

## Georgia Oil and Gas Limited Projects and Work Program





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### 7 Principals learned from doing Exploration of last 30 Years in Georgia



- ✓ "You should bake your bread slowly, do not make quick decisions and choose your best guess model from tens of models, and then make State to participate in financing of projects" – (R. Tevzadze)
- ✓ "You should make people to believe in dreams and for this you should show them analog production plays not far away, and they should be happy with country to invest" (D. Robson)
- ✓ Your team and Partners should adjust to following principles:
  "The last shall be the first and the first last", "Keep knocking and the door will be opened to you" The Gospel of Mathew
- ✓ "Every time you are working on the success of a project it should become better and better and if not just leave it" –
  A. Yukler
- $\checkmark$  "Never do operations below threshold and try to use best people and technologies" C. Wilson
- ✓ "For initial exploration well, the best is to drill with own rig to go through unexpected challenges" Past experience of Georgian exploration.
- ✓ "Combine Hydrocarbon exploration with geothermal and CO₂ Injection projects, for energy transition" Future of Hydrocarbon Exploration



- GOGL is a company with over 25-year experience in Oil and Gas exploration, holding 12 hydrocarbon exploration licenses in Georgia over an area of 13,500 km<sup>2</sup> and having invested up to US\$ 60m.
- GOGL's main interests are to explore for hydrocarbons (mainly Gas), run development programs, develop Geothermal and Carbon Capture and Storage projects around Samgori Middle Eocene Reservoir Fields, which at its peak production reached 70,000 bopd and produced about 200 MMbbl of Oil.
- Since 2017, through support of the **State Oil and Gas Agency (SAOG)** and the **Georgian Oil and Gas Corporation (GOGC)**, GOGL has been implementing a geological data consolidation project.
  - It combines data from development and exploration programs conducted in near Tbilisi region over the past 25 years, with a total cost of up to US\$ 500m (including seismic, gravimetry, drilling, etc. data in various licensed areas).

#### Summary



- As a result of 5 years study:
- For Deep Multi-target Exploration Projects
  - up to 20 exploration plays/leads were identified in North, South, East and West area of Samgori Fields, with
    3-5 times bigger resource potential (only for Middle Eocene).
  - Preliminary probabilistic resources (PR) and Expected Monetary Value (EMV) calculations sum up accordingly:
  - (PR) 1.35 bln BOE
  - US\$ 1.25 bln for EMV.
  - Norio Deep ME Lead has been categorized as first priority exploration play, near prospect (ready for drilling).

#### Summary



- For Shallow exploration and sidetrack Projects
  - Several contingent/step out resource prospects are identified for Middle, Upper Eocene and Miocene formation.
  - Accordingly number of wells were identified for sidetrack drilling program.
- For Green Projects

Database was prepared for:

- Patardzeuli and South Dome waterized field CO<sub>2</sub> injection and Enhanced Oil Recovery project.
- Samgori Domes and West Georgia Geothermal Project.

Successful development of above mentioned projects can satisfy Georgia's demand for Hydrocarbons for the next 25 years and support development of Green Energy Projects.

#### Georgia's Hydrocarbon Industry transition to Green Energy









# **Company Overview**

#### Georgia Hydrocarbon License Map and GOGL's Acreages





#### Structural Maps and Production History for main Multi-Target Exploration Plays







MMcf/day

1 750

1 500

1 2 5 0

1 0 0 0

750

500

250

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2050

#### Successful development of above mentioned projects can satisfy Georgia's demand for Hydrocarbons for next 25 years.



2022

2025 2023 2048

Solutions for success are:

- to combine State and private sector efforts for exploration work programs and attracting interest of industry majors (5,000-6,000 m deep exploration) for Samgori Lookalike projects
- Hydrocarbon exploration projects like Norio Deep ME can generate enough funds for developing Green **Energy Projects and help Georgia's energy transition**

••••• South Samgori (MMCF/d) Gas

**Forecasted Gas Cons.** 

(3.5% annual growth)

- 600 MMcf/Day

**Geothermal Energy** 

2049

North Samgori (MMCF/d) Gas

**Forecasted Oil Product** 

Cons. (3.5% annual





- GOGL founders (GBOC and NOC) were drilling services provider for tens of wells throughout East Georgia and was reinvested money from services in project like Norio, Manavi (noncommercial discovery), Ninotsminda, Samgori and etc. for last 25 Years.
- **GBOC** production project in Ninotsminda Middle Eocene (analogy of GOGL's Norio Deep Exploration projects) was only commercial project with applying **directional drilling technology.**

**GBOC** has drilled 3 deep (down to 4,500-5,000m) exploration wells in Norio and Manavi using its own drilling rig, what allowed company to keep low total capital cost (up to US\$ 20m. for all 3 wells).

 GOGL in 2021 has farmed out to State Oil Company (Georgia Oil and Gas Corporation - GOGC) 22% of contractual rights in North Samgori licenses (XI<sup>M</sup>, XI<sup>N</sup>, XI<sup>K</sup>, XI<sup>Q</sup> and XI<sup>C</sup>). GOGC is willing to invest US\$ 6.5m in first exploration well drilling (US\$ 35m).

#### Since 2017 GOGL has been collaborating with leading Industry Contractors to interpret Historical Geological Data



- GEPlan Consulting Petroleum Geosciences (Italy)
  - Interpretation of seismic, MT and gravimetric material
  - Count resources, design a static model of the reservoir
- I. Javakhishvili University Institute of Geophysics (Georgia)
  - Project supervision
- University of Leoben (Austria) (Participating Company ExonMobil
  - Geochemical analysis of oil, gas and rock samples
- GK Processing (Poland)
  - Combined processing of seismic lines
- GeoPartner (Poland)
  - Magnetotellurics, data processing and interpretation
- Complete MT Solutions (Canada)
  - Processing and analysis of MT data
- Getech (UK)

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- Regional Gravimetry, Magnetic Survey, Satellite Map, In-Depth Map of Basement
- EPI Group (UK) (Quality Control *P* OMV Petrom
  - 2D and 3D seismic material processing and interpretation, reservoir engineering, well
- PanTerra Geoconsultants B.V. (Netherlands)
  - Consulting on geothermal projects
- Georgian Technical University, Georgian Geothermal Association
  - Consulting on geothermal projects
- 🔗 OMV Petrom and ط REPSOL
  - Field work for reservoir, structural interpretations and prospect valuation.



### Using Modern Technologies for improving Quality of historicaly available Data









NB: Maps are not displayed at the same scale

#### Best guess model of Norio lead (May 2022, Pace Geoscience)



1617



# Prospective Middle Eocene Leads and Plays in Near Tbilisi Area – about 3-5 times the size of Samgori Fields





#### Near-Tbilisi Area Middle Eocene reservoir type of plays and operational challenges



- North and East Samgori area has Environmental and Terrain challenges for operations.
  - Negotiations are ongoing with state regulatory bodies.
- South Samgori and Kartli areas are more friendly for oil and gas operation as well as for green energy projects.





#### **Input Parameters for Economic Calculations**





#### HC Resources and their Expected Monetary Values of Near Tbilisi Area Projects













### **GOGL Planned Work programs and budgets**

- Deep plays and leads (~4500-6000 m)
- Shallow plays and leads (~2000-3500 m)



Work Program assumes drilling 3 wells and acquiring 3D seismic for each of 4 deep structures.



- 2022 Conduct 2D seismic 150 km on
  North and 400 km on South Samgori and US\$26mil.
  acquire drilling rig;
- 2023 Drill one new exploration well in Norio, sidetrack well NOR72 and conduct 400 km<sup>2</sup> 3D Seismic on South Samgori;

US\$57mil.

 2024 – Conduct 400 km<sup>2</sup> 3D Seismic on North Samgori, drill Didi Lilo well and 1 well in Nakarala and 1 well in Vashliani;

US\$ 100mil.

- 2025 Drill 2 wells in North and 2 wells in South Samgori;
- 2026 Drill 2 wells in North and 2 wells in South Samgori.

US\$ 90mil.

US\$ 100mil.

#### Total - US\$ 373 mil.

### Forecasted Productions according to WP (Deep)











#### Increase of Geological Chance of Success (GCoS) and EMV values and expected production at the end of work program. Deep.







Vashliani ME Nakarala ME Norio ME Didi Lilo ME

- From 2022-26 total work program assumed budget is US\$372 Mil for 4 Deep projects.
- By 2027 this program is capable of reaching US\$ 3.3 Bil. in Expected Monetary Value and around 21,000 bbl Oil and 112 MMcf Gas daily production.





US\$ 3 mil

**US\$ 24 mil** 

#### WP assumes drilling 3 wells and acquiring 3D seismic for each 4 Shallow structure and sidetrack program



- 2022 Conduct 2D seismic 100 km on Kartli and 50km in South Rustavi area;
- 2023 Drill 2 exploration well in Kartli Area and 1 well in South Rustavi, acquire 50 km 2D Seismic in Mtskheta and record 2D or 3D Seismic for sidetrack project.
- 2024 Acquire 3D Seismic on Kartli and South
  Rustavi area, Drill 1 well in Mtskheta and Sidetrack 4
  wells.
- 2025 Drill 6 wells on Kartli Area, 2 wells in South Rustavi and sidetrack <u>6 wells.</u>

US\$ 57mil

**US\$ 20 mil** 

Total in US\$ US\$ 104 mil



### Forecasted Productions according to WP (Shallow)





Shallow Unrisked Resources (P90)







■ Oil (MMBBL) ■ Gas (BCF)

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# Increase of Geological Chance of Success (GCoS) and EMV values and expected production at the end of work program for shallow plays.





MOU Partners and Service Companies for Sidetrack and Shallow Exp. Drilling Program





Negotiations are ongoing on Near Tbilisi Area licenses





### Geothermal Energy and CO<sub>2</sub> Injection Potential

Near Tbilisi Area Middle Eocene Prospects: Geothermal Heat Energy – up to 350 MW and CO<sub>2</sub> injection capacity up to 20 BCM of burned natural Gas





# State CF from HC Projects and funding of Geothermal Energy Development in Georgia to create 1000 MW heat power in Georgia





500 MW Heat Energy can produce
 50 MW Electricity with Binary
 Cycle Power Plants (using efficiency
 Ratio of 10%).

 - 500-1000 MW Heat Energy can cover up to 2,000 hectares of Greenhouses.



Near Tbilisi Area Geothermal Heat Energy – up to 350 MW





Cumulative State CF (US\$ Bil.)



**Speakers for CEEC Meeting** 







### Thank you for attention!