



VAQUERO | Energy Technology Overview

Deeply Rooted In Tech Focused On Our Clients' Values

October 2020

VAQUERO | Recent Energy News

O&G companies now need to look internally. That means reinventing their operating models to improve efficiency, extend asset economic life, create resilience, and reduce greenhouse-gas (GHG) emissions. O&G companies cannot assume that oil prices will bounce back; rather, they have to make decisions that will allow them to operate even if prices hover near \$25/barrel.

McKinsey
& Company

"Reinventing Upstream Oil and Gas Operations After the COVID-19 Crisis" – August 2020

BP and Microsoft Corp. (announced) that they have agreed to collaborate as strategic partners to further digital transformation in energy systems and advance the net zero carbon goals of both companies. This includes a co-innovation effort focused on digital solutions, the continued use of Microsoft Azure as a cloud-based solution for bp infrastructure and bp supplying renewable energy to help Microsoft meet its 2025 renewable energy goals.

"bp and Microsoft form Strategic Partnership to Drive Digital Energy Innovation and Advance Net Zero Goals" – September 2020



The company (Baker Hughes) will continue to downsize its oilfield services and equipment portfolio, putting more emphasis on the energy transition and technology needed for renewables... The strategic shift comes as more customers commit to lower carbon operations, and as growth in renewable energy such as wind and solar are accelerating.



"Low Carbon Energy Solutions" – July 2020

Most of the gas demand lost in 2020 is expected to be recovered in 2021, supplemented by growth from the Asia Pacific region, as China and Asian emerging markets recover economically and benefit from attractive gas prices. Mature markets... are expected to recover most of their consumption losses in 2021 as demand from the industrial and power generation sectors gradually returns.

"Gas 2020" – June 2020



VAQUERO | Energy Tech Market Activity

Energy Tech LTM Snapshot

Source: Pitchbook

508

Deals

596

Investors

82

Exits

\$17.6Bn+

Capital Invested

\$30.2M

Med Post Val

Recent Notable Transactions

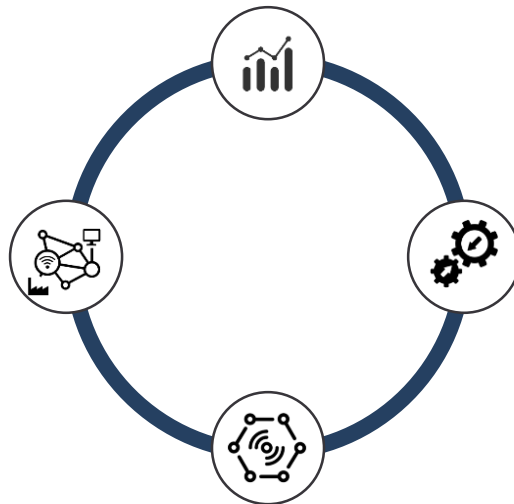


Increasing Emphasis on Analytics to Inform Decision Making

Even traditional energy players are turning to analytics solutions and cloud platforms to optimize performance and inform decisions on an asset and portfolio level. Increasing levels of operational complexity make “back of napkin” estimates unfit for sufficient analysis.

The Great Crew Change

The new generation of workers expects to use modern technology tools to help bridge the gap in knowledge/expertise from the older generation leaving the industry. We are beginning to see top-down organizational mandates to adopt technology.



Shifting Assets Onto Integrated Platforms

Industry players are looking to integrate siloed assets and technology held across disparate systems onto consolidated platforms to achieve full visibility and control of operations and eliminate data siloes.

IoT, Machine Learning, and Edge Computing

With a vast amount of data being collected from edge computing devices and management systems, oilfields and downstream plants will continue to increase their adoption of sophisticated sensors and AI. Interoperability will allow data to be shared on IoT and AI platforms.

VAQUERO | Unlocking Power of Energy Resources Through Digital

Unprecedented Changes Across the Energy Sector Affect Every Key Player...



Oil and Gas Operators

Face price volatility, potential peak demand, and the dynamism of shale vs OPEC



Utilities

Confronted with complex grids, evolving customer expectations, and distributed generation



Refineries

Must adapt to global uncertainty over new sources of raw materials and new demand patterns



Renewables Developers

Must survive and grow amidst intensifying competition and potential commoditization



Service Companies

Tasked with rethinking delivery models to meet new expectations about digital efficiencies

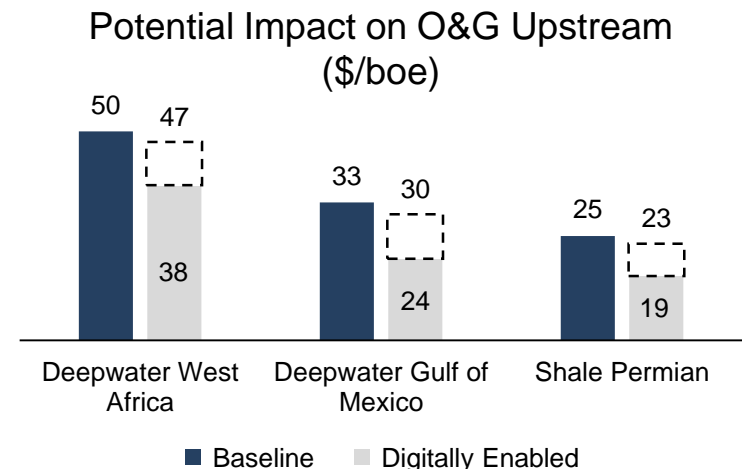
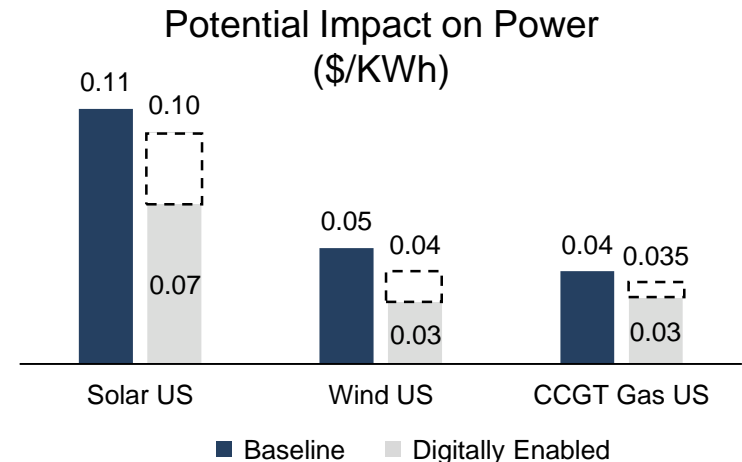


Engineering, Procurement, & Construction

Struggle to deliver types of capital projects that matter for the future

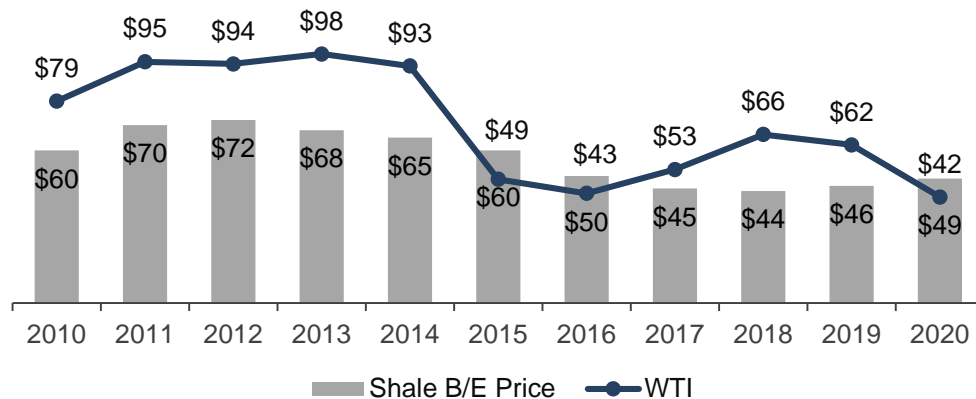
...Digital Will Contend With These Challenges & Materially Affect Competitiveness

Digitalization efforts have shown 2-10% yield improvements and 10-30% cost improvements in capital, supply chain, and operations

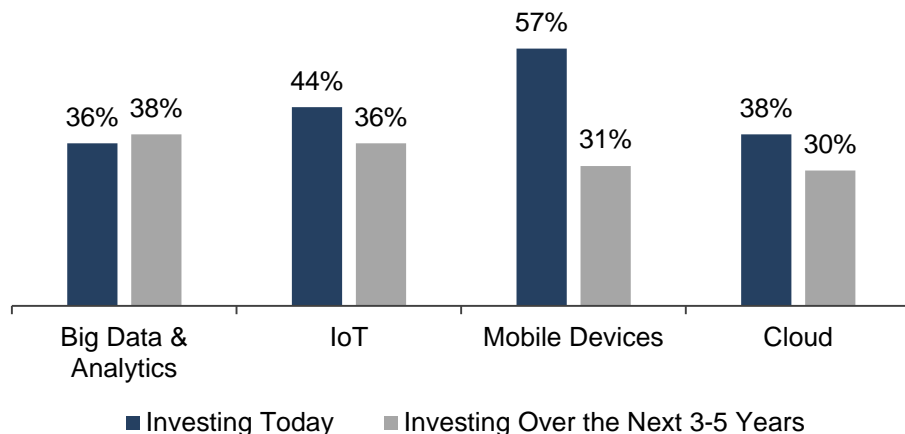


The Pricing Environment Is More Dynamic Than Ever...

US Shale Breakeven Price vs. Crude Oil Price



... Driven by Investment In Digital Technologies



Key Trends Driving Software Adoption



Dynamic Global Supply

Pricing environment is more dynamic than ever, driven by fluctuations in global production, storage, economics, and political events



O&G Operations Efficiency

To survive, North American operators are increasingly turning to next generation software and advanced data analysis to realize increased operational efficiencies and productivity gains



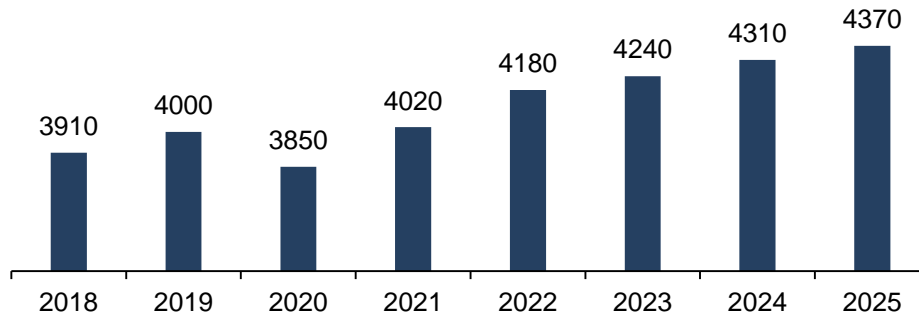
Emergence Of Digital Production

To further streamline operations and enhance visibility across the entire supply chain, energy companies are utilizing industry automation, third-party data, and integrated advanced software systems to rapidly drive the end-to-end digitization of the oilfield

VAQUERO | Global Demand for LNG is Set for Recovery

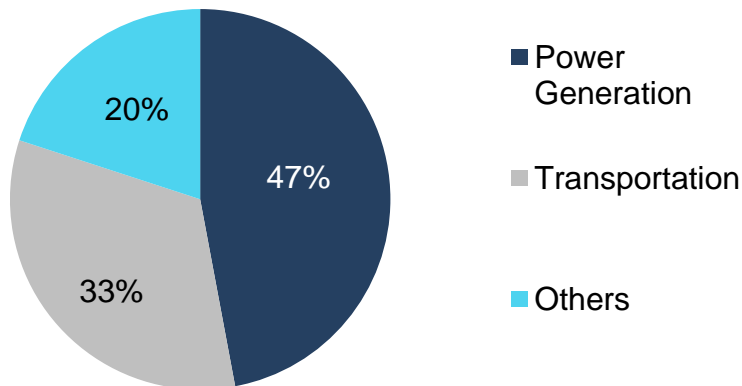
The global demand for Liquefied Natural Gas is expected to rebound in 2021, supplemented by economic growth in the Asia Pacific region post COVID-19 and reforms to increase the role of gas in the energy mix. Digital tools and solutions that optimize LNG production and trading will be key areas of investment for producers to achieve better performance in the short-term.

Global Demand for Gas (bcm)



Source: IEA

Global LNG Market Share by Application, 2019



Source: Grand View Research

\$400Bn

Required to Meet
LNG Demand
2027-28

30%

Of New LNG Supply
Capacity Comes
Online in 2025

>10%

Growth in
China's LNG
Imports in 2020

Key Factors Driving LNG Demand

Energy Consumption in Asia

China is the primary driver of global demand growth for gas, accounting for 40% of incremental consumption to 2025

Increased Access

As of 2019, 43 countries had access to LNG, up from only 23 countries a decade ago, enabling widespread adoption of gas and trade flexibility

Improved Economics

LNG presents savings of 50-70% relative to the price of oil, compared to 10-20% savings from 2000-2008

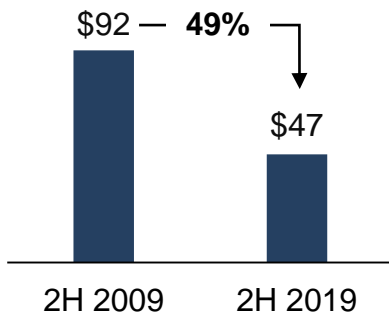
Source: McKinsey, BCG, Grand View Research, Reuters

VAQUERO | Renewables Industry Poised For Massive Growth

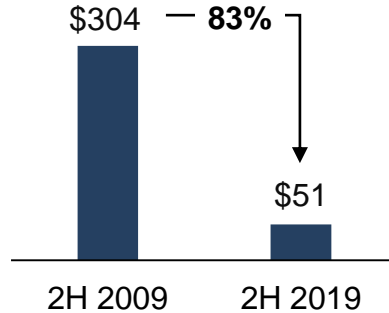
Massive Growth In Underlying Demand For Renewable Energy Sources

Reductions In Global Benchmark Levelized Cost of Electricity (Per MegaWatt)

Onshore Wind

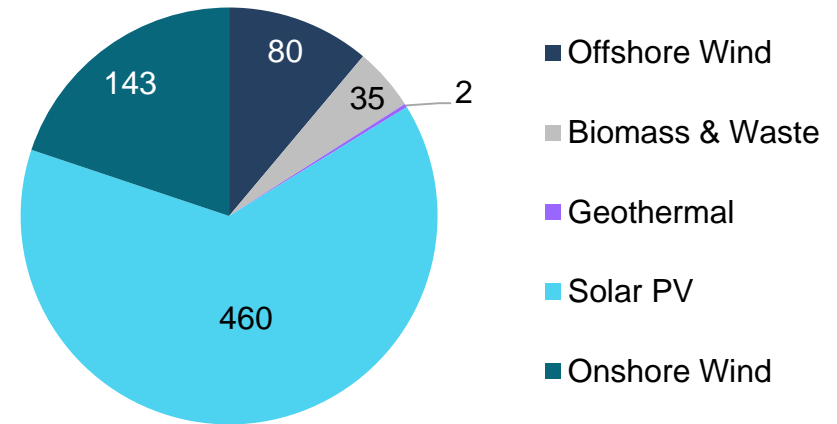


Solar PV



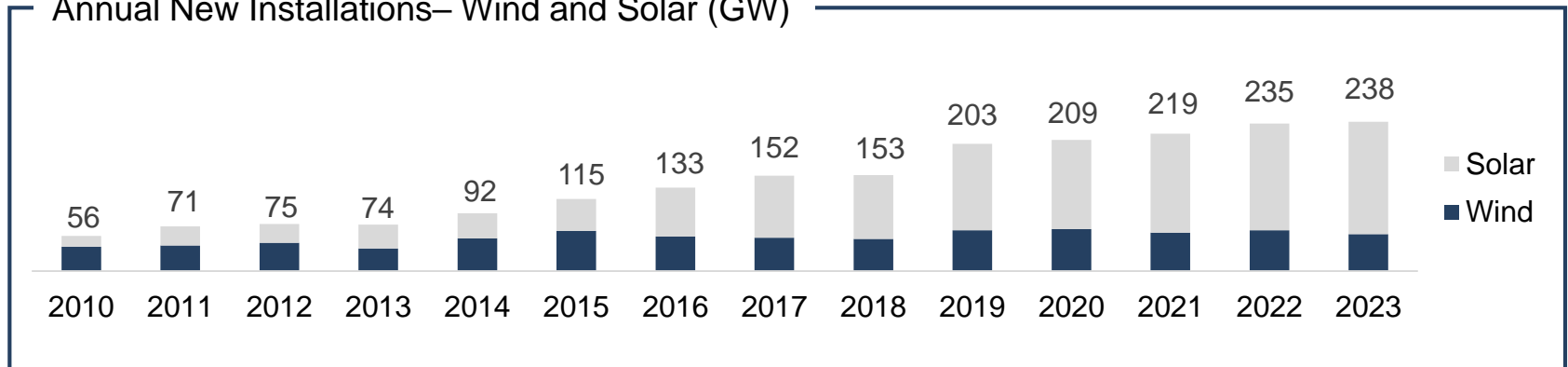
Source: FS-UNEP

Renewable Power Additions Required To Meet Government Targets By 2030 (GW)



Source: FS-UNEP

Annual New Installations— Wind and Solar (GW)



Source: FI-Powerweb

VAQUERO | Technology Under-Investment Set for Acceleration

\$150Bn

Operator Savings
From Tech Adoption

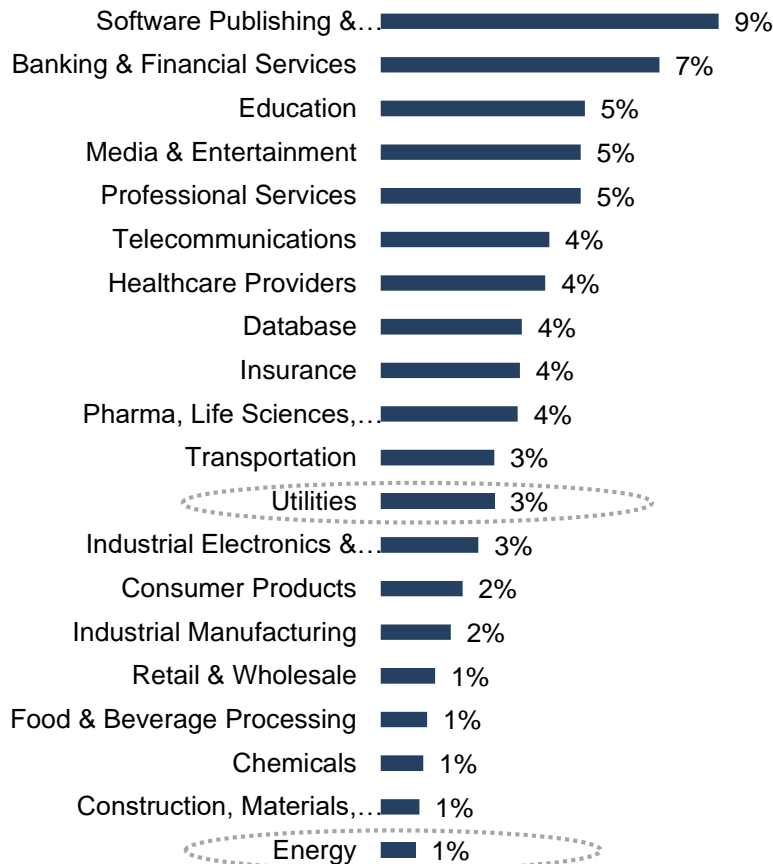
\$5Bn

Global O&G Digital
Applications Spend

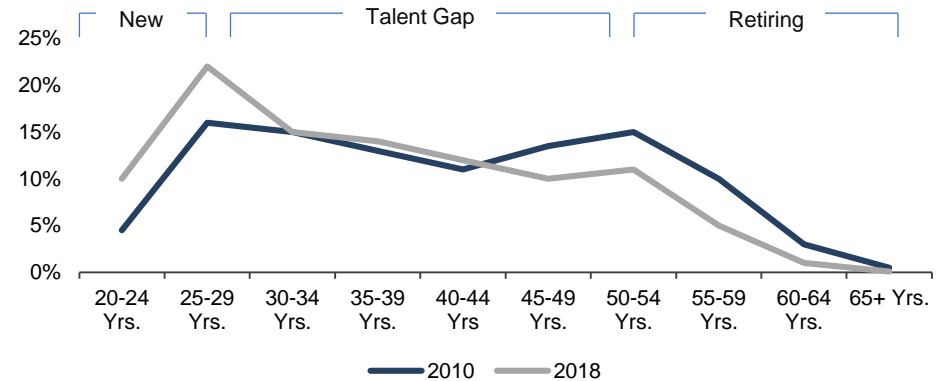
\$1.5Tn

2020 Global
E&P Revenue

IT Spend As A Percentage of Revenue



Growing Age Gap in the O&G Workforce



Source: National Academic Press - Sciences Engineering Medicine

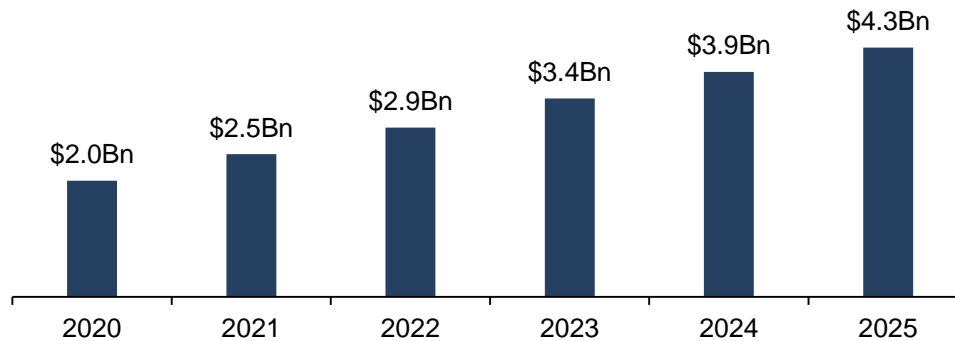
Total O&G Labor Pool Decreasing



Source: National Academic Press - Sciences Engineering Medicine, Bureau of Statistics

Rapidly Evolving Energy & Utility Analytics Market

Energy & Utility Analytics Market Size



Market Trends Driving Growth

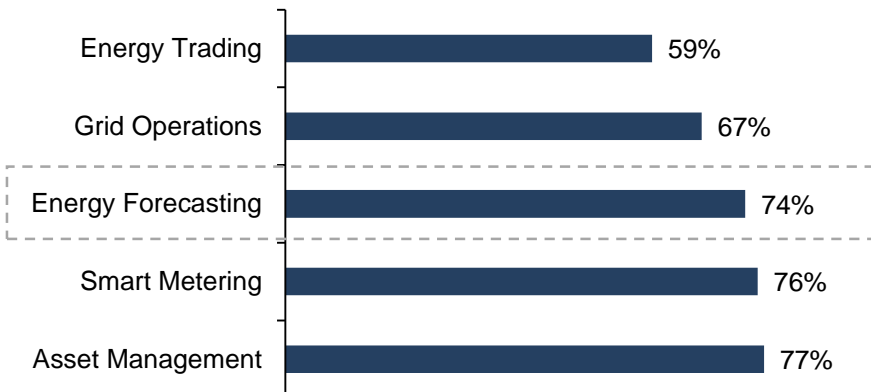
Disruptions in the energy supply chain continue to challenge the viability of traditional utility business models

To succeed, modern energy suppliers must adapt to the fast-paced change occurring in the energy supply chain landscape through technological transformation

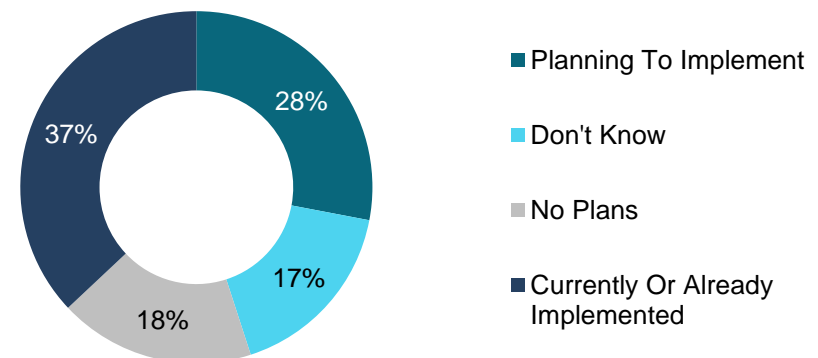
Successful organizations recognize that analytical models are essential corporate assets that produce and deliver answers to production systems for improved operations, increased revenues & reduced risks

Energy Analytics & Forecasting Is Top Priority For Energy / Utility Companies

Analytics Applications That Utilities Consider A Moderate – High Priority



Utilities' Status Of Enterprise Analytics Platform Implementation



VAQUERO | Diversified Tech Players Turn To Oil & Gas

The world's largest and most influential tech companies have been expanding aggressively into energy tech, putting a spotlight on an industry that is long overdue for technology innovation and adoption. As operators begin to seriously evaluate technology facets of their business, there is a generational land grab opportunity for leading energy tech platforms to rapidly capture market share.

- Big Tech companies such as **Microsoft, AWS and Google** are partnering with **Big Oil**, offering solutions to make the energy industry better managed, safer, and capable of taking pre-emptive action through automation
- The O&G Industry **spent an estimated \$1.75B on AI solutions in 2018** and is expected to spend **\$4.0B by 2025**, indicating a huge increase in interest in the digitization of oil and gas processes
- With **WTI prices still far from highs** experienced 6 years ago, the oil and gas industry is being asked to do more with less and will **rely more heavily on technology such as data services and cloud computing** to streamline production and cut costs

Big Tech Offerings for Energy Companies



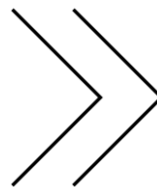
Exxon announced a partnership with Microsoft, which is expected to expand production to as much as 50,000 barrels per day



Amazon offers digital services to clients like BP and Shell through its AWS Energy platform, working with oil and gas companies to accelerate digital transformation



Schlumberger announced in May 2019 its selection of Google Cloud as its preferred Cloud provider which will provide agility to customers and accelerate oil and gas discovery



Opportunity for Energy Tech Providers



Energy Companies Look to Technology to **Cut Costs and Remain Profitable**



Total Addressable Market for Digital Oil and Gas Could Increase by **500% Over the Next 5-6 Years**



Market for Cloud Providers Estimated to Grow to **\$30B Annually By 2025**

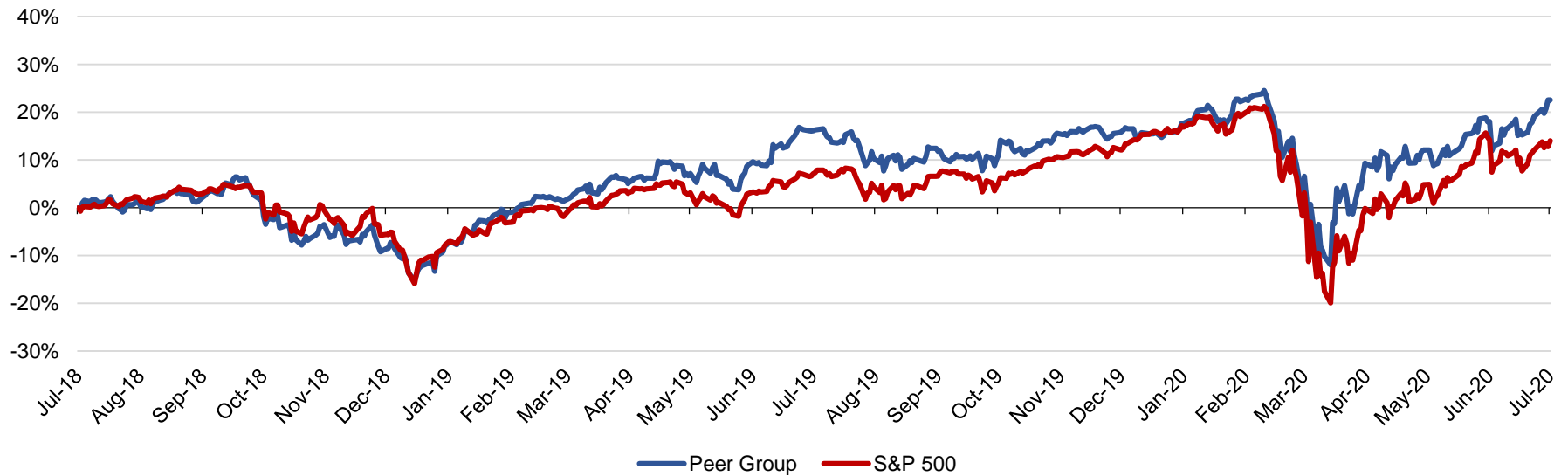


51% of Oil & Gas Companies Are Prioritizing AI/Big Data Investments in the Next 3-5 Years

VAQUERO | Energy Technology Performance

Source: PitchBook

2-Year Historical Index



Energy Technology Index Peer Group

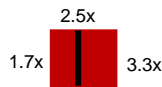


Trading Multiples

EV / EBITDA



EV / Rev



0.0x 5.0x 10.0x 15.0x 20.0x 25.0x

■ 33%-66% Range | Median

VAQUERO | Recent Transaction Activity

Deal Date	Target	Buyer	Type	TV	Description
5/13/19	Aucerna	Thoma Bravo	LBO	\$302.28M	Provider of solutions for integrated planning, execution and reserves for the energy industry; serves as a global source of technology and expertise for customers, allowing them to make better investment decisions by connecting people and the data of the modern energy industry
5/17/19	Allegro	ION Group	LBO	-	Developer of commodity management software built with the knowledge of commodity trading, risk management, physical logistics, regulatory compliance and accounting for the energy and agricultural industries
9/15/19	C3.ai	BlackRock	VC	\$50.00M	Developer of a PaaS enterprise software designed to rapidly deploy big data, AI and IoT applications to the oil and gas, utilities, banking, aerospace and defense, healthcare, and telecommunications industries
10/4/19	RigUp	Andreessen Horowitz	VC	\$300.00M	Provider of contract discovery, data extraction and analytics software designed to help companies manage their contract portfolios, mitigating risk and reducing expenses
10/11/19	WolfePak Software	Charlesbank Capital Partners	LBO	-	Provider of financial and accounting software to oil and gas companies, offering standard packages for investors, operators, first purchasers and service companies
10/31/19	Hillstone Environmental Partners	NGL Energy Partners	M&A	\$624.40M	Operator of water management systems and software for oil and gas industry in the areas of water recycling and water logistics
11/5/19	Genscape	Wood Mackenzie	M&A	\$353.20M	Provider of data, workflow tools and predictive analytics to improve market transparency and efficiency across various energy and power asset classes
11/21/19	Crusoe Energy Systems	Bain Capital Ventures	VC	\$70.00M	Developer of mobile modular data centers designed to provide large-scale flare mitigation service for oil and gas operators, enabling oil industry to reduce or eliminate routine flaring of natural gas
12/12/19	Swell Energy	Ares Management	VC	\$13.64M	Developer of a clean energy platform designed to assist consumers and utilities to adopt modern alternatives to traditional energy technology
2/4/20	Ambyint	Cottonwood Venture Partners	VC	\$15.00M	Developer of an oil optimization technology intended to bring IoT and big data analytics to the energy sector, allowing the oil industry to control, optimize and streamline their oil wells operations
2/11/20	Carbon Relay	Insight Partners	VC	\$63.00M	Developer of technologies that enable clients to boost the energy efficiency of their data centers and preserve up time
4/4/20	NRStor	The Blackstone Group	LBO	-	Developer of cost competitive energy storage projects designed to develop industry-leading energy storage technologies
4/5/20	RedSail Technologies	Francisco Partners	LBO	-	Provider of an integrated software suite for municipalities, counties, and utility districts for property tax management, utility billing, and accounting software services
6/23/20	Urjanet	Equifax	VC	\$14.66M	Developer of a cloud-based energy utility data platform which allows organizations to manage company-wide power usage, carbon footprint and evaluate power investments
6/26/20	Station A	Schneider Electric	VC	\$3.07M	Developer of a cleantech platform intended to automate clean energy development and provide predictive energy usage data, enabling clients to optimize their design and process and be more energy-efficient
6/29/20	Orbis Intelligent Systems	Cadence Equity Partners	LBO	-	Provider utilities solutions that monitor pipe status using patented sensors and IoT technologies that detect leaks, monitor for pipe deterioration, measure water flow and provide tampering alerts - all from outside the pipe.
7/31/20	Aquicore	Keyframe Capital Partners	VC	\$14.00M	Provider of a suite of energy-related software and hardware designed to minimize real-estate operational costs; its platform monitors real-time energy consumption allowing users to make better investment/operational decisions
8/27/20	Open Systems International	Emerson	M&A	\$1,600M	Provider of open automation, network control and optimization platforms intended to offer open, high-performance systems to electrical substations, power plants, large electrical transmission networks, distribution grids, oil and gas pipeline networks, and water/hydro networks
9/25/20	EnergyWare	JOX Energy	M&A	-	Provider of energy efficiency technology intended to bring engineers, designers, best in breed manufacturing and trained energy technology installers all under one umbrella
9/29/20	Lilypad Energy	ElectrifyPower	M&A	-	Developer of data analytics software for the energy industry focusing on battery energy storage applications

VAQUERO | Vaquero Experience in Energy Tech



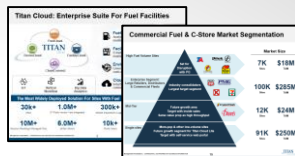
Transaction Details:

Enverus's predictive decision platform combines intelligence, analytics, tools and services in one seamless system to deliver value at every stage of the E&P process.



Transaction Details:

Oildex transforms the way the oil and gas industry connects, collaborates and automates. More than 1,100 operators, 74,000 service providers, and millions of mineral rights owners use Oildex.



Transaction Details:

Titan Cloud is the leading provider of compliance and wet stocks management for the downstream oil and gas industry solutions, specifically focused on C-stores.

M33's investment is in helping Titan Cloud to rapidly grow their product offerings and partnerships to strengthen their leadership position.



Transaction Details:

Entero is a developer of a productivity analysis software designed for managing exploration, production, transportation and refining processes specifically in the oil and gas industry. Its software eliminates time-consuming manual data entry and paper-based reserve management, enabling energy companies to manage different functional areas from the field to the boardroom.



Transaction Details:

Allegro is a developer of commodity management software. The company's software is built with the knowledge of commodity trading, risk management, physical logistics, regulatory compliance, and accounting.

Other Relevant Experience

ENVERUS
Drillinginfo

RedDog
Systems Inc.

PDS ENERGY

irthSolutions

Oildex

geoforce

SiteHawk

TOLTEQ

GOLD
2020

GENSTAR
CAPITAL

ENVERUS
Drillinginfo

Oildex

GAUGE
CAPITAL

AKKR
ACQUISITION

LLRpartners

sphera

NOV

RAIDER
2020

VAQUERO | Our Team



David Grove

23 Years Experience

Bank of America,
Cowen

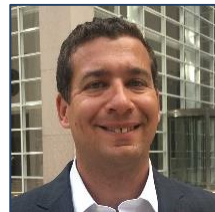
100+ Completed
Transactions



Terry Jiang

UCSD, BS
Management Science;
Minor in Accounting

20+ Transactions at
Vaquero



Josh Moses

18+ Years Experience

MBA – Northwestern

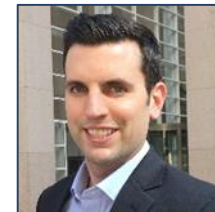
University of Chicago,
BA History



Dominic Chan

UC Berkeley, BA
Political Science

8+ Years in Financial
Services Industry



JP Joyce

MBA – UC Berkeley

U.S. Air Force
Academy, BS
Political Science

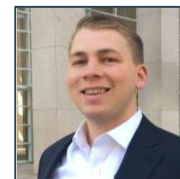
3500+ Flight Hours



Kristian Kemppainen



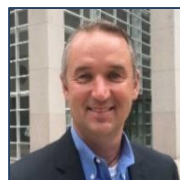
Sarah Childers



Tom McNamara



Macalaster Schmidt



Danny Allen



Georgia Wahl



Logan Breslin





 **VAQUERO**

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