Basin in Zimbabwe. SG 4571 and EPOs 1848/49 contain the Mukuyu and multiple Basin Margin prospects.

## BOARD & MANAGEMENT

**John Bentley**  
Non-Executive Chairman

**Joe Mutizwa**  
Non-Executive & Deputy Chairman

**Robin Sutherland**  
Non-Executive Director

**Gabriel Chiappini**  
Non-Executive Director  
& Company Secretary

**Scott Macmillan**  
Managing Director

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*"We are also planning an infill 2D seismic survey in EPO 1848/49 to mature multiple leads into drillable prospects along trend from Mukuyu, and the highly prospective Basin Margin play.*

*"I look forward to spending time on the ground in Zimbabwe early next month with the entire Board as momentum builds towards the drilling of Mukuyu-2.*

*"Success at Mukuyu-2 and confirmation of a significant discovery will further unlock the value of our material portfolio and basin master position in the Cabora Bassa Basin."*

## **Mukuyu-2 appraisal well program commences with spud targeted for early Q3**

Preparations have commenced for the Mukuyu appraisal program, with the first well, Mukuyu-2, targeted to spud early Q3 CY2023.

Mukuyu-2 will target multiple hydrocarbon (gas-condensate and potentially light oil) bearing intervals encountered in the Mukuyu-1/ST1 well in the Upper Angwa and Pebbly Arkose formations, as detailed in the [ASX release](#) on 23 January, with the aim of confirming a gas-condensate discovery.

The well design for Mukuyu-2 will incorporate valuable experience gained from the drilling of the successful Mukuyu-1/ST1 exploration well to improve drilling efficiency and lowering operational risks.

The appraisal well will also be designed to test the deeper potential in the remaining Upper Angwa formation, which was not encountered in the Mukuyu-1/ST1 campaign due to it being thicker than pre-drill estimates.

The Mukuyu-1/ST1 well encountered gas pay to total depth, interpreted from wireline logs and fluorescence in multiple reservoirs throughout the 900-metre interval penetrated.

This additional prospectivity in the Upper Angwa and the undrilled Lower Angwa target provides further up-side potential at Mukuyu-2.

The Mukuyu-2 well design will allow for flow testing to confirm reservoir deliverability and connectivity following a successful discovery.

The tendering process has commenced for minor additional long leads and well services and the completion of this process will help further refine the timing of the spud date for Mukuyu-2.

Exalo Rig 202 remains warm stacked at the Mukuyu-1 wellsite, with planned upgrades and maintenance to commence in April following the end of the wet season and prior to mobilisation to the Mukuyu-2 wellsite.

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All permitting and approvals are in place for the drilling of Mukuyu-2 and the wellpad construction will commence following the finalisation of well location and construction design.

On the back of positive results from Mukuyu-1/ST1, the Company has received interest from industry partners to participate in the Cabora Bassa Project. The Company is considering farming down an interest across the project area or on an individual licence basis to manage forward exploration and appraisal work and future development programs.

## Mukuyu-1 sidewall core analysis in progress

Analysis of the sidewall cores obtained from Mukuyu-1 is in progress, with both reservoir (on suitable unfractured plugs) and source rock samples at various stages of evaluation.

Initial processing at the lab has shown strong fluorescence in side wall cores obtained from approximately 2,407m Measured Depth in the upper Pebbly Arkose reservoir sections (example shown in Figure 1).

This subsequently increased the gross interval of observed fluorescence and hydrocarbon charge in the Pebbly Arkose and Upper Angwa to 1,500m and substantially expands the play interval in the Cabora Bassa Basin.

Fluorescence was not previously identified in the drill cuttings across the upper Pebbly Arkose interval, most likely due to the drilling fluid losses incurred across this zone and remedial action required to stabilise the fluid loss. Mud gas readings were not available for this interval due to a non-functioning gas chromatograph during drilling.

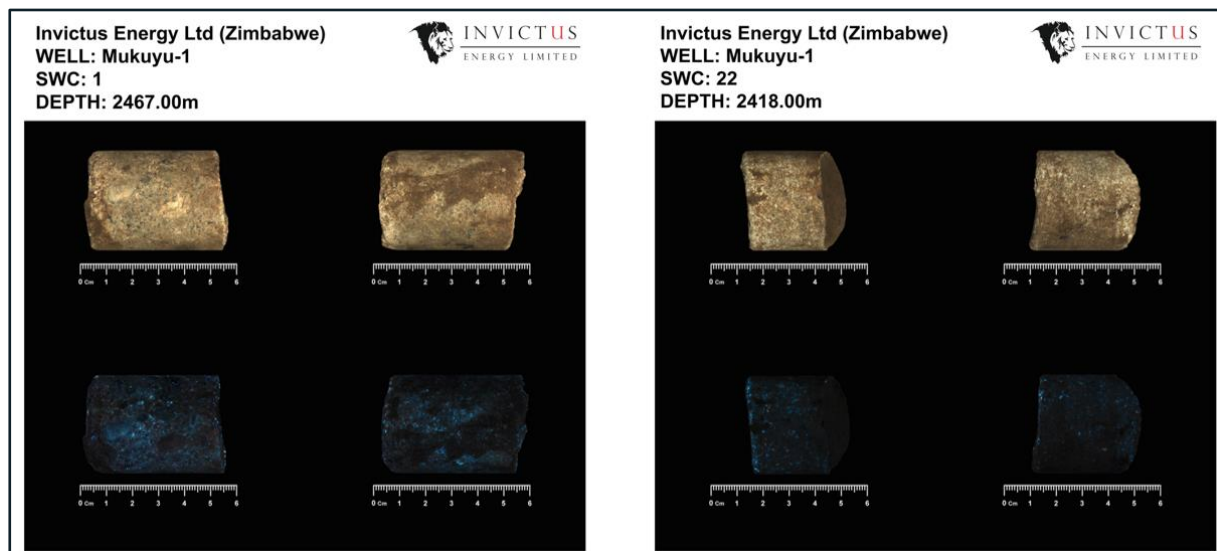


Figure 1 - Mukuyu-1 Side Wall Cores from upper Pebbly Arkose showing strong fluorescence under ultraviolet light.

The sidewall core results will allow for better calibration of the wireline log data to refine the log interpretation and net pay zones. Following the completion of routine core analysis (RCA), further special core analysis (SCAL) will be undertaken on select plugs to determine saturation data and electrical rock properties.

Results from geochemical analysis of the source rock side wall cores and cuttings will enable further calibration of the basin model and hydrocarbon generation and migration history, which will enable the Company to better determine the likely liquid hydrocarbon migration and entrapment locations across its wider exploration acreage.

### Post Mukuyu-1/ST1 Well Analysis

Post well analysis has determined the presence of significant filter cake build-up on the wellbore, as evidenced from recovered side wall cores (Figure 2) which impeded the ability to acquire formation pressure pre-tests to confirm hydrocarbon gradients and the ability to obtain fluid samples in reservoir zones interpreted to contain hydrocarbons based on wireline data.

However, some valid formation pressure pre-tests obtained in the upper Pebbly Arkose and Upper Angwa reservoirs were considerably above hydrostatic pressure and potentially indicate a significant gas column (assuming a normally pressure aquifer) in these formations.

Further analysis is being undertaken to assess the impact to the reservoir from the high mud weight and drilling fluid composition. This analysis will determine whether any changes to the drilling mud design and drilling fluid composition is required for future wells.



Figure 2 – Example of filter cake recovered from side wall cores



The presence of gas in Mukuyu-1 interpreted from wireline logs and elevated gas shows, along with liquid hydrocarbons evidenced from strong fluorescence and visual inspection of source rock side wall cores from multiple intervals, has validated the Company’s pre-drill basin modelling of the presence of organic rich source and multiple phases of oil and gas generation and hydrocarbon charged reservoirs at multiple horizons.

**2D seismic acquisition planned to mature eastern leads to drillable prospects**

The Company plans to acquire additional seismic in the eastern portion of EPO 1848 & 1849 to mature multiple leads (Mopane, Musuma, Machabel and Mahogany) along the proven play on trend to the east of Mukuyu and additional leads along the highly prospective Basin Margin play (Mimosa and Mukwa), as per Figure 3.

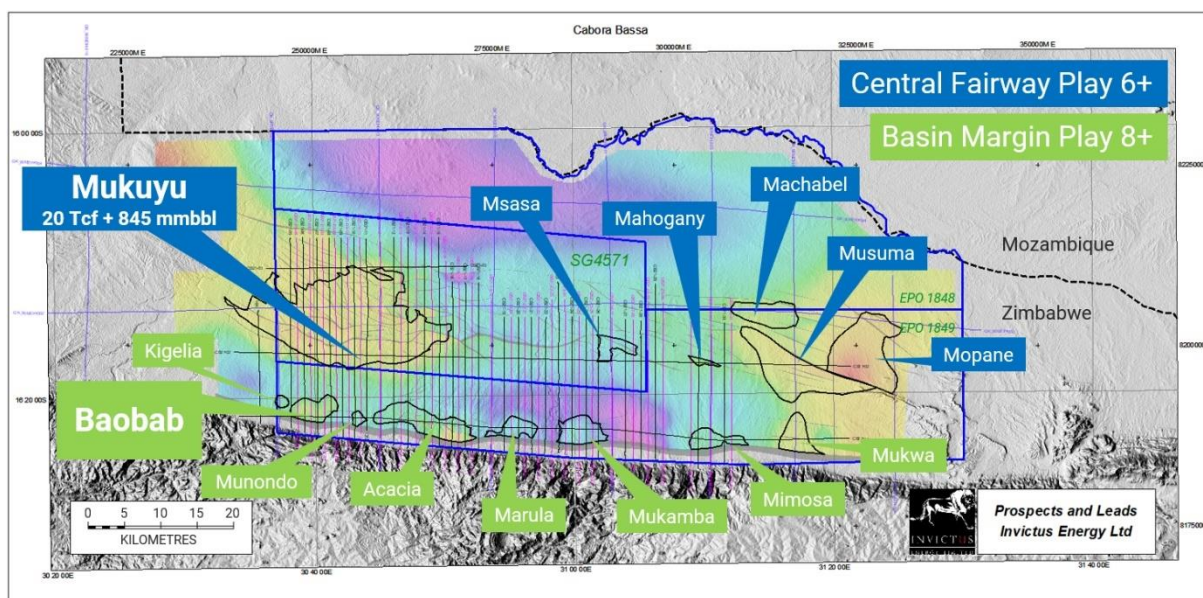


Figure 3 - Cabora Bassa Basin Prospect & Lead Map

The leads all display seismic amplitude anomalies such as “flat spots” (often indicative of hydrocarbon contacts) and velocity interval slowdowns (Figure 4), which correlate with the hydrocarbon bearing intervals intersected in the Mukuyu-1/ST1 well.

The acquisition of modern 2D seismic will likely allow the Company to mature a number of these leads, previously identified on reprocessed vintage seismic data, to drillable prospects, providing additional running room and adding materially to the portfolio.

Seismic survey design and planning is well advanced and acquisition is anticipated to commence in Q2 2023, incorporating the Company’s experience from the successful CB21 Seismic Survey acquisition.

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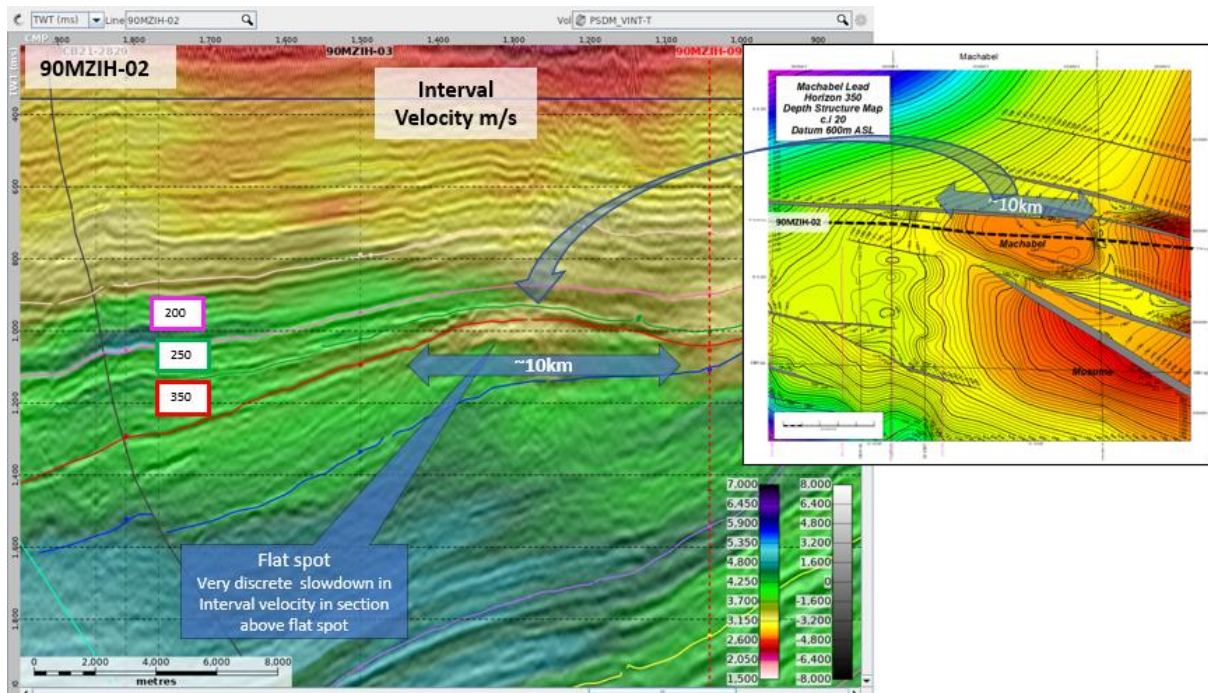


Figure 4 - Machabel Lead Example: flat spot & interval velocity slowdown showing conformance to structure.

## Invictus Board country visit in early March

The Invictus Board, including newly appointed Non-Executive Chairman John Bentley and Non-Executive Director Robin Sutherland, will undertake a country visit to Zimbabwe in early March.

The Board and leadership team will meet with Zimbabwe Government officials and local stakeholders for the Cabora Bassa Project to progress key items including the Production Sharing Agreement.

The team will also conduct a site visit to the Ngamo-Gwayi-Sikumi (NGS) REDD+ project in conjunction with the Forestry Commission for engagements with local stakeholders and official launch of the project.

## Questions and enquiries

### Investors

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### About Invictus Energy Ltd (ASX: IVZ)

*Invictus Energy Ltd is an independent upstream oil and gas company listed on the Australian Securities Exchange (ASX: IVZ). The Company is headquartered in Perth, Australia and has offices in Harare, Zimbabwe. Invictus is opening one of the last untested large frontier rift basins in onshore Africa – the Cabora Bassa Basin – in northern Zimbabwe through a high impact exploration programme.*

*Invictus Energy is committed to operating in a safe, ethical and responsible manner, respecting the environment, our staff, contractors and the communities in which we work.*

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