



## Quarterly Activities Report

### Quarter Ending 31 December 2021

Helios Energy Ltd (ASX Code: HE8) (**Helios** or **Company**) is pleased to report its activities for the quarter ended 31 December 2021.

### 4<sup>th</sup> Well – Presidio Oil Project – Presidio 52#1

During 2021, Helios integrated all its geological, geochemical and geophysical data with the aim of high grading multiple well locations that target the Ojinaga Formation (primary target) but which also include the Eagle Ford Formation (secondary target) as well as older (deeper) Cretaceous units being the Buda, Georgetown and Edwards limestone Formations (all secondary targets).

### Completion of 11 Miles of New 2D Seismic

During the quarter, Helios completed its new 2D seismic work program. The program involved line clearing and shooting an additional 11 miles of 2D seismic. This new 2D seismic (2 lines of approximately 5.5 miles each) augments the existing old 2D seismic which covers the location of the Presidio 52#1 well. The full acquisition, processing and interpretation of this 2D seismic is now completed and the exact location of the Presidio 52#1 well has now been determined. The Presidio 52#1 well, located in Presidio County, Texas, USA and the 4<sup>th</sup> well in the Presidio Oil Project, will be spudded in approximately 35 days.

### Presidio 52#1 Well – Interpreted Traps – Buda, Georgetown and Edwards Formations

The previously completed 88 miles of 2D seismic has established a thick presence of Austin Chalk age equivalent Ojinaga Formation across Helios' entire acreage position of 85,685 gross acres. Interpretation of the newly acquired 2D seismic has resulted in Helios forming the view that a 1,700 acre enclosure or trap at the Buda Formation level may be present at the Presidio 52#1 location. The interpreted trap is a 3-way fault closure at the Buda interval over 1,700 acres. In addition, there is an interpreted trap of approximately 1,300 acres at the Georgetown interval along with a further interpreted 150 acre trap at the Edwards interval. The opportunity to drill into the lower bench of the Ojinaga Shale Formation was present in all the proposed drilling location choices, including Presidio 52#1.

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### Directors

Hui Ye  
Non-Executive Chairman  
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Managing Director  
Robert Bearden  
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At the Presidio 52#1 well location, the lower bench of the Ojinaga Shale Formation is at a depth of approximately 6,950 feet and the bench is approximately 650 feet thick. The Presidio 52#1 well will be drilled to a total depth (TD) of 9,800 feet. The Presidio 52#1 well location permits a very cost-effective penetration into these Buda, Georgetown and Edwards interpreted traps as well as representing a prime location and depth for the Ojinaga Shale Formation. The Buda, Georgetown and Edwards are conventional oil plays where the Eagle Ford Shale sources the porous and naturally fractured limestone reservoirs. These older (deeper) Cretaceous units being the Buda, Georgetown and Edwards limestone formations will be found between approximately 8,474 feet (top of the Buda interval) to 8,605 feet (top of the Georgetown interval) to 9,244 feet (top of the Edwards interval) in the Presidio 52#1 well.

### **Eagle Ford Shale Formation**

The tested oil analysis shows that the oil in the Ojinaga Shale Formation is sourced from the Eagle Ford shale. The Eagle Ford shale has an average thickness across the Presidio Oil Project of 460 feet. When the Presidio 52#1 well is drilled, the well will pass through the Eagle Ford Shale on the way to the Buda, Georgetown and Edwards Formations. The interpreted thickness of the Eagle Ford Shale at the Presidio 52#1 location is 866 feet.

### **Ojinaga Formation Play Area – 300,000 Acres**

Helios' previously completed analysis of 88 miles of 2D seismic has established a thick presence of Austin Chalk age equivalent Ojinaga Formation across Helios' entire acreage position of 85,685 gross acres. The thickness of the Ojinaga Formation ranges from 1,000 feet in the eastern section of Helios' acreage to 2,000 feet in the western section. In addition, these 88 miles of 2D seismic has established a thick presence of Ojinaga Formation across the entire Ojinaga Formation play area which is approximately 300,000 acres in size.

### **Ojinaga Formation - Easily Mapped with 2D & 3D Seismic**

The lower bench of the Ojinaga Formation shows well on both 2D & 3D seismic and is easily mapped. The new 11 miles of 2D seismic has easily mapped the lower bench of the Ojinaga Formation in the Presidio 52#1 well. At the Presidio 52#1 well location, the lower bench of the Ojinaga Shale Formation is between 6,950 and 7,600 feet and is therefore approximately 650 feet thick.

### **Porosity and Permeability in Lower Bench of the Ojinaga Shale Formation**

Based on previous petrophysical analysis, the lower bench of the Ojinaga Shale Formation has porosity predominately ranging between 4% to 12.5% and permeability up to 0.75  $\mu$ d (micro darcys). The porosity of sidewall cores taken from the Presidio 141#2 well is 4% to 10% therefore confirming the previous petrophysical analysis. The permeability of the sidewall cores taken from the Presidio 141#2 well is significantly higher than the previous petrophysical analysis, up to 0.06 md (60  $\mu$ d). Analysis of the Quinn Creek 141#1 well and the Presidio 141#2 well as well as surrounding historical wells clearly shows that these porosity and permeability characteristics in Presidio County in the Ojinaga Shale Formation exceed the characteristics present in the Eagle Ford Shale in the Karnes Trough which is the premier sweet spot of the Eagle Ford Shale play.

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**Presidio 141#2 Well**

Pressure build up testing of the Presidio 141#2 well will cease shortly. As the well is shallow with normal formation pressure, the well will require artificial lift for commercial oil production. The Presidio 141#2 well is a shallow well with a total measured depth of 5,846 feet including the fracked 1,400 feet horizontal portion which was drilled into the primary target zone within the lower bench of the Ojinaga Formation.

**Stratigraphy of the Presidio Oil Project located in Presidio County, Texas, USA**

Gulf Coast		Presidio Oil Project Subsurface
Series	Division or Group	
Gulf Cretaceous	Austin	San Carlos (Olmos)
		Austin Chalk age equivalent formation (called the Ojinaga)
	Eagle Ford	Upper Eagle Ford Shale
		Boquillas
Comanche Cretaceous	Washita	Buda
		Eagle Mt SS
		George Town
	Fredericksburg	Kiamichi
		Edwards
	Trinity	Glen Rose
	Hosston/Travis Peak	

**Presidio Oil Project – Infrastructure**

Access to the 3 wells that constitute the Presidio Oil Project (Presidio 141#2, Quinn Creek 141#1 and Quinn Mesa 113) is provided by a 25 mile unsealed, formed road constructed by Helios that branches off the sealed US-90 highway which carries heavy truck and passenger vehicle traffic. The 3 oil wells have access to ample supplies of fresh water provided by local water wells drilled into shallow water aquifers. The El Paso Oil

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Refinery located in El Paso, Texas has a processing capacity of 135,000 barrels of oil per day and is located 170 miles from the Presidio Oil Project. Crude oil is sold there by truck delivery.

The Presidio Oil Project is located 250 miles (or 5 hours by truck) from Midland, Texas which is the epicenter of the Permian Basin oil industry. All rigs, supplies and services required for the Presidio Oil Project are sourced from Midland, Texas. Oil production in the Permian Basin has rebounded strongly in the past 6 months and is now approximately 5,100,000 bopd.

#### **70% in 85,685 Gross Acres**

Upon the completion of the third well in the Presidio Oil Project, being the Presidio 141#2 well, Helios will have a 70%WI in a total of 85,685 gross acres (59,980 net acres) and a 70%WI in the 3 wells drilled by Helios in the Presidio Oil Project, namely, Presidio 141#2, Quinn Creek 141#1 and Quinn Mesa 113.

#### **Leases Acquired or Disposed of During the Quarter**

No additional oil and gas leases were acquired or disposed of during the quarter. All 85,685 gross acres the subject of the Presidio Oil Project are located in the south-west portion of Presidio County, Texas and are the subject of oil and gas lease agreements entered into with private oil and gas mineral rights owners.

#### **Helium Business Unit – China**

During the quarter Helios commenced a new helium business unit in China. Through its wholly owned subsidiary, Helios Energy China Ltd, Helios entered into a boil-off gas (**BOG**) helium extraction joint venture with Chinese domestic liquefied natural gas (**LNG**) company, Ordos Xingxing Energy Limited Company (**Ordos Xingxing**), located in Ordos City, Inner Mongolia, China. Under the helium extraction joint venture agreement, Ordos Xingxing will provide all land, all BOG feed gas and all associated utilities for the helium extraction joint venture. Helios will construct at a cost of approximately US\$3.0m, a new, leading edge helium gas extraction module immediately adjacent to one of Ordos Xingxing's LNG plants located in Inner Mongolia, China. As the operator and owner of the helium gas extraction plant, Helios will produce industrial grade liquid helium and own 100% of the liquid helium produced and sold. Helios expects the annual helium gas output from this dedicated module to be approximately 100,000 Nm<sup>3</sup> per year once the helium extraction module is running at full capacity. Helios will be one of the first companies to commercially extract material quantities of BOG helium in China, liquefy it and then sell it to domestic Chinese customers. Helios considers this helium extraction joint venture with Ordos Xingxing to be the first step in the development of its helium business unit. At full capacity from this dedicated module, Helios expects liquid helium sales to be approximately US\$3.1m per annum.

#### **Demand and Supply of Helium in China**

The USA is the world's largest helium customer and producer. China is the 2nd largest helium consumer and accounts for more than 10% of global demand for helium. Helium resources are scarce in China and approximately 95% of all helium used in China is imported. Helios' use of unique and leading edge helium extraction and liquification technology provides a cost effective and reliable way to produce liquid helium. The joint venture with Ordos Xingxing aims to cheaply extract, liquify and profitably sell high quality helium to domestic Chinese customers.

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## Corporate

At the end of the quarter the Company's sole class of listed options expired at 5pm WST on 31 December 2021. As per Item 3.3 of the attached Appendix 5B, during the quarter \$9,929,000 was raised by the Company due to exercise of these options.

## Related Party Payments – Item 6 of Appendix 5B

Payments to related parties listed in Item 6 of the Appendix 5B are to Executive and Non-Executive Directors for personal exertion salary and directors fees.

For further information, please contact:

**Richard He**  
**Managing Director**

### **Competent Person's Statement**

*The information in this ASX announcement is based on information compiled or reviewed by Mr Neville Henry. Mr Henry is a qualified petroleum geologist with over 47 years of Australian, USA and other international technical, operational and executive petroleum experience in both onshore and offshore environments. He has extensive experience of petroleum exploration, appraisal, strategy development and reserve/resource estimation, as well as new oil and gas ventures identification and evaluation. Mr Henry has a BA (Honours) in geology from Macquarie University.*

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