



## ACCELERATE ENERGY TRANSITION: *Getting it Right?*

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**T**HE FIRST RULE OF THRIVING IN THE GREAT ENERGY transition? Believe that positive disruption is only as brilliant as the minds that drive it. The thought leaders of tomorrow in Oman and beyond will be guardians of a new energy order, where fossil fuels and renewables are equally valuable sides of the same coin.

Water quality technicians working on oilfields, renewable-powered enhanced oil recovery (EOR), low-carbon engineers, green builders and wave and wind energy producers are the tip of a very long list of new careers that will be pivotal in academia, industry, government and society over the next decade. The trick is staying ahead of the curve so that these four pillars of Omani governance can actively pen a narrative of innovation and sustainability, rather than playing catch up.

Luckily, potential abounds. The International Labour Organization (ILO) estimates that Oman's unemployment rate was 17% in 2017. Every undeveloped talent equates into millions of undiscovered Omani Rial of potential; be they critical thinkers, innovative communicators, budding minds in science, technology, engineering and mathematics (STEM) and many more areas.

Momentum for significant change has finally gained speed after

nearly half a century of back-and-forth conversations worldwide between environmentalists, governments and financiers. People want – and need – change. Nearly all (82%) of respondents to the Green Energy Barometer Survey last year said it is important to create a world fully powered by renewable energy, regardless of age, education level or political ideology. And 73% of respondents to the survey, which encompassed 26,000 people across 13 countries, said building and producing more green energy will boost economic growth. In clean energy alone – just half of the new energy coin – investments reached \$333.5 billion in 2017, up 3% from a revised \$324.6 billion in 2016, according to Bloomberg New Energy Finance (BNEF).

Those doubting the environmental and economic motivators of the great energy transition can consider the third 'e' – the emotional driver. Sentiment is changing from a technical debate into an emotional one amid unnerving headlines reporting on pollution in Mumbai, raging wildfires in the US and the unexpected searing temperatures in the Middle East. There is an undoubted escalation in societies' emotional momentum, which could lead to a negative public reaction (panic, concern over resource allocation) if the cornerstones of national governance are not proactive.

### WALK THE WALK

Oman has clear, innovative plans that now need to be delivered. We often all talk about new regulatory initiatives and policies, which have certainly paid dividends. But we must all do more to drive enforcement and make policies increasingly sophisticated. Building standards for schools have been enhanced, yet new schools are being built in accordance with old standards, for example. Poor alignment means innovative plans detailed on paper do not always translate into on-the-ground progress.

Subsidizing water and electricity next year for Oman could cost the government OR700 million, close to \$2 billion. Oman could funnel a relatively small part of that subsidy funding in order to have a significant benefit on its social services, such as talent

### Black gold still shines

The energy transition does not mean discounting the value of fossil fuels; this side of the coin is just as necessary as renewables. We are aiming to sustainably increase crude output capacity by 13% to 680,000 b/d over the next three to four years as part of a \$20 billion spend.

enhancement and energy security. Reform comes with a temporary cost. Owing to the hike in electricity tariffs and VAT, the World Bank expects inflation to inch up to 3% in 2019 before moderating in 2020 as cost-push pressures from subsidy reform dissipate. Still, this is in the context of the Sultanate's steady growth up to 2020. GDP will likely increase by 2.3% in 2018, 2.5% in 2019 and by 2.9% by 2020; reassuring amid sub-\$60/bl oil prices.

How PDO and other energy stakeholders in Oman – industry, government and academia – position ourselves is pivotal to ensuring buy-in from the entire community. This extends to our responsibility to improve energy efficiency and renewables to supporting education and more sustainable consumption habits. Some stakeholders will be more focused on meeting Oman's obligations to the Paris Agreement, others will zoom in on the cost implications, others on the socio-economic impact and some will take more of a holistic view. Whatever your approach, united efforts are critical to make sure we make sustainable progress. After all, the red flags for the pressure points for us all in the Middle East are clear. BP Outlook expects the Middle East's energy consumption to rise by 54% by 2040, while Germany's Max Planck Institute for Chemistry and the Cyprus Institute in Nicosia warned that high temperatures could make some areas uninhabitable from mid-century onwards in the Middle East and North Africa (MENA). Plus, the United Nations expects Oman's population will rise by 26% to 5 million people, the UAE's by 39% to 13.1 million, Saudi Arabia's by 37% to 45 million by 2050.

### DEEPER POCKETS PAY

The economics currently work – but they must work harder, they must sweat. Policies that encourage more funding for novel research and development (R&D), re-financing fossil fuel and renewable energy projects, more independent power producers (IPP), unbundling the current centralized framework of power generation and improving the pool of talent are pertinent to accelerating Oman's progress. Muscat must also keep pace with other countries in order to evolve into a knowledge-based economy in what is a fast-moving world of increasingly ambitious low-carbon energy policies. For example, the European Union (EU) recently agreed a 32% renewable energy target for 2030 and Spain became the first EU country to create a ministry for ecological transition (merging the former ministries of environment and energy).

Meaningful change takes time. Take our project with GlassPoint as an example. Miraah, meaning 'mirror' in Arabic, will use concentrated sunlight to generate 6,000 tonnes of solar steam each day. The steam will feed directly to PDO's existing thermal EOR operations, providing a substantial portion of the steam required at the Amal oilfield in southern Oman. Miraah will reduce carbon dioxide (CO<sub>2</sub>) emissions by more than 300,000 tonnes each year, which is the equivalent of taking 63,000 cars off the road. This is a ground-breaking innovation, where phase one costs were more than the natural opportunity we could have had with gas, but where Phase two is in money i.e. the economics are more favourable, setting the enabling platform for phase three. Literally, patience pays. Ultimately though, the value of the project far exceeds the numbers. The project illustrates what can be achieved and how much further we can all push our expectations to guarantee an affordable, sustainable and efficient energy ecosystem. It is a marathon rather than a sprint. So pace yourselves, but don't lose your stride. □