

Mongolia

# Heron Field Early Production

Low-cost Appraisal/Development  
High impact Exploration Upside

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# Petro Matad Board of Directors



## **Chief Executive Officer: Mike Buck**

- 40 + years of international E&P experience including 9 years as COO of Salamander Energy
- Proven track record of exploration success in S. America, N. Africa and Asia. Directly involved in the discovery of more than one billion barrels of recoverable reserves
- Managed major development projects in Libya, Pakistan and Iran



## **Non-Executive Chair-person: Enkhmaa Davaanyam**

- 20 + years of energy, mining and infrastructure project management
- CEO of Petrovis Group, Mongolia's largest fuel importation and distribution company



## **Non-Executive Director: Shinezaya Batbold**

- Chair-person of Petrovis Board of Directors
- Currently holds a number of board and chair positions in diversified business sectors in Mongolia



## **Non-Executive Director: Tim Bushell**

- 35 + years of international E&P experience including 10 years as CEO of Falklands Oil and Gas Ltd
- Directly involved in the discovery of more than 700 million barrels of recoverable reserves in S Atlantic and Norway

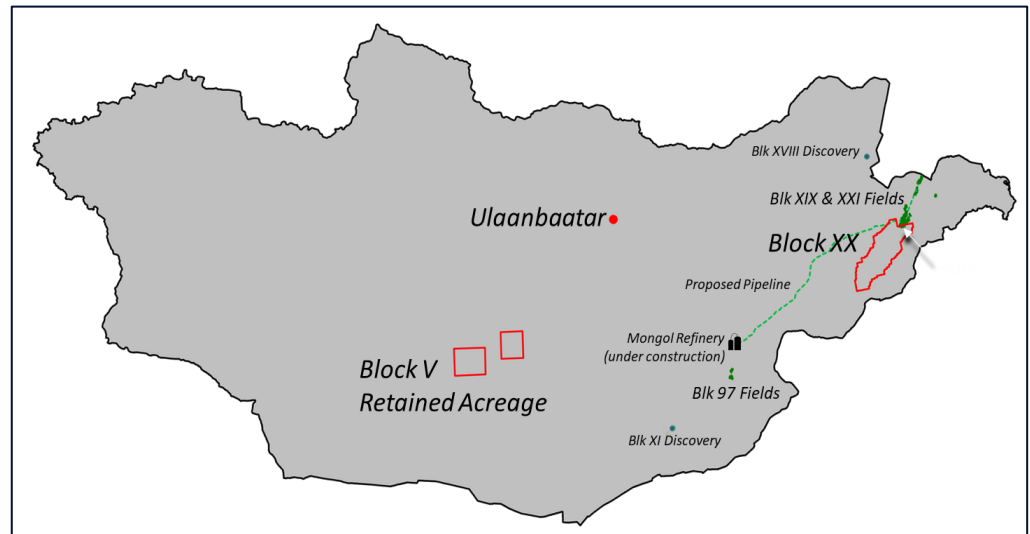
# Mongolia's Leading Oil Company

## Petro Matad

- AIM Listed (MATD) Mongolia focused oil company with experienced Board and Management Team
- 100% working interest and operatorship of two PSCs with the Government of Mongolia
- Successful drilling campaign in 2019 in Block XX eastern Mongolia including Heron 1 oil discovery
- Sector-friendly jurisdiction with Government committed to developing domestic oil industry
- Responsible approach to operations, proactively managing all environmental and social risks and working in partnership with local stakeholders to support licence to operate

## Assets

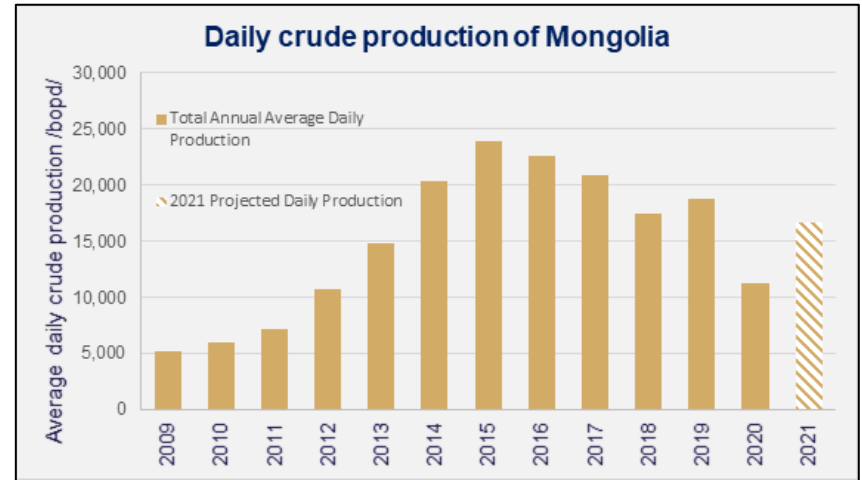
- **Block XX:** Development, appraisal, exploration. Adjacent to Mongolia's main oil producing area. Heron field, Gazelle discovery and near field high impact exploration upside
- **Block V:** Discretionary exploration with large resource potential, very high impact, low cost



# Mongolia Oil Industry

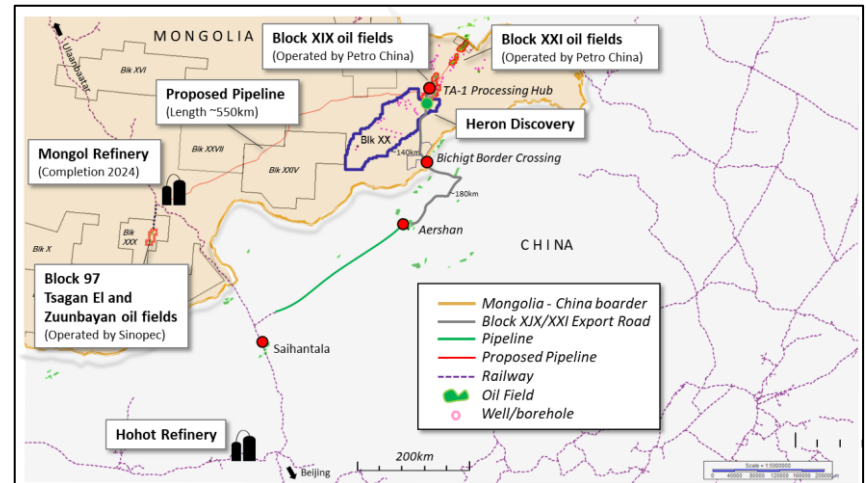
## Government fully supportive of domestic oil industry

- Mongolia's daily crude production (2019): 18,840, (2020) 11,250 bopd - operations impacted by COVID-19 pandemic
- Petro China operates 95% of country's production which is trucked to Chinese refineries
- Mongolia's refined product need is ~42,000 bopd
- Government 4-year plan 2020-2024 highlights the need to increase investment in upstream oil sector



## New Mongolian refinery under construction using \$1bn+ soft loan from India

- Infrastructure (rail, road, power) complete
- EPC contract awarded
- Designed for 30,000 bopd feedstock. Heron production will help meet this demand
- Refinery scheduled on stream 2024
- Pipeline from Block XIX to refinery at pre-planning stage with Ministry







# Heron Field Development



# Heron Field Overview

## Working interests and operatorship

- Heron field located in Block XX
- Petro Matad holds 100% working interest and is the operator of Block XX
- Memorandum of Understanding (MOU) for cooperation signed with Petro China, operator of Block XIX

## Successful oil discovery

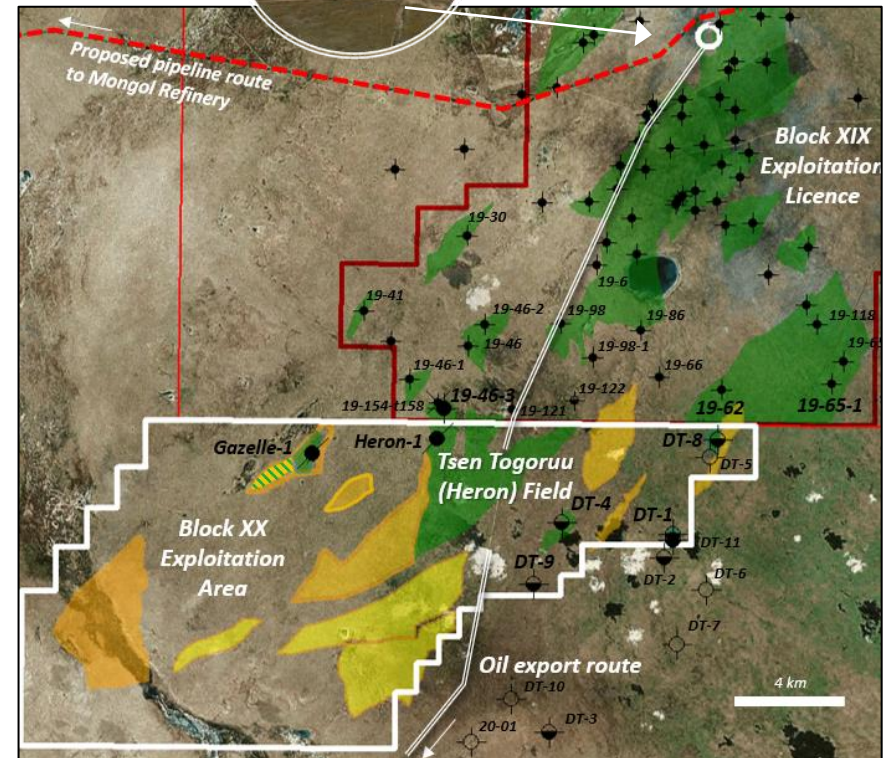
- Heron 1 discovery made in 2019 drilling campaign
- Heron 1 flowed 821 bopd 44° API to surface
- 3rd best exploration well test rate<sup>1</sup> reported in Mongolia

## Transformational for the company

- First oil forecast in 2022 using adjacent infrastructure
- 194 MMbo<sup>2</sup> resource in place, 33 MMbo<sup>3</sup> to >60 MMbo<sup>3</sup> recoverable
- Low-cost appraisal/development



Petro China processing and export facilities



1. Based on data reported at Oil and Oil Shale conference Mongolia 2014.

2. LEAP Energy Competent Persons' Report.

3. Company estimates

# Heron Field Near-Term Work Programme

## Phase 1 development planned for 2022

- Plan to deploy proven production stimulation technology that has not yet been used in Mongolia
- Production revenue contributes to follow on development cost
- Development can accelerate if a partner is brought in

## Production estimates

- Targeting >30% recovery factor, well rates of 500+bopd
- Initial production target of 1,000 bopd from 3 wells
- Peak production from Heron c.9,000 bopd

## Time to production

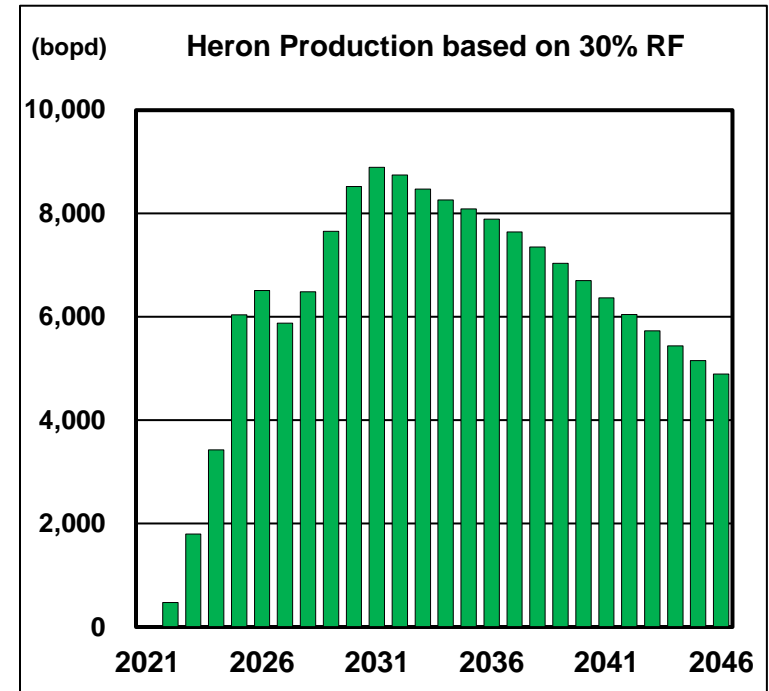
- Heron 1 first oil targeted by mid-2022
- Two new Heron wells drilled by Q4 2022

## Cost of production

- Development well cost \$2.5 MM or less

## Recovery factor

- Targeting at least 30% recovery factor: c.60 MMbo





# Heron Development: Production Enhancement

## Limited Reservoir Stimulation in Mongolia to date

- Petro China uses rudimentary frack, partial water flood
- Well rates variable from 10s to >600 bopd. Recovery Factor 15%

## Heron 1 Reservoir Modelling Results

- Sector modelling by industry specialist identified well stimulation using properly designed fracks and through managed water injection could improve recovery factor to 40%

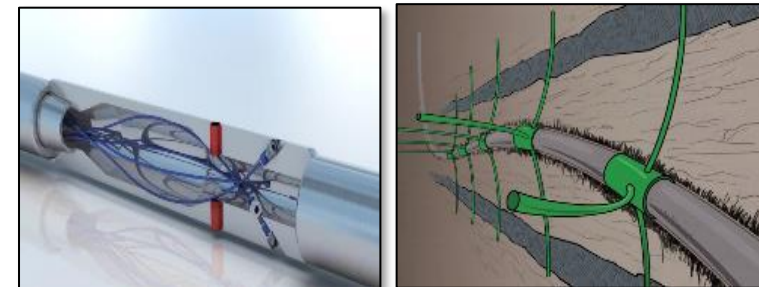
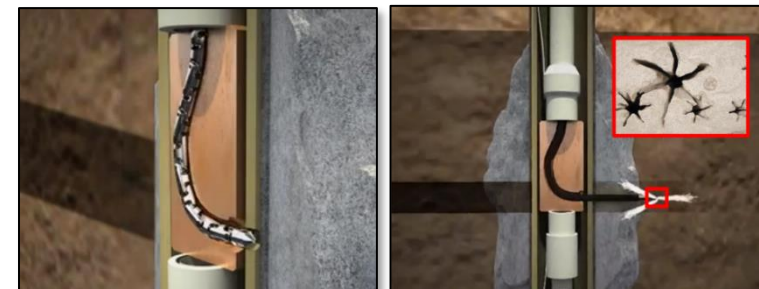
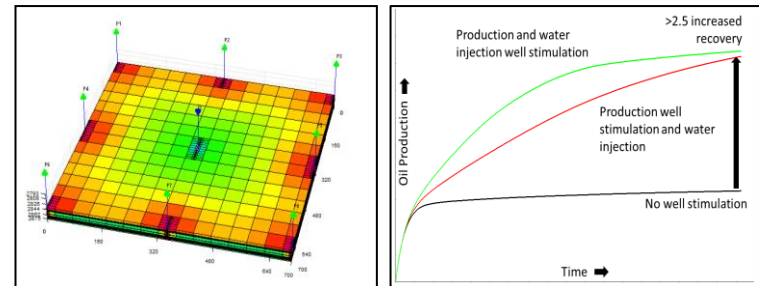
## Cost Effective Production Enhancement Radial Drilling

- 4x100m long 2" diameter horizontal laterals drilled through casing increase reservoir contact and well drainage area
- Cost effective: \$175k per well including share of mob/demob
- Global deployment in lower permeability reservoirs can improve flow rates by up to 1000% and ultimate well recoveries by 20-30%

## Fishbone Completions

- Jetted or drilled 12m long needles across the entire reservoir replaces conventional completions
- Improvements in flow rate up to 300%
- Developed for low permeability North Sea chalk, now deploying globally with recent trials in China
- Initial modelling indicates suitability for Heron reservoir

**Targeting >30% recovery factor, well rates of 500+bopd<sup>1</sup>**



# Heron Field Production and Value Drivers

## Phase 1 Development

- Early/immediate production and export will use spare capacity Petro China facilities only 17km from Heron 1
- MOU signed confirming cooperation, commercial details under discussion
- Export to Mongol Refinery via new pipeline if built or trucking/rail if not

## Full field development planned 2023 onwards

- Waterflood plus radial drilling, slant/horizontal wells, fishbone completions, hydraulic fracking

## Main value drivers

### Production

Specifically, well rates and overall recovery per producing well. 20% increase in well productivity = 35% increase in NPV

### Oil price

\$10/bbl increase = 40% increase in NPV



Exploration Upside



# Block XX Exploration & Appraisal

## Low-cost exploration upside

- Gazelle discovery adjacent to Heron Field
- Total resource potential 500 MMbo in place. 100 to 200 MMbo recoverable<sup>1</sup>
- Proven reservoir sections mappable up-dip towards southern basin margin

## 218km<sup>2</sup> exploitation area

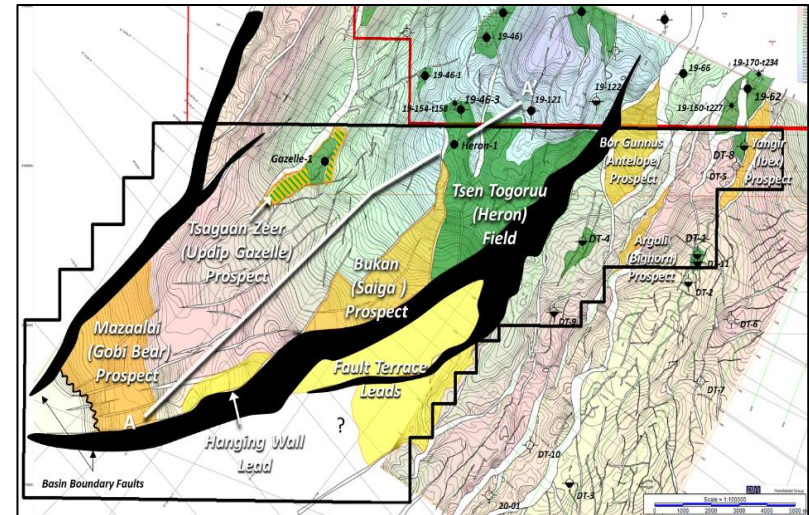
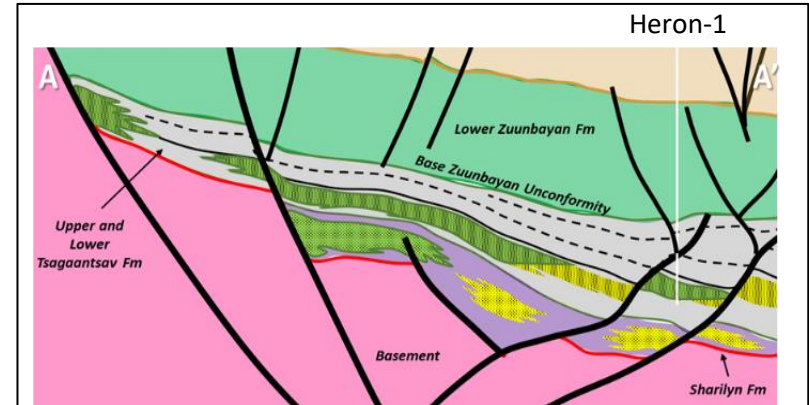
- Entire extension of Tosun Uul sub-basin into Block XX
- Source kitchen for c.2 Bbo in place in Blocks XIX and XXI
- Favourable geometry for charge and trapping

## Prospectivity

- Gazelle up-dip and DT-4 discoveries offer appraisal opportunities
- 19-46-1, 19-122 and 19-62 discoveries may also extend into Block XX
- Southern prospects are shallow (c. 1000m to 1500m)
- Drillable with small rigs available in Block XIX or with modified mineral rig

## Well cost

- Target well cost \$1 MM



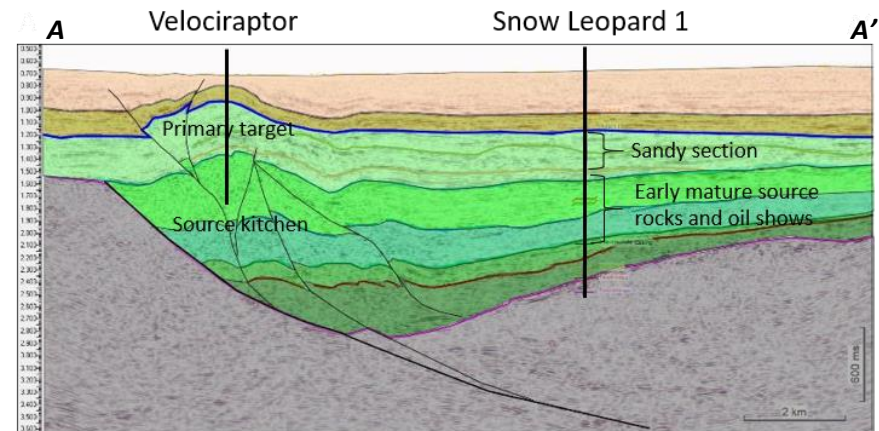
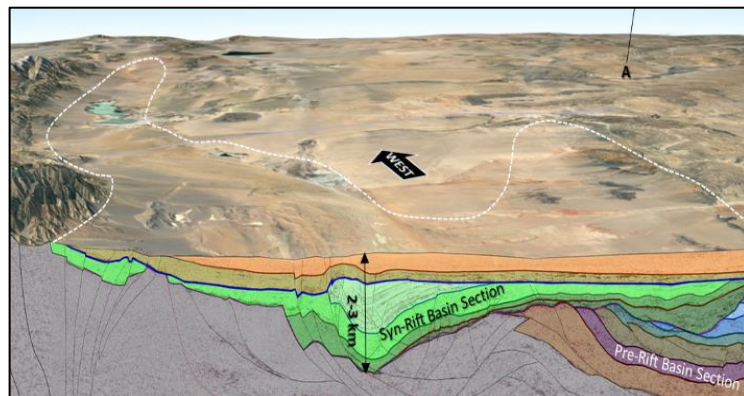
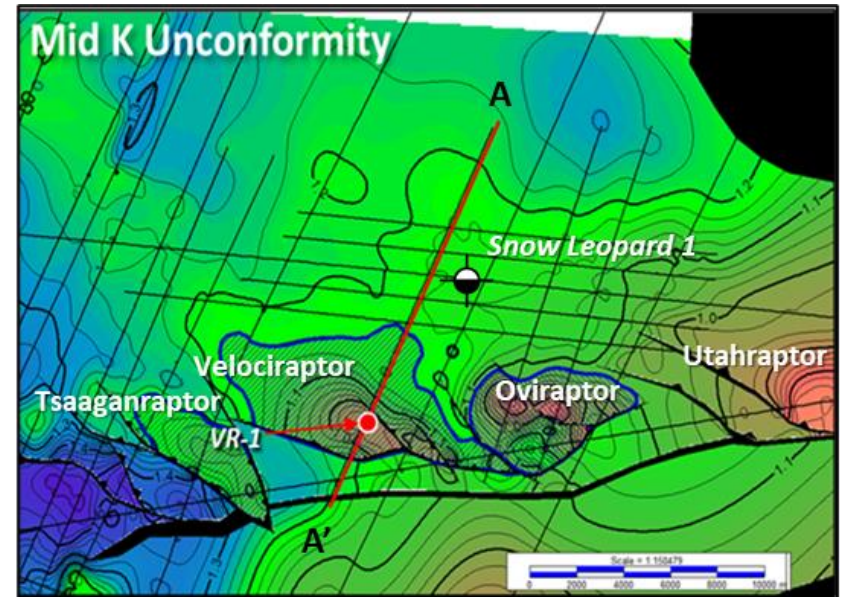
# Block V – Raptor Trend

## Active petroleum system

- Snow Leopard 1 proved an active petroleum system
- 4 large prospects defined c. 7km south

## Low-cost, very high impact exploration

- Velociraptor drill ready. 200 MMbo recoverable resource with 400 MMbo potential in satellite structures
- Total depth <1800m, drillable with small or truck mounted rig. Well cost c.\$2 MM
- Oil shows, reservoir and source rocks found in Snow Leopard 1 highlight attractive geology of Taats Basin improving chance of success at Velociraptor
- 200+ MMbo follow up at Oviraptor, Tsaaganraptor



# Summary

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**Mongolia's leading exploration company, with operator status**

**First mover potential to develop an industry to create transformational returns for all stakeholders**

**Proven discovery at Heron with near term production in 2022 and nearby infrastructure**

**Significant and low-cost exploration upside**

**Strong stakeholder relationships, including a government committed to developing the industry and building a domestic oil refinery**

**Responsible operator committed to proactively managing its ESG risks, recently received "Leading Explorer" award from the Mongolian government**





# Appendix

# Leap Energy CPR

- Petro Matad commissioned Leap Energy to perform a Competent Persons Report on the Heron and Gazelle discovered accumulations and remaining prospectivity in the northern Block XX. in February 2020.
- Completed in February 2020, the reported oil-in-place (STOIIP) and resources are below in millions of barrels of oil.

## HERON ACCUMULATION

Case	LOW	BEST	HIGH	Mean	Sum Mean
Heron Discovery STOIIP	8.2	18.6	42.2	22.2	
Heron Updip STOIIP	19.7	130.9	359.2	171.3	<b>193.5</b>
Heron Discovery Contingent Resource	1.0	3.2	19.0	3.8	
Heron Updip Prospective Resources	2.4	22.3	161.6	29.1	<b>32.9</b>

## GAZELLE ACCUMULATION

Case	LOW	BEST	HIGH	Mean
Gazelle Discovery STOIIP	21.3	39.8	74.3	42.3
Gazelle Discovery Contingent Resources	2.6	6.8	33.5	7.2

## PROSPECTS

Case	LOW	BEST	HIGH
Heron SW (Siaga) STOIIP*	40.0	52.4	68.0
Gazelle Strat (Gobi Bear) STOIIP*	173.0	226.4	298.0

*\*Only STOIIP reported*