

Global Energy Elite 2018



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Introduction

This is an exceedingly turbulent period of change for the energy sector—which is why 2018 has been such an electrifying year for the bold men and women working to navigate, evolve and improve the way we create, trade and utilise energy.

In many parts of the world, a golden age of decommissioning is on the horizon. Incumbent multinationals and innovative start-ups are establishing new partnerships to drive pioneering technology capable of cleaning up the seas, recycling and redeploying infrastructure in new markets. Meanwhile, sweeping and often shocking socio-political revolutions have spilled beyond national borders and shaken up production, distribution and redefined the way industry perceives its commodities and collaborates with governments on the world stage.

Companies and domestic administrations are breaking the mould of their established brands or historical precedents to leverage green innovations and branch out into exciting new opportunities. From renewable production on an industrial scale to the mass production of electric-powered vehicles, or simply leveraging new discoveries or creating and implementing more efficient and sustainable processes, the energy sector is rapidly evolving into an ever-expanding field of ecologically aware and ultra-efficient hybrids willing to explore and develop new opportunities at every turn.

But this change hasn't happened overnight, and it hasn't happened on its own. The energy sector's phenomenal transformation has boiled down largely to the brave leadership and tough decisions being made by the individuals who shape it. It's those individuals who ultimately hold the key to our sustainable future, our business productivity and our economic prosperity—and that's why it's crucial those men and women are recognised.

They collaborate across industry and further afield to guide and shape our energy future. They hail from National Oil Companies and Independent Oil Companies. They are Energy Ministers, Low Carbon visionaries and Legal & Consultancy experts. They are CSR leaders, Banking & Finance specialists, Future Leaders, pioneering Women and Intergovernmental trailblazers.

They are the Global Energy Elite—and these are their stories.

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NOCs

National oil companies are not only responsible for the majority of global production, but they're also responsible for the prosperity of countless economies. That places these bold men and women leading NOCs at the forefront of societal advancement.



Mustafa Sanallah
CEO
NOC (Libya)

Mustafa Sanallah experienced a baptism by fire following his 2014 appointment as the chief executive of Libya's National Oil Corporation (NOC). Sanallah has been forced to spend the vast majority of his tenure negotiating with rival governments, mitigating threats to energy installations and battling constant political dysfunction

and civil conflicts to maintain production—which has been absolutely critical to Libya's economic stability.

Under Sanallah's leadership, NOC has successfully sidestepped the country's war-torn political landscape, secured major deals with the likes of Glencore and Vitol and quadrupled production.

Sultan Ahmed al-Jaber
CEO
Adnoc

Dr Sultan Ahmed al-Jaber has been at the heart of the UAE's energy policy for over a decade, serving as the UAE's Special Envoy for Energy and Climate Change in 2010 before becoming a Minister of State and member of the federal cabinet in 2013. Al-Jaber has since been handed the reigns to Abu Dhabi National Oil Company (Adnoc),

guiding the firm with an aggressive downstream strategy that has helped production swell to 3m barrels a day and 9.8bn cubic feet of raw gas.

Meanwhile, al-Jaber's ambitious Strategy 2030 initiative is also working to increase efficiency, sustainability and bolster production of ultra-sour gas.



Amin H. Nasser
President and CEO
Saudi Aramco

Amin H. Nasser has spent his entire career at Saudi Aramco. He joined as an engineer fresh out of university in 1982 and has grown alongside the company as it became the world's third largest provider of crude oil at 10m barrels a day. Nasser was subsequently appointed CEO in 2015, and

as the de facto leader of Opec his primary focus has been to guide member states through crippling price drops and mitigate the threat of surging shale production.

More recently, he's turned his attention to a modest increase in production and Aramco's growing renewables portfolio.

Wan Zulkiflee
CEO
Petronas

Wan Zulkiflee was appointed chief executive of Petronas in 2015, having joined Malaysia's state-owned venture as a process engineer three decades earlier.



Carlos Saturnino Guerra Sousa e Oliveira
CEO
Sonangol

Dr Carlos Saturnino was appointed Sonangol's chairman in November 2017 by Angolan President João Manuel Gonçalves Lourenço, having previously served a number of roles over his 30-year career with the company.



Mary Jane Mwangi
CEO
Kenya NOC

Mary Jane Mwangi was appointed CEO of Kenya's National Oil Corporation in August 2017 after a year as acting head of one of the few state-owned ventures in Africa capable of facilitating all aspects of the petroleum supply chain.

Mamadou Faye
Managing Director
Petrosen

Mamadou Faye was appointed CEO of the Senegal-owned Petrosen in 2012.

He has since been working closely with the Senegalese Government's Department of Energy, turning some of Africa's biggest recent discoveries into viable production.

Saad Sherida al-Kaabi
CEO
Qatar Petroleum

Saad Sherida al-Kaabi joined Qatar Petroleum as a student in 1986, working across the company before becoming CEO in 2014.

Al-Kaabi's ambitious vision for QP includes plans to increase Qatar's liquefied natural gas output by 30% by 2023.



Nizar al-Adsani
CEO
Kuwait Petroleum

Nizar al-Adsani was appointed CEO of Kuwait Petroleum Corporation (KPC) in 2014 and has since launched an initiative pushing KPC to expand refining capacity to achieve 2m barrels a day by 2035.

IOCs

Energy is a global business in every sense of the word, and the sector relies upon the cutting-edge innovation only international oil companies can offer. These are the leaders driving that innovation.



Harold Hamm
CEO
Continental

Harold Hamm is a pioneer in every sense of the word.

He entered the oil sector at the age of 18 with just a used tank truck and at 21 took out a \$1,000 loan to establish a one-man field services business in Oklahoma. Hamm's business eventually grew to become Continental Resources—one of

America's largest independent exploration and production firms. As CEO of Continental, Hamm turned the industry on its head after purchasing 300,000 acres of the Bakken field in North Dakota in 2003. He realised a decades-old ambition to use hydraulic fracturing and now expects the Bakken to yield 24bn barrels.

Igor Sechin
CEO
Rosneft

Igor Sechin is widely considered the most powerful man in Moscow after President Vladimir Putin. He's also considered one of the most elusive, despite spending decades filling various high-ranking political roles within the Russian Federation, most notably serving as the country's Deputy Prime Minister from 2008–2012.

In May 2012, Sechin stepped down to become CEO of the state-owned Rosneft – and while Sechin's political clout has helped the integrated company to establish some major deals with the likes of BP and ExxonMobil, Rosneft has been forced to take on record debt in recent months to combat harsh US political sanctions targeting the company.



Darren Woods
CEO
ExxonMobil

Darren Woods joined ExxonMobil in 1992 as an analyst before climbing the ladder to become CEO at the start of 2017, taking over after his predecessor left the company to serve as Donald Trump's US Secretary of State. Since heading Exxon, Dallas-based Woods has launched a programme of aggressive expansion of the company's

drilling and refinery operations. By 2020, Woods is planning to invest an average \$25bn per year on both offshore and onshore exploration and has substantially ramped up production projects in North America and the Middle East. Under Woods, Exxon has also committed to spending \$1bn per year on climate change initiatives.

Patrick Pouyanné
CEO
Total

Patrick Pouyanné was appointed CEO of Total in 2015 following decades of service filling management roles across Elf and Total.

Previously, Pouyanné also worked as a civil servant for the French Ministry of Industry.



Claudio Descalzi
CEO
Eni

Claudio Descalzi joined Eni in 1981 as a field engineer, working his way up to Head of Reservoir and operating activities in 1990, before his appointment as CEO in May 2014.



Bob Dudley
CEO
BP

Bob Dudley was appointed group CEO of BP in 2010, just months after the Deepwater Horizon catastrophe in the Gulf of Mexico.

His subsequent strategic focus has centred on improved safety, transparency and sustainability.

Leonid Mikhelson
CEO
Novatek

Leonid Mikhelson is the founder and chairman of natural gas producer Novatek, Russia's largest independent producer of natural gas.

He also holds a 48.5% stake in petrochemical processor Sibur.

Austin Avuru
CEO
Seplat

Seplat cofounder Austin Avuru was appointed CEO in May 2010 and has since worked to combat revenue slump with a strategic shift towards improving sustainability and scaling up Seplat's gas business.

Al Walker
CEO
Anadarko

Al Walker joined Texas-based Anadarko in 2005 as CFO before serving as COO and finally CEO from May 2012.

Since then, Anadarko has gone on to deliver big results, with double-digit production growth predicted across 2018.



Eldar Sætre
CEO
Equinor

Eldar Sætre joined Equinor, formerly Statoil, in 1980. He has filled a number of management roles over the last decade before being appointed acting CEO in 2014. The appointment was made permanent in February 2015.

ENERGY MINISTERS

The pace of change across the global energy sector is often dizzying. These individuals are constantly working to align government energy policy to meet the increasingly complex needs of both industry and consumer markets.



Jabbar al-Luaibi
Energy Minister
Iraq

Jabbar al-Luaibi was named Iraqi Minister of Oil in August 2016 and has ever since faced the arduous task of maintaining steady production in a country where 95% of government revenue is generated through the sale of crude oil.

Although constant political and military disruption has ravaged production over the last year, former South Oil Company

boss al-Luaibi has achieved phenomenal success following the campaign to reclaim land from the so-called Islamic State.

Earlier this year, al-Luaibi signed a major deal with Orion to develop new gas fields in the south—while further foreign investment has helped Iraq to achieve capacity of almost 5m barrels a day.

Jeff Radebe
Energy Minister
South Africa

Long-time African National Congress member and former Robben Island inmate, Jeff Radebe was only named South Africa's Minister of Energy in February 2018, but he's already moved quickly to establish a programme of rapid growth. Under President Cyril Ramaphosa, Radebe is responsible for an ambitious target to attract at least \$25bn worth of

foreign direct investment into the South African energy sector.

Key initiatives to achieve that target includes working to secure strategic stock through an intensive overhaul in new fuel tanks and associated infrastructure, alongside a desire to transform the country into one of the globe's top producers of shale gas.



Alexander Novak
Energy Minister
Russia

Alexander Novak served as Deputy Mayor of Norilsk on financial and economic issues until 2002, and then Vice Governor and Head of the Main Financial Directorate of the Krasnoyarsk Krai until 2008.

Novak then became Deputy Finance Minister of the Russian Federation, until he

was appointed Minister of Energy under Dmitry Medvedev in 2012.

Novak has since spent a sizeable chunk of his tenure working to increase energy cooperation with Tehran and Washington, as well as trying to convince Opec to abandon its production limits.

Emmanuel Ibe Kachikwu
Energy Minister
Nigeria

Emmanuel Ibe Kachikwu was appointed Nigeria's Minister of State for Petroleum Resources in 2015.

His strategic focus since that appointment has been an uphill battle to sanitise Nigeria's petroleum sector and return it to profit.



Carlos Perez
Energy Minister
Ecuador

Carlos Perez was named Ecuador's Minister of Electricity and Renewable Energy in April 2018. Perez has worked in the oil sector since 1976, and formerly served as head of the country's Ministry of Hydrocarbons.



Suhail bin Mohammed Faraj Faris al-Mazrouei
Energy Minister
UAE

Suhail bin Mohammed Faraj Faris al-Mazrouei was appointed UAE Minister of Energy and Industry in March 2013 with the primary strategic focus of bolstering sustainable development across the petroleum, electricity and mineral sectors.

Teresa Ribera Rodriguez
Energy Minister
Spain

Teresa Ribera Rodriguez was named Spain's first Minister for the Ecological Transition of Spain in June 2018.

Ribera previously served as Secretary of State for Climate Change under José Luis Rodríguez Zapatero.



Khalid al-Falih
Energy Minister
Saudi Arabia

Saudi Aramco chairman Khalid al-Falih was appointed Saudi Arabia's Minister of Energy, Industry and Mineral Resources in 2016.

His subsequent efforts convincing Opec and Russia to curb production have been instrumental in stabilising Brent crude prices.

Gabriel Obiang
Energy Minister
Equatorial Guinea

Gabriel Mbagha Obiang Lima was appointed Minister for Mines, Industry and Energy in Equatorial Guinea in July 2012, following 15 years working across the country's oil and gas sector.

Bijan Namdar Zanganeh
Energy Minister
Iran

National Petrochemical Company chairman and career politician Bijan Namdar Zanganeh was appointed Iran's oil minister by Hassan Rouhani in 2013, having spent decades in public service in various cabinet positions.

LOW CARBON

Innovative technologies are reshaping the energy sector, enticing new start-ups and goliath incumbents alike to embrace renewables and redefine sustainability. These are the visionary leaders guiding that transformation.



Elon Musk
CEO
Tesla

South African entrepreneur Elon Musk is one of the globe's most well-known and controversial businessmen.

After making his fortune with PayPal in the 1990s, Musk has since gone on to create the ambitious commercial space group SpaceX, alongside Tesla Motors in 2003.

In 2017, Musk announced electric-car venture Tesla had surpassed GM to become America's most valuable car manufacturer.

Musk is also recognised as a towering figure in renewables after securing a \$2.6bn deal in 2016 for an all-stock purchase of SolarCity, a pioneering utilities provider powered by solar farms.

Magnus Hall
CEO
Vattenfall

Magnus Hall was named chief executive of the Swedish state-owned Vattenfall in 2014 following a stint as CEO of forestry group Holmen.

Vattenfall wasn't in spectacular shape when Hall was appointed, having written off 29.7 billion SEK worth of assets several months prior because of risky acquisitions. Hall immediately implemented an

aggressive organisational restructuring programme before unleashing a wave of innovative initiatives that helped return Vattenfall to profit in 2017 for the first time in five years. Last year saw Vattenfall's completion of the Sandbank offshore windfarm in Germany, as well as the company's UK-based Pen y Cymoedd farm start operating at full capacity.



Jérôme Péresse
CEO
GE Renewable Energy

Jérôme Péresse was named head of GE Renewable Energy in 2015, reporting directly to GE CEO John Flannery. Prior to his appointment at GE Renewable Energy, Péresse created and oversaw Alstom's Renewable Power Sector business, which had grown to nearly 10,000 employees and generated sales of €2 billion before GE

acquired Alstom's power and grid business in November 2015 for €12.35bn. At GE Renewable Energy, Jérôme Péresse now presides over more than 22,000 employees in 55 countries—bringing together offshore and onshore wind, hydro, concentrated solar power to install more than 400+ gigawatt capacity since its inception.



Joe Kaeser
CEO
Siemens

Joe Kaeser has spent over 30 years at Siemens, filling a variety of management roles before being appointed CEO in August 2013.

Kaeser also serves as one of Angela Merkel's go-to international envoys for German industry.

Matthew Allen
CEO
Become Energy

Founded by Matthew Allen in 2015, Become Energy is a rapidly rising developer, funder and asset manager based in the UK that works to develop battery storage projects for large energy consumers.



Nick Boyle
CEO
Lightsource Renewable Energy

Nick Boyle founded Lightsource Renewable Energy as a six-person start-up in 2010. Since then, Lightsource has grown to become Europe's largest solar developer and recently launched a strategic partnership with BP.



Mustapha Bakkoury
President
Masen

Mustapha Bakkoury was appointed President of Masen, the Moroccan Agency for Sustainability, in December 2009 with the goal of reaching renewables capacity of 3,000 megawatts by 2020 and 6,000 megawatts by 2030.

Henrik Poulsen
CEO
Ørsted

Henrik Poulsen joined Ørsted as CEO in 2012. Formerly DONG Energy, Ørsted focuses exclusively on offshore wind, bioenergy plants and waste-to-energy solutions. The firm is committed to phasing out coal and sold its oil and gas business to INEOS in 2017.



Chris Antonopoulos
CEO
Lekela

Chris Antonopoulos was appointed CEO of the African-based wind and solar firm Lekela in March 2015, after spending eight years overseeing near \$10bn in sales and development at Bombardier.

Does industry collision shatter or shape our future thinking?

In this Transformative Age, convergence is driving the reimagination of industries to create limitless opportunities.

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The better the question. The better the answer. The better the world works.

LEGAL & CONSULTANCY

The starkly contrasting requirements of domestic markets have given way to regulatory division and created a legal quagmire for firms across the sector. Without the help of these legal experts and consultants, firms couldn't possibly hope to navigate complex jurisdictions.



Paul Griffin
Senior Advisor and Counsel
White & Case

Professor Paul Griffin was named Senior Advisor and Counsel to White & Case's global oil and gas team in 2016, having spent more than three decades in the sector, most recently in Hong Kong at A&O. Griffin's appointment was part of White & Case's 2020 strategy to prioritise growth of its oil and gas practice areas.

He has also won multiple accolades as one of the globe's top oil and gas lawyers, working as a consultant on major projects like the Aphrodite Offshore Oil Field in Cyprus, advising on the Interstate Gas Pipelines of Pakistan and the Leviathan Offshore Field near Israel.

Philip Thomson
Partner
Ashurst LLP

Philip Thomson is a partner at Ashurst LLP, and co-head of the firm's global oil and gas practice.

Thompson was made partner at Ashurst in 2005, following a decade of service as an associate and managing associate at Linklaters. His expertise

extends to large-scale oil and gas project finance and mergers and acquisitions, having acted for sponsors, borrowers, host governments and lenders in Nigeria, Chile, Kuwait, Oman, Egypt and Italy.

Thomson now specialises in the liquefied natural gas industry.



Adi Karev
Global Oil and Gas Leader
EY

Adi Karev joined EY in 2015 after 25 years with Deloitte. He now serves as the Global Sector Leader of EY's Oil and Gas practice in Hong Kong.

In his role as Global Sector Leader, Karev is responsible for driving strategic investments across various sector solutions, and identifies and nurtures targets for strategic sector acquisitions.

Karev claims one of the industry's most extensive track records of delivering complex business transformations, strategy alignments and transaction projects—working alongside major clients like Shell, ExxonMobil, BP, China National Petroleum Corporation, China National Offshore Oil Corporation and a wide range of national oil companies.

Scot Anderson

Partner
Hogan Lovells

Scot Anderson became a partner at Hogan Lovells in 2013 before rising to Global Head of Energy & Natural Resources in 2015.

He specialises in joint ventures, divestment of projects and lease acquisitions.

**Jennifer Engelhardt**

Partner
Latham & Watkins

Jennifer Engelhardt was named partner at Latham & Watkins LLP in 2014. She primarily represents companies, investment banks and private equity firms in public and private debt offerings and acquisition financing.

**Richard Dyson**

CEO
io oil and gas consulting

Richard Dyson was named CEO of io oil and gas consulting in 2016 and has since been responsible for shaping io's new model of upstream consultancy.

Dyson has proven more than capable of delivering in terms of the design, planning and delivery of major oil and gas developments—having spent the last three decades devoted to industry development and evolution. Dyson began his career as a process engineer specialising in cryogenic air separation before moving on to Genesis Oil and Gas Consultants, where he held a series of managerial roles before rising to become Senior Vice President.

**Niloufar Molavi**

Global Energy Leader
PwC

Niloufar Molavi has been with PwC for more than 25 years, having been promoted to partner in 2001.

She joined PwC's leadership team and was appointed US Energy Leader in 2011, before being named Global Energy Leader in 2016. Molavi's Houston-based team now comprises 6,000 global professionals.

She specialises in international tax structuring and advises energy companies on mergers, acquisitions and public offerings.

Molavi has previously served as PwC's US Chief Diversity Officer, working to help the firm build a pipeline of female leaders across PwC's energy business.

François Austin

Partner
Oliver Wyman

François Austin is a Partner at the New York-based firm Oliver Wyman, where he has spent his five years leading a number of improvement programmes across the oil, gas and utility sectors.

**Alasdair Buchanan**

Energy Director
Lloyd's Register

Alasdair Buchanan was named Energy Director at Lloyd's Register Group in March 2016, having previously served as COO at LR's Energy Advisory Services and spent almost three decades at the GE-owned fullstream company Baker Hughes.

Robert Merrick

Partner
Herbert Smith Freehills

Australian-based Robert Merrick has spent the last two decades at global firm Herbert Smith Freehills, rising to become a partner and head of its global energy sector group.

CSR

Corporate social responsibility is the driving force that helps firms to establish sustainability and longevity across rapidly evolving markets. These men and women are securing that sustainability through pioneering initiatives.

**Alberto Piatti**

Executive VP
Eni

Alberto Piatti was appointed Executive Vice President of the Responsible and Sustainable Enterprise Unit of the Eni Foundation in 2015.

As the charitable arm of the Italian supermajor, the Eni Foundation works to promote improved healthcare and infrastructure in the 79 countries in which Eni operates. Piatti has previously served

as President of Italian NGO Avsi, where he led a phenomenal expansion of Avsi's initiatives.

When Piatti assumed office at Avsi, the NGO had been operating 15 projects in 12 countries with a budget of €4.5m. By the time Piatti moved on to Eni, Avsi had taken on 100 projects in 38 countries with a budget of €30m.

Manoelle Lepoutre

Senior VP
Total

Manoelle Lepoutre was appointed Total's Executive Vice President for Sustainable Development and Environment in 2009.

Lepoutre had previously served as Vice President of R&D at Total Exploration & Production, alongside a wide range of other roles since joining the company in 1982.

As VP for Sustainable Development and Environment, Lepoutre has already

made extensive progress implementing ambitious sustainability targets at Total.

Increased efficiencies and the deployment of sustainable technologies has helped the company reduce its sulphur dioxide emissions by 50% from 2010 to 2016—and is set to meet targets to slash those emissions by another 50% by 2020.

**Pratima Rangarajan**

CEO
OGCI

Dr Pratima Rangarajan was appointed the first-ever chief executive officer of the Oil and Gas Climate Initiative (OGCI) Climate Investments business in May 2017.

The newly formed investment company was joint-funded by the OGCI's 10-member companies to develop innovative technologies capable of reducing greenhouse gas emissions. Rangarajan's

ambitious strategy will see her direct \$1bn worth of capital investment over the next 10 years working with other organisations to limit climate change through the deployment of strategic partnerships and low emissions technologies.

Rangarajan previously served as General Manager for GE's Onshore Wind Product Line and its Energy Storage start-up.

Nili Safavi**Human Rights Expert
BP**

Nili Safavi is BP's Human Rights Expert, working within its Environmental and Social Responsibility Team. She's responsible for helping BP align its strategy with the UN Guiding Principles on Business and Human Rights

**Mohamed Firouz Asnan****Senior VP
Petronas**

Mohamed Firouz bin Asnan has served in a number of roles at Malaysia's Petroliaam Nasional Berhad (Petronas) since he joined the company, having most recently been appointed Senior Vice President for Strategy in 2017.

Dana Cartwright**Lead social performance advisor
Tullow Oil**

Dana Cartwright has served as Lead Social Performance Advisor at UK-based Tullow Oil since 2016, having previously served as a Regional Social Performance Advisor at Tullow and Social Performance Analyst at BG Group.

**Catherine Hughes****Non-executive Director
Shell**

Catherine Hughes was appointed Non-executive Director to the board of Royal Dutch Shell in 2017.

Hughes had previously served as Executive Vice President International at Nexen until her retirement in 2013

Apinya Synsatayakul**Sustainability strategy analyst
PTT Global Chemical**

Apinya Synsatayakul currently serves as a sustainability strategy analyst at PTT Global Chemical, which is Thailand's largest petrochemical and refining company with a capacity of 280,000 barrels a day.

Mufleh Al Shammari**Corporate Communications manager
Sipchem**

Mufleh Al Shammari was appointed manager of Corporate Communications and Corporate Social Responsibility at Saudi petrochemical manufacturer Sipchem in 2015.

Al Shammari had previously worked as PR Director at titanium dioxide producer Tasnee.

Briana Lyssy**Government Community Affairs Lead
Marathon Oil**

San Antonio-based Briana Lyssy joined Marathon Oil as its Government Community Affairs Lead in 2013, taking responsibility for identifying emerging challenges and working to promote Marathon's reputation and bolster engagement within communities and government.

BANKING & FINANCE

Innovation requires considerable investment and the deployment of increasingly dynamic and creative financial tools. These are the financial professionals enabling the energy sector to advance and thrive.

**Olivier Musset****Head of energy
Société Générale**

Société Générale appointed Olivier Musset Global Head of Energy in April 2013, having previously held the position of Deputy Global Head of the Energy Group.

The Paris-based Musset joined Société Générale in 1993 from Technip as a process engineer focusing on petrochemical and refining industries. From 1997 to 2008, Musset moved through a variety

of positions at Société Générale's oil and gas project finance team before being appointed Head of Energy Project Finance for EMEA.

As Global Head of Energy, Musset is responsible for managing the bank's advisory services and a range of reserve-based, structured financings across the energy sector.

Stuart Smith**Head of Commodities, Asia Pacific
Citi**

Stuart Smith is Citigroup's Head of Commodities for the Asia-Pacific region, having been appointed in 2016 after serving as Global Head of Commodities Structuring at Commonwealth Bank of Australia (CBA).

Based in Singapore, Smith specialises in general commodity collateralised financing, physical energy trading—with an extensive track record in derivatives risk

management and shipping.

Smith began his career as part of Shell's Exploration and Production team, before moving onto trading at Shell LNG and subsequently serving as Head of LNG Trading for Goldman Sachs.

As part of Smith's role there, he was responsible for pioneering the bank's LNG spot trading business.

**Mark Keenan****Head of research, Asia-Pacific
Société Générale**

Mark Keenan is a Managing Director and Global Commodities Strategist at Société Générale. In November 2017, he was also appointed the bank's Head of Research for the Asia-Pacific region.

Based in Singapore, Keenan has over two decades' worth of experience in energy research, trading and investment—having previously served as CEO of Cubit

Commodity Research, Head of Portfolio Analytics & Risk at RWC Partners and Associate Director - ETD Commodities at UBS Investment Bank.

At Société Générale, Keenan's award-winning team works with a range of corporates, trade houses and funds across commodities markets to develop better trading, hedging and investment strategies.



Price volatility, political and regulatory upheaval, technological disruption. For energy players everywhere, doing business is anything but usual. But we're delivering the innovative solutions they need to succeed. From enabling oil producers to ensure the economic viability of their barrels. To helping LNG buyers manage price risks associated with their contracts. Our energy commodities coverage is fuelling progress around the world.



HOW DO
YOU MAKE
PROGRESS
WHEN IT'S
BUSINESS
UNUSUAL?

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Ed Morse
Global head of commodities research
Citi

Ed Morse has been with Citi Research since May 2011 as Managing Director and Global Head of Commodities Research.

Morse was the driving force behind the establishment of Citi's Commodities Research Strategy team, having been responsible for the development of similar teams at Credit Suisse and Lehman Brothers—where Morse

served as Managing Director.

Morse is also an influential voice in academics, government and global energy policy. He's taught at Princeton, Columbia and Johns Hopkins, served as an advisor to the UN Compensation Commission on Iraq, was a Senior Fellow on the Council on Foreign Relations and previously worked as the Deputy Assistant Secretary of State for Energy Policy.

Owain Johnson
MD, energy research and product development
CME Group

Owain Johnson was appointed Managing Director of Energy Research and Product Development at CME Group in November 2016.

He leads a team responsible for ensuring the integrity of CME's existing future benchmarks—which range from WTI and DME Oman to RBOB and NYH ULSD. Johnson originally joined CME as an Executive Director in 2010 but was then named Managing Director and Chief of Products and Services at the Dubai Mercantile Exchange (DME) in 2012, after CME bought a controlling stake in the joint venture. Under Johnson, DME drastically enhanced its profile in Asia and established itself as a benchmark for East of Suez markets.



Fathima Hussain
Global Head of oil and
gas project finance
Standard Chartered

Fathima Hussain is Managing Director for Oil & Gas Corporate Finance at Standard Chartered Bank. Hussain has been with Standard Chartered since October 2005, having previously served as Manager for Oil & Gas Finance at ANZ.

Troy Black
Head of commodities
Wells Fargo

Troy Black is Managing Director and Head of Commodities at Wells Fargo Securities, having joined Wells Fargo in July 2015 after four years with Barclays Capital and eight years as Managing Director at BP.

Thomas Wilkinson
Head of oil and gas
Barclays

Barclays Corporate Banking named Tom Wilkinson as its new Head of Oil and Gas in January 2016, after six years of supporting predecessor Walter Cumming. Wilkinson is based in London.



Dr Abhishek Deshpande
Head of oil market research
and strategy
JP Morgan

Dr Abhishek Deshpande left Natixis in September 2017 after six years as Senior Director and Head of Global Energy Research to become JP Morgan's new Head of Oil Market Research & Strategy.

Jonas Persson
Global head of energy
Lloyds Banking Group

Jonas Persson joined Lloyds Banking Group in 2008, most recently serving as Managing Director.

In March 2018, Persson was handed the energy portfolio of outgoing Global Head of Infrastructure, Resources & Energy Geoffrey Spence.

FUTURE LEADERS

As the energy sector evolves, so too must the characteristics of the individuals guiding those trends. These are the bright men and women poised to reshape the industry from the inside-out.



Leila Benali

Strategy & corporate planning expert
Saudi Aramco

Over the course of the last two decades, Dr Leila Benali has established herself as one of the Middle East's leading voices on energy policy.

Benali began her career as an industrial engineer at Morocco's ONC Group before moving to Schlumberger and then as a field researcher working to liberalise the UAE's electricity and water sectors.

She subsequently joined IHS Markit as Director for the Middle East and Africa, where she managed the creation of government roadmaps and energy optimisation. She was handed control of Saudi Aramco's strategy and planning portfolio in November 2014 and simultaneously serves as a member of the Central Dredging Association.

Ahmed Almaghaslah

Project leader
Saudi Aramco

Ahmed Almaghaslah has spent the last 13 years at Saudi Aramco, performing a range of management roles as one of the company's key strategists.

Currently a Project Leader, Almaghaslah is responsible for managing Saudi Aramco's Operational Excellence programme.

He also has a seat in the company's Strategic Planning and Consulting

Group, where Almaghaslah plays a key role shaping Saudi Aramco's upstream operations and benchmarking activities.

In addition, Almaghaslah is one of the company's top voices for health and safety. He has been responsible for spearheading Saudi Aramco's new SMS system that improved its safety effectiveness levels by an incredible 70%.



Gordon Birrell

COO, Production, Transformation & Carbon
BP

Gordon Birrell has spent the last 30 years establishing a sterling track record as an upstream leader.

He most recently headed BP's operations in the Caucasus as Regional President for Azerbaijan, Georgia and Turkey, until he was appointed Chief Operating Officer for Production,

Transformation and Carbon in the BP upstream segment in April 2017.

Since that appointment, the London-based Birrell has been responsible for leading an aggressive upstream modernisation programme and heading a new upstream approach for a low-carbon future.



Alexandra Fordham

Earth scientist
Chevron

Alexandra Fordham has been an Earth Scientist at Chevron since September 2008, working as part of an integrated subsurface team responsible for Chevron's Non-Operated-Joint-Venture interests across the UK Continental Shelf.



Aldo Flores

Undersecretary of hydrocarbons
Mexico

Dr Aldo Flores was named Mexico's Deputy Secretary of Energy for Hydrocarbons in August 2016, having spent the five years prior as the International Energy Forum's Secretary General in Saudi Arabia.

Simas Gerdvila

Policy officer
Euroheat & Power

Simas Gerdvila was appointed Policy Officer at Euroheat & Power in June 2016, serving as a representative and policy advocate on renewable energy and climate change issues at the European Union.

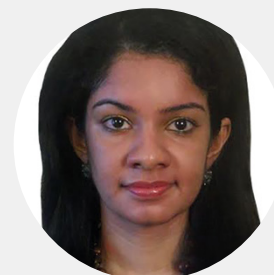


Zainub Noor

Project leader
Halliburton

Zainub Noor is Product Manager for Reservoir Management in R&D at Halliburton Landmark.

She specialises in integrated asset modelling and is responsible for the development of various Landmark reservoir management solutions.



Ranali Perera

Petroleum economist
Petroleum Resources Development Secretariat Sri Lanka

Ranali Perera has been a petroleum economist at Sri Lanka's Petroleum Resources Development Secretariat since August 2012, having previously worked for the World Bank's Urban Unit as a Junior Consultant.

Jocelyne Machevo

Project interface coordinator
Eni

Jocelyne Machevo was named Project Interface Coordinator at Eni East Africa in February 2016 after serving as a project engineer.

She was awarded "Outstanding Mozambican Woman of the Year" at the 2017 Mozambique Gas Summit.

Dr Abeer Al-Olayan

Scientist
Saudi Aramco

Dr Abeer Al-Olayan has been a Petroleum Scientist at Saudi Aramco since July 2011 and is responsible for leading its chemicals development initiative.

She is also a Postdoctoral Research Fellow at the Massachusetts Institute of Technology.

PwC is proud of our people

Congratulations to Niloufar Molavi, recognised as one of the most influential people in the energy sector.

PwC's energy team, led by Niloufar Molavi, provides fresh perspectives to oil and gas executives on field operations and the use of digital technologies. We realign businesses in light of fluctuating oil prices, help you navigate M&A to increase value and returns, and share new insights on trends within each segment in the sector.

To learn more about our global oil and gas practice, visit us at www.pwc.com/energy

WOMEN IN ENERGY

It takes tenacity to succeed in a historically male-driven sector, and that's why change and equality are so urgently needed. These extraordinary women are paving the way, creating new opportunities and modernising the culture of energy firms across the globe.



Susan Dio
Chairman and president
BP America

Over the last 30 years, Susan Dio has established herself as a crucial player at BP. First joining a BP legacy company as an engineer in 1984, Dio has since risen through the ranks to become Chairman and President of BP America. As Head of Audit for Refining and Marketing from 2013-15,

she was responsible for the integration of new risk management functions that slashed overhead costs by 25%, and as CEO of BP Shipping Dio led the largest fleet renewal programme in BP history. Based in Texas, she was named head of BP America in May 2018.

Sara Ortwein
President
XTO Energy

Sara Ortwein has been with ExxonMobil since 1980, joining fresh from the University of Texas as a drilling engineer. In 1997, Ortwein was named Reservoir and Evaluation Planning Manager for Exxon Ventures focusing on venture pursuit and capture in Russia and the east, before serving as a Corporate Upstream Advisor and Product Manager in Texas.

She was subsequently promoted to Vice President of Engineering and then President of ExxonMobil Upstream Research Company in 2010. In November 2016, Ortwein was appointed president of Exxon subsidiary XTO Energy, which manages an estimated 40,000 oil and unconventional natural gas sites dotted across North America.

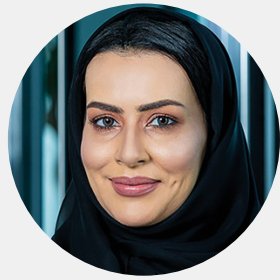


Nouf Al Abdul Razzaq
GM
BP Kuwait

BP's Nouf Al Abdul Razzaq has had an incredibly varied career.

She began working as an assistant at Sotheby's in London, where she specialised in Islamic Art and Jewellery before returning to Kuwait and spending time as a loan officer for the National Bank

of Kuwait. From there, she moved into human resources at Kuwait Oil Company, and subsequently joined BP in 2004 as a communications and external affairs advisor. By 2009, she had worked her way up to become the company's General Manager in Kuwait.



Tayba Al Hashemi

CEO
Al Yasat Petroleum Operations Company

Tayba Al Hashemi was named CEO of Al Yasat Petroleum, a joint-venture between Adnoc and CNPC, in April 2018.

She previously served as a Vice President at Adco and UDR Projects Unit Manager at Adnoc.

Vicki Hollub

CEO
Occidental

Vicki Hollub has performed various roles at Occidental Petroleum Corporation over the last three decades, including Senior Executive Vice President.

She was appointed CEO in April 2016 and is also a member of the Society of Petroleum Engineers.

Cath Norman

Managing Director
Far Ltd

Cath Norman has served as Managing Director at FAR Limited since 2011, where she's been responsible for driving its Africa-focussed exploration and development programme.

She previously headed Flow Energy's exploration activities in Kenya, Jamaica and France.



Christina Verchere

CEO
OMV Petrom

Christina Verchere took over the CEO position at OMV Petrom in May 2018 after nearly two decades with BP—most recently serving in Indonesia as Regional President of the Asia Pacific region.

Georgianna Petrolia

Senior E&P Business Analyst
Hellenic Petroleum

Georgianna Petrolia was named Head of E&P Business Development & Planning at Hellenic Petroleum in July 2015.

Her portfolio includes upstream asset valuation, M&A, JV controlling and screening upstream opportunities.



Debra Reed

Exec chair
Sempra

Debra Reed is Sempra Energy's Executive Chairman, having retired as CEO in March 2018.

She's served in a number of positions over her 40-year career with Sempra and was the first-ever female officer at subsidiary SoCalGas.

Maria Moraeus Hanssen

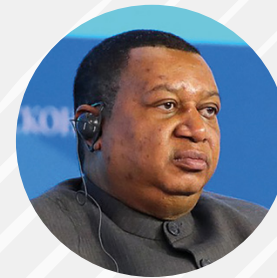
CEO
DEA Group/Deutsche Erdoel AG

Maria Moraeus Hanssen was appointed CEO of DEA Deutsche Erdoel AG in January 2018.

She had previously served as CEO of Engie's exploration and production business, where she was responsible for overseeing more than 160,000 barrels of oil equivalent a day across 12 countries.

INTERGOVERNMENTAL

The world is a small place, and industry success typically hinges upon the ability of various governments and regulatory bodies to compromise and unite. The intergovernmental leaders forging those partnerships are crucial to the global energy sector.



Mohammed Sanusi Barkindo

Secretary general
Opec

Opec veteran Mohammed Sanusi Barkindo is currently serving a three-year term as Secretary General, taking over from Abdalla Salem El-Badri in August 2016.

Prior to his term as Secretary General, Barkindo held many roles across Opec, and previously served as Group Managing Director for the Nigerian National Petroleum Corporation (NNPC) from 2009–10.

Prior to that, Barkindo had been the Deputy Managing Director for Nigerian Liquefied Natural Gas, which is a joint venture between NNPC, Shell, Total and Eni.

As the head of Nigeria's technical delegation to the UN, Barkindo also played a key role in helping to produce the UNFCCC and Kyoto protocol.

Sun Xiansheng

Secretary general
IEF

Dr Sun Xiansheng was elected Secretary General of the International Energy Forum (IEF) in August 2016.

Sun has over 30 years' worth of experience across the oil and gas sector, taking on a variety of roles including Vice President of the CNODC, President of the Greater Nile Petroleum Operating Company and President of PetroDar.

Most recently and prior to his tenure at the IEF, Sun had served as President of CNPC's Economics and Technology Research Institute.

While there, he was responsible for heading a team of 370 researchers working to steer and inform the energy policy decision-making of the Chinese government.



Fatih Birol

Executive director
IEA

Dr Fatih Birol has spent more than two decades with the International Energy Agency (IEA), serving in a variety of roles including Chief Economist and Director of Global Energy Economics.

In September 2015, Birol was appointed Executive Director, and has since spent most of his tenure spearheading the

IEA's first comprehensive modernisation programme. Prior to his time at the IEA, Birol worked for Opec based out of Vienna.

Birol also serves as chair of the World Economic Forum's Energy Advisory Board and is a member of the UN Secretary-General's Advisory Board on "Sustainable Energy for All".

Bassam Fattouh

Director

Oxford Institute for Energy Studies

Bassam Fattouh was appointed Director of the Oxford Institute for Energy Studies in 2005 and serves as a Professor at the School of Oriental and African Studies, University of London.

Amrita SenChief oil analyst
Energy Aspects

Amrita Sen is the co-founder, Head of Research and Chief Oil Analyst at oil consultancy Energy Aspects. Sen founded Energy Aspects in 2012 and serves as a Research Associate at the Oxford Institute for Energy Studies.

**Adnan Amin**Director general
Irena

Adnan Amin has been the Director-General of the International Renewable Energy Agency (IRENA) since 2011.

Under Amin, IRENA made notable contributions developing the Paris Agreement and the UN 2030 Agenda for Sustainable Development.

Christoph FreiSecretary general
WEC

Dr Christoph Frei joined the World Energy Council in 2009 and is its fifth Secretary General.

During his tenure, Frei has drastically strengthened the WCO's financial base and worked to expand its global studies suite.

**Yury Sentyurin**Secretary general
GECF

Yury Sentyurin assumed office as Secretary General of the GECF in January 2018, taking over from Seyed Mohammad Hossein Adeli.

Prior to joining the GECF, Sentyurin served as Russia's Deputy Minister of Energy.

Abbas Ali Al-NaqiSecretary general
OAPEC

Abbas Ali Al-Naqi was appointed Secretary General of OAPEC in 2008, having previously served as Kuwait's deputy oil minister and head of the Kuwaiti National Committee for the UN Framework Convention on Climate Change.





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