Oil & Gas Industry Overview:
Three Trends to Watch in 2025

January 2025

Lathrop
GPM

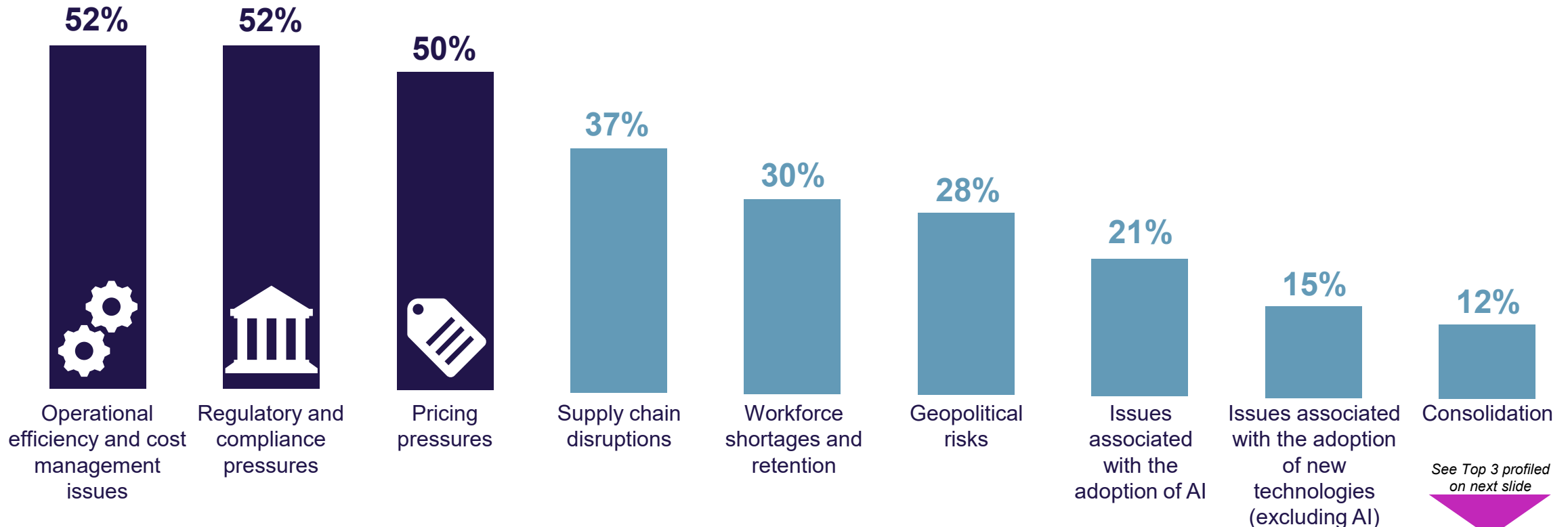# Contents

Foreword & Overview

Foreword

This is Lathrop GPM's fourth annual Oil & Gas Market Update/Outlook Report. In this report, Lathrop GPM analyzed the results of its firm-branded survey, conducted in October 2024, to identify three trends that should be on the industry's radar in 2025. Each trend is supported by publicly available data as well as the firm's own insights.

Boosting efficiencies, staying ahead of regulatory issues and addressing pricing pressures are top 2025 priorities

? **Looking ahead to 2025, what are the top three concerns facing your organization?**

| Concern	Value
Operational efficiency and cost management issues	52%
Regulatory and compliance pressures	52%
Pricing pressures	50%
Supply chain disruptions	37%
Workforce shortages and retention	30%
Geopolitical risks	28%
Issues associated with the adoption of AI	21%
Issues associated with the adoption of new technologies (excluding AI)	15%
Consolidation	12%

See Top 3 profiled on next slide

5

A DEEPER LOOK AT OUR FINDINGS

Tackling industry-wide issues

Operational Efficiencies

- The US in on track to exceed 13.5 million barrels per day (B/D) in production by 2025, exceeding 2024 projections.
- Though the number of active drilling rigs is declining, productivity continues to grow, largely driven by the prolific Permian Basin.
- As a result, oil and gas companies are implementing advanced drilling and completion techniques to enhance overall efficiency.

Number of Active Drilling Rigs

- Crude Oil Production (million B/D)
- Number of Active Drilling Rigs

Crude Oil Production (million B/D)

Forecast
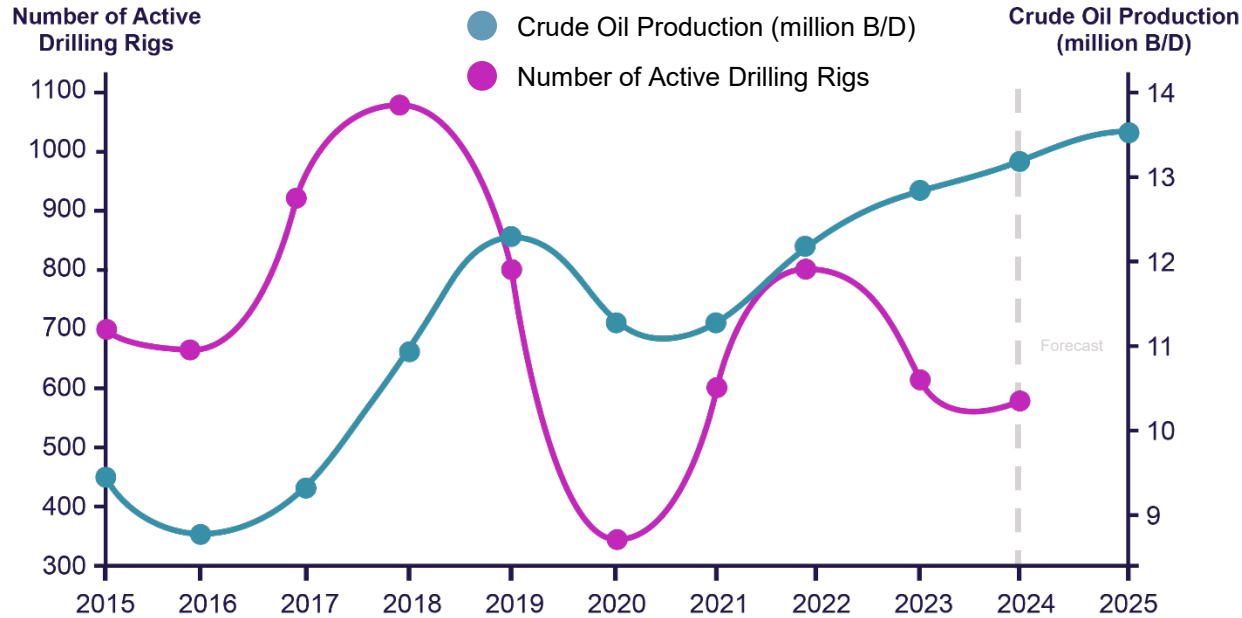
Sources: U.S. Energy Information Administration (EIA) - U.S. Crude Oil Production, Y charts - US Rig Count (I:USRR)

* - Last updated November 2024

Pricing Pressures

- Companies are expected to average $73 per barrel at the end of 2024, below 2022 price peak levels, which could affect profit margins for exploration and production (E&P) firms.
- This environment may limit profitability and slow investment in new projects, especially for high-cost producers.
- Although the input cost index for oilfield services firms decreased from 42.2 to 23.3—and E&P firms saw a slight drop in finding and development costs—costs are still rising.

Regulatory

- Regulatory uncertainty remains a significant challenge for the oil and gas industry. The Trump administration plans to boost domestic fossil fuel production.
- However, the administration's plans to impose additional sanctions on oil from Iran and Venezuela could inflate prices.
- The growing risk of trade wars under this administration may result in slower global economic growth, ultimately reducing oil demand.

6

1

Carbon Reduction Initiatives Lagging

Clean energy projects are a must—but face strong headwinds

The US is the world's largest oil and gas producer, spending over $200 billion, representing 19% of global fossil fuel investment.

Key legislation that has stimulated clean energy development over the past year includes the bipartisan Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA).

The IIJA allocated nearly $75 billion to various clean energy projects, including grid improvements and energy efficiency.

The IEA projects significant increases in low-emissions power and energy efficiency investments by 2030 as fossil fuel demand declines.

However, political shifts and economic challenges may temper project development over the near term.

For instance, high financing costs (over 5% interest rates) and delays in IRA tax credit guidance have hindered progress.

For every $1.40 spent on clean energy in the US, $1 is directed toward oil and gas, well below the global average of $1.80.

Commitments vary significantly at the state level

A wide range of state policies aim to reduce greenhouse gas (GHG) emissions from the power sector. Some were enacted explicitly to address climate change, while others have complementary objectives such as supporting in-state producers of preferred energy sources (typically wind, solar, or nuclear) or decreasing customer costs.

Greenhouse Gas Emissions Policies

Twenty-four states and the District of Columbia have adopted specific GHG emissions targets, reflecting commitment to 2030 goals and support for climate action.

Low Carbon & Alternative Fuel Standards

Thirty-six states and the District of Columbia have put in place some form of clean vehicle policy. These include emissions standards and incentives for zero-emission vehicles and infrastructure, such as charging and hydrogen fueling stations. Meanwhile, a low-carbon fuel standard (LCFS) aims to reduce GHG emissions by requiring a shift to lower-carbon transportation fuels.

Electricity Policies

A renewable portfolio standard (RPS) has been adopted in 29 states and the District of Columbia, requiring a certain percentage of a utility's electricity to come from renewable energy sources. Additionally, a clean energy standard (CES)—adopted by seven states—requires electric utilities to deliver a certain amount of electricity from renewable or clean energy sources.
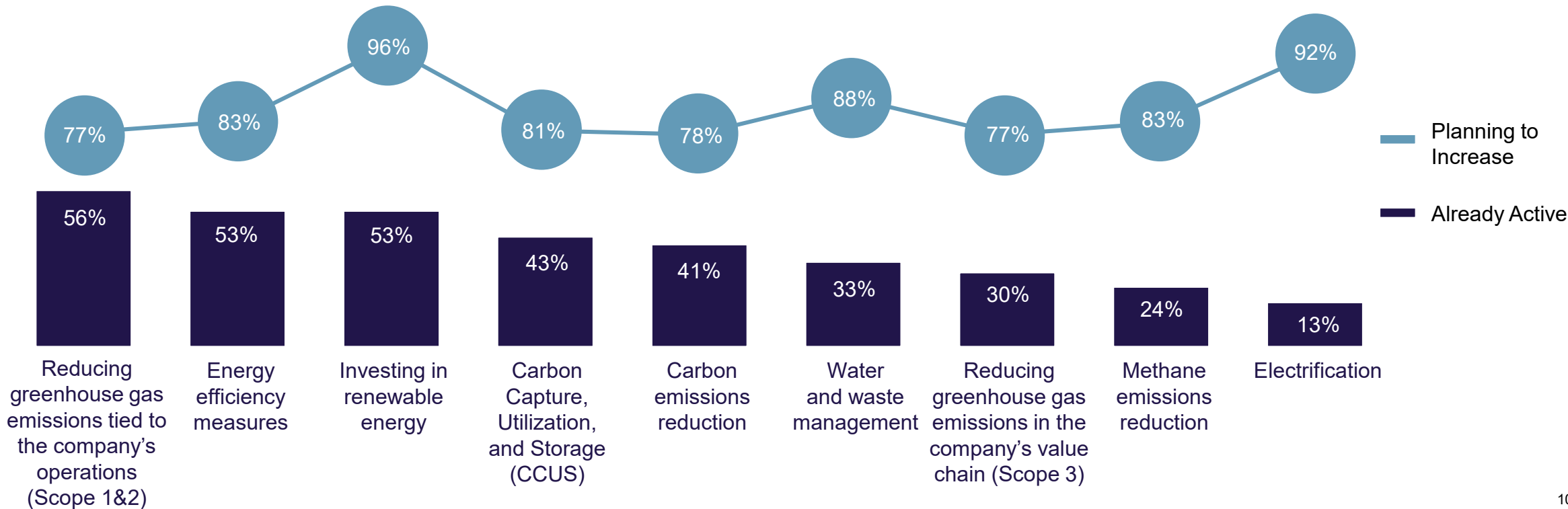
9

Fewer than half of survey respondents have committed to actions like carbon capture, carbon and/or methane emissions reduction, and electrification

? **In light of the 2030 carbon reduction goals, which of the following climate actions is your organization currently undertaking? Please select all that apply:**

*While participation overall is low, high proportions of those **already active** in specific measures are also planning to step up efforts*

Planning to Increase
— Already Active

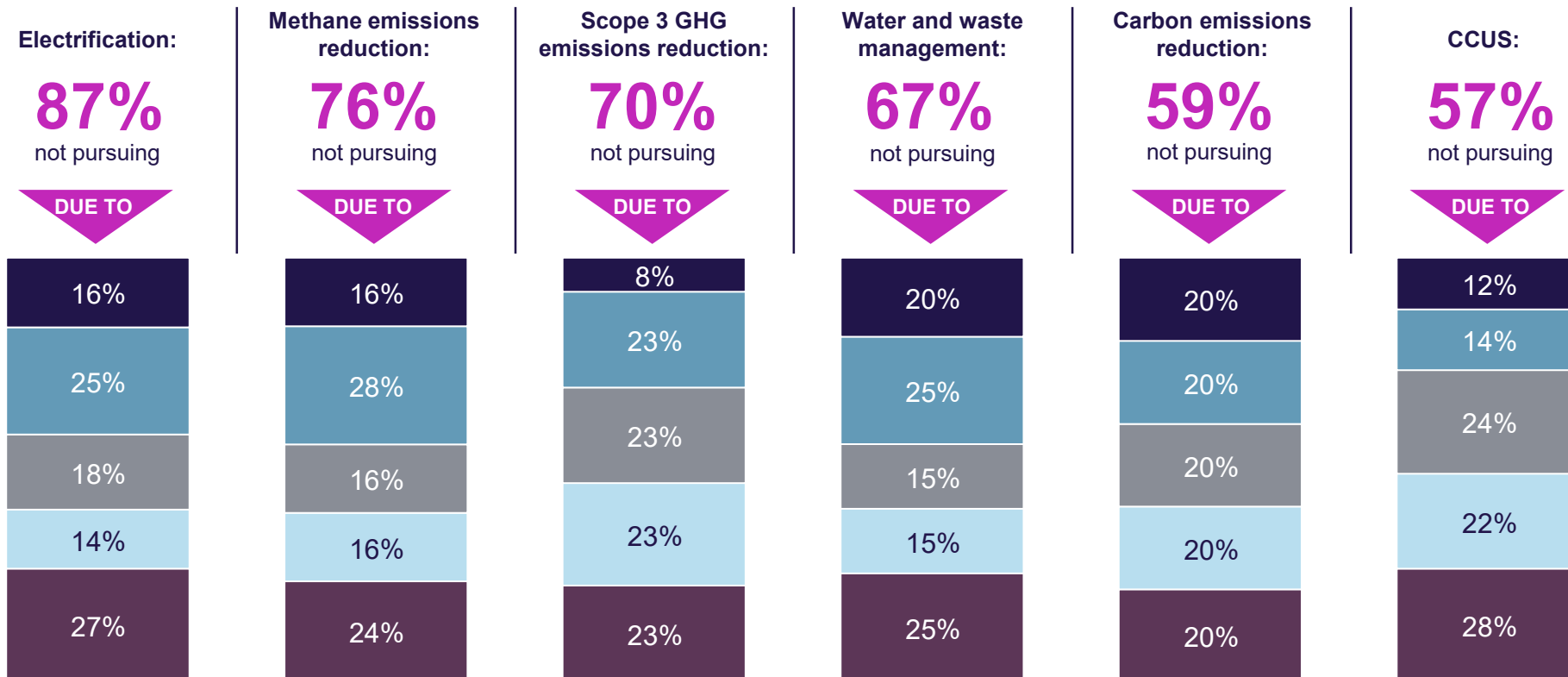|	Planning to Increase	Already Active
Reducing greenhouse gas emissions tied to the company's operations (Scope 1&2)	77%	56%
Energy efficiency measures	83%	53%
Investing in renewable energy	96%	53%
Carbon Capture, Utilization, and Storage (CCUS)	81%	43%
Carbon emissions reduction	78%	41%
Water and waste management	88%	33%
Reducing greenhouse gas emissions in the company's value chain (Scope 3)	77%	30%
Methane emissions reduction	83%	24%
Electrification	92%	13%

Cost, technology limitations, and regulatory uncertainty are top obstacles in pursuing climate actions

?

Which best describes the reason that your company has decided to not pursue the following climate actions?

Tactics undertaken by fewer than half of survey respondents are profiled here

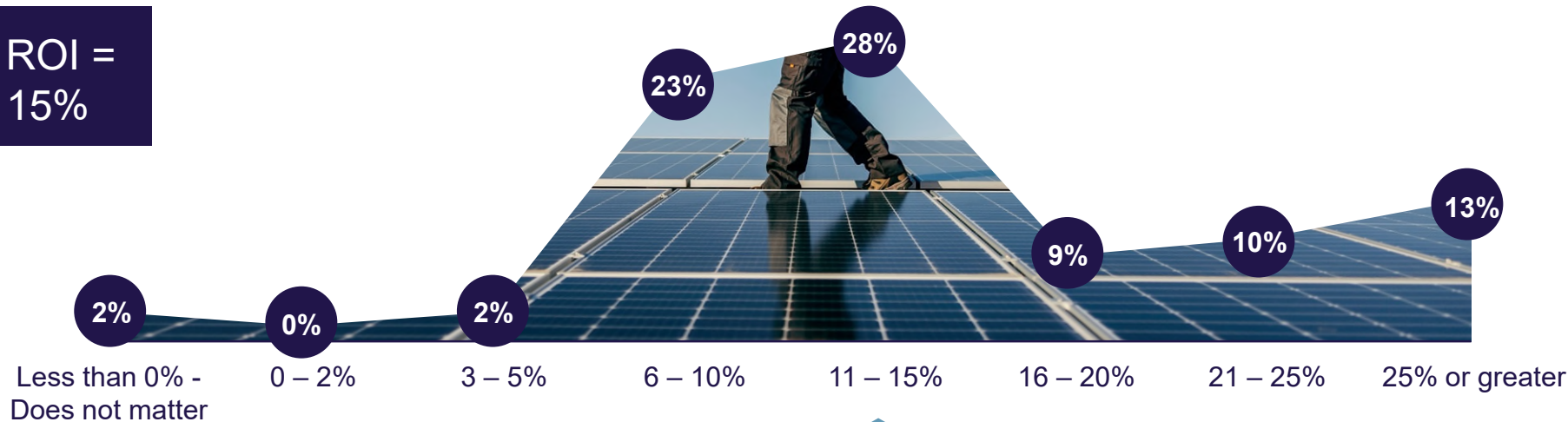|	Electrification: **87%** not pursuing	Methane emissions reduction: **76%** not pursuing	Scope 3 GHG emissions reduction: **70%** not pursuing	Water and waste management: **67%** not pursuing	Carbon emissions reduction: **59%** not pursuing	CCUS: **57%** not pursuing
	DUE TO	DUE TO	DUE TO	DUE TO	DUE TO	DUE TO
Regulatory uncertainty	16%	16%	8%	20%	20%	12%
Technology limitations	25%	28%	23%	25%	20%	14%
Operational disruption	18%	16%	23%	15%	20%	24%
Lack of expertise	14%	16%	23%	15%	20%	22%
Cost	27%	24%	23%	25%	20%	28%

11

ROI is the obvious priority for investments in low-carbon ventures, with 60% of companies seeking double-digit returns

?

When considering investments in low-carbon ventures, what is the minimum return on investment (ROI) that would persuade you to commit to these projects?

ROI was the focus of the survey question versus IRR in an effort to quantify the overall project growth rate expectations

Mean ROI = 11 – 15%

| 2% | 0% | 2% | 23% | 28% | 9% | 10% | 13% |

Less than 0% - Does not matter | 0 – 2% | 3 – 5% | 6 – 10% | 11 – 15% | 16 – 20% | 21 – 25% | 25% or greater

13%
Not interested, regardless of ROI

Hydropower Projects: Hydropower projects can have an internal rate of return (IRR) of **8 - 12%**, depending on the scale and location

Biomass Projects: Biomass projects usually have an IRR of: **9 - 13%**

Solar Projects: Solar photovoltaic (PV) projects typically have an IRR of **10 - 12%**

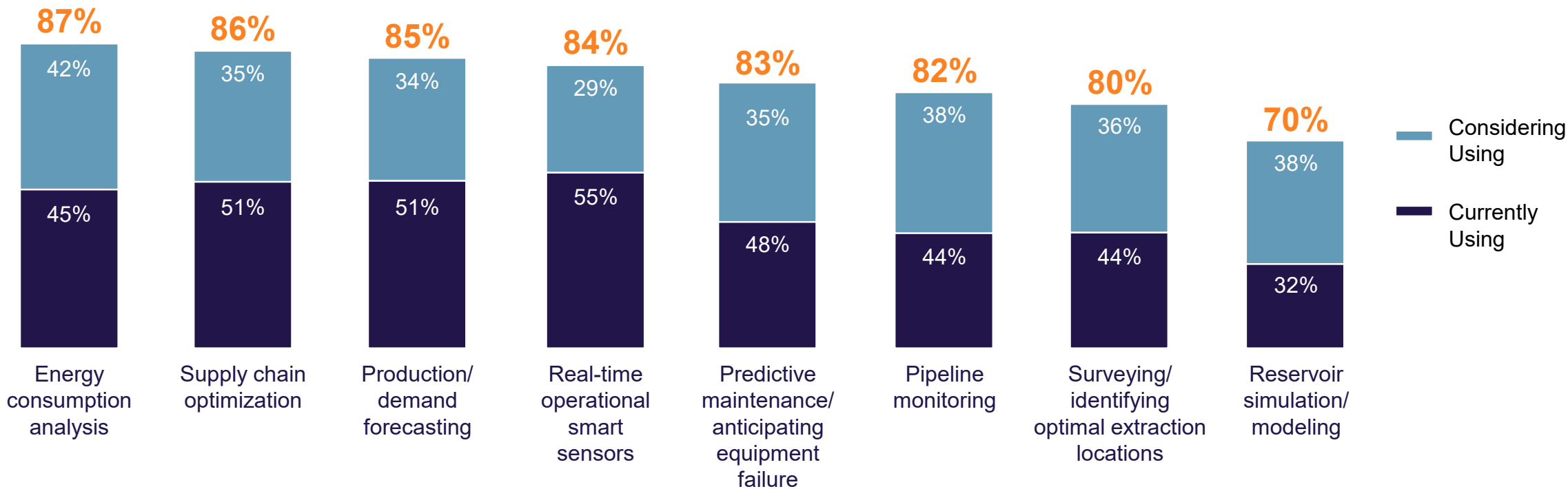**Wind Projects**: Wind energy projects often see an IRR of **11 - 14%**

2

AI Demand Outpaces Readiness

7 in 10 oil and gas companies are currently using or considering using at least one AI-integrated and/or automated technology

? **In which areas has your company implemented or is considering implementing AI-integrated technologies or automation?**

Chart data:

Category	Considering Using	Currently Using	Total
Energy consumption analysis	42%	45%	87%
Supply chain optimization	35%	51%	86%
Production/demand forecasting	34%	51%	85%
Real-time operational smart sensors	29%	55%	84%
Predictive maintenance/anticipating equipment failure	35%	48%	83%
Pipeline monitoring	38%	44%	82%
Surveying/identifying optimal extraction locations	36%	44%	80%
Reservoir simulation/modeling	38%	32%	70%

Legend: ■ Considering Using ■ Currently Using

14

A DEEPER LOOK AT OUR FINDINGS

AI use cases continue to expand and evolve

Smart sensors and pipeline monitoring

These technologies facilitate predictive maintenance by continuously assessing equipment health, detecting anomalies and forecasting potential failures. They can also enhance environmental safety: geospatial AI tools, for example, detect leaks in critical infrastructure to minimize risks and prevent accidents.

USE CASES:
- ✓ **Real time operational smart sensors**
- ✓ **Pipeline monitoring**

Forecasting and optimization

AI-driven forecasting and optimization applications enhance production efficiency, supply chain management, and energy management. Demand forecasts enable executives to optimize operational parameters and streamline logistics. These tools also analyze energy usage to reduce costs and waste— supporting sustainability goals and providing users with a competitive edge.

USE CASES:
- ✓ **Energy consumption analysis**
- ✓ **Production/demand forecasting**
- ✓ **Supply chain optimization**

Maintenance and reliability

AI and machine learning enhance predictive maintenance by efficiently analyzing large datasets via strategically placed sensors on equipment to identify specific patterns or anomalies indicative of potential failures.

USE CASES:
- ✓ **Predictive maintenance**
- ✓ **Equipment failure prediction forecasting**

Surveying and modeling

AI-driven reservoir simulation and modeling techniques enhance the exploration and extraction of resources. These tools analyze complex geological and seismic data to identify optimal drilling locations and forecast extraction potential with greater accuracy.

USE CASES:
- ✓ **Reservoir simulation/modeling**
- ✓ **Surveying/ Identifying optimal extraction forecasting**

Many companies don't have the internal expertise to move forward with AI—and feel stymied by regulatory compliance

?

What is the single greatest challenge your organization faces when implementing or considering AI? Please select one:

Excludes the 8% who chose "none of the above"

Lack of internal knowledge/support to get started — **29%**

Regulatory and compliance issues — **28%**

Lack of confidence in data integrity — 15%

Do not yet have a formal AI lead or committee — 10%

Governance/policies are not in place — 8%

Do not have reputable AI vendors or partners — 6%

Do not have budget — 2%

Other — 2%

> "We implemented predictive analytics years ago but can't stay on top of the evolution—and with new AI developments breaking through daily, we can't help but feel like we're depriving ourselves of critical data."
>
> **- CEO, oil and gas company**

16

AI poised to significantly reduce <u>and</u> create emissions

Implementation of AI is growing rapidly. Lathrop GPM's 2023 survey revealed that the industry was already beginning to harness AI for a wide range of tasks. In just one year, implementation levels and use cases have significantly expanded, with notable increases in the use of AI for predictive maintenance, pipeline monitoring and supply chain optimization. Moreover, from a business strategy perspective, AI offers <u>a fast track to climate modeling and education</u>.

AI can help cut emissions—but may create new problems. In April 2024, the Department of Energy <u>published a report</u> in accordance with <u>Executive Order 14110</u> on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, which outlines beneficial applications of AI across the energy industry. However, there is also growing concern that global AI usage <u>requires massive amounts of energy</u>.

Collaboration is key. Executives and policymakers will have to work together in setting and enforcing guidelines for ethical deployment of AI, with <u>a focus on societal impact</u>.
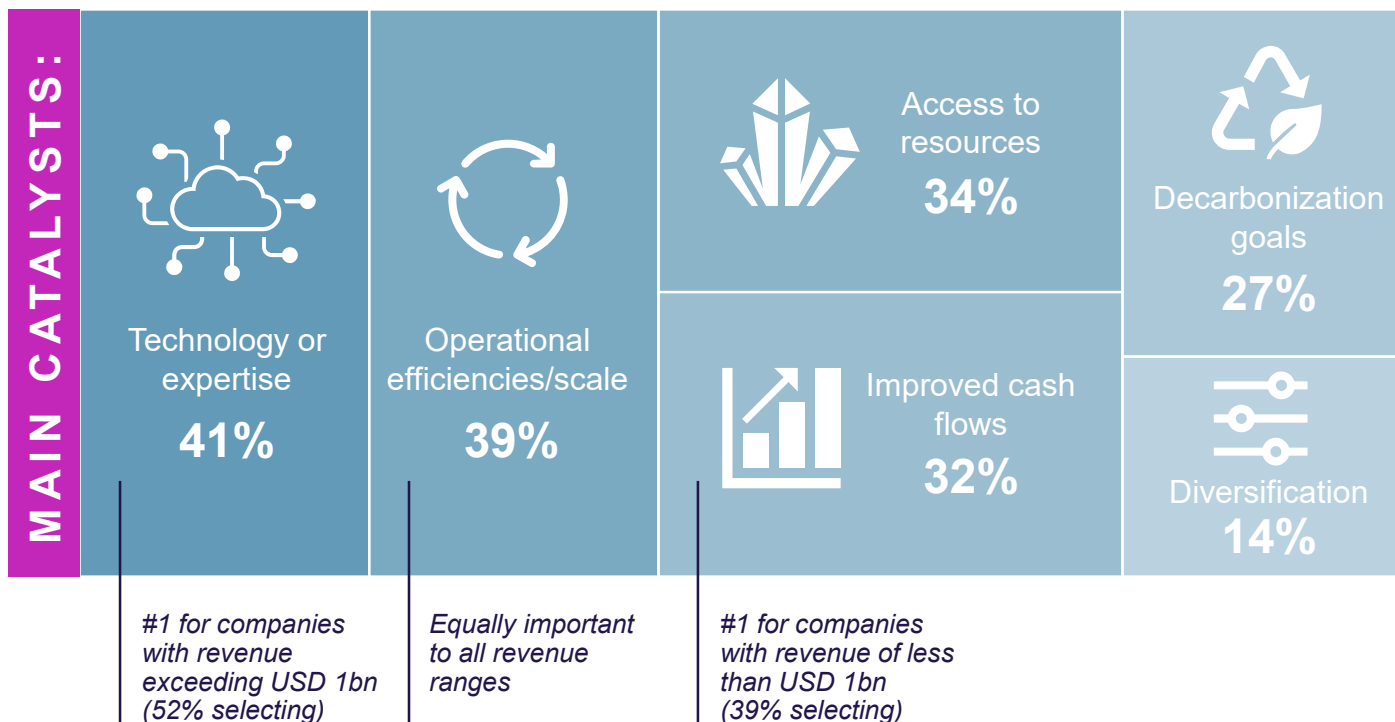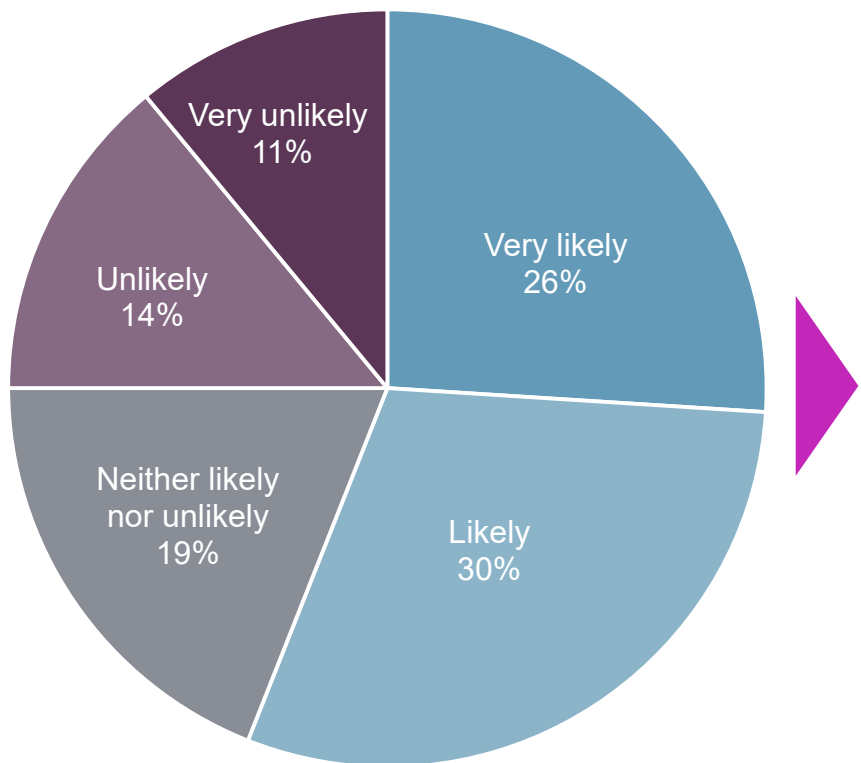

17
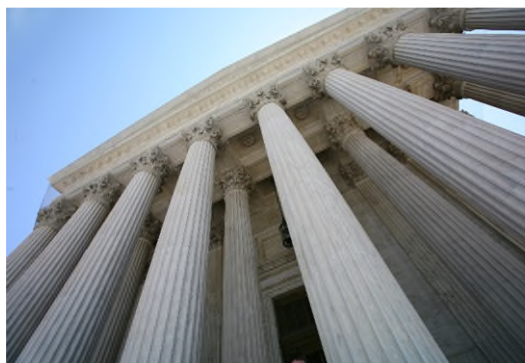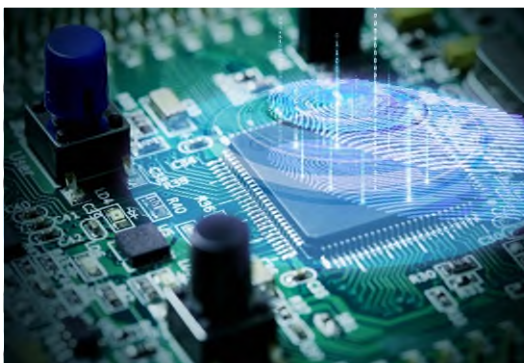
3

M&A and the Stock Option Focus

Only one in four respondents say their organization is <u>unlikely</u> to participate in a merger and/or acquisition over the next 12 months—with technology and operational efficiency gains as key drivers

?

How likely is your organization to participate in a merger and/or acquisition over the next year? And what are the catalysts?

Pie chart:
- Very unlikely 11%
- Unlikely 14%
- Neither likely nor unlikely 19%
- Likely 30%
- Very likely 26%

MAIN CATALYSTS:

- Technology or expertise **41%**
- Operational efficiencies/scale **39%**
- Access to resources **34%**
- Improved cash flows **32%**
- Decarbonization goals **27%**
- Diversification **14%**

#1 for companies with revenue exceeding USD 1bn (52% selecting)

Equally important to all revenue ranges

#1 for companies with revenue of less than USD 1bn (39% selecting)

19

Nearly 90% of companies likely to participate in M&A express interest in using stock options to do so

? **What is your level of interest in potentially leveraging stock options in potential M&A transactions? And, if you're interested, please share why.**

87%
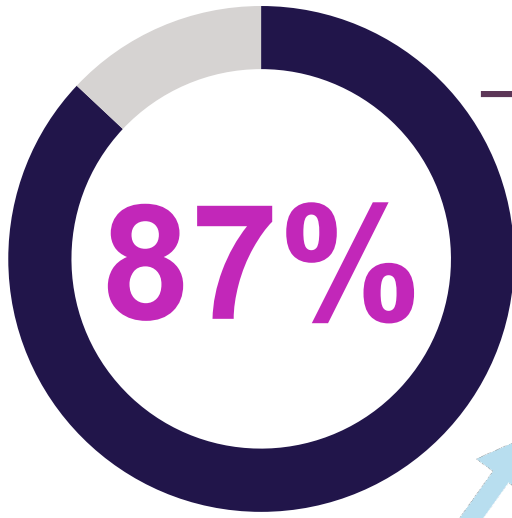
of oil and gas executives considering M&A transactions have at least some interest in leveraging stock options

Why?

> "The flexibility in structuring deals

> "Leaves us with the cash we need to upgrade technology

20

Survey Methodology & Demographics

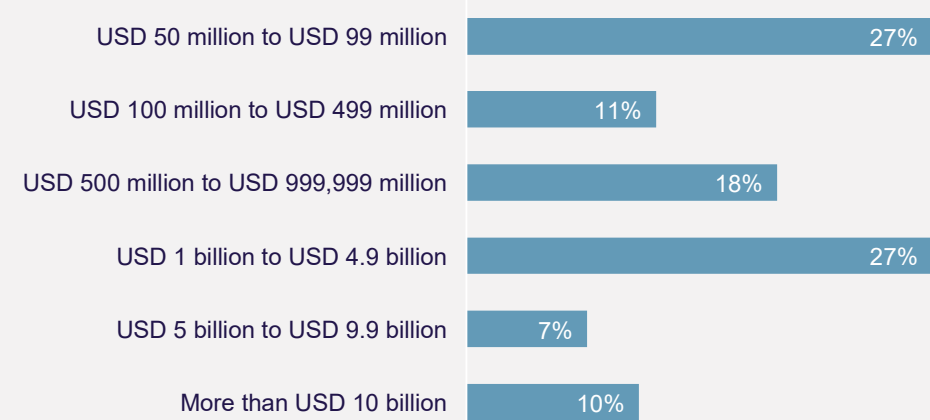# Survey Methodology & Demographics

In October 2024, Lathrop GPM conducted a survey of 100 oil and gas executives who play either a leading (70%) or supporting (30%) role in executing development plans.

Titles/roles included business or operations manager (33%), CEO/president/owner (28%), C-suite titles other than CEO (8%), other management/supervisory roles (8%), chief operations officer (6%), and chief legal officer or other in-house counsel role (5%). Land department managers, other technical or engineering roles, and other analytical/clerical/advisory roles comprised the remaining respondent base (12%).
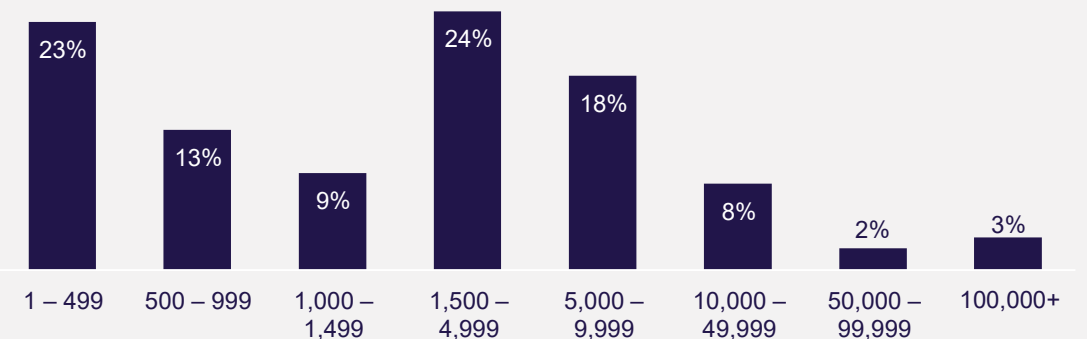
All respondents are currently operating, investing and/or conducting research in the oil and gas sector. Oil and gas operations included upstream (63%), midstream/pipelines (44%), downstream (44%), and fully-integrated renewables (28%). In addition to oil and gas operations, 31% have a presence in utilities, 29% in renewables, and 21% in mining and minerals.

Survey responses were anonymous and data was analyzed in the aggregate.

2023 Revenue (USD)

Category	%
USD 50 million to USD 99 million	27%
USD 100 million to USD 499 million	11%
USD 500 million to USD 999,999 million	18%
USD 1 billion to USD 4.9 billion	27%
USD 5 billion to USD 9.9 billion	7%
More than USD 10 billion	10%

Employees

1 – 499	500 – 999	1,000 – 1,499	1,500 – 4,999	5,000 – 9,999	10,000 – 49,999	50,000 – 99,999	100,000+
23%	13%	9%	24%	18%	8%	2%	3%

Contact Details

CONTACT INFORMATION

Patrick McRorie

Partner, Chair, Energy Practice Group

Patrick represents oil and gas operators throughout Texas, Oklahoma, North Dakota, Montana, Wyoming, New Mexico and Colorado in lease acquisition and related exploration and production issues. Patrick manages a broad range of oil & gas matters for clients including due diligence, acquisitions, title opinions, joint operating agreements, participation agreements, oil and gas leases, confidentiality agreements, purchase and sale agreements. He serves clients that work on fee, state, Bureau of Land Management and Bureau of Indian Affairs lands.

Lathrop GPM LLP
675 15th Street, Suite 2650
Denver, CO 80202
720.931.3226
patrick.mcrorie@lathropgpm.com