GLOBAL ENERGY SECURITY THROUGH DIALOGUE
Looking back on the past year as the new Secretary General of the International Energy Forum and the journey we set out on to enhance the dialogue in Algiers at the 15th International Energy Forum Ministerial in 2016 (IEF15), I am proud to point at the many events we convened in 2017, and even more contend with their promising outcomes.

Some are milestones, marking achievements, others – signposts, to help guide the dialogue on ever changing energy market developments. Complementing the findings that the dialogue has gathered overtime through the framework of the IEF Charter, recent advances help to establish the International Energy Forum as the:

- Leading international organization for well-informed data driven global energy dialogue that facilitates secure and sustainable energy market functioning,
- Platform of choice for the inclusive promotion of global energy security, and orderly energy transitions.

Growing engagement by senior government and industry officials in a more dynamic meeting programme continues to lift our profile on the global energy scene. This bodes well for the International Energy Forum to deliver on expectations in a more challenging environment:

2017 has been a milestone year for dialogue, and data transparency.

We held four highly successful symposia. In the context of the standing trilateral work programme with the International Energy Agency, and the Organisation of Petroleum Exporting Countries, ministers gathered alongside senior level experts to compare energy outlooks and debate physical and financial energy market interactions. To maintain a forward-looking dialogue in a rapidly changing world, we also sharpened focus on enhancing energy access in Africa, and human resource management in the energy industry at large, with the OPEC Fund for International Development, and the Kingdom of Bahrain as generous supporting partners.

The IEF Dialogue reached a highpoint at the well-attended 7th Asian Ministerial Energy Roundtable Thailand hosted, with the United Arab Emirates as co-host. Ministerial roundtable dialogue helped to identify secure, affordable, and equitable, energy transition pathways. in Asia that sets the pace for energy market transition to go hand in hand with inclusive growth in energy producing and consuming countries around the world.

The Joint Organisations Energy Data Transparency Initiative (JODI) the IEF coordinates among the JODI Partners marks a milestone year in 2017. Tunisia hosted the 15th Regional JODI Training
Workshop for African and Middle Eastern countries in accordance with the encouragement of IEF15 to enhance dialogue with Africa, and emphasize the need for reliable energy data for effective decision making and alleviating energy poverty. At the 13th International JODI Conference the United Kingdom hosted to evaluate the status of global energy data transparency and review progresses made on the JODI 5 Year Plan, agreement was reached to make JODI Data accessible on industry data platforms (Bloomberg, Argus, and Thomson Reuters). JODI data is now visible to tens of thousands of data miners around the world benefitting analysts far beyond the energy community alone. JODI ended the year at a highpoint in Bolivia where alongside the 6th Gas Exporting Countries Forum Summit the GECF graciously supported the IEF convening of a joint JODI Seminar, that the President of Bolivia participated in to help expand energy data capacity in Latin America.

We look forward to convening the 16th International Energy Forum Ministerial (IEF16) that India will host, with China, and South Korea as co-hosts under the theme “The Future of Global Energy Security: Transition, Technology, Trade, and Investment” in New Delhi on 10-12 April 2018.

IEF16 will focus on how global shifts, transition policies, and new technologies influence market stability and future investment in the energy sector. Dialogue on how energy security and system resiliency will evolve helps producers and consumers navigate turning points together and secure an energy future that remains affordable, productive, sustainable, and fair to all.

The IEF will advance the energy dialogue in high-level ministerial meetings, and the trilateral work programme with the IEA and OPEC and in collaboration with the JODI partners on energy data transparency in 2018, and beyond. This includes above all the 6th IEF-IGU Ministerial Gas Forum that we will convene in Spain in September 2018 where ministers and industry leaders can revisit the dialogue outcomes of the 5th IEF-IGU Ministerial Gas Forum India hosted in 2016. This will provide a timely opportunity to follow up on changing gas demand and supply patterns, and assess the impact of new policies and technologies in a European setting.

In concluding, I express my gratitude to all the IEF Ministers, captains of industry, government and industry representatives who have enabled us to enhance the dialogue and helped to broaden the platform the IEF provides. Many are mentioned in this 2017 edition of the IEF Bulletin. I am also grateful for the strong cooperation we obtained from HE Mohammed Sanusi Barkindo, Secretary General of OPEC, and Dr Fatih Birol, Executive Director of the International Energy Agency, the Heads of the JODI Partner Organisations APEC, Eurostat, GECF, IEA, IEF, OLADE, OPEC, & UNSD, alongside that of the African Energy Commissions (AFREC). The IEF continues to rely on a productive collaboration with all stakeholders.

I hope the insights into the energy dialogue provided here encourages you to visit the IEF Secretariat in Riyadh, join the meetings we organise around the world, and help us take the dialogue forward.

Dr Sun Xiansheng  
Secretary General
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The International Energy Forum (IEF) is an intergovernmental, non-profit, international organization which acts as a neutral facilitator of informal, open, informed and continuing global energy dialogue aimed at fostering greater mutual understanding and awareness of common energy interests among its members, while promoting global energy security. The IEF currently consists of 71 member countries, covering all six continents, accounting for 90% of global supply and demand for oil and gas. The IEF is unique in that it comprises both producer and consumer countries, but also transit states and major players outside of the memberships of the IEA and OPEC. The Forum’s biennial ministerial meetings are the world’s largest gathering of energy ministers. The magnitude and diversity of this engagement is a testament to the position of the IEF as a neutral facilitator and honest broker of solutions in the common energy interest.

The Secretariat Headquarters is located in Riyadh, Saudi Arabia and benefits from the immunities and privileges necessary for the performance of its functions in accordance with the Protocol on Headquarters, Immunities and Privileges between the Government of the Kingdom of Saudi Arabia and the Secretariat of the International Energy Forum, signed on 30 June 2004.

The IEF Secretariat plans, organizes and executes activities included and assigned to it in the biennial Programme of Work, takes part in the preparation for the Ministerial Meetings, and performs any additional activities assigned to it by the Executive Board. The Secretariat, in consultations with the Executive Board, is to cooperate closely with the IEA, OPEC, GECF, IGU and other relevant organizations. It is to work with these organizations on matters of mutual interest while avoiding as far as possible duplication of work. Where appropriate, such cooperation may be arranged through Memoranda of Understanding with the approval of the Executive Board.

The IEF Charter was approved at the Ministerial Meeting on 22 February 2011 held in Riyadh, Kingdom of Saudi Arabia. The IEF Charter was approved and signed by the Member states of the United
Nations which participated in the Ministerial Meeting.

IEF Member Countries are committed to the global energy dialogue and, consistently with its domestic law and international obligations, participates in the Forum and endeavours, in good faith, to implement the Charter’s terms and realize its objectives.

The fundamental objectives of the International Energy Forum are:

• fostering greater mutual understanding and awareness of common energy interests among its Members;
• promoting a better understanding of the benefits of stable and transparent energy markets for the health of the world economy, the security of energy supply and demand, and the expansion of global trade and investment in energy resources and technology;
• identifying and promoting principles and guidelines that enhance energy market transparency, stability and sustainability;
• narrowing the differences among energy producing, consuming and transit Member States on global energy issues and promoting a fuller understanding of their interdependency and the benefits to be gained from cooperation through dialogue among them, as well as between them and energy related industries;
• promoting the study and exchange of views on the inter-relationships among energy, technology, environmental issues, economic growth and development;
• building confidence and trust through improved information sharing among States; and
• facilitating the collection, compilation and dissemination of data, information and analyses that contribute to greater market transparency, stability and sustainability.
16th International Energy Forum Ministerial
10-12 April 2018
New Delhi, India

The 16th International Energy Forum Ministerial (IEF16) gathers IEF Energy Ministers, industry leaders, and heads of key international organisations to debate the future of global energy security on 10-12 April 2018 in New Delhi. Hosted by India and co-hosted by China and Korea, IEF16 aims to focus on how global shifts, transition policies and new technologies influence market stability and future investment in the energy sector. Dialogue among Ministers and industry leaders on how energy security and system resiliency will evolve along energy transition pathways, and meet global economic, demographic, and environmental challenges, will help secure an energy future that remains affordable, productive, sustainable, and fair to all. Participants are asked to engage in an energy technology neutral dialogue to strengthen energy market stability and achieve global goals through enhanced market transparency, trade, and investment among producing, consuming and transit countries. With “The Future of Global Energy Security” as the overarching theme, IEF16 is guided by “Transition, Technology, Trade, and Investment” as interrelated focal areas.

6th IEF-IGU Ministerial Gas Forum
21-22 November 2018
Barcelona, Spain

The IEF-IGU Ministerial Gas Forum is an important dialogue platform amongst Ministers, CEOs and experts to better understand the current state of play in the global gas industry and how the gas sector can contribute to sustainable growth and secure energy future. Changes in global gas supply and demand will continue to impact expectations regarding the urban environment and transport sector and influence the distribution of modern energy services and manufacturing processes around the world. As these trends will have important implications for energy policy and international cooperation, Spain, as the host country of the IGU Secretariat, will host the 6th IEF-IGU Ministerial Gas Forum in Barcelona on 21-22 November 2018.
8th IEA-IEF-OPEC Symposium on Energy Outlooks
14 February 2018
Riyadh, Saudi Arabia

The IEA-IEF-OPEC Symposium on Energy Outlooks is a key event on the international energy agenda that is hosted annually on the neutral platform for inclusive producer-consumer dialogue that IEF uniquely provides. The Symposium on Energy Outlooks has its origins in the Trilateral Programme of Work agreed at the 12th IEF Ministerial Meeting held in Cancun March 2010. Energy Ministers gathered at the recent G20, and 15th IEF Ministerial Meetings in 2015/16 have welcomed this fruitful collaboration and encourage its continuation to enhance market transparency. To inform the discussion, the IEF will prepare an introductory paper in collaboration with Resources For the Future (RFF). This IEF-RFF Introductory Paper provides a comparative analysis of the energy market outlooks the IEA and OPEC have published in 2017 and will be circulated to all Symposium participants in advance of the meetings.

14-15 March 2018
Vienna, Austria

The joint IEA-IEF-OPEC meetings covering the evolving inter-linkages between physical and financial energy markets have developed into a unique, high-level technical event, and bring together a diverse range of market participants to discuss issues that are not addressed in other high-level fora. Energy Ministers gathered at the 15th International Energy Forum (Algiers, September 2016) acknowledged the encouragement from the G20 Energy Ministers Meetings (Beijing, June 2016) to continue this fruitful collaboration to further enhance understanding of the interaction between physical and financial markets. The Workshop will be hosted by OPEC at the OPEC Headquarters in Vienna, Austria.
In the interest of putting safety first at the IEF Secretariat, the Secretary General, Dr Sun Xiansheng invited representatives of the Saudi Arabian Civil Defense to give a demonstration and training on fire safety at the IEF Secretariat. The Fire Brigade explained first response procedures, the importance of understanding how to address different types of fires and ensured that all staff are aware of the nearest fire alarms, fire hoses and emergency exits. The Fire Brigade allowed the IEF staff to participate in a hands-on activity on the proper use of fire extinguisher mechanisms to ensure that each and every staff can act knowledgeably in the event of a fire emergency. The IEF diligently works to regularly maintain fire extinguishing equipment throughout the grounds of the IEF Secretariat.
The 7th Asian Ministerial Energy Roundtable (AMER7), hosted by the Kingdom of Thailand and co-hosted by the United Arab Emirates gathered Energy Ministers and Heads of International Organisations on 1-3 November 2017 to focus on global energy markets in transition. AMER7 is a key feature of the global energy dialogue promoted under the neutral banner of the International Energy Forum focused on mitigating uncertainty that hampers effective decision-making and timely investment by strengthening stakeholder cooperation.

AMER7 made an important contribution in efforts to move from vision to action in identifying secure, affordable and equitable energy transition pathways in Asia. While levels of social and economic development, and natural resource endowment profiles vary widely from advanced economies and regions in North East Asia to rapidly developing economies in South East Asia and the vast expanse of Central Asia, the geo-economic weight of Asia as a whole sets the pace of global energy market transition.

Minister’s and heads of organisations discussed the energy security implications of potential energy transition pathways that must accommodate the global consensus on a lower carbon future reached in Paris, maintaining market stability accounting for the diversity of...
resource endowment profiles across Asia, and serving practical socio-economic goals that vary sharply across the affluent and less-developed economies of the region.

In previous AMER events, IEF Ministers have recognised their interdependence and placed an emphasis on the important role of dialogue in establishing the trust necessary to forge and sustain enduring partnerships to underpin our global energy future. In the AMER7 Ministers not only considered the benefits of embracing energy efficiency measures along the entire energy value chain, but also discussed the practical implications that energy transition pathways may have for a healthy and stable development of oil and gas markets. Enhanced policy dialogue and cooperation, knowledge-sharing, data transparency, trade and investment facilitation, as well as measures to ease the roll-out of new technologies featured prominently in discussions on how transient and structural changes affect energy.

The programme of AMER7 was structured around three key sessions that aim to focus on today’s most pertinent questions for energy security:

- What potential impacts may step-changes in technology and shifts in transition policy have on upstream investment in the short and longer-term; not only for unconventional and conventional resources, but also for oil market stability more broadly?
- To what extent can gas suppliers rely on policy and market levers to facilitate the role of gas as the fuel of choice in support of emerging clean energy technologies that in conjunction with other technologies, are expected to underpin sustainable growth and development in Asia and other regions?
- How can long-term policy and technology cooperation help foster efficiency and productivity improvements to natural resource management and use, and shape supply chains that are fit the future?

AMER6 was convened between the adoption of the United Nations Sustainable Development Agenda (UNSDA) 2030 and the Paris Agreement in 2015 to discuss Asian energy market dynamics. This culminated in the endorsement of a proposal by the Kingdom of Saudi Arabia to establish an Asian Energy Efficiency Knowledge Sharing Framework under the IEF that has since been adopted by the 2nd G20 Energy Ministers Meeting (Beijing, June 2016) and the IEF15 Ministerial (Algiers, September 2016).

AMER7 built upon these outcomes to strengthen established partnerships and forge new bonds accordingly. This event ultimately underpins the development of the increasingly complex and dynamic relationships between energy producers and consumers in Asia and beyond. The outcomes of AMER7 will further inform other upcoming energy dialogue meetings such as the IEF15 hosted by the government of India and co-hosted by China and Korea on 10-12 April 2018 in New Delhi, India.
Energy markets are on the brink of a significant transformation over the next 25 years, as they chalk out pathways to serve the world’s aspiration for development. Things are changing across the globe. Global GDP is expected to grow by 3.7% over the next year, a slight upswing from the 3.0-3.4% seen over the previous five years.

Population growth and standard of living will be the main drivers of energy demand growth over the next 25 years, accelerating industrial production, urbanization and vehicle fleet expansion. Most population and income growth will take place in Asia and Africa, regions with the least energy access and the most fuel substitution potential.

Emerging economies are entering the recovery phase; commodity markets are rebalancing to the benefit of the world economy. In the medium-term, relatively low prices of energy is stimulating its demand growth.

World energy demand is projected to grow briskly between 2017 and 2040. Fossil fuels predominately contribute about 81% of the current global energy requirements; even after a quarter century from now, it will contribute about three fourths of the global requirement of energy. As far as the energy demand is concerned, power generation and transportation will continue to be the two major consumers of energy in the foreseeable future.

The share of gas in the global energy mix will grow, as consumers seek an energy source that supports economic development and addresses environmental concerns. Majority of the prominent world energy analysts concur that global gas consumption will increase by over 50% between 2017 and 2040, and natural gas will become the fastest growing fossil fuel.

Within the natural gas sector, the LNG demand is expected to grow at 4.6% per annum. The outlook for LNG volumes is to grow from 264 Mtpa in 2016 to over 600 Mtpa by 2035. Market share of LNG in international gas trade is slated to grow from slightly less than 33% in 2015 to more than 50% by 2035, meaning that LNG volumes will grow from about 50% of piped volumes in 2015 to nearly equal to the piped gas volumes by 2035.

“With regard to market fundamentals, the challenge for the LNG industry today is to find a balance between buyers’ pursuit of competitiveness and flexibility and producers’ need to maintain a healthy cash flow out of the exploitation of their natural resources.”

Gas is increasingly being considered as an alternative to petroleum fuels in some parts of the transport sector. Besides road transportation, LNG also has a very bright future as a maritime fuel. LNG bunkering infrastructure is also
developing fast along the major international sea lanes.

The share of natural gas and renewables will increase gradually. This growth will be led by non-OECD Asia, followed by the Middle East and Africa. The power sector will remain the most significant engine for demand growth in the long-term.

Production and trade of pipeline gas and LNG has been rapidly expanding. The boom in LNG trade will continue until 2021, with significant incremental growth in LNG volumes observed in recent years.

The second expansion wave for LNG will come from Qatar and other gas producing Countries.

Qatar’s history of being a reliable LNG supplier over the past two decades is well established. It intends to remain a leading player in the future as well. This is substantiated by the recent visionary directive of His Highness Sheikh Tamim bin Hamad Al Thani, the Emir of the State of Qatar, to lift the moratorium on the development of its North Field reservoir. This will increase Qatar’s LNG production by 30% to 100 million tons per annum, to be fully operational by 2024.

Significant developments in pipeline infrastructure are also taking place in the CIS region, expanding pipeline capacity that drives exports to China and Europe. Unconventional natural gas resources are also expected to play a greater role in global supply.

The 2015 Paris Agreement has catalyzed momentum to reduce greenhouse gas emissions.

Natural gas emits half the CO2 that of coal and considerably less polluting by-products, such SOx, NOx and particulates. These environmental advantages support the competitiveness of natural gas if they are well-integrated through efficient and reliable carbon pricing.

Natural gas is abundant and economically viable, due to the efficiency of gas-based technologies. GECF countries possess two-thirds of proven conventional gas reserves and have the ability to provide a secure gas supply. The development and integration of gas networks can improve access to energy, stimulate development and improve welfare.

With regard to market fundamentals, the challenge for the LNG industry today is to find a balance between buyers’ pursuit of competitiveness and flexibility and producers’ need to maintain a healthy cash flow out of the exploitation of their natural resources.

The LNG resource holders and investors need to be comfortable with the level and sustainability of future prices to determine the viability of their projects. This will not only soften the boom and bust cycles, but would also prevent supply shortages and price shocks down the line.

THOUGHTS FROM AMER 7

“Asia is considered to be the region with the highest share of global energy consumption. Meanwhile still possesses energy resources including oil and natural gas. This makes Asia crucial for energy markets.”

HE Air Chief Marshal Prajin Juntong
Deputy Prime Minister
Kingdom Of Thailand
Asia is pivotal to secure, affordable, and equitable energy transition pathways worldwide. The geoeconomic weight and demand growth of Asia as a whole reduces global market volatility, and sets the pace for global transitions. As Asia goes, so goes the world of energy.

Mutually reinforcing investment in both new, and established energy technologies in Asia sets an example for other regions to follow in their global quest for secure, affordable, healthy, and more resilient world energy markets, that foster inclusive growth and allow future generations to prosper.

Dialogue supported by the International Energy Forum (IEF) on global energy security and reliable transition pathways through well-functioning, open, competitive, efficient, and transparent energy markets promotes cooperation, trade and investment across Asia’s diverse economic regions that aim to:

- Provide energy access for more people at higher and healthier standards,
- Promote energy efficiency and reduce waste along the entire energy value chain,
- Advance economic growth and achieve all Sustainable Development Goals,
- Take action on climate change in accordance with the Paris Agreement.

The producer-consumer dialogue is evolving into conversation on energy security and transition inviting many new stakeholders to sharpen focus collective on market stability since the deployment of new technologies and policy perspectives can also disrupt tightly integrated world energy markets.

Focus has shifted to transition, new technologies, energy access, and efficiency in a period of relative low oil and gas prices. Yet economic growth is picking up speed, and oil demand growth is rebalancing markets after three years of deferred upstream investment. Energy security remains the guiding principle and more in-depth dialogue and cooperation is now needed to reduce energy market volatility and uncertainty in concert.

This will allow investment in both conventional and new resources to move forward in tandem and make energy transition pathways more predictable. In 2040 oil and gas will supply more than 50% of global energy demand, with...
coal consumption amounting to 25% according to IEA and OPEC projections. While deeper transformations are likely to come in conflict with other policy priorities, moving from vision to action depends above all on anchoring the efficiency gains and technology advances achieved in the downturn, and strengthening policy and technology cooperation in the carbon industry.

Dialogue on the use of existing and new energy technologies by introducing new standards and incentives here, will make energy supply and demand cleaner, more efficient, and secure worldwide.

The 15th Session of the IEF Ministerial International Energy Forum called for enhanced dialogue to support an orderly energy transition in closer collaboration with all stakeholders. Findings show that to navigate global pressure points successfully and make energy markets more inclusive, sustainable, and secure, we must overcome five challenges:

1. Unbalanced energy sector development: 1.1 billion people living in Asia and Africa have no access to modern energy, while new technologies leap forward.
2. Lasting reliance on fossil fuels: the carbon sector must become more efficient and sustainable, especially to respond to energy demand in growth economies.
3. Timely investment: 3 years oil and gas sector investment, and steep production declines foreshadow more volatile markets as world economic growth strengthens.
4. Expectations renewables will drive transition alone: renewables will grow, but they may fulfil 25% of total demand by 2040, main IEA and OPEC projections show.
5. Bridge new and traditional energy sources: enhanced dialogue on market designs can help to ensure technologies become mutually reinforcing, and avoid wasteful imbalances.

To say that the energy sector is living through challenging times is an understatement. But, it takes only three steps, to move from vision to action in global energy markets in transition:

1. Let the producer consumer dialogue evolve in to a conversation among all energy sector stakeholders, and organisations.
2. Governments, fossil and renewable industries help each other across borders, and technologies to achieve the goals we all share.
3. Join hands in Asia and beyond, to facilitate an orderly transition, accelerate efficiency gains, and deepen data transparency together.

It is the way to reduce uncertainty, and invest in Asia’s rapidly growing economies and the quality of life of Asia’s industrious population.

Despite the rising complexity of energy market developments, and the challenges we must overcome to clear the path for future generations, moving from vision to action requires only three simple step changes towards a global conversation on energy security and transition. Here your contribution is urgently needed.

“The producer-consumer dialogue is evolving into conversation on energy security and transition inviting many new stakeholders to sharpen focus collective on market stability since the deployment of new technologies and policy perspectives can also disrupt tightly integrated world energy markets.”
KOREA, PIONEERING THE FUTURE OF ENERGY

By - Wonjoo Park, Deputy Minister of Energy and Resources
Ministry of Trade, Industry and Energy Republic of Korea

Korea’s Industrial Structure and Energy Environment

Korea is the world’s 9th-largest energy consumer, and its energy consumption continues to rise. With an economy dominated by energy-intensive industries, such as steel and petrochemicals, and a manufacturing sector accounting for 29.5% of its gross domestic product, Korea inputs a tremendous amount of energy to produce each unit of added value. Meanwhile, Korea’s lack of natural resources forces it to import 94.8% of its energy from overseas. Under such circumstances, previous energy policies tended to put top priority on stable and efficient supply.

Call of the Era for New Energy Policy

Today we are witnessing growing calls for a new energy policy. With the Paris Agreement that took effect in 2016, a new climate regime was launched in which both advanced and developing countries participate. In a short time, this Agreement has shifted the global energy paradigm from stable supply and demand toward eco-friendly generation and efficient consumption. To support this paradigm shift, the Korean government has been developing an array of disruptive technologies while formulating new energy policies to accommodate the public’s growing consciousness of environment and safety, heightened by the Fukushima nuclear accident, potential risks of earthquakes and recurring issues with fine dust.

Korea’s Efforts to Prepare for the Future of Energy

In line with these trends, Korea permanently shut down its first nuclear power plant in June and proclaimed the opening of an “era of safe and clean energy,” aimed at making Korea a safer place to live. To usher in the new era, the government is taking all necessary steps, including technology innovation.

“The path to the future of sound, safe and clean energy will undoubtedly be full of challenges, but it is indeed the call of our era and the road that must be taken [...] this meeting will provide a venue for concrete discussions on policies to support the development of disruptive energy technologies that will ultimately usher in the next era of energy.”

To begin with, Korea is developing technologies with a focus on clean energy to effectively respond to the new climate regime while laying a solid foundation, including energy storage systems (ESS), to accelerate the transition to future-oriented energy. In addition, the Korean government is undertaking demonstration research to verify the safety and performance
of developed technologies in order to promote their commercialization. Offshore wind power generation is a case in point. In 2004, Korea began to localize an offshore wind power generation system and succeeded in constructing a 30MW offshore wind farm in Jeju Island in 2016. In the same year, the domestic installed capacity of wind power exceeded 1GW as wind farms gained momentum, including another offshore wind farm located off of Korea’s southwest coast.

The Korean government is also sparing no efforts to take advantage of the energy transition to identify new growth engines for job creation and export expansion. By widely deploying smart grids based on distributed resources, energy management systems (EMS) and advanced metering infrastructure (AMI), Korea aims to create new businesses for efficient energy management and energy-related services. Its work on deploying ESS and AMI, which are the core technologies of smart grids, resulted in ESS capacity reaching 490MWh and AMI installed in 3.3 million households as of 2016. The government’s goal is to have AMI installed in every household and store by the end of 2020. In addition to its efforts at home, the Korean government has been cooperating with developing countries on their capacity building and encouraging Korean companies to venture into overseas markets. For instance, Korea and the Asian Development Bank conducted a joint project in Cobrador Island in the Philippines to generate power from distributed resources using solar PV and ESS, and with its successful completion last year, the residents can now enjoy a stable supply of electricity.

Adding to these efforts, Korea is moving to gradually reduce nuclear and coal-fired power and increase renewables and LNG. The government is currently establishing measures to (a) minimize nuclear-related issues by scaling down nuclear power over a period of 60 years, (b) shut down aged coal-fired power plants, and (c) increase the ratio of renewables in total generation to 20% by 2030.

Even amid the paradigm shift to clean energy, oil ranks first in Korea’s final energy consumption at 49.1%, indicating its importance to Korea’s economy. As Northeast Asia has risen to become the world’s biggest oil market, conditions for creating a new international oil trading hub are more than mature. Considering its geopolitical location, port conditions and outstanding refinery capacity, Korea is the optimal candidate for a new oil trading hub for the Northeast Asian market. This project is anticipated to construct large-scale commercial storage facilities, equivalent to a total of 32.3 million barrels, in the port cities of Yeosu and Ulsan and will deliver a variety of benefits, including the development of oil trade related businesses and enhancement of oil security.

**Path towards the Future**

The path to the future of sound, safe and clean energy will undoubtedly be full of challenges, but it is indeed the call of our era and the road that must be taken. Korea sincerely hopes that this meeting will provide a venue for concrete discussions on policies to support the development of disruptive energy technologies that will ultimately usher in the next era of energy.

**THOUGHTS FROM AMER 7**

> “Under H.M. the late King Bhumiphol’s Sufficiency Economy Philosophy, Thailand has successfully turned agriculture residue into high-value bioenergy to demonstrate how we put our vision into action.”

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**HE General Anantaporn Kanjanarat**

**Minister of Energy**

**Kingdom Of Thailand**
THE INVESTMENT CONUNDRUM

By - Mohammad Sanusi Barkindo
OPEC Secretary General

To help contain, and then alleviate the current oil market cycle, has required great patience, resolve and perseverance. The cycle has been described by many as the worst they have ever seen in the history of the oil industry.

It is a cycle that saw the OPEC Reference Basket fall by an extraordinary 80% between June 2014 and January 2016, the largest percentage fall in the six episodes of sharp price declines observed over the past four decades; where thousands upon thousands of jobs were lost; where many projects and investments were frozen or discontinued; and where many companies saw great financial and operational stresses. Many producers felt that the circumstances surrounding the cycle had completely overtaken their day-to-day work.

While there is now clear evidence that the market is rebalancing and stability is returning, driven by the unprecedented conformity levels to the historic production adjustment decisions reached by OPEC and participating non-OPEC producers through the ‘Declaration of Cooperation’ at the end of 2016 and then extended in May 2017, there remain challenges in regards to ensuring the sustainable stability that all industry stakeholders desire.

A key focus relates to oil industry investments. Of course, we should initially recognize that security of demand is just as important to producers as security of supply is to consumers. Producers do not want to waste precious financial resources now on infrastructure that might not be needed in the future. At the same time, if timely and adequate investments are not made, then future consumer needs might not be met.

Currently, there is a major focus on the need to ensure that a lack of investments today does not lead to a future supply shortage. The recent price crash led to nearly one trillion dollars in investments being frozen or discontinued.

“I should stress that OPEC Member Countries themselves have defied the trend and continued to invest through the industry downturn – in new upstream capacity, in the maintenance of existing fields and infrastructure, in the construction of the necessary pipelines, and in the building and expansion of oil terminals and refineries. OPEC is therefore positioned to continue to be a dependable and reliable supplier of crude and products to global markets.”

in investments being frozen or discontinued. Spending on exploration and production fell by a huge 27% in both 2015 and 2016. Furthermore, it should be noted that the actual volume of conventional oil discovered worldwide has halved over the past four years, compared to the previous four-year period.
These developments need to be set alongside the fact that the industry remains one of significant growth. In the Organization’s upcoming World Oil Outlook (WOO) 2017, to be launched on November 7, we expect oil demand to pass 100 million barrels a day (mb/d) in 2020 and to reach over 111 mb/d by 2040. The Outlook sees oil demand growth every year; there is no peak oil demand for the foreseeable future.

On top of this, we should also recall that oil producers and companies must invest heavily simply to offset the impact of natural decline rates. The general consensus is an annual decline rate of 5%, which suggests that the industry needs to add over 4 mb/d each year to just maintain current production levels.

There will also be significant expansion and investment required in both the midstream and downstream. The WOO 2017 sees overall oil industry investment requirements of $10.5 trillion in the period to 2040.

While investments are expected to pick up slightly in 2017 and in 2018, it is clear that this is not anywhere close to past levels. It has also generally been more evident in short-cycle rather than long-cycle projects, which are the industry’s baseload.

However, even in short-cycle projects we have recently seen downward revisions to growth forecasts, particularly in US tight oil production. This is supported by the decelerating pace of the rig count growth, a growing number of drilled, but uncompleted wells, and a drop in well productivity as operators shift from sweet spots to surrounding areas.

This is also being driven by increasing calls from shareholders for more fiscal discipline and an intensifying focus on value, rather than volume. Shareholder returns have been adversely affected by the lower oil price environment. This development could result in a further slowdown in spending on new tight oil wells.

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The focus looking ahead needs to be on an appreciation that the short-, medium and long-terms are all interlinked – stability and balance is required across all timeframes to ensure future demand growth is met. This has been a central element of the landmark ‘Declaration of Cooperation’; a commitment made to all industry stakeholders, both producers and consumers, as well as one to the broader global community, through the move to restore oil market stability and enable investments to return, as well as the potential positives of this for the global economy.

**THOUGHTS FROM AMER 7**

“Concerns about future energy security – especially in Asia, where demand is rising much faster than the industrialized economies. Without the higher investment levels energy security may be compromised.”

HE Khalid Al-Falih
Minister of Energy, Industry, and
Mineral Resources
Kingdom Of Saudi Arabia
Energy is an indispensable factor for human progress – powering industrial production, services, transport, communication and enabling comfort and convenience in our daily lives. However, the benefits of modern energy also entail negative externalities on society and the environment. The most blatant and substantive of these is the enormous cost from climate change as energy use contributes close to 80 percent of total global greenhouse gas emissions. A further concern is air pollution from fossil fuel use, leading to acute impacts on human health and economic productivity. While energy is bringing both costs and benefits to societies we must remember that not all of us have modern energy.

“In response to imperatives of climate change and sustainability, the global energy system is undergoing a profound transformation, perhaps the most dramatic change since the introduction of centralized power generation and electricity grids. The energy transition is on several fronts.”

The globally agreed 2030 Agenda for Sustainable Development provides a blueprint for the collective social, economic and environmental achievements needed for promoting shared prosperity of successive generations. Energy production and its use is critical for sustainability as it impacts across the three dimensions. It is in this context that SDG7 proposes a holistic approach - ensure universal access to energy, increase substantially the share of renewable energy and double the global rate of improvement in energy efficiency. 1

In response to imperatives of climate change and sustainability, the global energy system is undergoing a profound transformation, perhaps the most dramatic change since the introduction of centralized power generation and electricity grids. The energy transition is on several fronts. Renewables are emerging as the principal source of new generation, eroding the dominant role of fossil fuels. Each year, newly installed renewable generation capacity outstrips fossil fuel installations. The cost of solar power is now lower than fossil fuel in many markets. Deutsche Bank estimates that solar power has already reached parity with grid electricity in 50 countries. Energy efficiency is improving as economies’ energy demand growth is slowing, improving the use of existing energy reserves. The Asia-Pacific has achieved a reduction in energy intensity of more than 40 per cent since 2000, outpacing other global regions.2 Approaches such as cross-border power interconnection, distributed energy, energy storage and smart grids offer new ways of better sharing and managing energy. Internet technologies such as blockchain are emerging, allowing peer-to-peer energy trading, with consumers becoming generators and
participating in energy markets.

“The Asia-Pacific region is of central importance to any discussion on energy transition. The region represents the crucible in which the forces of the global energy transition are playing out. Indeed, the Asia-Pacific will determine the pace of the global energy transition and the extent to which it will deliver on its full potential.”

Thus, there are multiple drivers of energy transition whose effective management is critical. On one hand there is increasing understanding and recognition of the uncosted externalities of carbon based fuels and inefficient use of energy. On the other hand, the desire to change incumbent technologies is being supported by a wave of energy innovation that allows low cost, clean and more flexible and decentralized generation. Innovation is disrupting conventional technologies, business models and paradigms. Innovation-based solutions using hardware, software and business models enhance how we generate, trade and use energy. These solutions are providing policy makers with an array of increasingly affordable, practical and comprehensive solutions for achieving their high-level energy policy goals. Policy intervention is critical as supportive policies spur a “virtuous cycle” for innovative technology development, where market uptake increases scale and lowers costs, in turn stimulating more demand. Solar photovoltaics, batteries, electric vehicles and offshore wind energy are examples of technologies that have demonstrated steep learning curves, with costs continuing to drop. From the financing perspective, as market share and confidence in these technologies grows, investor risk decreases and the cost of finance can fall.

The upheaval at both the generation and consumption ends of the energy chain are combining to usher in the beginnings of a sustainable energy future. There are a series of signposts that indicate the impacts of the energy transition are already being felt. Globally, a wedge has been driven between greenhouse gas emissions and GDP growth, a first step before overall reductions of emissions. The International Energy Agency has reported that 2016 was the third year in a row where global emissions remained flat despite increasing global GDP. This decoupling is also evident in many economies across the Asia Pacific, most notably in China which has reduced coal consumption and plateaued its emissions despite ongoing GDP growth. So while the transition has begun, the challenge is to accelerate it to meet the goals of the Paris Agreement.

The Asia-Pacific region is of central importance to any discussion on energy transition. The region represents the crucible in which the forces of the global energy transition are playing out. Indeed, the Asia-Pacific will determine the pace of the global energy transition and the extent to which it will deliver on its full potential. There are several reasons for this.

Firstly, it is an enormous market for energy, consuming some 49 percent of the world’s primary energy. At the same time the Asia-Pacific with its progressive policy stances and abundant renewable resources, is installing more renewable energy capacity than any other, amounting to an investment of $110 billion in 2016, almost half the global total. Looking to the future, the region will capture a massive $3 trillion in investment in the period to 2040. Two countries alone - India and China - will account for 43 per cent of all global investment in renewable power to 2040.

Secondly, beyond its role as a market for new energy technology, it is a hub for innovation and manufacture of advanced energy technologies, from photovoltaics to energy storage and advanced energy efficiency. These industries will create high quality jobs and drive economic
growth through the enormous global demand for these technologies. Continued innovation and cost competitiveness is key to sustaining the momentum of the energy transition.

Lastly, despite progress being made in tapping new energy sources in many economies, there remains an unacceptably large population, over 400 million in the region, with no access to electricity. This is almost half of the global total, with South Asia representing the subregion in most need. Bringing the benefits of modern energy to all will require innovative approaches, continued investment by governments and a mixture of centralized and stand-alone power solutions. Engaging the private sector in this task is critical but sustained policy efforts will be needed to bring modern energy to the poorest and most remote regions. If Asia-Pacific fails to electrify its remote and rural populations, the world cannot meet this goal.

Ultimately the energy transition must take us to a future where energy is affordable, clean and available to all. The seeds of this transition have already been sown and the transformative role that the Asia-Pacific will play is clear. It is therefore appropriate that this year Thailand will host the 7th Asian Ministerial Energy Roundtable to progress the global energy dialogue. Decisions being made today on how to direct energy investments by countries like Thailand will determine whether the global energy transition will be fast enough to ensure sustainable energy for all by 2030.

“Ultimately the energy transition must take us to a future where energy is affordable, clean and available to all. The seeds of this transition have already been sown and the transformative role that the Asia-Pacific will play is clear.”

4 World Resources Institute, Climate Action Tracker http://climateactiontracker.org/countries/china.html
Significant incremental growth in LNG volumes observed in recent years.

Production and trade of pipeline gas and LNG has been rapidly expanding. The boom in LNG trade will continue until 2021, with some parts of the transport sector. Besides road transportation, LNG also contributes about three fourths of the global requirement of energy. As far as the energy demand is concerned, power generation and transportation contribute about three fourths of the global requirement of energy.

Natural gas is abundant and economically viable, due to the efficiency advantages support the competitiveness of natural gas if they are well-integrated through efficient and reliable carbon pricing.

Natural gas is increasingly being considered as an alternative to petroleum fuels in the medium-term, relatively low prices will continue to be the two major consumers of energy in the foreseeable future. Things are changing across the globe. Global GDP is entering the recovery phase; commodity markets are rebalancing to the new normal.

Energy markets are on the brink of a significant transformation over the next 25 years, accelerating industrial production, urbanization and vehicle fleet expansion. Most population and income growth will take place in Asia and Africa, regions with the least energy access and the most fuel substitution potential. Emerging economies are gaining access to energy, stimulating its demand growth.

Population growth and standard of living will be the main drivers of energy demand growth over the next 25 years, accelerating industrial production, urbanization and vehicle fleet expansion. Most population and income growth will take place in Asia and Africa, regions with the least energy access and the most fuel substitution potential.

Significant developments in pipeline infrastructure are also taking place in the CIS region, expanding pipeline capacity that drives exports to China and Europe. Unconventional natural gas resources are also expected to play a greater role in global supply.

The 2015 Paris Agreement has catalyzed momentum to reduce greenhouse gas emissions, and its commitments are expected to meet only a small portion of the needed reduction in carbon dioxide emissions.

World energy demand is projected to grow briskly between 2017 and 2040, and natural gas will become the fastest growing fossil fuel. Fossil fuels predominately contribute about 81% of the current global energy requirements; even after a quarter century from now, it will contribute about 75% of the energy demand.

The share of gas in the global energy mix will grow, as consumers seek an energy source that supports economic development and addresses environmental concerns. Majority of the prominent world energy analysts concur that global gas consumption will increase by over 50% between 2017 and 2040, and natural gas will become the fastest growing fossil fuel.

The second expansion wave for LNG will come from Qatar and other gas producing Countries.

The moratorium on the development of its North Field reservoir. This will increase Qatar’s LNG production by 30% to 100 million tons per annum, to be fully operational by 2024. Sheikh Tamim bin Hamad Al Thani, the Emir of the State of Qatar, to lift the moratorium on the development of its North Field reservoir. This will well establish Qatar’s history of being a reliable LNG supplier over the past two decades.

The LNG resource holders and investors need to be comfortable with the flexibility and producers’ need to maintain a healthy cash flow out of the exploitation of their natural resources. This will not only soften the boom and bust cycles, but would also prevent supply shortages and price shocks down the line.

With regard to market fundamentals, the challenge for the LNG industry is to find a balance between buyers’ pursuit of competitiveness and producers’ need to maintain a healthy cash flow out of the exploitation of their natural resources.

Access and the most fuel substitution potential. Emerging economies are gaining access to energy, stimulating its demand growth. Natural gas emits half the CO2 that of coal and considerably less polluting by-products, such SOx, NOx and particulates. These environmental advantages support the competitiveness of natural gas if they are well-integrated through efficient and reliable carbon pricing.

The share of natural gas and renewables will increase gradually. This is also developing fast along the major international sea lanes.

The power sector will remain the most significant engine for growth will be led by non-OECD Asia, followed by the Middle East and Africa. The share of gas is rapidly increasing in Asia because of increasing power and industrial demand.

Within the natural gas sector, the LNG demand is expected to grow at 4.6% per annum. The outlook for LNG volumes is to grow from 264 Mtpa in 2016 to over 600 Mtpa by 2035. Market share of LNG in international gas trade is slated to grow from slightly less than 33% in 2015 to more than 50% by 2035, meaning that LNG volumes will grow from about 50% of piped volumes in 2015 to nearly equal to the piped volumes by 2035.

Energy consumption is rising by 3.0-3.4% seen over the previous five years.

Energy consumption is rising by 3.0-3.4% seen over the previous five years. The outlook for energy consumption is to continue to rise with 3.2% per annum between 2016 and 2040. Energy demand is a key driver of the economies. The MENA region will witness the highest increase in energy consumption over the next 25 years, driven by domestic consumption and economic growth.

The Jeffrey L. Sprecher Energy Report towards 2040, which was issued at the 6th Asian Ministerial Energy Roundtable in December 2017, notes that the MENA region will witness the highest increase in energy consumption over the next 25 years, driven by domestic consumption and economic growth.

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Achieving global economic growth in a sustainable manner hinges entirely on getting the energy transition right. This means reducing our dependence on fossil fuels through expanding the use of renewable energy and, critically, improving the efficiency of energy use.

As the world’s most populous region and the epicenter of global economic growth, Asia-Pacific countries must lead the way for energy access, energy efficiency and renewable energy. The region is pivotal to achieving the ambitions of the Paris Climate Agreement, which calls for cutting global carbon pollution 80 percent by 2050.

It is hugely encouraging that countries like China and India have committed to aggressively reduce their carbon emissions, while adding record amounts of renewable energy. Still, energy consumption in these two countries will inevitably grow as more people join the middle class and many millions more get electricity for the first time. It is critical that, firstly, we achieve massive improvements in efficiency to limit demand. We then need to generate as much as possible using renewables to reduce the use of fossil fuels which must be used as cleanly as possible.

A key driver is government leadership and supportive policies. A standout in this regard is China, which is seeking to achieve multi-fold economic growth in the next few decades using the roughly the same amount of energy it uses today. China is a world leader in new mandatory energy efficiency policies, accounting for 70 percent of all new policies adopted globally in 2016, according to a new “Energy Efficiency 2017” report by the International Energy Agency.

The Chinese government’s commitment to carbon pricing and the way it publically sets out its goals, such as for phasing out petroleum-driven cars and fuel efficiency standards for trucks, provide clear signals to the public and private sector which allow for long term thinking and provide markets with the stability to unlock finance.

In stark contrast are countries such as Indonesia, which has enormous opportunities for enacting policies to reduce its energy footprint. Without new policies, the country is on track to require 4,000 megawatts of new generating capacity every year to 2025.

We constantly miss opportunities to maximize energy productivity. One example that comes to mind is the energy associated with shipping refrigerants commonly used in ACs and other cooling equipment and is elevated to be a top priority if we are to achieve our long-term goals for Sustainable Energy for All (SEforALL).

“As the world’s most populous region and the epicenter of global economic growth, Asia-Pacific countries must lead the way for energy access, energy efficiency and renewable energy.”
liquid natural gas (LNG) around the world. Natural gas needs to be cooled and condensed, to minus 162° Celsius, to make it a liquid so it can be transported on ships. It is then re-vaporized so it can be used as a gas. Yet, of the 111 LNG import terminals worldwide, only 23 undertake any form of cold recovery – a massive missed opportunity.

As temperatures and income levels rise across Asia, demand for refrigeration, air conditioners and other cooling services is skyrocketing. India alone could see a doubling in air conditioner energy demand in the next 15 years, requiring as many as 300 new power plants to be built, many of them fired by coal.

This trend is an enormous threat and efficiency is, again, the key. More efficient equipment exists but far bigger gains can be expected through efforts such as India’s Super-Efficient Air Conditioning initiative launched earlier this year. Another opportunity is the recent Kigali Amendment to the Montreal Protocol: this requires the phase-down of high-polluting refrigerants commonly used in ACs and other cooling equipment and is an opportunity to re-think the design of appliances to make them more efficient as well.

Consider that 75 percent of food consumed in developed countries is transported through cold chains. In India, it’s only 4 percent, which explains why the country loses up to 40 percent of its fruit and vegetable output every year and all the energy used to produce those wasted crops is also wasted.

New technologies – with catchy names like the Solar Polar Cooler, Cool Pushcart and the Magic Fridge – are popping up in Asia and elsewhere to help preserve food. However, their growth potential remains unclear due to the fragmented nature of cold chains in many countries. India, for example, has a growing number of rural farmers who are using new cold storage technologies, but they are still unable to get their products to commercial markets due to the lack of refrigerated transport vehicles.

The huge increase in investment in renewable energy generation is welcome and necessary, but we still miss a similar increase in investment in efficiency. Why? I would like to leave you with one idea: energy efficiency requires a deeper involvement of a wider range of stakeholders to make decisions, whether that is in a factory, in an apartment complex, or making use of waste cold described above. We need integrated strategies about how to deliver the services people need, not just one technological fix that addresses only one part of the problem. We need to think creatively about new partnerships that maximize synergies of energy supply and demand.

Asian government leaders face enormous challenges in growing their economies sustainably and inclusively, and I am encouraged by the broad action I am seeing but we need more. Energy productivity efforts must be elevated to be a top priority if we are to achieve our long-term goals for sustainable development and a healthy environment.

Rachel Kyte is CEO and Special Representative to the UN Secretary-General for Sustainable Energy for All (SEforALL).
The oil and gas markets witnessed various developments, changes, prosperity and recession periods over the past decades, which only stress that in spite of their strategic nature, oil and gas as industries and goods, are exposed to be affected by market conditions and other related elements.

Following about three years period (2011-2013) of relative price stability with an average of around $107/bbl, oil prices have declined sharply since mid-2014. The sharp crude oil price decline observed between June 2014 and January 2016, when the OPEC Reference Basket price fell by an unprecedented 75 per cent.

The downward oil price trend alongside with the dedication of participating producing countries to persist their cooperation led the 24 OPEC Member Countries and non-OPEC countries to adjust their production by around 1.8 million barrels per day, in order to motivate the acceleration of the drawdown of the stock overhang, bring the market rebalancing forward and ensure that much needed investments return to the industry. These milestone decisions have already positively impacted the market as prices have reversed their downward trend with the OPEC Reference Basket improving to stand around $53.4 per barrel in September 2017.

We trust that the recent decisions taken by OPEC and non-OPEC member countries are already creating the favorable conditions for the industry to bring the necessary medium- and long-term investments for the future of energy industry. Therefore, the industry, through technological innovation, has to accomplish significant reductions in production costs to re-encourage investment in this capital-intensive industry especially in the LNG sector.

“The advantages offered by natural gas as an environment-friendly and flexible energy source, make it a very competitive fuel in the global energy mix. To secure the full potential of natural gas in the decades to come, all stakeholders of the industry should continue to make more efforts in investing, innovating, adapting appropriate energy policies, and focus more on technologies being developed to underpin gas usage.”

With regard to gas market, the falling gas prices in the last two years along with slowing demand growth led to cut capital expenditures. In the LNG sector, many new projects were cancelled or postponed due to the market situation and financial difficulties. It’s worth mentioning that the number of LNG final investment decisions reached its lowest level since 2000. Oil and gas
prices are one of the major element of economic growth and development in both developed and developing countries, but their impact on countries that depend on oil and gas as the main source of their economies and income, is far greater.

For OAPEC member countries which rely heavily on oil and gas trade, such wide fluctuations in oil and gas prices have a proportionately larger impact on their growth and development.

Looking ahead, world energy demand is expected to rise by 40 per cent, reaching 382 million barrel of oil equivalent per day by 2040. Oil is expected to represent over 26% of the world’s energy demand by 2040. It is, also, expected to reach close to 100 million b/d by 2040, an increase of 15 million b/d from 2015. With respect to Natural gas, its share in the global energy mix has grown significantly compared to other fossil fuels. Today, natural gas accounts for 21% in the global primary energy demand, and its share is expected to increase to 24% in 2040, making it the fastest growing among the fossil fuels. The advantages offered by natural gas as an environment-friendly and flexible energy source, make it a very competitive fuel in the global energy mix. To secure the full potential of natural gas in the decades to come, all stakeholders of the industry should continue to make more efforts in investing, innovating, adapting appropriate energy policies, and focus more on technologies being developed to underpin gas usage.

We, here, are well aware of the need to use energy efficiently and to persistently look to develop and implement cleaner energy technologies. However, there are many other challenges for oil and gas markets, such as: the prospects for the global economy; the role of financial markets; the impact of geopolitics; and policy uncertainties in a number of leading producing and consuming countries.

The stability in energy in the market as a whole is more needed today for investments and capacity expansion, to guarantee supply levels are sufficient, and to permit producers to respond quickly and appropriately in times of unexpected supply constraints.

To conclude, OAPEC member countries occupy a significant position in the international oil and gas markets. The contribution of OAPEC countries in meeting the world oil and gas demand and stabilizing the energy market is noteworthy. By the end of 2016 they held about 55% of the world total reserves of crude oil and condensate, and more than 27% of natural gas reserves. Their production of crude oil is around 31.8% of the world total and 15.5% of the world total production of natural gas, that enhance their significance in meeting world demand.

With their great capabilities and huge hydrocarbon resources, they have the potential to play an even bigger role in the international oil and gas scene in the future.

THOUGHTS FROM AMER 7

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The Asian Ministerial Energy Roundtable is an ideal platform for Asian countries to embark in transparent dialogue on energy transformation and how we can collaborate among each other to be more resilient and sustainable on the neutral platform the IEF provides.

HE Suhaill Mohamed Al Mazrouei
Minister of Energy and Industry
United Arab Emirates

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DEVELOPING ASIA’S ENERGY INNOVATION OPPORTUNITY

By - Dr Bambang Susantono, Vice President for Knowledge Management and Sustainable Development

Energy demand is projected to almost double in the Asia and Pacific region by 2030. The Asian Development Bank (ADB) has estimated the region will need to invest $14.7 trillion in power infrastructure between 2016 and 2030 to meet demand.

This “new normal” poses a critical question: How can developing Asia speed up energy infrastructure development that supports sustainable development?

The opportunity to use high-level technology to “leapfrog” to more advanced energy systems is a compelling vision for developing countries. Multiple trends are driving the transformation of global energy systems. The “digitization of everything” and the “electrification of everything,” as well as increased focus on decentralization and decarbonization are pushing this agenda.

Rapid—and rapidly expanding—deployment of technologies such as photovoltaics, battery storage, electric vehicles, smart grids, and more broadly the “Internet of Things” highlights a major shift in global energy systems. These advanced technologies have the potential to transform most traditional energy infrastructure; but this is only one part of the story. Energy technologies progress in an uneven manner. Some develop quickly and gain significant market share; some move forward at a slow but steady pace. Solar photovoltaic technology, for example, has exhibited double-digit growth in deployment for several years, with the appearance of suddenly moving from niche to mainstream. Large scale deployment of technologies such as carbon capture utilization and storage, hydrogen fuel cells, and next-generation renewable fuels, meanwhile, have been “5 years away” from commercial reality for well over 5 years. Others always hold promise for cost effective use, but do not evolve as rapidly as expected, such as concentrating solar power and demand-side energy efficiency.

This technology uncertainty presents risks—both perceived and real—that must be addressed in
energy system planning. Developing countries may be reluctant to embrace cutting-edge technologies with public sector funds, given the potential downside risks and limited resources available for energy sector development. Risk avoidance is the norm and exceptions typically require external drivers and support to minimize the potential for failure.

At the same time, any developing country can leverage technology to advance faster, cleaner, and more cost-effectively. Many countries in Asia and the Pacific appreciate this opportunity. Innovative technology can help meet a country’s development objectives, but only when well-defined objectives are clearly articulated.

Three main challenges can be articulated around the following questions:

- How to plan and deploy energy assets with design lifetimes of 20-60 years in the context of rapid technological changes?
- How to utilize limited financial resources to manage potential risks of leading edge technologies?
- How do countries adopt and integrate new approaches requiring advanced capabilities that may not be available in their country?

These challenges can be addressed by deliberately deploying technologies that address energy system issues today, while leaving room for new approaches in the future. Such agile energy systems require “no regrets” investments that leverage international experience to minimize risk.

Planning and building electricity systems today can and should anticipate progressively higher shares of renewables in the future. More flexible thermal generation, with smart grid technologies to enable reliable operations, followed by more advanced technologies including energy storage and automated demand response can be used to prepare for that future.

ADB is supporting agile energy systems. In India, for example, projects are implementing high voltage transmission expansion and upgrades to integrate several gigawatts of new solar and wind capacity into the existing grid. Energy storage technology is being introduced into the Cook Islands to facilitate 100% renewable electricity. And in the Kathmandu Valley of Nepal smart grid technology is being integrated into the distribution network.

In partnership with its developing member countries, ADB is supporting policy evolution and technology transfer, and providing financial assistance to make the transition to advanced clean energy systems. ADB encourages innovative technology in every energy project it supports and ensures that best-in-class approaches are used.

This approach must be continued, and a new fund is in place to support greater deployment of potentially game-changing options. ADB’s High-Level Technology Fund will provide grants for technical assistance, pilot projects, investment support, capacity building, and recruitment of technology experts to promote the integration of advanced and innovative solutions throughout the project cycle—from identification to implementation. The fund is intended to encourage and accelerate widespread adoption of advanced technologies to address development challenges across ADB’s developing member countries.

The energy technology landscape will continue to change. As Asia ramps up investment in its energy future, ADB will be an active partner in managing this change and accelerating sustainable growth and development.
When we talk about oil and gas people tend to think about transportation (oil) and power generation (gas) but oil and gas is much more than that, it is embedded in our daily lives: the medicines we take, the sport shoes we use, the clothes we wear, the toys our children play with…, products we use every day and we cannot live without them.

We need investments to be able to provide energy to a growing population and we need to have security of supply but there are many sources of uncertainty: demand, supply, technology, regulation, geopolitics...

For some time, many of us in the industry have been referring to $50 as a “downturn”, but now after almost three years, we need to accept that, for now at least, oil markets move in a fundamentally new band. The picture looks relatively stable but we should look a bit deeper behind the numbers, that paint a picture where the future could be significantly more volatile than the recent past.

Of course, the main effect of recent lower prices has been to dramatically reduce upstream final investment decisions and capital investments – and as a result, a supply hole may be emerging. Upstream capital investments fell by 44% in the two years after 2014 before recovering slightly by 9% this year, driven almost exclusively by North America.

But the effect of this fall is that, from 2019 onwards, we see severely declining volumes from new projects and after 2020 new project volumes will fall well below historical demand growth requirements of around 1.4M bbl/d.

Decline is a critical issue as production from today’s oil producing assets will decline approximately 50% by 2030, further stressing supplies. This is a critical issue at a company level – majors, for example, need to replace an average of 1.2B boe/year - a company the size of Anadarko - just to stay in place volumetrically.

And not only has the absolute level of oil and gas investments been falling but also the relative...
share of global energy investments has fallen, from a historical average this century of almost 70% to only 56% last year. The implication is that the recent investment mix has been increasingly oriented towards lower carbon sources, but typically those focused on electrification, rather than mobility.

Now turning to demand, for most of the last 3 years, demand growth has remained strong – and that strength is projected to continue.

Unfortunately, we can see that lower prices have reduced the crucial focus on efficiency in many markets. For example, in 2016 a record 17.55 million new vehicles were sold, of which an astonishing 63% were SUVs, up from 50% in 2013, and the best-selling vehicle in the US last year was a pickup truck – over 800,000 were sold – that’s 93 every hour.

So, will a shift to oil alternatives ease the pressure? Probably not. If we analyze the anticipated demand growth over the next ~20 years we can see that of the ~15 million bbl/d of growth segments, 80% comes from segments in which it is challenging to find oil substitutes for all applications – freight, petrochemicals and aviation.

We have seen that the supply picture could be challenging, and demand is likely to remain strong. The issue is: what could fill the gap?

In recent years, shale has been positioned as the large, flexible supply source that has changed the game in terms of supply but we believe that the picture is more complex – shale is certainly an important and fast-growing source and we doubt its ability to balance the market alone in the long term.

The reason is a lack of scale and accelerating underlying declines. In December 2014, shale was able to add gross production of 490,000 bbl/d but due to strong underlying decline, net additions were only 167,000 bbl/d and whilst many have reported a strong recovery in shale in 2017, the numbers remain similar. In May, this year shale added 421,000 bbl/d but the additions, net of declines, were just 123,000 bbl/d – barely enough to cover today’s strong demand growth.

So, our sense is that OPEC and other supply sources will return to playing a critical role in balancing an increasingly complex and stressed market.

In conclusion, we have now been in a structurally new oil price band for almost three years due to 4 main reasons: strong investments bringing new supplies on stream early in this downturn, inventories which have been built far above historical averages, relatively few supply outages compared with the recent past, and finally the perception of flexible supplies available from the US. However, demand growth is now clearly strengthening but often in areas where oil substitution is challenging such as petrochemicals and aviation. As the market rebalances the supply outlook is more uncertain and potentially volatile. Production discipline and natural declines are bringing markets and inventories into balance, but underinvestment may be leading to a serious supply hole post 2020 and the ability of shale to fill the gap is unclear.

Going forward we see three imperatives for AMER countries to prosper in this environment: to maintain regional competitiveness by locking in the cost reductions of the last 3 years, to shape policy and process to enable faster, shorter-cycle investments better suited to today’s market and to ensure that fiscal policies are aligned with the new market.
The 7th Asian Ministerial Energy Roundtable (AMER7), hosted by the Kingdom of Thailand and co-hosted by the United Arab Emirates, gathered Asian Energy Ministers and Heads of International Organisations for a ministerial dialogue under the theme “Global Energy Markets in Transition: From Vision to Action” in Bangkok, Thailand on 1-3 November 2017 on the neutral platform for open and inclusive dialogue the International Energy Forum provides.

24 Asian energy producing and consuming countries and 11 leading International Organisations, successfully concluded the 7th Asian Ministerial Energy Roundtable by productively debating oil and gas market trends, and the impact of disruptive technologies on the energy future in Asia.

With a brighter outlook on world economic growth, the 7th Asian Ministerial Energy Roundtable plenary sessions focused on developments in oil, natural gas, renewables and technology markets, and concluded with these shared findings:

Shared findings

1. Ministers noted that Asia is pivotal to secure, affordable, and equitable energy transition pathways world-wide. The geoeconomic weight and demand growth of Asia as a whole reduces global market volatility, and sets the pace for global transitions.

2. Mutually reinforcing investment in both new, and established energy technologies in Asia sets an example for other regions to follow in the global quest for energy security and access, economic growth, and transition towards healthy and more resilient world energy markets.

3. Ministers welcomed the dialogue supported by the International Energy Forum (IEF) on global energy security along energy transition pathways through well-functioning, open, competitive, efficient, and transparent energy markets, promoting cooperation, trade and investment across Asia to:
   - Provide energy access for more people at higher and healthier standards,
   - Promote energy efficiency and reduce waste along the entire energy value chain,
   - Advance economic growth and achieve all Sustainable Development Goals,
   - Take action on climate change in accordance with the Paris Agreement.

4. Ministers recognised that investment in the energy sector continues to build in renewables and new disruptive technologies, but that investment in established energy sources, and network integration, on which the lion share of demand growth and market balancing rests, is slow moving.

5. Ministers reinforced their commitment to bring inclusive dialogue on the open and neutral platform of the International Energy Forum in closer association with all relevant international organisations and stakeholders to ensure investments in fossil, renewable, and nuclear
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complement each other in well-integrated and resilient markets.

6. To enable long-term investment to respond to evolving supply and demand patterns, Ministers will enable markets to accommodate new technologies and transition policies in dialogue with market stakeholders, industry investors and financial institutions, to capitalise on new opportunities and minimise risks to existing investments.

7. Ministers considered oil market trends and recognised that investment to compensate for historically high decline rates in conventional fields has slowed for three consecutive years. They noted that unconventional supply resilience and existing production may well prove too narrow to shoulder oil demand growth that will reach 100 million barrels per day by 2020.

8. Ministers assessed developments in natural gas markets and noted that the share of gas in the global energy mix could double by 2040 driven by consumers in non-OECD Asia that seek an energy source that supports economic growth, diversification and the environment.

9. To overcome hurdles to the “Age of Gas” in Asia, Ministers encouraged deepening dialogue to balance consumers interest in competitive and flexible natural gas supplies, with producer interest in unfettered market access, fair returns on investment, and secure demand.

10. To capitalise on the versatility of natural gas Ministers aim to boost performance in the power sector by considering new market designs that reward greater heat conversion efficiency, flexibility, and emission reductions, including through carbon price mechanisms, and standards.

11. Ministers reflected on how new disruptive technologies may affect energy supply and demand balances overtime to assess new challenges and opportunities in the energy future of Asia. They noted that the global commitment to technology and innovation has strengthened, with Asia leading patent grants, and clean energy investment world-wide.

12. Ministers noted that forecasts for renewables tend to be surpassed, yet that investment to capitalise on available clean energy technologies such as Carbon Capture Use and Storage, Smart-Grids to accommodate decentralised systems, and Energy Efficiency potential in both the supply and demand side underperform expectations.

13. In light of the differences in scalability of new clean technologies, and the different shares in total primary energy demand of renewable and fossil fuel sources, Ministers aim to improve access to modern energy services by investing in clean energy deployment, more deeply in the fossil fuel sector including integrating renewable and energy efficiency solutions.

14. Ministers recognised the international example IEF Ministers set for collaboration among international organisations in the Cancún Declaration of March 2010 to reduce energy market
The dialogue outcomes of the 7th Asian Ministerial Energy Roundtable serve to enhance energy market security, and enable timely investment in an orderly energy transition in Asia and world markets.

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volatility by strengthening market transparency and enhancing cooperation among the International Energy Agency (IEA), the International Energy Forum (IEF), and the Organisation for Petroleum Exporting Countries (OPEC) in the context of the Cancún Trilateral Work Programme and the Joint Organisations Data Initiative (JODI).

15. Based on this successful model of collaboration among international organisations, Ministers encouraged stakeholders to pool effort in globally integrated frameworks to accelerate energy efficiency gains across the full energy sector spectrum and leverage the IEF Energy Efficiency Knowledge Sharing Framework, in close collaboration with relevant organisations, and governance platforms in Asia, as well as with other international organisations such as the International Partnership for Energy Efficiency Cooperation, the IEA, the International Energy Charter, OPEC, SEforAll, the United Nations, working together in the G20 Energy Efficiency Leading Programme adopted under the Chinese G20 Presidency in 2016 and other relevant arrangements to further enhance energy productivity in Asia and the wider world economy.

16. Ministers acknowledged the advances made in the collection and dissemination of high quality energy data and analysis in the context of the Joint Organisations Data Initiative and strengthened their commitment to the timely, complete, and accurate reporting on oil and gas market developments and dissemination of such data via the JODI Platform hosted by the IEF, particularly in relation to non-OECD oil inventory data and LNG markets.

17. Ministers took note of the outcomes of the 13th International JODI Conference that was hosted recently by the United Kingdom in London on 10-11 October 2017, where experts evaluated the status of global energy data transparency since India hosted the 12th International JODI Conference in 2015, reviewed progresses made on the JODI 5-Year Action Plan, and deliberated the way forward to improve the initiative’s visibility in collaboration with the user community and the support of the JODI Partner Organisations.

18. Ministers recognized the progress made by the JODI Partner Organisations and welcomed the fact that JODI data now appears at Data Re-Distribution Agency Industry platforms (Argus, Bloomberg and Thomson Reuters) and thus greatly improves JODI data reach and visibility to users globally.

19. Ministers called on the IEF to ensure that these shared findings inform and help guide ministerial dialogue at the IEF16 Ministerial International Energy Forum hosted by India in New Delhi on 10-12 April 2018, and the next 8th Asian Ministerial Energy Roundtable that will be hosted by the United Arab Emirates in Abu Dhabi on 9-12 September 2019.

**Background and proceedings**

The dialogue outcomes of the 7th Asian Ministerial Energy Roundtable serve to enhance energy market security, and enable timely investment in an orderly energy transition in Asia and world markets.
energy markets, by strengthening stakeholder cooperation on the open and neutral platform the IEF provides, in close association with the International Energy Agency (IEA), and the Organisation of the Petroleum Exporting Countries (OPEC) participating in the Cancún Trilateral Work Programme together with organisations partnering in the Joint Organisations Data Initiative, including the Asian Pacific Economic Cooperation (APEC), the Statistical Office of the European Communities (Eurostat), the Gas Exporting Countries Forum (GECF), the International Energy Agency (IEA), the Latin American Energy Organization (OLADE), the Organisation of the Petroleum Exporting Countries (OPEC), and the United Nations Statistics Division (UNSD), and through collaboration with other organisations such as the Asian Development Bank (ADB), the International Energy Charter (IEC), the OPEC Fund for International Development (OFID), the Organization of Arab Petroleum Exporting Countries (OAPEC), Sustainable Energy for All (SEforAll), and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), and IEF knowledge partners such as the Economic Research Institute for ASEAN and East Asia (ERIA) and The Boston Consulting Group (BCG).

In three plenary sessions, ministerial dialogue at the 7th Asian Ministerial Energy Roundtable focussed on:

1. Oil markets, investment and security challenges in a world in transition,
2. Natural gas, overcoming market and policy hurdles to the “Age of Gas”,
3. Disruptive technologies, to assess challenges and opportunities in the energy future of Asia.

To allow ministers to collectively address today’s most pertinent energy security questions:

- What potential impacts may step-changes in technology and shifts in transition policy have on upstream investment in the short and longer-term; not only for unconventional and conventional resources, but also for oil market stability more broadly?
- To what extent need gas suppliers to push policies and market levers to facilitate gas becoming the fuel of choice in the transition towards a zero-emission economy in in Asia and other regions?
- How can disruptive technologies and long-term policy and technology cooperation help foster efficiency and productivity improvements to natural resource management and use, and shape supply chains that fit the future?

IEF

The IEF is the neutral facilitator of informal, open, informed and continuing global energy dialogue. Covering all six continents and accounting for around 90% of global supply and demand for oil and gas, the IEF is unique in that it comprises not only countries of the IEA and OPEC, but also key players including China, India, Mexico, Russia and South Africa. The Forum’s biennial Ministerial Meetings are the world’s largest gathering of Energy Ministers. Through the Forum and its associated events, IEF Ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security. The IEF and the global energy dialogue are promoted by a permanent Secretariat of international staff based in the Diplomatic Quarter of Riyadh, Saudi Arabia.
Under the Patronage of the Minister of Oil of the Kingdom of Bahrain, HE Shaikh Mohammed bin Khalifa Al Khalifa, the International Energy Forum convened the 2nd Symposium on Human Resource Management in the Energy Industry in collaboration with the Ministry of Energy of the Russian Federation, and the National Oil and Gas Authority of the Kingdom of Bahrain, with the support of the Institute for Energy and Finance, Tamkeen, and the Boston Consulting Group as IEF Knowledge Partner, in Manama, the Kingdom of Bahrain on 17-18 May 2017.

The Minister of Oil of Bahrain HE Shaikh Mohammed bin Khalifa Al Khalifa, the Secretary General of the International Energy Forum HE Dr Sun Xiansheng and the Special Representative of the Minister of Energy of the Russian Federation HE Alexander Novak, the Director of the Department of Public Service Management (HR) and Mobilization Preparation of the Ministry of Energy of the Russian Federation, Mr Vladimir Smirnov, presided over the Symposium proceedings.
Mindful of the many changes that have taken place since the State of Qatar hosted the 1st IEF Symposium on Human Resource Management in Doha on the implications of the petroleum crunch of 2009, the cyclical nature of the energy industry, and the long-term transformations taking place in respect of energy transition, digitisation and labour market dynamics, participants discussed the implications of a new market environment and energy transition for human resource management in the energy industry.

Delegates acknowledged that global energy security and industry performance will continue to depend on how human resource management navigates both cyclical and irreversible transformational trends occurring in the energy industry and wider global economic system. Sessions focused on:

- Historical trends, key challenges and their interrelations moving forward.
- Implications of the new physical energy market environment.
- Impact of energy transition on human resource management, and
- Identification of options and solutions
Concluding Statement

The Human Factor in Energy Security


Manama, Kingdom of Bahrain 17-18 May 2017

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- Implications of the new physical energy market environment.
- Impact of energy transition on human resource management, and
- Identification of options and solutions.
5 Key Dialogue Insights

1. Although fossil fuels will still take up around 70% of demand in 2040, the world has changed in expected and unexpected ways over the past eight years.

2. The energy industries ability to attract, nurture, and advance talent through boom and bust cycles is a critical factor for commercial success, as well as for our future energy security. Human resource management in the energy sector has become more central to business performance, energy security, and successful delivery on globally shared goals therefore.

3. Energy industry business strategies must consider volatility, technology and environmental transformations, as well as shifts in consumer behavior and public opinion in their human resource management and engagement with universities and vocational education centers.

4. Overcoming ‘gender gaps’ will unlock available talent through merit based advancement and selection, enabling greater diversity in senior management and leadership positions, and improving industry performance and appeal with new generations.

5. Transformation of the energy sector through new technology advancements, digitalization, energy transition requirements, and labor force dynamics present new challenges that should inspire broader engagement with younger generations and society by the industry.

Symposium Outcome

Delegates welcomed the proposal of the Minister of Oil of the Kingdom of Bahrain H.E. Shaikh Mohammed bin Khalifa Al Khalifa, to use the 2nd IEF Symposium on Human Resource Management, as a next important step for continued engagement on the role of human resource management in enabling healthy energy markets to strengthen global energy security and sustainability through pursuit of an ongoing dialogue on the IEF platform.
3rd IEF - OFID Symposium on Energy Poverty

11-12 April 2017
Tunis, Tunisia

To advance the dialogue on the eradication of energy poverty in Africa, the International Energy Forum (IEF) and the OPEC Fund for International Development (OFID) convened the 3rd IEF - OFID Symposium on Energy Poverty with the support of the Ministry of Energy, Mines and Renewable Energies of Tunisia on 11-12 April 2017 in Tunis.

The Symposium was opened by HE Hela Cheikhrouhou, Minister of Energy, Mines and Renewable Energies of Tunisia represented by Mr Hamdi Harrouch, Director General of the National Energy Conservation Agency on behalf of the host country, Dr Sun Xiansheng, Secretary General IEF, and Mr Suleiman Jasir Al-Herbish, Director General and the Chief Executive Officer, represented by Dr Fuad Siala, Senior Advisor of OFID.

The Symposium participants comprised a wide range of representatives from African countries, the African Energy Commission (AFREC), Sustainable Energy for All (SEforALL), and representatives of the partner organisations of the Joint Organisations Data Initiative (JODI), including the International Energy Agency (IEA), the Organization of Petroleum Exporting Countries (OPEC), the United Nations Statistics Division, the Gas Exporting Country Form (GECF), as well as international energy sector practitioners from the private sector and the International Gas Union (IGU).

Participants focused on accelerating collective efforts to provide access to modern energy services in African nations by 2030 in accordance with globally agreed goals. The symposium addressed the extent and the consequences of energy poverty, the roles that various energy sources and technology play, and the policy and regulatory options available to African countries to accelerate investment in alleviating energy poverty.
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At the 15th IEF Ministerial in Algeria (26-28 September 2016), Ministers stressed the importance of joint initiatives in several areas to improve energy access and productivity recognising that the lack of access to energy in many developing countries, in particular in Africa, acts as an obstacle to poverty eradication, economic growth and social development. Ministers acknowledged the important role of the IEF and OFID, alongside other organisations to help ensure that energy access remains an integral part of the producer-consumer dialogue and high on the ministerial agenda.

OFID has been implementing energy projects for almost forty years. Since 2007, its efforts have intensified following a direct mandate from its Member Countries in the Solemn Declaration of the Third OPEC Summit. The Declaration on Energy Poverty issued in 2012 by OFID’s Ministerial Council provided the strategic guidance for OFID’s work. It committed a minimum of US$1 billion to support its Energy for the Poor initiative, which was announced at the Rio+20 Summit. One year later, the Council turned this pledge into a revolving commitment. Since 2008, OFID approved a total of over US$3.4 billion for energy projects. Through joining resources with its strategic partners, this amount leverages more than US$23.4 billion in support of more than 180 operations in 71 countries.
Discussions at the 3rd IEF – OFID Symposium on Energy Poverty took place in parallel sessions with the 15th Regional JODI Training Workshop aimed at building capacity for energy sector data collection to better inform policy and investment decisions on alleviating energy poverty in Africa in the JODI framework.

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1. The Symposium noted that efforts to eradicate energy poverty must be technology neutral. Renewable energy technologies offer new opportunities to overcome energy poverty and achieve a secure and sustainable provision of modern energy services in Africa where economics permit. Fossil fuels and related technologies aimed at reducing emissions and air pollution in major cities continue to be important to meet growing energy demand and ensure equitable development on the African continent. Poor countries cannot be deprived of energy to grow their economies and keep up with demographic trends during the transition to a more diversified and sustainable energy mix.

2. Delegates noted energy poverty impacts development prospects and demographic trends across many axes in Africa and beyond. In Sub-Saharan Africa only 31% of the population has access to electricity, while in certain countries electrification can be as low as 9% to 20%. The aim therefore should be to increase the electrification rate and the level and quality of the electricity services in developing countries in both urban and rural communities to enable sustainable and equitable growth and safeguard the sustainability of the environment for the benefit of future generations.

3. Financing of both large centralized power plants and distributed energy solutions, operating on both conventional and renewable energy technologies is equally important for a rational use of the abundant natural resources that are readily available to African societies. The economies of scale and new business prospects they present to investors can help to accelerate the financing of the total annual investment needs estimated at $50 billion to 2030, while facilitating the transfer of technology and creation of new employment opportunities in an accommodating policy and stable regulatory environment.

4. Energy poverty is more than the lack of access to electricity. In both rural and urban settings in
Sub-Saharan Africa the widespread use of traditional biomass for cooking, heating, and even lighting is a very serious health hazard, entrenches gender inequality and contributes significantly to deforestation. Concerted efforts need to be directed to effect switching to modern and clean fuel types delegates noted.

5. Symposium delegates also observed that to successfully eradicate energy poverty all available types and sources of funding will be needed ranging from international financial institutions, public-private partnerships, private investment, to local resources, and that there is a need for more innovative financing vehicles and policies.

6. Participants recognised that the role of Official Development Assistance (ODA) is critical in making available funds targeting energy poverty alleviation. It is important to track investment flows directed towards alleviating energy poverty, so that the pressing requirements of the Least Developed Countries (LDCs), in particular, are not forgotten in the midst of other competing needs, such as for mitigating climate change and to avoid double accounting.

7. Delegates highlighted that the role of small- and medium-sized enterprises is vital when it comes to providing energy access and opportunities for employment and growth. Multilateral and bilateral development partners can substantially enhance the role agile and innovative business models play by empowering them in providing more options to access traditional financial sources.

8. The investment environment must be politically, institutionally and economically stable at the macro-level and have a transparent and reliable regulatory framework at the micro-level delegates noted. Symposium participants acknowledged that governments need to maintain long-term policy commitments and devise energy-access strategies and implementation plans that are linked to national development plans. To support this process countries also need to establish the institutional capacity to prepare and implement qualified pipelines of deals and bankable projects.

9. With regards to the lack of access to electricity, delegates noted that this is mainly a “rural area” problem in Sub-Saharan Africa, with only 19% of the rural population connected to central grids. While financial aid institutions stand ready to finance distributed energy interventions that directly address this problem specifically, bankable projects, sponsored by either governments or the private sector, remain hard to come by. Delegates urged policy makers and energy planners to...
give a higher priority to distributed energy solutions in their national development plans.

10. Participants highlighted that a financially healthy power sector is a necessary precondition for eradicating energy poverty. More transparent and targeted subsidies, a better pricing system, improved bill collection, and a reduction of commercial and technical losses will increase the creditworthiness of the power sector and help to unlock the vast financial sources that are available.

11. Finally, delegates acknowledged that while overall energy data transparency has increased, improving on energy data availability in Africa stands to make a significant contribution to unlock the investment that is required to overcome energy poverty in both urban and rural areas. The availability of accurate, complete and timely energy data for all sources, from the regional-, and country-, to the community-, and household level, remains central to making comprehensive and effective policy and investment decisions to provide universal access to affordable, healthy and secure energy services within the shortest time spans as possible.

12. Participants noted that the JODI framework could be used to compile and collect more energy market data related to energy poverty across the member countries of its partner organisations. Building capacity to make use of “big data” to inform policy and investment decisions on energy poverty eradication, will further help to guide collective efforts to those areas and projects that are most likely to deliver enduring results.

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In conclusion, Symposium participants exchanged views on enhancing international cooperation and applauded the progress made by African countries in this regard in collaboration with international organisations. Delegates noted that the challenge to eradicate energy poverty in Africa is much bigger than any stakeholder can overcome individually. There is a clear need to broaden partnership and strengthen international cooperation for efforts to be well targeted and successful. IEF and OFID propose to continue their collaboration on the eradication of energy poverty and step up their efforts to build capacity on related energy data collection together with JODI Partners and other relevant international organisations.

IEF

The IEF is the neutral facilitator of informal, open, informed and continuing global energy dialogue. Covering all six continents and accounting for around 90% of global supply and demand for oil and gas, the IEF is unique in that it comprises not only countries of the IEA and OPEC, but also key players including China, India, Mexico, Russia and South Africa. The Forum’s biennial Ministerial Meetings are the world’s largest gathering of Energy Ministers. Through the Forum and its associated events, IEF Ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security. The IEF and the global energy dialogue are promoted by a permanent Secretariat of international staff based in the Diplomatic Quarter of Riyadh, Saudi Arabia.
The IEF Secretary General, Dr Sun Xiansheng and the Parliamentary Under Secretary of State at the Department for Business, Energy and Industrial Strategy of the United Kingdom, HE Richard Harrington, announced the agreement between the JODI Partners and Data Redistribution Agencies, Argus, Bloomberg, and Thomson Reuters, following the 13th International JODI Conference on 12 October 2017.”
The Joint Organisations Data Initiative (JODI) is a global energy data transparency initiative formed at the request of IEF Energy Ministers who recognized that the exchange and free dissemination of energy market data helps mitigate market volatility and improve market transparency through well informed decision-making. The Initiative, coordinated by the IEF since 2005, relies on the combined efforts of the JODI Partner Organisations (APEC, EUROSTAT, GECF, IEA, OLADE, OPEC and UNSD), and more than 100 national administrations and industry stakeholders to gather, verify and transmit official data which populates JODI’s public database. The JODI Database is an electronic platform which provides timely, accurate and, to the extent possible, complete actual market data, free of charge. Features of the JODI Database allow for widespread dissemination and informed feedback between and amongst the JODI Partners and data users.

Key actors and stakeholders at various stages of the JODI data supply chain convened at the 12th International JODI Conference in New Delhi, India from 8-10 April 2015 to identify and prioritize objectives for JODI to 2020. As a result, the JODI 5-Year Action Plan was adopted by the JODI Partners with the objectives of enhancing the quality of JODI data, improving the timeliness of data reporting mechanisms, strengthening capacity building efforts, strengthening engagement with the JODI user and energy data analytics community, and raising JODI brand awareness. Over the last few years, there have been increasing calls to improve the visibility of JODI data by the G20, IEF Ministers, government officials and data users:

Ministers welcomed the JODI 5-year plan endorsed by the Heads of JODI Partners and the progress being made in improving JODI data quality, as well as complete, and timely reporting practices. Delegates encouraged efforts to deepen understanding and enhance the comparability of energy outlooks, the interactions between physical and financial markets, as well as, new approaches pursued to improve JODI visibility and outreach.

IEF15 Concluding Statement, September 2016

JODI Heads welcomed progress made to increase JODI visibility and steps to formalise processes to enable JODI data to appear on data redistributor agencies’ industry platforms by 2017 which will increase JODI data reach & visibility thus meeting IEF ministers’ requests for a global response.

Meeting of the Heads of JODI Partner Organisations Concluding Remarks, September 2016

We commit to strengthen JODI […] by ensuring greater visibility, more complete and comprehensive data, enhanced access and improved availability, and by maintaining support for capacity building.”

G20 Leaders Declaration, September 2013

Though use of JODI data, and access to the JODI Database is free of charge, major data redistribution agencies (DRAs) have approached the JODI Partners to seek formal permission, required by their organisations, to disseminate JODI data through their established industry platforms. The JODI Partner Organisations carefully assessed the risks and benefits associated with a formal agreement for data redistribution in line with the agreed 5-Year Action Plan.
In consultation with their respective governing bodies, the JODI Partners deliberated on the benefits of granting authorisation to DRAs to republish JODI data. As reputable agencies, DRAs maintain the trust of a collective user base that encompasses the global markets which JODI was set up to inform. Clients of these redistribution agencies, numbering in the hundreds of thousands, have voiced their interest in accessing JODI data through the agencies to facilitate a more efficient means of gathering information and conducting joint analyses with other economic indicators available on the respective platforms. Through an effective and more direct delivery system, DRAs can provide their extensive roster of clients with relevant data sets complemented by the inclusion of JODI data.

Partnerships with DRAs is aimed at addressing Objective 5 of the JODI 5-Year Action Plan, to raise JODI brand awareness, increasing the visibility of energy data transparency and the use of JODI data. The republishing of JODI data on third-party platforms extends the reach of JODI to thousands of users who monitor, analyse and forecast market trends. This also allows for greater exposure to broader energy market experts who may provide valuable feedback to enhance the quality of JODI data. Access to JODI by more stakeholders through such platforms will increase overall energy market transparency through greater availability, and will support better analysis and decision-making.

Through extensive deliberations, the JODI Partners developed a list of pre-conditions which allow Data Redistributions Agencies to feature publicly available JODI Databases on their platforms. These pre-conditions are meant to protect the integrity of JODI data, safeguard the JODI brand, ensure the visibility of the effort behind the Database by the JODI Partners and participating economies, and ensure the spirit of providing free energy data for all. The JODI Partners agreed to start the new phase of cooperation with DRAs, who also recognise the shared benefits of increasing the visibility and accessibility of JODI data as called
upon by energy leaders and industrial experts. In compliance with the agreed pre-conditions, permission was given to Argus, Bloomberg, and Thomson Reuters to begin featuring JODI data on their platforms.

The 13th International JODI Conference (IJC13)

The 13th International JODI Conference (IJC13) held in London, United Kingdom on 10-12 October was convened to evaluate the status of global energy data transparency through the JODI framework, review progress made on the 5-Year Action Plan and explore potential avenues for cooperation with external actors to increase the engagement and visibility of JODI. The Conference provided an opportunity to officially launch the agreement for JODI data redistribution, specifically with Argus, Bloomberg and Thomson Reuters.

In coordination with the JODI Partners, the Energy Data Transparency Exhibition was featured on the side-lines of the IJC13 to showcase the new agreement with DRAs. The exhibition focused on raising awareness of the wealth of data made available to the public through the combined efforts of all stakeholders in the JODI data supply chain. Coinciding with the IJC13 reception, the Exhibition gathered representatives from national administrations, international organisations specialised in energy data, academia, industry experts from the financial sector, commodity trading experts, energy experts, consultancies and energy focused media. The Exhibition provided a unique opportunity for a dynamic exchange of ideas among data providers, software engineers, data users, industrial experts, and policy makers to further strengthen JODI.

JODI Data appears on Bloomberg Platform

Access to the extensive network of contacts of the three redistribution agencies featured at the Exhibition, aided by each platforms data assimilation and dissemination mechanisms, strengthens JODI’s commitment to achieving long-term goals aimed at increasing global market transparency. The JODI Partners agreed to continue efforts to increase the visibility and accessibility of JODI data worldwide. Energy Ministers at the 7th Asian Energy Ministerial Roundtable in Bangkok, Thailand commended the efforts of the JODI Partners and stakeholders in reaching this significant milestone:

Ministers recognized the progress made by the JODI Partner Organisations and welcomed the fact that JODI data now appears at Data Re-Distribution Agencies Industry platform (Argus, Bloomberg and Thomson Reuters) and thus greatly improves JODI data reach and visibility to users globally. Ministers called on the IEF to ensure that these shared findings inform and help guide ministerial dialogue, 7th Asian Ministerial Energy Roundtable (AMER7), November 2017
The IEA-IEF-OPEC Symposia, Workshops and Technical Meetings are part of a wider joint programme of work agreed upon by the three organisations and endorsed by Energy Ministers at the 12th International Energy Forum (Cancún, March 2010) as part of the Cancún Declaration wherein Ministers agreed on an enhanced framework to sustain and reinforce the commitment of producer and consumer states to the informal dialogue, as well as proposing means for mitigating energy markets volatility. IEF Energy Ministers, gathered at the 15th International Energy Forum (Algiers, September 2016), also acknowledged the renewed encouragement from the G20 Energy Ministers Meetings (Beijing, June 2016) to continue this fruitful collaboration to further understand energy outlooks and the interaction between physical and financial markets and outlooks for gas and coal markets.

**IEA-IEF-OPEC Trilateral Work Programme**

The IEA-IEF-OPEC Symposia, Workshops and Technical Meetings are part of a wider joint programme of work agreed upon by the three organisations and endorsed by Energy Ministers at the 12th International Energy Forum (Cancún, March 2010) as part of the Cancún Declaration wherein Ministers agreed on an enhanced framework to sustain and reinforce the commitment of producer and consumer states to the informal dialogue, as well as proposing means for mitigating energy markets volatility. IEF Energy Ministers, gathered at the 15th International Energy Forum (Algiers, September 2016), also acknowledged the renewed encouragement from the G20 Energy Ministers Meetings (Beijing, June 2016) to continue this fruitful collaboration to further understand energy outlooks and the interaction between physical and financial markets and outlooks for gas and coal markets.

**Symposia on Energy Outlooks**

Both the IEA and OPEC regularly publish energy and oil outlooks covering the short-, medium- and long-term. In addition, on the occasion of the biennial International Energy Forum, both organizations usually contribute by submitting focused energy analyses and outlook, which are presented to IEF Ministers. The IEF acts as a platform for sharing insights and exchanging views about energy market trends and outlooks, including the analyses of market behaviour and discussion of key drivers of the energy scene and associated uncertainties. The IEF organises, in cooperation with the IEA and OPEC, an annual Symposium on Energy Outlooks held at the IEF Secretariat in Riyadh, Saudi Arabia with participation from the main institutions and industries that publish regular energy outlooks.
Workshops and Technical Meetings on the Interactions of Physical and Financial Energy Markets

The functioning of energy markets is continuously evolving. The increasing complexity of the different market layers for price discovery and risk transfer, from spot to derivatives, requires a better understanding of the functioning of each of these markets, as well as the interaction between physical and financial markets. The issue of adequately regulating financial markets in general, and commodity markets in particular, has regained prominence. It is recognized that regulations have important effects on marketing functioning and participants’ behaviour. While markets are increasingly global, regulations remain country-specific and vary among jurisdictions. In coordination with the IEA and IEF, OPEC organises annual workshop and technical meetings on the interlinkages between physical and financial energy markets hosted at OPEC Headquarters in Vienna, Austria.

Symposia on Gas and Coal Market Outlooks

The entry in force of the UN Paris Agreement to limit global warming and the 2030 Agenda for Sustainable Development point at a new global consensus that energy security and growth must balance social, economic and environmental goals. A key challenge for both governments and industry is to enhance the competitiveness, affordability and public acceptance of natural gas, to avoid locking more carbon intensive and expensive technologies in world energy matrices. Shaping a new and reliable market environment requires new government-industry alliances and greater energy market transparency. An enhanced producer-consumer dialogue focused on energy market security and pragmatic energy sector transitions can help uncover opportunities and reduce risks as both producers and consumers gain firmer footholds in a more reliable and healthy energy future. The IEA coordinates Symposia on gas and coal market outlooks hosted at IEA Headquarters in Paris, France.
The International Energy Agency (IEA) and the Organization of the Petroleum Exporting Countries (OPEC) each year publish energy market outlooks based on the rigorous analysis of available statistical data, market fundamentals, macroeconomic developments, policy trends and assumptions. In addition, on the occasion of the biennial International Energy Forum Ministerial meetings, both organisations present focused findings that they derive from their analysis and outlooks. The 7th Symposium is part of a wider trilateral work programme undertaken by the IEA, IEF and OPEC in recognition of mandates from the Energy Ministers of the IEF and G20 countries. The underlying principle of the Symposium is to improve transparency, and facilitate comparability among the various outlook scenarios, and help advance a data-driven and well informed producer-consumer dialogue.

In their communiqués concluding the 1st G20 Energy Ministers Meeting in Istanbul, Turkey on 2 October 2015 and the 2nd G20 Energy Ministers Meeting in China on 29-30 June 2016, Ministers welcomed the joint work of the IEA, IEF and OPEC to further understand energy outlooks and the interaction between physical and financial markets encouraging the IEA, IEF and OPEC to continue their fruitful collaboration on market transparency as a critical prerequisite for energy security and investment, acknowledging the importance of timely and high-quality market-related information on all energy resources.
As part of this on-going, shared effort to enhance dialogue among related market actors, the IEA, IEF and OPEC jointly hosted the 7th Symposium on Energy Outlooks at the IEF Secretariat in Riyadh on 15 February 2017 at the IEF Headquarters in Riyadh, Saudi Arabia. The Symposium gathered more than 100 experts from industry, government and academia including ministers and other high-level representatives. Dr Sun Xiansheng, the Secretary General of the International Energy Forum opened the Symposium together with the Secretary General of the Organization of the Petroleum Exporting Countries, HE Mohammed Sanusi Barkindo and the Director, Sustainability, Technology and Outlooks of the International Energy Agency, Dr Kamel Ben Naceur.

HE Khalid Al-Falih, Minister of Energy, Industry and Mineral Resources (Saudi Arabia), delivered a keynote speech, and participants also received a special address delivered on behalf of HE Shamshad Akhtar, Under Secretary General of the United Nations & Executive Secretary of the Economic and Social Commission for Asia and the Pacific (ESCAP).

Dr Sun Xiansheng, IEF Secretary General, moderated discussions of the first session with a focus on the latest OPEC and IEA energy outlooks and a comparative analysis of short-, medium- and long-term energy outlooks released by the IEA and OPEC in 2016. Participants considered the findings of the comparative analysis of the IEA and OPEC outlooks based on the IEF-Resources for the Future (RFF) Introductory Paper prior to the Symposium’s convening.

This included an assessment of the progress made in joint efforts to advance the comparability of energy outlooks and improve understanding of differences in historical baseline data during ongoing joint expert meetings. Participants commended the improved comparability of energy outlooks and took note of available options to make further advances. Following presentations by the IEA and OPEC on short-, medium- and long-term outlooks, senior industry experts presented their perspectives on future market trends in view of on recent market and policy developments, under the chairmanship of HE Sheikh Mohammed bin Khalifa Al Khalifa, Minister of Oil of Bahrain. In the concluding session, chaired by HE Mohamed Zayed Awad Mousa, Minister of Petroleum of Sudan, the Symposium devoted special attention to transport sector and how changing energy market and technology developments are likely to affect future development.

The IEA, IEF and OPEC agreed to maintain their efforts to enhance the comparability of energy outlooks in response to requests for more aligned baseline data on supply and
demand where possible and to continue to facilitate wider understanding of the variations in outlook assessments. Industry and government representatives welcomed the comparative analysis of IEA and OPEC outlooks provided in the IEF-RFF Introductory Paper to improve dialogue and engagement with all energy sector stakeholders.

The IEA-IEF-OPEC Symposia on Energy Outlooks continue to provide a unique opportunity to share perspectives on energy market developments and deepen collective understanding of future energy outlooks. Against the background of major energy policy and market shifts, the 7th IEA-IEF-OPEC Symposium enabled senior government stakeholders and industry experts to compare various assumptions and exchange views on their energy supply and demand projections. The Symposium offered a timely and unique opportunity to further strengthen the producer-consumer dialogue with new perspectives from new demand and supply centres, now energy markets are at a critical juncture. Though current market developments may adversely affect investment and fuel further market volatility on the short-, to medium term, and long-term market fundamentals remain largely unchanged. These are expected to balance markets in line with the evolving policy requirements of producer and consumer countries. The rapid rise of renewables and natural gas is likely to pose new challenges to energy security, trade flows, and system resiliency. New energy technology deployment in transport, and other key sector, as well as changing producer-, and consumer preferences, point at the importance of dialogue and energy data transparency to improve understanding and help address stakeholder concerns.

The IEA, IEF and OPEC reinforced their commitment to the Trilateral Work Programme and continue to work together to organise the 8th Symposium on Energy Outlooks planned for February 2018.
10 Key Insights from the 7th Symposium on Energy Outlooks

1. As today’s energy market dynamics are governed by increased complexity, a collaborative approach on market outlooks data transparency is imperative for securing a stable global energy market.

2. Continuous efforts, such as levelling demand and supply baseline data and unifying fuel classifications are essential to further advance the comparability of energy outlooks.

3. Overall oil market sentiment has improved due to the declaration of cooperation between OPEC and non-OPEC producers with unprecedented compliance to output adjustments.

4. Steady economic growth over the medium-term indicates a strong increase in liquids demand while more stringent fossil fuel efficiency standards, and technological advances, may moderate fuels demand growth in transport.

5. World liquids supply is projected to continuously grow in the medium-term with a determined return of non-OPEC supply led by the OECD Americas.

6. While variations in oil price assumptions in IEA’s and OPEC’s long-term energy outlooks were substantial, economic growth forecasts were closer aligned.

7. Primary energy demand in 2040 will rise by more than 40 % from present levels with non-OECD consumption accounting for the majority in increased demand, compared to relatively modest OECD growth rates.

8. Though fossil fuels relinquish market share to renewables, natural gas will cement its role as the largest contributor to future energy demand growth and fossil fuels shall still satisfy the lion’s share of global energy demand in 2040.

9. Notwithstanding the resiliency of tight oil production, the sizable reduction in conventional projects, and the OPEC - non OPEC agreement to adjust production will tighten oil supplies.

10. Consumer behaviour, economic growth, and urbanisation point towards robust demand for crude oil, and will accelerate market rebalancing, not defying a gradual shift towards renewables and new emerging patterns in mobility.
Moments from the Symposium
16 March 2017
Vienna, Austria

The International Energy Agency (IEA), the International Energy Forum (IEF) and the Organization of the Petroleum Exporting Countries (OPEC) met at the OPEC Secretariat in Vienna, Austria, to participate in the 2nd Joint IEA-IEF-OPEC Technical Meeting on the Interactions between Physical and Financial Energy Markets on 16 March 2017. The Joint Meeting was the 7th event in this ongoing dialogue.

The high-level meeting, which gathered government officials, regulatory bodies, market analysts and other experts, was chaired by OPEC Secretary General, HE Mr Mohammad Sanusi Barkindo, together with HE Dr Sun Xiansheng, Secretary General of the IEF, and Mr Neil Atkinson, Head of the Oil Industry and Markets Division at the IEA.

Addressing participants, HE Mr Barkindo noted that “each brings a different perspective of the market - from the financial side, the physical side, governments, regulatory bodies, market analysts and experts. This is a testament to the strengths of this dialogue as it allows us to exchange views and collectively present a more complete and rounded picture of the market.”
IEF Secretary General, HE Dr Sun underscored the strong relationship between the IEF and producers and consumers like OPEC and IEA, noting that “the relevance of inclusive dialogue cannot be overstated considering the more fluid dynamics the physical and financial energy markets are exposed to.” He further noted that “the IEF remains committed to enhancing energy market transparency through dialogue with physical and financial energy market participants from consumer and producer countries, and the Joint Organisations Data Initiative (JODI).”

Representing the IEA, Mr Atkinson noted that “the interaction amongst players in the oil market remains a major priority if we are to better understand each other’s interests and how common ground can be found. The IEA strongly supports the work of this meeting and looks forward to future engagement with our colleagues from OPEC and the IEF.”

Discussions during the one-day event were structured into four sessions, focused on the following key topics:

- Recent oil market volatility
- Evolving role of financial firms in the oil market
- Financial oil market regulation: Assessing the impact of Brexit and the new US administration
- Developments in market structure, including the impact on commercial and floating storage

The Joint Technical Meeting is one part of the trilateral work programme established by the three organisations and endorsed by energy ministers at the 12th International Energy Forum in Cancún, Mexico, in March 2010. Since then, the joint IEA-IEF-OPEC meetings covering the evolving interlinkages between physical and financial energy markets have developed into a unique, high-level technical event and bring together a diverse range of market participants to discuss issues that are not addressed in other high-level fora.
Insights from Dr Sun Xiansheng, IEF Secretary General

Physical and financial energy market dynamics are now much better understood but interactions have become more multifaceted. Ongoing dialogue has helped provide a more nuanced and balanced understanding of the interactions between physical and financial energy markets. Current market turbulence is less pronounced than in previous episodes even though volatility has increased after a period of relative stability.

Today physical and financial market interactions are driven by the:

- Recent oil market swings that have enabled unconventional producers to hedge future production,
- The evolving role of financial and trading firms that have altered risk management options available to participants
- The impact of financial policy and regulation that may tighten credit lines, and ease position limits too
- And finally, developments in market structure, including the role of storage and impact of inventory data releases.

New technologies, and shifts in demand and supply as well as policies, severely reduce upstream investment and long-term market liquidity. Our discussions on oil market volatility thus far have naturally focused on developments at the front end of the futures curve. On one hand, however, current physical and financial energy market interactions impact longer cycle investment. A growing concern for long term oil market stability. On the other hand, too little is known about how physical and financial markets will respond to long-term policy goals and new technologies, such as implementation of the Paris Agreement and changes in the power generation and transport sector. These long-term trends are likely to increase oil price volatility on the shorter term as energy markets transition within the time horizons of investment decisions on medium-term oilfield development.

The IEF remains committed to energy market stability through enhanced dialogue on physical and financial energy markets to moderate volatility and ease transitions between investment cycles and policy turns, inclusive and energy-technology neutral dialogue among producing and consuming countries across all regions of the world, and market transparency through dialogue and the Joint Organisations Data Initiative that has set a standard for cooperation among institutions.
1. The market is only stable if prices are not.

2. Collective efforts to strengthen oil and gas market transparency are crucial for a wider understanding of physical and financial energy market interactions.

3. The oil market is always in flux and balancing, volatility is the very manifestation of market mechanisms at work. While high inventories flattened forward curves, the relative low marginal cost of US shale oil, and economic upswings, point at more turbulence ahead.

4. US shale oil will keep stockpiles buoyant, but US exports and non-OECD demand growth, saw the market move from contango towards backwardation.

5. Though quantitative easing dampened volatility across all commodities, and large players moving into shale may increase predictability, it will also increase hedged volumes.

6. Private equity has made a significant contribution in enabling US shale production, yet its narrow focus on high performance may prove more difficult to achieve by larger players.

7. Positioning by financial firms, including pension funds, bank swap dealers, and venture capitalists, has always invited calls for more transparency with some of them trading fundamentals and others sentiment.

8. Inventories provide the closest link between physical and financial energy markets while the futures market itself provides the mechanisms for participants to balance cyclical trends with market risks and uncertainties.

9. While the relationship between stocks and time spreads is well established, it is crucial to enhance inventory data transparency, to increase predictability on the demand side.

10. Stock data transparency is a critical factor for both stable short-, and medium-term market development; the five-year average, that changes with time, remains a key metric.
The 13th International Joint Organisations Data Initiative Conference took place at the prestigious Institution of Mechanical Engineers in London on 10-11 October 2017. The Conference was generously hosted by the British Government and organised by the International Energy Forum (IEF) in cooperation with the JODI partner organisations: Asia Pacific Economic Cooperation (APEC), the Statistical Office of the European Union (Eurostat), the Gas Exporting Countries Forum (GECF), the International Energy Agency (IEA), the Latin American Energy Organization (OLADE), the Organization of the Petroleum Exporting Countries (OPEC), and the United Nations Statistics Division (UNSD).

The 13th International JODI Conference (IJC13) convened actors contributing to enhanced energy data transparency at various stages of the JODI data supply chain, including industry representatives, professionals from national administrations, the JODI Partners themselves, and other JODI data users from around the world. Sustained and enhanced interaction among this diverse and growing group is vital to the ongoing success of the Initiative. The Conference was opened by HE Richard Harrington, Minister for Business, Energy and...
Industrial Strategy of the United Kingdom, and benefitted from the participation of more than 100 delegates representing national administrations, energy data experts and market analysts from international organisations, JODI partners, the financial sector, media and industry at large, reflecting all aspects of JODI from collection and compilation to data use.

The IJC13 evaluated the status of global energy data transparency through the JODI framework since IJC12 in New Delhi, India, reviewed progress made on the 5-Year JODI Action Plan established at the New Delhi meeting and reaffirmed by the Heads of JODI Partner Organisations on work to increase the Initiative’s visibility, gather ideas to enhance engagement with JODI data users and explore potential avenues of improved cooperation with academia and others in support of JODI capacity building efforts.

The evolution of energy markets is dynamic, and the data provided by JODI helps to augment understanding of both the current market status and its likely future direction. Improving the timeliness, completeness and accuracy of JODI databases is a priority for the JODI partner organisations. Improvements to secondary data sources, and the wide availability of satellite images, real time commodity transportation tracking records, and big data analysis all facilitate the work of analysts when used in combination with the official data provided by JODI. Participants discussed developments in global energy data transparency since IJC12 (New Delhi India, April 2015), and identified new areas of development focus.

The 5-Year JODI Action Plan, developed at the request of participants in IJC12, and endorsed by the Heads of JODI Partner Organisations during the IEF15 Ministerial meeting in Algiers (September 2016) sets out key actions to achieve objectives in seven priority areas: 1) data quality, 2) data reporting mechanism, 3) capacity building efforts, 4) data-user engagement, 5) JODI brand awareness, 6) data transparency beyond oil and gas, and 7) enhanced engagement with political, technical and social entities. Participants of the IJC13 provided their critique the Action Plan and suggested ways in which it may be improved so as to further enhance energy data transparency in support of the global transition to a low carbon energy future. It was emphasized that the JODI Partners’ future efforts should continue to be focussed on meeting the various objectives of the plan, and regularly monitoring progresses to update the plan.

The JODI Data-user Seminar series developed in response to recommendations made by participants in IJC12 has already been delivered in key energy commodity trading hubs, Geneva and London. The seminars are designed to
enhance interaction between the JODI Partners and the user-community. The initial seminars were well-received. Participants appreciated the interactive nature of the seminar framework which is designed to foster a productive exchange of views with and among technical experts, users, traders, research community, and the media, in a relatively informal setting. In the belief that a wide-ranging, active and improved data provider / data-user feedback loop will work to the benefit of data quality and overall data transparency, the JODI partners have decided to encourage the dissemination of JODI data by data redistribution agencies. Conference participants highlighted the fact that the JODI community should enhance cooperation with academia and scientific communities who value energy data through their research, such as energy system modelling. Users within research communities should be invited to use the wealth of the available JODI data in their market analysis and forecasts. Academia is considered as a talent pool for the future energy data experts, and therefore increased engagement and cooperation with academia can ultimately aid in cultivating young talent in energy data management.

Since the introduction of JODI Capacity Building and Regional Training Workshops, the Initiative has trained more than 500 energy data experts from national administrations and corporate entities involved in JODI data collection. Such efforts have facilitated the improved timeliness, completeness and reliability of JODI data. However, in times of austerity, sustaining the consistently high standards expected of JODI data reporting countries is proving to be a challenge, even for those countries which have demonstrated historically high levels of performance. Participants discussed potential avenues of improved cooperation with academia and others in support of JODI capacity-building efforts to enhance the long-term outlook for the JODI Databases. The JODI partners were encouraged to continue these efforts in line with cooperation from outside organisations and academia.

The launch of JODI on data-redistributor platforms at IJC13 is a notable milestone on JODI’s journey down the road to energy data transparency. Conference participants took note that JODI data can now be viewed from different major data re-distribution agencies platforms including Argus, Bloomberg and Thomson Reuters, in line with requests received from leaders and data users. Ideas for the further enhancement of engagement with the JODI data-user community, and the expression views on the visibility of the initiative were a key feature of discussions at the IJC13. This initiative was praised as a step forward in the JODI journey which will contribute to the enhanced visibility and accessibility of JODI data.
Conference participants stressed the need to continue to improve the quality, availability and coverage of JODI data without compromising on its reliability and trustworthiness. Conference participants took note of the different challenges faced by organisations and countries to provide sustainable, timely and complete monthly energy data. They also noted that JODI has increasingly become a worldwide reference for oil and gas data. However, these endeavours are still needed to attain more complete and accurate data.

IEF Ministers at the IEF15 Ministerial Meeting stressed their ongoing interest in improving global energy market transparency and their collective support for a strengthened JODI. The biennial JODI Conference plays a key role in the JODI development cycle which aims to continually advance the global energy data transparency agenda in support of stable energy markets as advocated by IEF Ministers, G20 leaders, and other stakeholders. IJC13 offered a rare opportunity for a cross-section of data providers and users from around the globe to meet, share and learn from their experiences. The JODI Partners envisage that the discussions and exchange of ideas during the conference help not only to strengthen existing JODI activities, but also serve as a catalyst to enhance the role of the Initiative beyond its current framework. Reflecting on the outcomes of the Conference, the JODI partners reiterated their calls on participating countries and economies to ensure their administrations and organizations in charge of energy data collection are adequately equipped and staffed to continue to support JODI.
Asia Pacific Economic Cooperation (APEC) is an intergovernmental grouping operating on the basis of non-binding commitments, open dialogue and equal respect for the views of all participants. It was established in 1989 to further enhance economic growth and prosperity for the region and to strengthen the Asia-Pacific community.

APEC’s 21 Member Economies are Australia, Brunei Darussalam, Canada, Chile, People’s Republic of China, Hong Kong, China, Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, The Republic of the Philippines, The Russian Federation, Singapore, Chinese Taipei, Thailand, The United States of America and Viet Nam.

Since its inception, APEC has worked to reduce tariffs and other trade barriers across the Asia-Pacific region, creating efficient domestic economies and dramatically increasing exports. Key to achieving APEC’s vision are what are referred to as the ‘Bogor Goals’ of free and open trade and investment in the Asia-Pacific by 2010 for industrialised economies and 2020 for developing economies. These goals were adopted by Leaders at their 1994 meeting in Bogor, Indonesia. APEC’s energy issues are the responsibilities of the Energy Working Group (EWG), one of its 11 working groups. The development and maintenance of the APEC Energy Database is assigned to EWG’s Expert Group on Energy Data and Analysis (EGEDA) who has appointed the Energy Data and Modelling Centre (EDMC) of the Institute of Energy Economics, Japan (IEEJ) as the Coordinating Agency. One of the objectives of EGEDA is to collect monthly oil data of the APEC economies in support of the Joint Organisations Data Initiative.

Statistical Office Of The European Communities (EUROSTAT) is the statistical office of the European Union, situated in Luxembourg. Its mission is to be the leading provider of high quality statistics on Europe.

It therefore publishes official, harmonised statistics on the European Union (EU) and the euro area which offer an objective portrayal of social and economic trends. These statistics are available for EU Member States, and are sometimes broken down by region, thus enabling comparisons between countries or regions. Furthermore, some of the indicators are published for candidate countries and other non-member countries.

Eurostat was established in 1953 to meet the requirements of the Coal and Steel Community. Over the years its task has broadened and when the European Community was founded in 1958 it became a Directorate-General (DG) of the European Commission. Eurostat’s key role is to supply statistics at European level to other DGs and supply the Commission and other European Institutions with data, so they can define, implement and analyse Community policies.

Eurostat collects data from national statistical institutes: the statistics are harmonised according
to Europe-wide methodologies. Eurostat’s data are comparable because they are based on a common statistical language that embraces concepts, methods, definitions, technical standards and infrastructures.

Eurostat releases a wide range of publications, all of which are free of charge on its website in electronic format, while Eurostat’s website itself allows users to freely access EU statistics on-line. Today, Eurostat is the synonym for a comprehensive and high-quality information service providing statistical data about and for the European Union. Using it means having a finger on the pulse of current social, economic, and environmental developments in Europe. The result is that Eurostat offers a whole range of important and interesting data that governments, businesses, the education sector, journalists and the public can use for their work and daily life.

Gas Exporting Countries Forum (GECF) is an international intergovernmental organisation which was established in 2001 in Tehran, and turned into a fully-fledged organisation in 2008 with its permanent secretariat based in Doha, State of Qatar. The Forum is the gathering of the world’s leading gas producers that provides a framework for exchange of experience, views, information and data, as well as coordination in the gas related developments among member countries.

The Forum is considered as a global platform for studies, discussion and debates on global gas market trends. It is engaged in conducting gas market studies and long term outlook; data exchange mechanism, monitoring gas market developments, as well as the development of relationships with all stakeholders of the global gas market.

Additionally, the Forum seeks to develop a mechanism for a more meaningful dialogue between gas producers and gas consumers for the sake of stability and security of supply and demand in global natural gas markets. GECF aims through above-mentioned functions, to support and contribute to the development of natural gas resources of member countries for sustainable, efficient and environmentally conscious management.

GECF is currently comprised of 12 Member Countries as follows: Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad and Tobago, United Arab Emirates, and Venezuela. Kazakhstan, Iraq, the Netherlands, Norway and Oman are Observer Members in the Forum.

With the current number of Members the GECF has a strong position on the world gas market and among international energy organisations. Its potential rests on the enormous natural gas reserves of the Member Countries all together accumulating 67% of the world proved natural gas reserves, 65% of LNG trade and 40% of pipeline trade of natural gas.
The International Energy Agency (IEA) works to ensure reliable, affordable and clean energy for its 28 member countries and beyond. Founded in 1974, the IEA’s initial role was to help countries co-ordinate a collective response to major disruptions to oil supply primarily through the release of emergency oil stocks onto the markets. While this continues to be a key aspect of its work, the IEA has evolved and expanded. It is at the heart of global dialogue on energy policy, and now works closely with non-member countries to find solutions to shared energy and environmental concerns. It is one of the world’s most authoritative sources for energy statistics, and produces annual studies on oil, natural gas, coal, electricity and renewables. The IEA also provides authoritative, unbiased research and analysis which focuses on:

- Energy security: Promoting diversity, efficiency and flexibility within all energy sectors and ensuring the stable supply of energy to IEA member countries.
- Economic development: Promoting free markets and energy sector investment to foster economic growth and eliminate energy poverty.
- Environmental awareness: Enhancing international knowledge of options for tackling climate change.

The International Energy Forum (IEF) aims to foster greater mutual understanding and awareness of common energy interests among its 71 member countries.

Covering all six continents and accounting for around 90% of global supply and demand for oil and gas, the IEF is unique in that it comprises not only consuming and producing countries of the IEA and OPEC, but also Transit States and major players outside of their memberships, including Argentina, China, India, Mexico, Oman, Russia and South Africa. Sitting alongside other important developed and developing economies on the 31 strong IEF Executive Board, these key nations are active supporters of the global energy dialogue through the IEF.

Recognising their interdependence in the field of energy, the member countries of the IEF co-operate under the neutral framework of the Forum to foster greater mutual understanding and awareness of common energy interests in order to ensure global energy security. The Forum’s biennial Ministerial Meetings are widely considered to be the world’s largest gathering of Energy Ministers. The magnitude and diversity of this engagement is a testament to the position of the IEF as a neutral facilitator and honest broker of solutions in the common interest. The IEF and the global energy dialogue are promoted by a permanent Secretariat of international staff based in the Diplomatic Quarter of Riyadh, Saudi Arabia.
The Latin-American Energy Organization (OLADE) is an international public entity of cooperation, coordination and advising. Its fundamental purpose is integration, protection, conservation, defence and rational use of energy resources of the Region.

The fundamental objectives of the organisation are as follows:

- Political and technical tool for prompting better regional energy integration.
- Manage official statistics, products and services and regional energy planning.
- Encourage training inside the Energy Ministries of the Member Countries.
- Promote regional energy cooperation among countries.

Member Countries: Argentina, Barbados, Belize, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Suriname, Trinidad & Tobago, Uruguay and Venezuela.

The Organization of the Petroleum Exporting Countries (OPEC) is a permanent intergovernmental organisation of oil-exporting developing nations that coordinates and unifies the petroleum policies of its Member Countries. OPEC seeks to ensure the stabilisation of oil prices in international oil markets, with a view to eliminating harmful and unnecessary fluctuations, due regard being given at all times to the interests of oil-producing nations and to the necessity of securing a steady income for them. Equally important is OPEC’s role in overseeing an efficient, economic and regular supply of petroleum to consuming nations, and a fair return on capital to those investing in the petroleum industry.

OPEC was formed on September 14, 1960, at a meeting in Baghdad, the Iraqi capital, attended by five countries that became the founding members. It was registered with the United Nations Secretariat on November 6, 1962, following UN Resolution No. 6363. Also in attendance at the Baghdad meeting were - Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. They signed the original agreement establishing OPEC. Currently, the organisation has twelve members, namely: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela.
The United Nations Statistics Division (UNSD) collects, processes and disseminates statistical information covering a broad range of statistical domains, such as demography, energy, environment, industry, international trade, national accounts, social and housing statistics.

In addition to compiling and disseminating global statistical information, the Division’s key activities include the development of standards and norms for statistical activities, assistance to countries in the implementation of these standards and general support to strengthen countries’ national statistical systems.

UNSD serves as the central mechanism within the Secretariat of the United Nations to satisfy the statistical needs and coordinating activities of the global statistical system. UNSD also provides support to the functioning of the UN Statistical Commission, the apex entity of the global statistical system, which brings together the Chief Statisticians from United Nations member states from around the world.

In the field of energy statistics, UNSD started its regular data collection in 1950. It now compiles and disseminates energy statistics for more than 190 countries/territories, published in two annual publications, the Energy Statistics Yearbook and the Energy Balances and Electricity Profiles, as well as an electronic database, which can also be accessed through the UN data portal.

UNSD is cooperating with many international, regional and supranational agencies in the work on statistical standards, data collection and statistical capacity building, including in the field of energy statistics.
Efforts to Extend JODI-Oil Reach to Africa

Intensive Efforts to Extend JODI-Gas Reach to Africa
The IEF chaired an Inter Secretariat Meeting of JODI partner organisations including APEC, Eurostat, GECF, IEA, IEF, OPEC, and UNSD in London on 12 October 2017.

The meeting, held following the 13th International JODI Conference held on 10-11 October and focused on reviewing progress and action plans regarding the following:

- Technical discussion to introduce new data consolidation platform and mechanism for a more efficient operation of data collections.
- Feedback from the 13th International JODI Conference held few days earlier on 10-11 October 2017;
- Feedback from having JODI data starting to appear on the electronic platforms of data redistribution agencies that was announced during the JODI Conference held few days earlier;
- Plans for future JODI Seminars and Capacity Building Workshops during 2018;
- Update on new JODI website and database functionality;
- Deliberate ways how to take advantage of improving cooperation data from regions (AFREC, OAPEC, GCC Stat, etc.)

The JODI partners deliberated at length the feedback from the JODI conference just held in London ahead of this meeting which was attended by more than 100 experts, and how the JODI partners can take this insights and recommendations forward to strengthen the JODI initiative.

The JODI partners discussed feedback from having JODI data starting to appear on data re-distribution platforms (Argus, Bloomberg & Thomson Reuters) announced during the JODI Conference. The partners agreed that this was a major milestone for JODI. Bloomberg was invited to explain further how JODI data appear on their platform.

The Partners discussed options and plans to hold future JODI Seminars and Capacity Building Workshops during 2018. The IEF gave an update on the JODI website and database functionality. JODI partners deliberated ways how to take advantage of improving cooperation with other energy regional (AFREC, OAPEC, GCC Stat, etc.)
The IEF chaired an Inter Secretariat Meeting of JODI partner organisations including APEC, IEA, IEF, OLADE, OPEC, and UNSD in the UNSD Headquarters in New York on 29-30 June 2017.

The meeting, hosted by UNSD at their Headquarters in New York, focused on reviewing progress and action plans in regard to the following:

- Participation Assessment of the JODI-Oil and JODI-Gas World Databases;
- Plan to enhance the visibility of JODI through the publication of JODI data on the electronic platforms of data re-distribution agencies during the next JODI Conference in October 2017;
- G20 Ministers feedback on JODI and data transparency;
- Feedback from the last JODI Workshop for Africa held in Tunisia on April 2017;
- Feedback from attending the EIA Energy Conference in Washington DC on 27-28 June 2017;
- Ideas for future capacity-building workshops and user seminars;
- Discussion on the plans to hold the 13th International JODI Conference in London on 10-11 October 2017;
- Update on new JODI website and database functionality.

The IEF shared the results of the last JODI Workshop for Africa region held in Tunisia on 11-13 April 2017 back-to-back with the 3rd IEF-OFID Symposium on Energy Poverty, which demonstrated a clear link between energy data transparency and efforts to alleviate energy poverty in Africa. It was highlighted that this Workshop, held in cooperation with the African Energy Commission (AFREC) and the OPEC Fund for International Development (OFID), hosted over 60 attendees from more than 30 African countries making it the largest JODI Workshop ever held. The IEF thanked the JODI partners for their support to hold this milestone Workshop in this key region.

The IEA, and OPEC gave feedback from the EIA Energy Conference in Washington DC on 27-28 June 2017 where JODI was featured and briefed on opportunities to engage with users and experts etc. in line with the JODI Action plan. The IEF briefed the Partners on progress on JODI data to appear on Data Redistribution Agencies such as (Argus, Bloomberg, Thomson Reuters, etc.). It was agreed to make an official announcement of this agreement at the JODI Conference in London.
The IEF chaired an Inter Secretariat Meeting of JODI partner organisations including APEC, GECF, IEA, IEF, OLADE, OPEC, & UNSD in Vienna on 13-14 March 2017.

The meeting, hosted by OPEC at their Headquarters in Vienna focused on reviewing progress and action plans in regard to the following:

- Participation Assessment of the JODI-Oil and JODI-Gas World Databases;
- Proposals to enhance the visibility of JODI, including through publication of JODI data on the electronic platforms of data re-distribution agencies;
- G20 Ministers feedback on JODI and data transparency;
- Proposed harmonisation and dissemination of coal data already routinely collected by certain members among the JODI Partner organisations, with the aim of contributing to improved coal data transparency;
- Plans to hold a JODI capacity-building workshop for Africa in Tunisia;
- Ideas for future capacity-building workshops & user seminars during the rest of 2017 and 2018;
- Plans to hold the 13th International JODI Conference in 2017;
- Update on new JODI website and database functionality

Partners voiced support for the plan to hold the next JODI Workshop for Africa region in Tunisia on 11-13 April 2017 back-to-back with the 3rd IEF-OFID Symposium on Energy Poverty, thus demonstrating the link between energy data transparency and efforts to alleviate energy poverty in Africa.

Moreover, Partners agreed on the importance of maintaining an ongoing programme of JODI data-user seminars, and to further reinforce links with the JODI data-user community by holding the 13th JODI international conference in 2017 so as to deepen stakeholder engagement (users / analysts / providers of data / industry) in support of the ongoing development of the initiative.
Partners also agreed on a set of actions to improve coal data transparency, including through harmonisation and dissemination of coal data already routinely collected by some of the JODI partner organisations.

An agreement in principle was also reached to facilitate the dissemination of JODI data on the electronic platforms of data re-distribution agencies later in 2017, assuming that agreed pre-conditions are met.
The 15th Regional JODI Training Workshop targeting Africa and MENA countries was held in Tunis from 11-13 April 2017. The event was generously hosted by the Ministry of Energy, Mines, and Renewable Energy of Tunisia. The workshop was organised by the IEF with collaboration with African Energy Commission (AFREC) and the support of other JODI Partners (GECF, IEA, OPEC, and UNSD) for the benefit of statistical officers in charge of hydrocarbon data collection at national administrations of African and MENA countries.

The training programme for the workshop delivered by the JODI team was tailored for the benefit of statistical officers in charge of hydrocarbon data collection at the national administrations of African regions. A hands-on training sessions was a key element of the workshop while experience-sharing among countries participating in the workshop proved to be particularly useful.

Emphasis in the Workshop was made on the need for energy Statistics from Africa to support decision making and alleviate poverty from Africa. A Questionnaire was made for African Countries jointly prepared by AFREC, IEF, OFID and OPEC on “Energy Poverty – The problem, the extent and the consequences”.

More than 60 delegates from 30 African countries in addition to the UAE took part in the workshop which was designed to raise awareness and build better understanding of the Joint Organisations Data Initiative (JODI) and improved submission from this key Region. Attendance from the host country included attendees from the Ministry, the National Institute of Statistics ETAP and other Tunisian agencies.

The workshop participants also attended the IEF-OFID Symposium on Energy Poverty that was held in the same venue during the same time to gain a better understanding the impact of accurate and timey data for better decisions in Africa.

JODI Partners will continue their collaborations with other agencies (AFREC, OFID, etc.) to continue improving data transparency as part of the overall efforts to alleviate energy poverty in Africa.
History of JODI Capacity Building Workshops

Since 2006, the IEF and the JODI partner organisations have delivered a series of Capacity Building or regionally focussed training workshops on JODI. Through these workshops, the JODI Partners engage participating countries to report better quality data through the JODI questionnaires. These workshops offer professionals responsible for filling JODI questionnaires at national administrations an occasion to clarify JODI definitions and to learn more about data quality assessment techniques. These workshops also provide an opportunity to share the best practices on data validation and to discuss issues on data collection.

The format and content of JODI Capacity Building Workshops has evolved since the first event was organized in 2006, as early groundwork has enabled increasingly richer exchanges between statisticians and the JODI Partners. Initial JODI Workshops were generally structured along the lines of classroom training sessions, focused on promoting JODI awareness and ensuring fundamental capacity building. More recent workshops have progressively involved more sophisticated discussions about fine-tuning data collection techniques and clarifying any data discrepancies. These deeper dialogues strengthen communication and improve the exchange of knowledge at key points along the JODI data supply chain, ultimately resulting in a more robust JODI database.

15th | Tunis, Tunisia | 11-13 April 2017
14th | Moscow, Russia | 9-11 Nov 2016
13th | Beijing, China | 18-20 May 2016
12th | Port of Spain, Trinidad and Tobago | 22-24 October 2015
11th | Vienna, Austria | 23-25 March 2015
10th | Doha, Qatar | 23-25 November 2014
9th | Baku, Azerbaijan | 25-27 February 2016
8th | Kuala Lumpur Malaysia | 28-30 October 2013
7th | Rabat, Morocco | 8-10 October 2012
6th | Bogota, Columbia | 26-28 July 2010
5th | Ankara, Turkey | 18-20 November 2009
4th | Bangkok, Thailand | 10-12 September 2008
3rd | Algiers, Algeria | 26 October 2007
2nd | Johannesburg, South Africa | 31 January 2007
1st | Caracas, Venezuela | 14-18 August 2006
The IEF participated in the ‘JODI Information Seminar’ which was held on 21 November 2017 on the sidelines of the GECF Summit in Santa Cruz, Bolivia. This event was inaugurated by the HE President Evo Morales of Plurinational State of Bolivia. Also by HE Luis Alberto Sánchez, Minister of Hydrocarbons of Bolivia. Also, by HE Dr Seyed Mohammad Hossein Adeli, Secretary General of the Gas Exporting Countries Forum (GECF).

The JODI Seminar gathered government officials, industry experts, and media to discuss the history of JODI since its inception in 2000 and the way forward. Speakers debated the challenges faced in data collection and shared solutions on improving the JODI Database to be more reliable, timely, and complete. It was highlighted that data transparency is paramount if we are to achieve energy transition and sustainable development goals, including the challenge of living up to SDG7, "ensuring access to affordable, reliable, sustainable and modern energy for all". During the seminar, HE Dr Adeli emphasised the need for reliable data to support short- and long-term gas market research and forecasts.

The President of Bolivia, HE Evo Morales, highlighted that leaders need reliable data to make informed decisions on policies and investments that affect their citizens. He reinforced his strong support to JODI and saluted the collaborations between the JODI Partners and their member countries to improve global energy data transparency, as it relates to oil and gas.

The JODI Information Seminar hosted by the GECF in Bolivia was in line with key actions stated in the JODI 5-Year Action Plan which calls for raising awareness of the JODI platform and database and identifying and engaging champions for JODI. By putting the JODI 5-Year Action Plan into practice, JODI partners spare no efforts to meet with key stakeholders around the world to deliver JODI aspirations for stronger commitment, well trained professionals, and stronger public engagement.

The JODI Information Seminar presided over by HE President Evo Morales, was broadcasted on live news media outlets Bolivia and contributed to building public engagement with JODI to the highest levels.
The IEF Secretary General, Dr Sun Xiansheng headed the IEF delegation at the 4th GECF Summit in Santa Cruz, Bolivia on 22-24 November, convened under the invitation of His Excellency Evo Morales Ayma, President of Bolivia. The Summit was attended by Heads of State, Ministers from the twelve GECF member countries and seven observer countries who gathered to exchange views on developments in the international gas market, including trends and policies which influence gas markets and its overall role in the global energy mix.

The GECF also hosted the 1st GECF International Gas Seminar held under the umbrella of the 4th GECF Summit with the theme of Natural Gas: The Fuel of Choice for Sustainable Development. Ministers, CEOs of national and international oil and gas companies, heads of international organisations, academia and gas industry analysts engaged in a constructive dialogue on the future of natural gas. Dr Sun Xiansheng delivered remarks addressing key challenges in the natural gas market and participated in discussions on short- and long-term prospects for the gas market outlook, the security of supply and demand with a focus on Latin America, and the role of gas in reaching sustainable development goals. Discussants noted the increasingly important role of gas as the fuel of choice for the future and mitigating carbon content as the demand for energy and economic development is expected to grow over the next decade.

The 4th GECF Gas Summit resulted in the adoption of the “Declaration of Santa Cruz de la Sierra” in agreement with the GECF and its member countries. The Declaration highlights the importance of gas in energy markets, the commitment of GECF member countries to sustainable natural gas resource development and enhancing the policies and regulations of global natural gas markets. For more information,
The Secretary General of the International Energy Forum and the President of the King Abdullah Petroleum Studies and Research Center welcomed participants in the 3rd IEF-KAPSARC Thought-Leaders’ Roundtable discussion on oil markets at IEF headquarters in Riyadh on 16 February.

Discussions focused on the theme: "Post-Paris Agreement: A World of Peak Oil Demand?"

Many of the parties to the ‘Paris Agreement’, that entered force on 4 November 2016, anticipated that its subsequent implementation would lead to a world of peak oil demand. However, the transition through a demand peak, should investors expect it to arrive within the time horizons of their medium-term oilfield developments, might increase price volatility. Paradoxically, a reduced reliance on fossil fuels among consumer nations might lead to periods of supply shortage while at other points of an accentuated cycle, exporters may compete for market share after giving up hope of a rebound in prices.

Energy Ministers gathered at the 15th International Energy Forum on 26-28 September 2016 called for an enhanced role of the producer-consumer dialogue and greater market transparency. An inclusive and energy-technology neutral dialogue among producing and consuming countries will offer more clarity to investors and market participants, and so may contribute to a more orderly and cost efficient transformation of energy markets. On one hand, this will facilitate more orderly transitions between investment cycles in the interest of overall energy market security. On the other hand, accelerated deployment of energy efficiency and new energy technologies in oil producing and consuming growth markets will foster energy productivity gains across regions and help reduce greenhouse gas emissions more swiftly, placing global economic growth on more advanced and healthier footings.
The 3rd IEF-KAPSARC Thought Leaders’ Roundtable invited thought leaders and government and industry representatives to collectively look beyond the corners of these policy turns and physical market developments to assess what their likely impact is on the dynamics of global oil supply and demand in the medium and long term.

The roundtable follows up on a yearlong engagement to explore scenarios for producers and consumers navigating the transition to a lower carbon energy future launched at the 3rd IEF-KAPSARC Thought Leaders’ Roundtable in 2017. During the year, participants of workshops in The Netherlands, Dubai, UK and Saudi Arabia contributed to the development of modeling infrastructure to describe the transition and its impacts on the global economy – particularly the risks of increased volatility in the oil market and potential impacts on international energy relations. The 4th IEF-KAPSARC Thought Leaders’ Roundtable intends to take stock of the key findings gained in this effort by KAPSARC and IEF Dialogue meetings, and sharpen focus on the impact of transition on upstream oil and gas investment and how this affects energy security over the longer term.
The IEF was pleased to host the 1st IEF-EU Energy Day at its headquarters on 14 February 2017. IEF Secretary General, Dr Sun Xiansheng opened the event alongside EU Ambassador HE Michele Cervone d’Urso and noted the importance of this inaugural IEF-EU Energy Day as a first step to strengthened IEF-EU relations, and to better inform and further enrich the producer-consumer dialogue.

Mr Hans Steen, Head of International Relations at the European Commission Directorate for Energy delivered a key note speech: “EU energy policies - the international perspective” during the opening session. Mr Steen was joined by guest speakers from Saudi Arabia, the Gulf Region and Europe. The IEF Secretary General noted that the sharing of insights in energy policy and market developments among government and industry officials from IEF and EU member countries strengthens cooperation on energy security, healthy energy market development and orderly transitions to achieve global goals. He further noted that content and feedback from the meeting would help inform the 1st IEF Energy Efficiency and New Technologies Ministerial that Saudi Arabia will host jointly with Japan on 30 October 2017, and the 7th Asian Energy Ministerial hosted by Thailand on the IEF platform in Bangkok on 1-3 November shortly thereafter, as well as many other forthcoming IEF dialogue events including with the EU.
The Secretary General of the IEF, Dr Sun Xiansheng, was honoured to host HE Guido Landheer, Deputy Vice Minister for Foreign Economic Relations of the Netherlands, and Dutch delegation leader at the 1st Conference on the "Water, Energy, and Food Nexus" in the GCC, between Saudi Arabia and the Netherlands on 16 November 2017. Senior representatives from the Ministry of Energy, Industry, and Mineral Resources and the Ministry of Economy and Planning of Saudi Arabia welcomed delegates and took part in the conference to enhance dialogue on sustainable synergies between water, energy, and food sectors with senior representatives from the public and private sector, as well as technology and research centres from the Netherlands, Saudi Arabia, and other GCC countries.

The conference is part of a wider initiative of the Netherlands to structure collaboration with Saudi Arabia, as well as with other GCC countries, through a comprehensive dialogue on these sectors, turning challenges into opportunities and enhancing options for synergies and sustainable development. After Australia organised a similar initiative on the IEF platform in Riyadh on 16 April 2014, the outcomes of this second initiative by the Netherlands, serves to inform the IEF energy dialogue on key developments in this area and help advance a healthy functioning of codependent
water, energy, and food sectors, in line with sustainable development, greenhouse gas emission, energy security, and transition goals.

The Embassy of the Kingdom of the Netherlands in Riyadh is promoting collaboration between the Netherlands and Saudi Arabia in sustainable solutions in the energy, water and agricultural sectors. It pro-actively organizes missions, meetings and seminars to promote dialogue and to facilitate public and private sector partnerships. The International Energy Forum in Riyadh offers the venue to launch this initiative, organized by the Dutch Embassy, that will be followed by a series of events scheduled to take place as follow up.

The objective of this conference is to help identify opportunities for public and private sector cooperation, including business, and knowledge partnerships among the Netherlands and GCC member states. In order to reach this goal, the conference focussed on:

- Presenting advantages of considering water, energy and food in a more holistic way;
- Exploring how policies in the Netherlands and Gulf Cooperation Council countries, and in particular Saudi Arabia, support nexus initiatives;
- Seeking collaboration between the Netherlands and Gulf Cooperation Council countries, and in particular Saudi Arabia, in applied research;
- Presenting successful examples of synergies between water, energy and food sectors;
- Collecting new ideas for public private partnerships, business-to-business opportunities, and collaboration among knowledge centres.
In the presence of HRH Prince Khaled bin Alwaleed, Chairman of the Saudi Green Building Forum (SGBF), the IEF welcomed the SGBF Secretary General, Faisal Alfadl and delegation to present the Green Building Outlook 2018 and Annual Meeting at the IEF Secretariat on Thursday, 28 January 2017. The Saudi Green Building Forum is a professional civil society establishment and a non-government organization in a special consultative status with the United Nations.

Delegates of the Saudi Green Building Forum (SGBF) presented a vision of market transformation for building codes and their environmental impact over time explaining the strategic imperatives necessary to build a more sustainable community. The SGBF, as a member of the LEED International Roundtable, presented LEED Technical Developments aimed at transforming new and existing buildings, expanding beyond commercial office space to become a full-scale performance based rating system providing a common global framework for green buildings. SGBF updated participants on the progress and areas for improvement of their member countries and the various programs relevant to the sustainable development of each nation. The Forum also discussed the technical issues and market barriers of different regions hindering the uptake of green building and LEED developments.

In line with Saudi Arabia’s Vision 2030, the Saudi Green Building Forum proposed that the IEF and lecture participants of both the public and private sectors consider joining the saaf® Green Building program, performance and certification aimed at measuring the use of energy, water, waste, transportation and human experience to build more efficient and sustainable structures and habits.

The IEF, in coordination with the Saudi Green Building Forum, agreed to host the pioneer project of the saaf® program, performance and certification at the IEF headquarters in Riyadh, Saudi Arabia.
The IEF was delighted to welcome Mr Tim Gould, Head of the Energy Supply Outlook Division (WEO) at the IEA and Ayed Al-Qahtani, Director of the Research Division at OPEC, who presented the World Energy Outlook (WEO) 2017 and the World Oil Outlook (WOO) 2017 at IEF headquarters on 15 November 2017.

Tim Gould, Head of the Energy Supply Outlook Division (WEO) at the IEA, Paris, presented the 2017 edition of the Agency’s flagship publication the World Energy Outlook (official launch - 14 November). The WEO provides strategic insight on what today’s policy and investment decisions mean for long-term trends. Based on rigorous modelling across different scenarios, the WEO projections are used by public and private sector stakeholders as a framework for policy-making, planning and investment decisions, and to identify pathways to a sustainable energy future.

Ayed Al-Qahtani, Director of the Research Division at OPEC, Vienna, presented the 2017 World Oil Outlook (official launch - 7 November). The WOO provides an in-depth review and analysis of the global oil industry, and offers a thorough assessment of various sensitivity cases related to the economy, and supply and demand trends in the medium- and long-term. The WOO provides expert analysis of the many challenges and opportunities facing the global oil industry. It serves as an important reference tool, providing insights into the upstream and downstream, as well as issues related to costs, investments, and the potential impact of policies and new technologies.
Professor Masakazu Toyoda, CEO and the Chairman of the Institute of Energy Economics, Japan (IEEJ) to the IEF headquarters visited the IEF again in October 2017 to present the "IEEJ Energy Outlook 2018 - Prospects and Challenges Toward 2050".

Professor Toyoda's presentation shared views on topics ranging from current market trends, to scenarios for energy demand and potential future energy market pathways. The potential for peak oil demand, and long-term (toward 2050) climate change issues were also addressed during the lecture.

The IEEJ outlook foresees that based on current energy market trends, energy demand will increase and its centre of gravity will shift towards Southern Asia, with two thirds of the growth expected to come from non-OECD Asian countries. The IEEJ expects that three quarters of the demand will be accounted for by electricity generation and transportation fuels. The high dependence on fossil fuels is expected to continue with natural gas projected to account for 60% of fossil fuel growth. Carbon emissions are projected to increase 34% by 2050.

Professor Toyoda noted that one IEEJ study indicates the potential for new technologies to bring about a 13% reduction in energy consumption by 2050. Although this scenario implies that the share of fossil fuels in the mix would drop to 68% compared with 78% in the reference scenario, it still indicates an expectation of on-going high-level dependence on fossil fuels.

In the quest to deliver a low-carbon future, Professor Toyoda noted that the key to successful cost reduction, development and deployment of innovative technologies is international cooperation.
On Thursday 19 January 2017 Professor Masakasu Toyoda, CEO and Chairman of the Institute of Energy Economics, Japan (IEEJ) visited IEF Headquarters in Riyadh for a bilateral meeting with IEF Secretary General, Dr Sun Xiansheng. Professor Toyoda also delivered an IEF Lecture entitled: "IEEJ Energy Outlook 2016 for Asia/World" to a distinguished gathering of the diplomatic corps and business community of Riyadh.

The Institute of Energy Economics, Japan (IEEJ) was established in June 1966 and certified as an incorporated foundation by the Ministry of International Trade and Industry in September that year. The IEEJ has been conducting specialised research activities in the areas of environment and energy economics for 50 years. According to the 2015 Go To Think Tank Index from the University of Pennsylvania, the Institute progressively gained recognition and now ranks Best Energy and Resource Think Tank in the World.

Professor Toyoda has been an active participant in the global energy dialogue for many years, having previously held senior positions at the Ministry of International Trade and Industry (MITI) of Japan, which was renamed in 2001 as the Ministry of Economy, Trade and Industry (METI). He is a Board Member of KAPSARC, Accenture Global Energy, and Oxford Institute for Energy Studies. Professor Toyoda is also a member of the Board of Directors of the Pacific International Center for High Technology and a member of the International Advisory Board of Brunei National Energy Research Institute. The Professor holds a bachelor’s degree in law from the University of Tokyo and a master’s in Public Affairs from Princeton University.

Professor Toyoda’s presented the IEEJ Energy Outlook 2016 for Asia/World where he discussed the global energy market outlook to 2040, supply disruptions of oil and gas markets worldwide, a pragmatic approach to addressing climate change and the role of hydrogen, and potential considerations of the significance of nuclear energy in the future.
The IEF was delighted to welcome Dr Urban Rusnák the Secretary General of the International Energy Charter to deliver a lecture at the IEF headquarters on 12 January 2017. Ambassador Rusnák’s presented "The International Energy Charter & International Energy Forum: Existing Complementarities and Possible Synergies". Dr Rusnák discussed the topical energy challenges for the International Energy Charter and how the organisation focusses its efforts to address the core pillars of energy security.

The fundamental aim of the Energy Charter Treaty is to strengthen the rule of law on energy issues, by creating a level playing field of rules to be observed by all participating governments, thereby mitigating risks associated with energy-related investment and trade.

Dr Rusnák concluded with a comparison of the common goals and complementary relationship between the IEF and International Energy Charter on providing global platforms for ongoing interaction and dialogue amongst member countries.
4th Argus Middle East Crude Conference
23-24 January 2017
Muscat, Oman

The 4th Argus Middle East Crude Conference hosted the Secretary General of the IEF, Dr Sun Xiansheng alongside the Under Secretary of Oil and Gas of Oman, HE Salim Al-Aufi as keynote speakers among other senior industry and government representatives at the Al Bustan Palace.

Visit to ERIA
29 January 2017
Jakarta, Indonesia

Secretary General, Dr Sun Xiansheng, visited Professor Hidetoshi Nishimura, President of the Economic Research Institute for ASEAN and East Asia (ERIA) in Jakarta to update on IEF activities and discuss areas for dialogue and future cooperation between the two organisations.

International Petroleum Week
21-23 February 2017
London, UK

Hosted by the Energy Institute, Dr Sun Xiansheng met with industry leaders, experts and senior executives from around the world to debate, discuss and share knowledge on current issues under the theme of “Shaping the industry’s future”. Delegates covered an extensive range of topics on both up-, mid-, and downstream.
MIT Energy Conference
3-4 March 2017
Boston, USA

IEF Secretary General, Dr Sun Xiansheng delivered a keynote presentation: “Opportunity. Uncertainty, Risk” at the 2017 MIT Energy Conference under the theme “Balance of Power: Enabling the Next Energy Paradigm”. Opened by HE Dharmendra Pradhan, Minister of Petroleum and Natural Gas (India), the Conference is the largest student-led energy conference in the United States.

IHS Energy CERA Week 2017
6-10 March 2017
Houston, Texas

Hosted by IHS Markit, CERAWeek was held under the theme “Pace of Change: Building a New Energy Future” and gathered over 3,500 delegates from more than 60 countries to discuss opportunities in oil and gas production to power generation, renewable energy, technology, investment, regulatory and environmental policies.

First Meeting of the Advisory Council of 2-17 UN DESA “Powering the Future We Want”
21 March 2017
New York, USA

In March 2017, Secretary General Sun attended the Award Ceremony and Capacity Development Seminar of the United Nations Department of Economic and Social Affairs (UN DESA) Grant on "Powering the Future We Want-Recognizing Innovative Practices in Energy for Sustainable Development".
IEF Secretary General Dr Sun Xiansheng was invited to deliver a presentation on "Perspectives on Gas Market Developments for Sustainable Growth and Energy Transitions" at the GECF Headquarters in Doha, Qatar sharing IEF perspectives on gas market developments for sustainable growth and energy transitions.

Dr Sun Xiansheng was invited to deliver a keynote speech entitled “The Role of Data in Accurate Energy News” and to participate in specialist sessions at the 3rd GCC Petroleum Media Forum, held under the patronage of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the United Arab Emirates.

Dr Sun introduced the Winner for Lifetime Achievement for the Advancement of Producer-Consumer Dialogue, Noé Van Hulst, Ambassador of the Netherlands to the OECD & Chairman, IEA Governing Board at the 5th Al-Attiyah International Energy Awards & Forum of Energy Elders.
St Petersburg International Energy Forum 2017
1-3 June 2017
St Petersburg, Russia

The IEF Secretary General joined ministers, captains of industry and senior officials at the 21st SPIEF where he delivered keynote remarks on Global Gas Markets: Energy Policy and Energy Security alongside Gazprom CEO, Alexey Miller, OMV Austria CEO, Ranier Seele, Wintershall CEO, Mario Mehren and GECF Secretary General HE Seyed Mohamad Hossein Adeli.

4th Russian Energy Forum
22 June 2017
London, UK

The IEF Secretary Genera, Dr Sun Xiansheng, delivered the opening keynote address "Global Energy Transition: Risks and Opportunities" when he participated in the 4th Russian Energy Forum in London, UK. The Forum was held under the umbrella theme "Russia on the Global Energy Map: Emerging Partnerships, Risks & Opportunities."

EIA Energy Conference
27 June 2017
Washington D.C., USA

Dr Sun Xiansheng presented the importance of Energy Data Transparency and the unique cooperative nature of JODI to an audience of more than 900 leaders from industry, government and academia at the EIA Energy Conference. Alongside US Secretary of Energy, Rick Perry, and Colette D Honorable, Commissioner of the Federal Energy Regulatory Commission, Dr Sun also participated in a Q&A session led by US EIA Acting Administrator, Howard Gruenspecht.
IEA’s 2nd Global Conference on Energy Efficiency
29 June 2017
Paris, France
IEF Secretary General participated in the International Energy Agency’s 2nd Global Conference on Energy Efficiency in Paris giving a presentation on “Global Perspectives on Energy Efficiency.” This high-level event brought together top-level government officials and energy-industry executives at a forum for global engagement and exchange on energy efficiency.

22nd World Petroleum Congress
9-13 July 2017
Istanbul, Turkey
Dr Sun Xiansheng delivered remarks alongside IEA Executive Director, HE Fatih Birol and OPEC Secretary General, HE Mohammad Sanusi Barkindo in a chaired key panel on Global Gas Markets: Energy Policy and Energy Security at the 22nd World Petroleum Congress in Istanbul, Turkey.

Energy Security, Transition and Dialogue
28 June 2017
Washington D.C., USA
The Secretary General delivered a presentation at the CSIS Energy & National Security Program Headquarters on “Energy Security, Transition and Dialogue” and participated in roundtable discussions on the forces impacting the security of global oil and gas supplies, the challenges posed by the volatile nature of energy markets, and the policy implications of tightening greenhouse gas emission thresholds around the world.
26th Session of UNECE Committee on Sustainable Energy  
26-28 September 2017  
Geneva, Switzerland

IEF Secretary General, Dr Sun Xiansheng, participated in the UNECE 26th Session of Committee on Sustainable Energy at its headquarter and delivered a keynote speech during the opening session. This high-level UNECE event opened by UNECE Executive Secretary, attracted experts from government and energy industry.

MEDays International Forum  
8-11 November 2017  
Tangier, Morocco

The IEF Secretary General was invited to give a keynote speech on “The Global Energy Outlook: How to Enable an effective Transition for a more Accessible, Sustainable, Secure and Affordable Energy System”. Organized by the Amadeus Institute, the 10th anniversary of the Forum was held under the theme “From Defiance to Challenges: the Era of Major Upheavals”.

ASEAN 10+3 Energy Cooperation Forum  
29-30 November 2017  
Beijing, China

IEF Secretary General attended the ASEAN 10+3 Energy Cooperation Forum hosted by the China Institute of International Studies with the aim of promoting high-level dialogue under the theme “Achieving Shared Growth through Discussion and Collaboration: Promote East Asia Energy Cooperation and Sustainable Development.”
Dr Sun Xiansheng participated in the 2nd High-level Meeting of the OPEC-China Energy Dialogue co-chaired by the Vice Chairman of China’s National Development and Reform Commission (NDRC) and Administrator of the National Energy Administration (NEA), and the OPEC Secretary General.

The Secretary General also participated in:

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<tr>
<th>Event</th>
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<tr>
<td>UNECE Resource Classification Week</td>
<td>24-28 April 2017</td>
<td>Geneva, Switzerland</td>
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<tr>
<td>18th International Oil Summit</td>
<td>27 April 2017</td>
<td>Paris, France</td>
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<td>25th Annual Middle East Petroleum and Gas Conference</td>
<td>30 April – 2 May 2017</td>
<td>Dubai, UAE</td>
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<td>Asia Clean Energy Forum 2017</td>
<td>5-8 June 2017</td>
<td>Manila, Philippines</td>
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<td>NOC Assembly</td>
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<td>24th Caspian International Oil and Gas Exhibition and Conference</td>
<td>31 June 2017</td>
<td>Baku, Kazakhstan</td>
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<td>World Energy Leaders’ Summit</td>
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In line with the IEF 15 Ministerial Declaration and the joint support of G20 and IEF member countries, international organisations and agencies, preparatory work for the IEF Knowledge Sharing Framework on Energy Efficiency also took into account a proposal the German G20 Presidency advanced in 2017 to establish an International Energy Efficiency Hub as per the mandate contained in the G20 Action Plan on Climate and Energy for Growth which was endorsed as an annex to the G20 Leaders’ Declaration at the G20 Summit 2017 in Hamburg.

Moreover, the G20, established with the imperative to strengthen global market transparency in the wake of the global financial crisis in mind, views transparent markets as a critical prerequisite for energy security and encouraging investment. IEF will develop further activities in dialogue with all relevant international organisations taking advantage of the JODI platform as appropriate.

To promote market transparency and efficiency, the G20 has regularly committed to further strengthen the Joint Organisations Data Initiative (JODI) by encouraging and facilitating the collection and dissemination of high quality energy data, and promoting the visibility of the initiative, as well as enhancing support for capacity building. It has also welcomed the cooperation among the IEF, OPEC and the IEA, on energy outlooks and encouraged them to continue their fruitful collaboration on market transparency and on the interaction between physical and financial markets. These pre-existing initiatives can be revisited under the G20 Presidency of Argentina in 2018.

At the 2nd G20 Energy and Sustainability Working Group meeting in Berlin the IEF updated delegates on the 1st IEF-EU Energy Day (Riyadh, 14 February) which provided a platform focused on cooperation with the EU on energy efficiency and renewable energies in the context of the G20 IEF Knowledge Sharing Framework on Energy Efficiency as agreed under the G20 Presidency of China in 2016.

The IEF also referred to the upcoming Asian Energy Efficiency Conference and Exhibition as the next major event under this work stream, and notified ESWG Delegates that all G20 Ministers would be invited to strengthen international cooperation on energy efficiency and new technologies in the framework of the producer-consumer dialogue in accordance with the outcomes of the IEF 15 International Ministerial Energy Forum hosted by Algiers in 2016.
EXECUTIVE SUMMARY

Following the 12th International JODI Conference in April 2015 in New Delhi, India, a JODI 5-Year Action Plan was developed to identify ways to achieve greater energy data transparency under the JODI framework.

The plan, facilitating the solicitation of support of JODI from senior government officials, was endorsed by the Heads of the JODI Partners Organisations (APEC, Eurostat, GECF, IEA, IEF, OLADE, OPEC, and UNSD) during the meeting in Algiers in September 2016:

“...The heads of JODI Partners reviewed and endorsed the Five-Year JODI plan to 2020 and agreed to focus future actions by the JODI partners based on the plan...”

The plan identified **seven key objectives**, on which JODI Partners and other key stakeholders’ activities should focus over the next 5 years:

- Objective 1: Continue to enhance the quality of JODI data
- Objective 2: Improve the timeliness of data reporting mechanisms
- Objective 3: Continue to strengthen capacity building efforts
- Objective 4: Strengthen engagement with JODI user/energy data analytics community
- Objective 5: Raise JODI brand awareness
- Objective 6: Consider improvement of data transparency for other forms of energy
- Objective 7: Identify and engage with JODI Champions

To date JODI partners have undertaken numerous actions in line with the plan and made significant progress on these objectives. The “JODI 5-Year Action Plan toward 2020” document initially published prior to IEF15 in 2016 highlights the initial progress and accomplishments. JODI Partners continue to make tangible progress on each objective. Additional progress will be reflected in future updates of progress based on the plan.
Below are the Key Objectives of the Action Plan:

**Objective 1: Continue to enhance the quality of JODI data:**
Data quality improvement remains the essential progress indicator of JODI. However, sustained commitment for reporting high quality data is an on-going challenge for many national administrations.

Recent JODI Participation Assessment covering the second semester of 2016 shows an improvement versus the prior period for “Completeness”, “Sustainability”, and “Timeliness” measures. The JODI Partners have been redoubling efforts to engage with key stakeholders through outreach and training workshops. Yet as has been the case with JODI since inception, there is no room for complacency and there is always room for improvements.

Among the challenges being faced is the level of completeness and missing data for certain countries and economies and a parallel challenge to improve the timeliness of the JODI submissions. This limits JODI ability to provide a fully and timely representative summary of the market. One option, which the JODI Partners may explore is to work with members to assess the feasibility of submitting partial data when it becomes available, and subsequently submit complete questionnaires. All of these would be noted in the metadata for JODI users.

**Objective 2: Improve the timeliness of data reporting mechanisms:**
While JODI Partners continue to encourage JODI participating countries/economies to submit JODI questionnaires in a timely manner, the Partners are also equally engaged in improvement of their own data through enhanced training and capacity building, including online training, secondments, manuals, exploration of harmonised data transmission and dissemination mechanisms, regular meetings of members, and outreach to others.
Objective 3: Continue to strengthen capacity building efforts
JODI Partners continue to actively support JODI capacity building in key regions around the world. Recent workshops were held in Tunisia for African countries in April 2017, and in Moscow for the Central Asia and East European countries in November 2016.

JODI Partners take advantage of other training workshops for their member countries/economies to highlight the importance of JODI and improve JODI data reporting capacity. In addition, some of the partners have assessed effective ways to complement existing capacity building programmes with virtual training capabilities.

Objective 4: Strengthen engagement with the JODI user/energy data analytics community
JODI Partners have increased the engagement with users and energy data analytics communities through the JODI User Seminar series. Two JODI user events were held in Geneva (2015) and in London (2016). Additionally JODI was featured in different industrial conferences such as the fact that a JODI Workshop was part of the EPP Conference in Moscow (2016), as well as part of the EIA Annual Conference in Washington DC (2017).

Objective 5: Raise JODI brand-awareness
Following the diligent consultation to their respective governing bodies, the JODI Partners agreed to allow the Data Redistributions Agencies (DRAs) to feature publicly available JODI World Databases in their platforms. A set of pre-conditions were developed by the JODI Partners to protect the integrity of JODI. The new phase of cooperation with DRAs will increase the visibility and accessibility of the JODI data as called upon by leaders and industrial experts. Recently, permissions were given to Argus, Bloomberg, and Thomson Reuters to display JODI data at their platforms.
Objective 6: Consider improvement of data transparency for other forms of energy
JODI Partners have examined ways to improve data transparency beyond oil and natural gas. The partners have been exploring possibilities of importing other data sets of other forms of energy that is already available to the JODI website. Based on this, JODI partners are working to explore ways to increase the visibility and access to their other data sets via the JODI website.

Objective 7: Identify and engage with JODI Champions
JODI Partners have been engaging with government and industry leaders to seek their supports and commitments to JODI. JODI will continue to be featured regularly in the international fora and high-level bodies such as G20, and IEF Ministerials. A JODI Information Seminar was held in Bolivia (November 2017) as part of the GECF Summit where the President of Bolivia attended and presided over the Seminar.
The number of countries earning a “Good” rating for all “Sustainability”, “Timeliness” and “Completeness” has declined in the JODI-Oil Participation Assessment covering the first semester of 2017. The JODI Partners have been redoubling efforts to engage with key stakeholders through outreach and training workshops. Yet as has been the case with JODI-Oil since inception, there is no room for complacency.

### Number of Countries/Economies Earning “Good” or ☑ Ratings

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As JODI-Oil is by nature a work in progress, there is always room for improvement. One on-going challenge is the issue of incomplete or missing data for certain countries and economies, which limit’s JODI-Oil’s ability to provide a fully representative summary of the market. Another challenge is improving the timeliness of JODI-Oil submissions. Some national administrations do not submit JODI-Oil questionnaires until they have data for all relevant fields, which negatively impacts their timeliness assessment. The JODI Partners are striving to encourage these economies to submit partial data when it becomes available, and then to subsequently submit complete questionnaires. Calls for more complete questionnaires and the submission of partial questionnaires as soon as data become available may appear contradictory, but given the way in which Timeliness is evaluated they are in fact complementary.

Adequate support for data transparency also represents a challenge, as the success of JODI requires sustained commitment at all levels: from Leaders and Ministers to statisticians who work directly with energy data. It is imperative that top-level political commitment reaches the front-line actors working to collect and analyse JODI data, as in some cases scarce resources place limitations on staff working with JODI and more broadly data transparency.

**A Glossary of the JODI-Oil Participation Assessment Definitions: Sustainability, Timeliness and Completeness**

**Sustainability** measures the number of JODI-Oil questionnaires received within a given time period (six months). Sustainability assessments for each participating country or economy are based on the number of JODI-Oil questionnaires received by the submission deadline for the reference assessment period. A Good rating, or smiley face, is earned when a country or economy submits JODI data for all six months.

**Timeliness** evaluates whether or not data were submitted at or before the expected deadline. A smiley face is awarded when all six submissions were received within two months of the end of the reference month.

**Completeness** tracks the number of data points submitted out of the maximum of 42 in the JODI questionnaire. To earn a smiley face, each country or economy must submit more than 90% of its data related to production, demand and stock changes.

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The most recent assessment, which covers the period from January through June 2017, is featured on the back of this document. It is also available at www.jodidata.org
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ateurs: A Concrete Outcome of the Producer - Consumer Dialogue

With the support of the Joint Organisations Data Initiative Partners

Not assessable (n.a.) is applied when a country or economy did not submit JODI-Oil questionnaire data during the assessment period nor during the six months prior to the period.

JODI: A Concrete Outcome of the Producer - Consumer Dialogue

With the support of the Joint Organisations Data Initiative Partners
As coverage of JODI-Gas participating countries has now reached above 90% of global natural gas supply and demand, the seven-year-old global gas data transparency initiative is consolidating its position and making the quality of submissions its primary focus. To assess the participation situation JODI Partner Organisations have agreed on a set of quality measurement indicators similar to the bi-annual JODI-Gas Participation Assessment. These new indicators are now available to the public in the form of the JODI-Gas Participation Assessment.

Number of Countries/Economies Earning “Good” or @ Ratings

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<th></th>
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The assessment covering the first semester of 2017 indicates that close to 80% of countries listed in the JODI-Gas World Database are able to achieve a good “Sustainability” rating. However, only 64% of the JODI-Gas countries were able to attain the same rating for “Timeliness” and 45% of them for “Completeness”. As with JODI Oil, The Partners have been redoubling efforts to engage with key stakeholders through outreach and training workshops. As JODI-Gas is by nature a work in progress, there is always room for improvement. One on-going challenge is the issue of incomplete or missing data for certain countries and economies, which limits JODI-Gas’s ability to provide a fully representative summary of the market. Another challenge is improving the timeliness of JODI-Gas submissions. Some national administrations do not submit JODI-Gas questionnaires until they have data for all relevant fields, which negatively impacts their timeliness assessment. The JODI Partners are striving to encourage these economies to submit partial data when it becomes available, and then to subsequently submit complete questionnaires. Calls for more complete questionnaires and the submission of partial questionnaires as soon as data become available may appear contradictory, but given the way in which Timeliness is evaluated they are in fact complementary.

Adequate support for data transparency also represents a challenge, as the success of JODI requires sustained commitment at all levels: from Leaders and Ministers to statisticians who work directly with energy data. It is imperative that top-level political commitment reaches the front-line actors working to collect and analyse JODI data, as in some cases scarce resources place limitations on staff working with JODI and on data transparency more broadly.

A Glossary of the JODI-Gas Participation Assessment Definitions: Sustainability, Timeliness and Completeness

**Sustainability** measures the number of JODI-Gas questionnaires received within a given time period (six months). Sustainability assessments for each participating country or economy are based on the number of JODI-Gas questionnaires received by the submission deadline for the reference assessment period. A Good rating, or smiley face, is earned when a country or economy submits JODI data for all six months.

**Timeliness** evaluates whether or not data were submitted at or before the expected deadline. A smiley face is awarded when all six submissions were received within two months of the end of the reference month.

**Completeness** tracks the number of data points submitted out of the maximum of 12 in the JODI-Gas questionnaire. To earn a smiley face, each country or economy must submit more than 90% of its data related to production, demand and stock changes.

[1] The most recent assessment, which covers the period from January through June 2017, is featured on the back of this document. It is also available at www.jodidata.org
The most recent assessment, which covers the period from January through June 2017, is featured on the back of this document. It is also available at https://www.oecd.org/dac/energy/countryparticipationassessments/indicators/.

With the support of the Joint Organisations Data Initiative Partners (JODI) and the new set of quality measurement indicators similar to the bi-annual JODI-Gas Participation Assessment, the global gas data transparency initiative is consolidating its position and making the quality of submissions its primary focus. To assess the participation situation, JODI Partner Organisations have agreed on a set of indicators that track the number of data points submitted out of the maximum of 12 in the JODI-Gas questionnaire.

The JODI-Gas Participation Assessment Summary provides an overview of the participation situation in a given year for a specific country or economy. It assesses countries or economies on three dimensions: Sustainability, Timeliness, and Completeness.

**Sustainability (of submission)**
- Good
- Fair
- Poor

**Timeliness**
- Good
- Fair
- Poor

**Completeness**
- Good
- Fair
- Poor

Not assessable (n.a.) is applied when a country or economy did not submit JODI-Gas questionnaire data during the assessment period nor during the six months prior to the period.

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