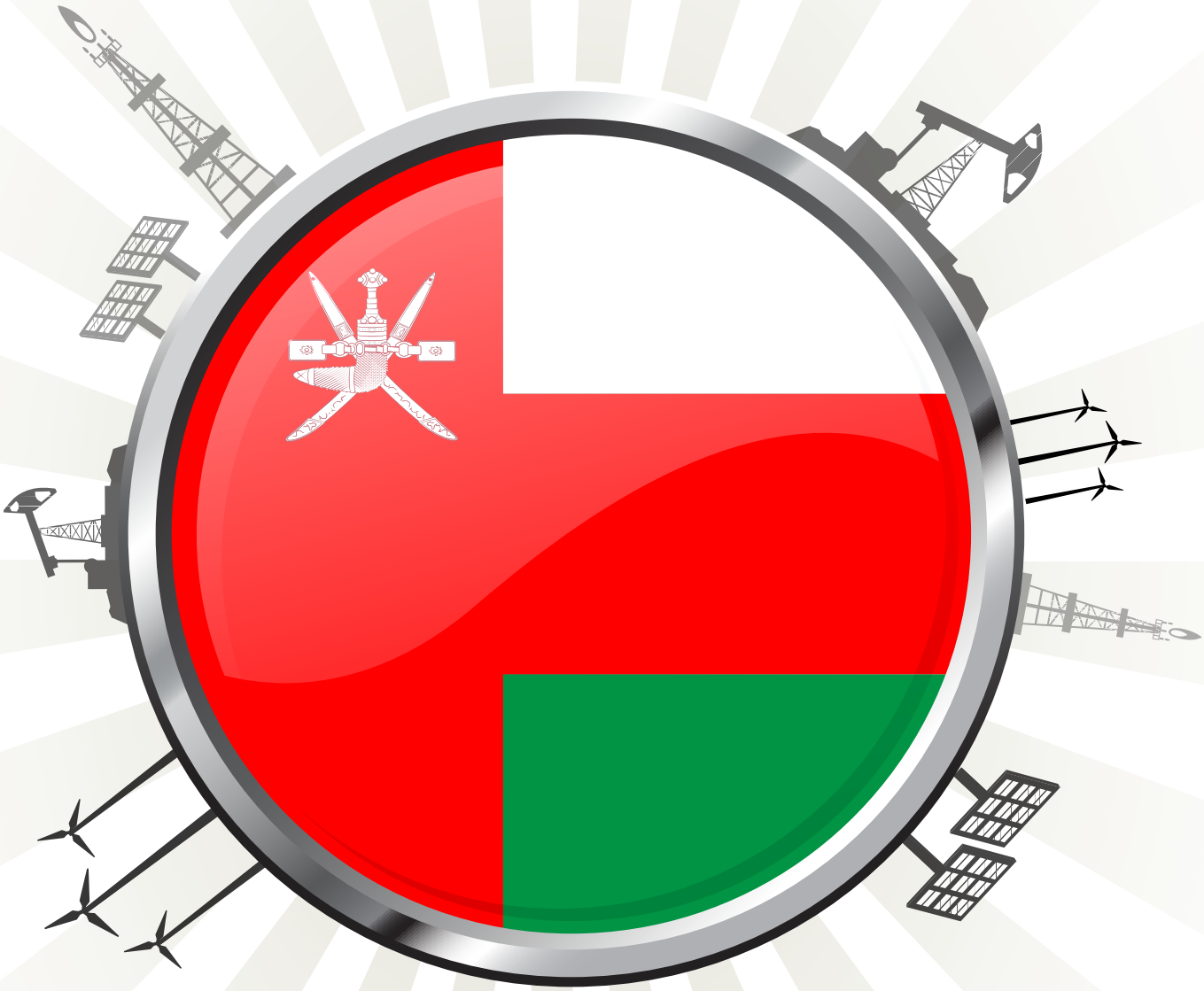
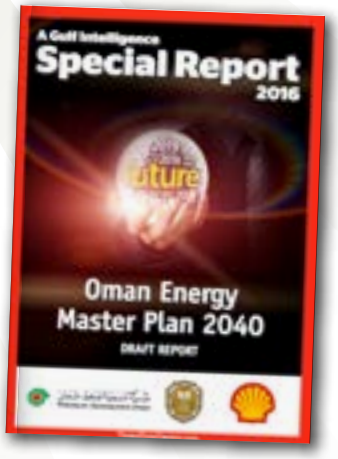
Oman Energy Master Plan 2040

Two Years On – What's Happened?



PROGRESS REPORT 2015-2017



GI Consultancy
Gulf Intelligence

NOVEMBER 2017

Executive Summary: Progress Report 2015-2017

While the Sultanate of Oman has been able to use petro-dollars to fuel strong development over recent years, its economic and demographic growth is now poised to outstrip resources, posing a complex nexus of questions about how best to diversify its energy mix, while ensuring energy security and is it possible to do both without liberalizing the economy. There is no doubt Oman faces major energy challenges in the coming decades as conventional fossil fuel resources dwindle and its young population continues to grow rapidly.

Inevitably that leaves officials grappling about the long-term viability of the economy and the best energy sources and strategies to meet its needs and drive economic growth. Should Oman pursue clean coal, nuclear power or renewable resources? How important is R&D and the advent of new technology, what about addressing state subsidies that risk the frittering of cheap state energy. We need to ensure that industry-academia-government is adequately aligned to deliver the knowledge and labor force for overcoming tomorrow's challenges.

While there are divergent views on which of these questions are most important, a consensus emerges on the first step to resolving this riddle – that is the need to draft a 25-Year Oman Energy Master Plan.

Rising domestic energy demand is presenting the country with a string of challenges and pressure on the Sultanate's already tight natural gas resources. Oman will have to devise a long-term strategy that considers adding alternative power generation sources such as renewable energies, while also enhancing energy efficiency and improving demand-side management both on an individual and industrial level.

As the major contributor to the national GDP, the oil and gas industry and the energy sector in general are uniquely placed to drive innovation in all sectors of the economy. The private sector is of fundamental importance. For Oman to succeed in its long-term quest of becoming a diversified, knowledge economy that offers high-valued and sustainable employment for nationals and doesn't have to rely on the sale of hydrocarbons, the country may need to liberalize the economy and establish a much bigger private sector that serves as an economic growth and job creation engine – and provide incentives for Omanis to move into it.

One hundred stakeholders from industry, academia, government, energy, international organizations and the private sector gathered for The OEF Industry Workshop that took place on 20 October 2015 to explore viable solutions to five key energy challenges that lie ahead which are: Energy Supply, Energy Demand, R&D, Labour, Water-Food-Energy Nexus

Knowledgeable debates quickly yielded recommendations from leading figures, who then voted for the top five recommendations from each Stream. Then, the author of the five recommendations within each Stream promoted and defended the importance of their proposal. Three top recommendations were then shortlisted from each Stream to form the heart of the 25-Year Oman Energy Master Plan. This publication is a two year update of the progress that has been for each recommendation of the master plan.

Master Plan 2040 – Progress Report Executive Summary

** Updates for this publication have been compiled from information that is publicly available*

STREAM 1 ENERGY SUPPLY

What Are The Top Recommended Strategies To Maximize Benefits To Oman Of Its Energy Resources?

RECOMMENDATION ONE

Create, Adopt and Implement a Comprehensive Energy Action Plan that can Facilitate the Immediate Implementation of Renewables

June 2015

The Public Authority for Electricity and Water (PAEW) completed a study to develop a National Energy Strategy for Oman 2040 and mandated by the ministry of finance. This work was carried out with assistance from a number of key organizations both within Government and in the private sector and was completed in the middle of 2015 when recommendations were presented to key players.

Source: https://goo.gl/tfJJkK

October 2016

PAEW's final report and recommendations regarding the National Energy Strategy are with the Ministry of Finance for a decision on how to take the various recommendations forward.

Source: https://goo.gl/tfJJkK

November 2016

Tanfeedh, the National Programme for Enhancing Economic Diversification, indicates that new investments in the renewable energy projects will contribute to 10 per cent of the total power produced from the renewable energy including solar and wind energy by 2050

Source: https://goo.gl/ksoZbg

RECOMMENDATION TWO

Establish a Ministry of Energy

November 2015

Gulf Intelligence presents the Oman Energy Master Plan 2040 – Draft Report to H.E. Dr. Mohammed bin Hamad Al Rumhy, Minster of Oil and Gas, Oman and H.E. Mohammed Bin Salim Bin Said Al Tobi, Minister of Environment & Climate Affairs, Oman. H.E. Dr. Mohammed bin Hamad Al Rumhy agrees to present the top recommendations to the Council of Ministers (Cabinet of Oman).

Source: https://goo.gl/XwvtLz

RECOMMENDATION THREE

Establish Small Scale Rooftop and Hybrid Power Generation, which also Support Local Communities

February 2016

Shell Development Oman announces its fifth gift to the nation; in the next five years solar energy will power twenty-two public schools in Oman. By putting these installations into schools, Shell Development Oman hopes to build a platform for development and implementation of small-scale solar projects in Oman.

Source: https://goo.gl/uMm0Wa

March 2016

Authority for Electricity Regulation (AER) in Oman announces the Solar Rooftop Project. The power sector regulator is taking steps to pave the way for home and building owners to consider installing solar photovoltaic systems on their rooftops and to channel any surplus electricity output into the national grid.

Source: https://goo.gl/I5U3Xw

August 2016

Authority for Electricity Regulation (AER) in Oman floats a tender to appoint a specialist consultant to assist it in developing technical integration standards and rules for the connection of rooftop solar photovoltaic (PV) systems.

Source: https://goo.gl/IGB89s

October 2016

Authority for Electricity Regulation (AER) in Oman appoints international experts to provide consultancy services on its landmark plan to enable the rollout of rooftop solar power generation for the first time in the Sultanate.

Qais Al Zakwani, Executive Director, Authority for Electricity Regulation (AER) announces that "rooftop solar is expected to be a reality in the Sultanate by the first quarter of 2017."

Source: https://goo.gl/wa5Pwh

November 2016

Authority for Electricity Regulation, Oman (AER Oman) has appointed CESI Middle East as the lead consultant for the integration of rooftop solar photovoltaic (PV) panels in the sultanate.

Source: https://goo.gl/88e87D

January 2017

Petroleum Development Oman (PDO) installs thousands of solar panels in its car parks to provide power for its headquarters in Muscat.

Source: https://goo.gl/oFm4oL

May 2017

Authority for Electricity Regulation (AER) launches 'Sahim', a renewable energy initiative that will allow and introduce residential grid-connected solar power generation systems. The project enables homeowners, who wish to install photovoltaic cells in their homes, to approach AER, which will then direct them towards companies that will outfit their homes with these cells.

Source: https://goo.gl/qbyky5

September 2017

Shell Development Oman launches its 'Solar into Schools' initiative. The 'Solar into Schools' initiative is part of Shell's 'Gift to the Nation' in which Shell committed to train small and medium enterprises (SMEs) and contract them to install solar systems into 22 schools across all governorates of the Sultanate in the coming few years.

Source: https://goo.gl/DFwFaS

STREAM 2 ENERGY DEMAND

What Are The Top Recommendations For Tackling Oman's Domestic Energy Demand & Consumption Over The Next 25 Years?

RECOMMENDATION ONE

The Structured Removal of Subsidies

January 2016

2ND JANUARY Ministry of Finance announces government plans to cut subsidy spending by almost two thirds to help tackle a budget deficit caused by low oil prices.

Source: https://goo.gl/3oUu7p

12TH JANUARY Oman reduced government subsidies on gasoline.

Source: https://goo.gl/qdWmm9

15TH JANUARY Prices of super grade petrol were raised for the first time to 160 baisas per litre, from 120 baisas a litre; they were increased to 140 baisas for regular grade petrol, up from 114 baisas a litre, and 160 baisas for diesel per litre, against an earlier 146 baisas per litre.

Source: https://goo.gl/g9z2Nk

October 2016

The Authority for Electricity Regulation of Oman announces that subsidies available for large consumers, mainly government, commercial and industrial users, will be cut and a higher revised tariff structure will be effective from January 1, 2017. The Authority for Electricity Regulation (AER) has said that RO100mn worth of subsidies will be cut for large commercial, government and industrial users

Source: https://goo.gl/Xf8suz ***Source:*** https://goo.gl/uYYIAB

January 2017

Subsidies removed for major Omani power major customers consuming more than 150 megawatt-hours (MWh) per annum. An estimated 10,000 government, commercial and industrial customers will no more be provided any subsidy on electricity as per the Cost Reflective Tariff (CRT) issued by the Public Authority for Electricity and Water (PAEW). The government hopes to save RO100mn annually from the decision.

Source: https://goo.gl/CaF8dG

RECOMMENDATION TWO

Inducing Positive Human Behaviour on a National Scale

October 2016

The Supreme Council for Planning formed a committee to develop a comprehensive green design code for Oman in the context of a unified GCC Building Code. New codes have the potential to reduce the lifecycle costs of buildings and result in macro-economic benefits such as reduced consumption of energy at the national level. Currently around 70 per cent of the national energy consumed in Oman is used for cooling buildings.

Source: https://goo.gl/kXImjk

January 2017

Petroleum Development Oman (PDO) signs memorandum of understanding (MoUs) with Ministry of Education (MOE) and Riyada as a part of its energy management strategy. The MoUs focus on energy management through energy saving and renewable energy utilization.

Source: https://goo.gl/e8g4GA

RECOMMENDATION THREE

Centralize Oman's Energy Policy under a Single Authority

November 2015

Gulf Intelligence presents the Oman Energy Master Plan 2040 – Draft Report to H.E. Dr. Mohammed bin Hamad Al Rumhy, Minster of Oil and Gas, Oman and H.E. Mohammed Bin Salim Bin Said Al Tobi, Minister of Environment & Climate Affairs, Oman. H.E. Dr. Mohammed bin Hamad Al Rumhy agrees to present the top recommendations to the Council of Ministers (Cabinet of Oman).

Source: https://goo.gl/XwvtLz

STREAM 3 RESEARCH & DEVELOPMENT

What Are The Top Strategies Needed To Align Academia And Industry To Deliver An Enhanced R&D Ecosystem In Oman?

RECOMMENDATION ONE

Narrow the Gap between Industry and Academia to Establish Efficient R&D Partnerships

October 2016

The Inaugural Occidental Oman Student Awards for the Advancement of Post-Graduate Education recognized four accomplished Winners (two, PhD, two Masters) at the Oman Energy-Industry Academia R&D Summit. The awards celebrate the country's future academia and industry leaders who will contribute to developing and enhanced R&D ecosystem in Oman.

Source: https://goo.gl/CXYkoM

The Oman Energy Industry-Academia R&D Summit, Hosted by Sultan Qaboos University
The Oman Energy Master Plan 2040 – Tackling the top R&D recommendation was the key focus of the 2016 summit hosted by SQU: "Align Academia and Industry in the Delivery of an Enhanced R&D Ecosystem in Oman" The summit brought together the top 100 Omani stakeholders from industry, academia, and government to develop an Energy R&D Action Plan for adoption and implementation in the delivery of an enhanced R&D Ecosystem in Oman.

Source: https://goo.gl/BRKtG5

November 2016

The Oman Energy Industry-Academia R&D Action Plan is created from the reccomendations of The 2016 Oman Energy Industry-Academia R&D Summit *(See Page 10).*

Source: https://goo.gl/pWN5dc

December 2016

PDO strengthens Ties with GUtech in Oman to Boost R&D Efforts Petroleum Development Oman (PDO) has signed an agreement with the German University of Technology in Oman (GUtech), which will boost research and development efforts in both the oil and non-oil sectors in the Sultanate's economy. Under the terms of the memorandum of understanding (MoU), PDO has pledged the support of its experts in the creation of GUtech's state-of-the-art technology centre and can also use the centre for its own research.

Source: https://goo.gl/LCc3UP

February 2017

The Oman Industry Academia R&D Special Leadership Roundtable Briefing with H.E. Dr. Mohammed bin Hamad Al Rumhy, Minister of Oil and Gas in Oman takes place to brainstorm the top recommendation from the Oman Energy-Industry Academia R&D Action plan which is: create a protocol with principles that will be ratifies with the signatures of companies operating in Oman's energy sector and their peers in academia.

Source: https://goo.gl/pWN5dc

June 2017

Oman's Ministry of Oil & Gas, Petroleum Development Oman (PDO) and The Research Council ratify The 2017 Oman Energy Industry-Academia R&D Protocol in an effort to build a vibrant research ecosystem within the country that can deliver the solutions that the energy industry requires to sustain output through to 2040 and beyond. *(See Case Study on Page 11)*.

Source: https://goo.gl/KkaWML

July 2017

Petroleum Development Oman (PDO) signs research and development agreements with Sohar and Al Sharqiyah Universities to help resolve some of its complex technical challenges.

Source: https://goo.gl/8VW2qw

November 2017

Petroleum Development Oman (PDO) has signed a research and development R&D agreement with Muscat University to help resolve some of its complex technical challenges.

Source: https://goo.gl/CXYkoM

RECOMMENDATION TWO

Establish Research Clusters and Incubators with Universities across Oman that are Linked with Promotional Entities.

October 2016

Innovation Park Muscat expected to open in Q4 of 2016. Innovation Park Muscat has been strategically located close to Sultan Qaboos University, Rusail Industrial Area, and knowledge Oasis Muscat. Innovation Park Muscat is Oman's newest science and technology development. It is one of the major initiatives by The Research Council (TRC) in a bid to encourage scientific research, innovation and activate collaboration between the academic, private and the diverse industry sectors of local and international communities.

Source: https://goo.gl/UYDpSh

RECOMMENDATION THREE

More Omani students need to get their PhDs in Oman.

October 2016

The Inaugural Occidental Oman Student Awards for the Advancement of Post-Graduate Education recognized four accomplished Winners (two, PhD, two Masters) at the Oman Energy-Industry Academia R&D Summit. The awards celebrate the country's future academia and industry leaders who will contribute to developing and enhanced R&D ecosystem in Oman.

Source: https://goo.gl/CXYkoM

November 2017

The 2nd Occidental Oman Student Awards for the Advancement of Post-Graduate Education recognizes four accomplished Winners (two, PhD, two Masters) at the Oman Energy-Industry Academia R&D Summit. The awards celebrate the country's future academia and industry leaders who will contribute to developing and enhanced R&D ecosystem in Oman.

Source: https://goo.gl/CXYkoM

OMAN ENERGY INDUSTRY-ACADEMIA R&D ACTION PLAN

Harvested from The 2016 GI Oman Energy Industry-Academia R&D Summit

Recommendation	Adopting Institution	Institution Representative	Start Date	Status
Draft an Oman Energy Industry-Academia R&D protocol with 10 principles that will be ratified with the signatures of companies operating in Oman›s energy sector and their peers in academia.	33 Institutions & Counting	Industry, Academia, and Government	June 2017	Complete
Develop a patent licensing office in Innovation Park Muscat dedicated to helping researchers file patents and understand patent law.	The Research Council	The Research Council	Ongoing	Ongoing
Host a quarterly seminar that will help energy entrepreneurs, SMEs, inventors, and researchers understand each step of the patenting process and will give them the information needed to develop an individual patent strategy.				Pending
Innovation Park Muscat to engage with venture capitalists, such as Innovation Development Oman Holding (IDO), to be based or have a physical presence in the park. This would help enhance early stage funding for R&D.				Pending
Create an index that scores energy companies for their commitment to advancing innovation in the workplace. Declare results of the index in public news outlets throughout Oman.	Oman Energy R&D Industry-Academia Protocol	Oman Energy R&D Industry-Academia Protocol	Ongoing	Ongoing
Develop a top 100 Energy Industry-Academia-Government R&D contact database that will be distributed to companies operating in Oman's energy sector and their peers in academia and government.	Oman Energy R&D Industry-Academia Protocol	Oman Energy R&D Industry-Academia Protocol	Ongoing	Ongoing
Create Centres of Excellence within Science Parks that offer research grants for identified projects into which PhD students can contribute.				Pending
Produce an annual Oman Student Awards for the advancement of Post Graduate education.	Occidental of Oman	Occidental of Oman	October 2016	Annually Held
Produce Student seminars that bring industry and academia together to discuss the importance of post-graduate education and energy industry requirements.	Occidental of Oman	Occidental of Oman	October 2016	Annually
Create a Professional Doctorate Program that combines work with real time research. The programme enables students to undertake relevant, PhD level, research in their own workplace enhancing their career & developing evidence-based solutions for their organisation.				Pending
Create a media campaign that promotes and integrates the arts into STEM education ie. STEAM.				Pending
Energy Companies to appoint a Director or create a designated R&D team that will act as a focal point for researchers and academia to contact and engage with.	Oman Energy R&D Industry-Academia Protocol	Industry Focal Points for the Oman Energy R&D Industry-Academia Protocol	June 2017	Ongoing
The National Research Award which aims to encourage researchers to conduct and continue high quality research of national importance and provides a monetary award for their achievements.	The Research Council	The Research Council	2014	Annually Held
Energy companies to begin offering and promoting paid or non-paid internships for students. This will create an active learning environment within the Sultanate where students can obtain 'real-world' practice.				Pending
Energy Company to adopt an Academia R&D professional for two weeks each year to have them embedded in the company and shadow operations.	Oman Energy R&D Industry-Academia Protocol – Proposed Secondment Scheme	Participating Companies for the Oman Energy R&D Industry-Academia Protocol	June 2017	Ongoing
Academia to adopt an energy professional for two weeks each year to have them embedded in the institution, shadow classes and R&D operations.	Oman Energy R&D Industry-Academia Protocol – Proposed Secondment Scheme	Participating Academia for the Oman Energy R&D Industry-Academia Protocol	June 2017	Ongoing
Energy Companies to have an annual open R&D day to invite Research professionals to their offices and brief them on the technical challenges currently being faced and where energy R&D solutions are needed.				Pending
Universities to establish a Commercialization Team that has responsibility for the commercial exploitation of the technological IP and other outputs of the University's research, transferring value-adding innovation and inventions into the external market.	Sultan Qaboos University The Research Council	Academic Innovation Assistance Program (AIAP)	2015	Ongoing

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CASE STUDY

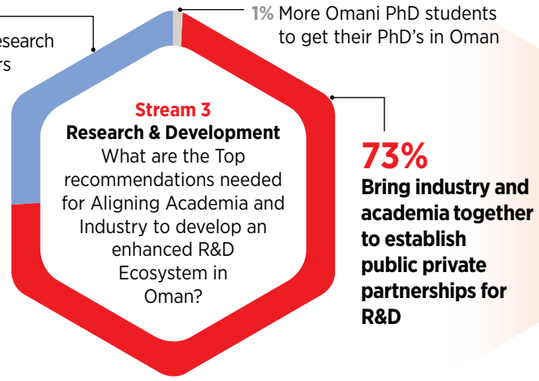
The 2017 Oman Energy Industry-Academia R&D Protocol

Narrow the Gap between Industry & Academia to Establish Efficient R&D Partnerships

Oman Energy Industry-Academia R&D Protocol Project

ORIGINS

2015



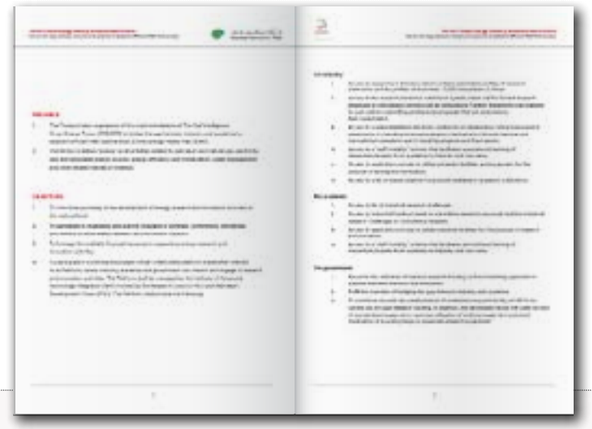
100 stakeholders from industry, academia, government, energy, international organizations and the private sector gathered for The OEF Industry Workshop that took place on 20 October 2015 to explore viable solutions to five key energy challenges that lie ahead which are: Energy Supply, Energy Demand, R&D, Labour, Water-Food-Energy Nexus The top recommendations from the workshop form the heart of the 25-Year Oman Energy Master Plan.

2016

Recommendation	Adopting Institution
Draft an Oman Energy Industry-Academia R&D protocol with 10 principles that will be ratified with the signatures of companies operating in Omans energy sector and their peers in academia.	
Develop a patent licensing office in Innovation Park Muscat dedicated to helping researchers file patents and understand patent law.	
Host a quarterly seminar that will help energy entrepreneurs, SMEs, inventors, and researchers understand each step of the patenting process and will give them the information needed to develop an individual patent strategy.	
Innovation Park Muscat to engage with venture capitalists, such as Innovation Development Oman Holding (IDO), to be based or have a physical presence in the park. This would help enhance	

The Oman Energy Master Plan 2040 put forward 15 recommendations for Oman to adopt, with the number one recommendation in the R&D stream calling on all stakeholders to Narrow the Gap between Industry & Academia to Establish Efficient R&D Partnerships. On Oct. 18th 2016 under the patronage of Sultan Qaboos University and supported by the Ministry of Oil & Gas Oman, The Research Council, and Petroleum Development Oman, over 150 key energy stakeholders gathered to produce an R&D action plan to align industry and academia in the delivery of an enhanced R&D Ecosystem.

2017



The top recommendation on the Summit action plan was to produce an R&D Protocol with guiding principles that would be ratified by the national and international energy stakeholders operating in Oman.

Oman Energy Industry-Academia R&D Protocol

Narrow the Gap between Industry & Academia to Establish Efficient R&D Partnerships

Development Timeline: *Creation to Ratification to Implementation*

2015

PROLOGUE

May 2015

Gulf Intelligence meets with the Ministry of Oil and Gas in Oman

"We need a long term Oman Energy Master Plan that delivers recommendations and solutions that are aligned with All stakeholders from Industry, Academia, and Government"
– Senior Government Official

Ministry of Oil & Gas

Oct 2015

The 2015 OEF Industry Workshop

One hundred stakeholders from energy industry, academia, and government, gathered for The OEF Industry Workshop on 20 October 2015 to explore viable solutions to five key energy challenges that lie ahead which are: Energy Supply, Energy Demand, R&D, Labour, Water-Food-Energy Nexus. The workshop delivers the intelligence and wisdom required to deliver the Oman Energy Master Plan 2040.

Nov 2015

Oman Energy Master Plan 2040 – Draft Report Published

The top three recommendations harvested from the OEF Industry Workshop for each of the key energy challenges addressed form the heart of the Oman Energy Master Plan 2040.

Nov 2015

Special Leadership Briefing with H.E. Dr. Mohammed bin Hamad Al Rumhy, Minister of Oil and Gas in Oman.

R&D PROTOCOL Timeline

Dec 2015

Gulf Intelligence meets with Sultan Qaboos University and The Research Council to discuss the next steps in pushing forward the top R&D recommendation from the Oman Energy Master Plan 2040 which is "Align Academia and Industry in the Delivery of an Enhanced R&D Ecosystem in Oman."

June 2017

Oman's Ministry of Oil & Gas, Petroleum Development Oman (PDO) and The Research Council ratify The 2017 Oman Energy Industry-Academia R&D Protocol

2016

Oct 2016

The 2016 Oman Energy Industry-Academia R&D Summit

The Oman Energy Master Plan 2040: Tackling the top R&D recommendation is the key focus of the 2016 forum hosted by Sultan Qaboos University:

"Align Academia and Industry in the Delivery of an Enhanced R&D Ecosystem in Oman – The alignment between Oman's Industry and Academia must be urgently improved in order for the country to deliver an enhanced R&D ecosystem that fosters efficient public-private partnerships."

Feb 2017

Special Leadership Roundtable Briefing with H.E. Dr. Mohammed bin Hamad Al Rumhy, Minister of Oil and Gas in Oman.

Top recommendation from the The 2016 Oman Energy Industry-Academia R&D Summit was to create an R&D Protocol to bridge the gap between Industry & Academia to establish efficient R&D partnerships.

H.E. Dr. Moahmmed bin Hamad Al Rumhy selects PDO & TRC to champion the delivery of the Oman R&D Protocol for ratification.

2017

March 2017 to May 2017

Gulf Intelligence, PDO and TRC collaborate and draft final R&D Protocol for ratification

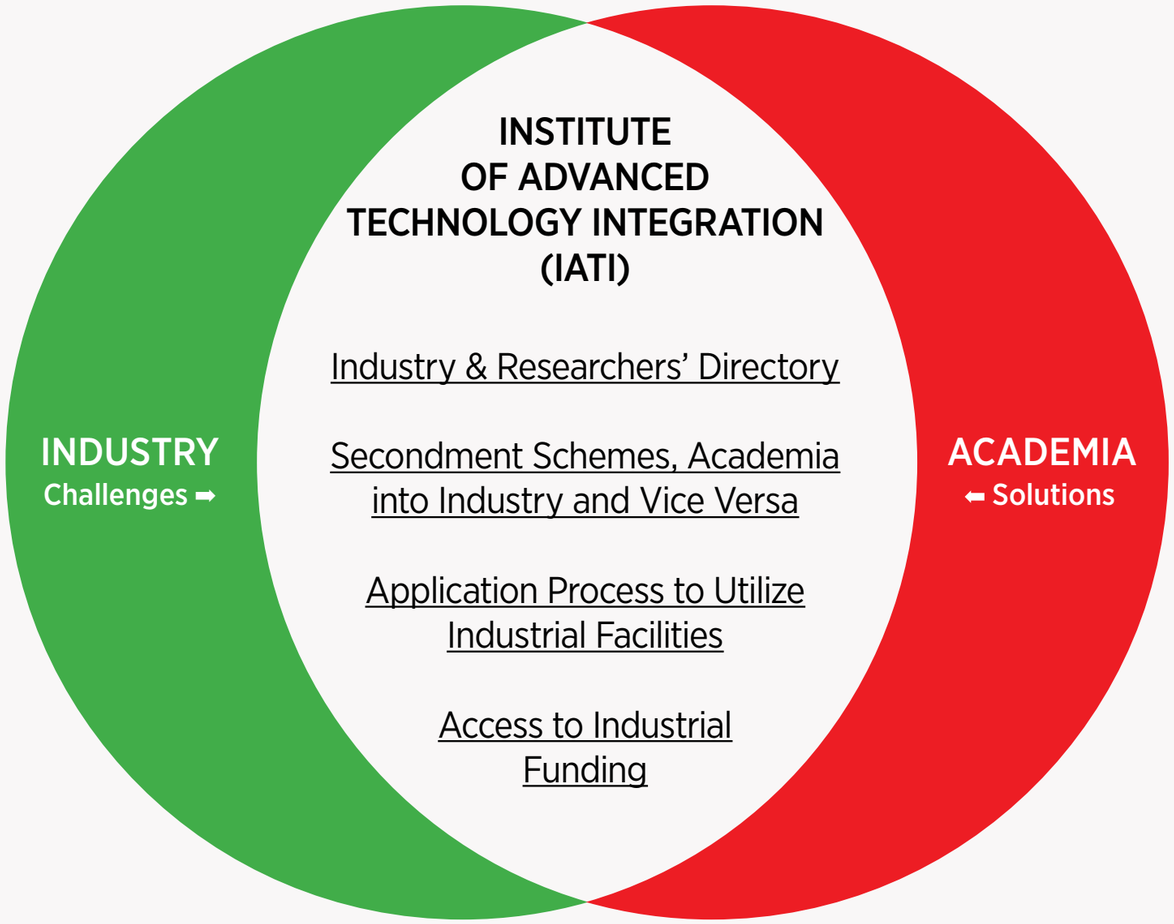
Petroleum Development Oman

GI Consultancy
Gulf Intelligence

The Oman Energy Industry-Academia R&D Protocol

*Narrow the Gap between Industry & Academia to Establish Efficient R&D Partnerships**

The R&D Protocol will be implemented through a digital platform where industry, academia, and government can connect around research and innovation activities, based on an *über-like* virtual market place model. The platform will be managed by the Institute of Advanced Technology Integration (IATI) formed by The Research Council and PDO.



STREAM 4 LABOUR

What Are The Top Recommended Strategies That Need To Be Adopted To Align Industry And Academia To Meet Oman's Future Labour Market Requirements?

RECOMMENDATION ONE

Establish a Coordinating Committee with an Operational Mandate that Comprises of Senior Representatives from the MOM and the MOE, as well as selected Industry Leaders.

October 2016

His Majesty Sultan Qaboos issues four Royal decrees on October 17, 2016 to set up a National Training Fund.

- ✓ Royal Decree No 48/2016 establishes a national training fund and promulgates its system of functioning.
- ✓ Royal Decree 49/2016 appoints Dr Mohammed bin Hamad bin Saif al Rumhy as Chairman of the National Training Fund.
- ✓ Royal Decree 50/2016 establishes an implementation unit
- ✓ Royal Decree 51/2016 appoints Dr Khamis bin Saif bin Hamoud al Jabri as Chairman of the Implementation and Follow-up Support Unit, with a Minister's Grade.

The National Training Fund aims to bridge the gap between the supply and demand for training in the labour market through building the capacities of the national workforce. In order to be able to achieve its goals the fund has been given wide powers including evaluating the current state of training efforts, determining training requirements and priorities, and setting up a comprehensive database for training information. The fund is particularly tasked with narrowing the gap of efficiencies in the national development projects and the emerging sectors. The Fund's tasks include establishing partnerships with local and international leading institutions concerned with training and benefiting from their programmes to support strategic sectors and the private sector. The National Training Fund will identify the standards required for financing training programmes as well as specifying the standards for training curricula financed by the Fund.

Source: https://goo.gl/MSJINI ***Source:*** https://goo.gl/UU5uRJ

RECOMMENDATION TWO

Bolster the government's role in regulating education and reduce its influence in delivering education.

N/A

RECOMMENDATION THREE

The mismatch in skill sets between Oman's Industry and Academia and the Importance of Streaming Students into Vocational Training early on.

November 2017

The 5th Gulf Intelligence Oman Energy Forum
The Future of Work and The Work of the Future in the 4th Industrial Revolution?

Data Science. Mobile supercomputing. Intelligent robots. Automation. Data Harvesting and Mining. Self-driving cars. Digitization. We stand on the brink of a technological revolution that will fundamentally alter the way we work and how labor markets are structured. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders, from the public and private sectors to academia and society.

Source: https://goo.gl/LixpwY

STREAM 5 WATER-FOOD-ENERGY NEXUS

What Are The Top Recommended Innovative Solutions To Achieve Sustainable Growth?

RECOMMENDATION ONE

Establish and Mandate and Executive Authority that Focuses on Water, Energy and Food. Identify Linkages between the Three Sectors, Develop Knowledge and Induce Behavioural Change.

N/A

RECOMMENDATION TWO

Renewable Energy Based desalination should be key to Address the Issue of Water Security on a Small and Large Scale with A Focus on Cost Competitive Technologies.

October 2017

Petroleum Development Oman (PDO) will turn to a fully fledged energy company over the next decade encompassing hydrocarbon and renewable energy generation and water management.

Source: https://goo.gl/WKR2ya

RECOMMENDATION THREE

Enforce Building Codes and Standards for Sustainable Homes to Promote Water Savings and Energy Efficiency, such as the Development of Green Homes.

October 2016

The Supreme Council for Planning formed a committee to develop a comprehensive green design code for Oman in the context of a unified GCC Building Code. New codes have the potential to reduce the lifecycle costs of buildings and result in macro-economic benefits such as reduced consumption of energy at the national level. Currently around 70 per cent of the national energy consumed in Oman is used for cooling buildings.

Source: https://goo.gl/kXImjk

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