



सत्यमेव जयते  
Ministry of New and Renewable Energy  
Government of India



Confederation of Indian Industry

# Report of the Second IORA Renewable Energy Experts & Ministerial Meeting

2 – 4 October 2018

Delhi NCR, India

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## Executive Summary

The **2<sup>nd</sup> IORA Renewable Energy Experts and Ministerial Meetings** were organised by the Indian Ocean Rim Association (IORA) in collaboration with the Ministry of New and Renewable Energy and the Ministry of External Affairs of the Government of India, and the Confederation of Indian Industry (CII) in Delhi NCR, India on 2-4 October 2018. They directed focused attention on the particular energy needs of IORA Member States and the collective initiatives needed to promote the development and use of renewable energy in the Indian Ocean Region. The Meetings were held alongside the 1<sup>st</sup> International Solar Alliance General Assembly and 2<sup>nd</sup> Global Renewable Energy Investment Meeting and Expo (REINVEST- 2018).

The three events were jointly inaugurated by the Hon'ble Prime Minister of India, Mr Narendra Modi, in the presence of Mr Antonio Guterres, Secretary General of the United Nations, on 2 October 2018 in New Delhi. Addressing the gathering, the Indian Prime Minister said that the aim of all three events was to create the alternative of clean energy for a green future. The UN Secretary General said that climate change is an existential threat for all. Pointing out that the world is witnessing a global renewable energy revolution, he raised the hope that the age of fossil fuels will end with a replacement for them.

On 3 October 2018, during the Opening Session of the Second IORA Renewable Energy Experts Meeting, delegates pointed out that Indian Ocean Rim countries together account for 15% of the global energy demand but command only 8.13% of world's solar energy installed capacity. Given that conventional energy sources are fast depleting everywhere, even as the world recognises the increasing importance of meeting the UN Sustainable Development Goals, it is imperative for the Indian Ocean Rim countries to collectively accelerate the development and use of renewable energy.

The discussants called for greater sharing of knowledge and best practices among the IORA countries. India's ambitious target of creating 175GW renewable energy capacity by year 2022 was highlighted as a major step in the direction of building an ecosystem for clean energy.

The delegates recognised that the meeting would focus on the critical areas of: (i) integration of renewable energy into the existing grid; (ii) policy steps to create universal access to electricity; (iii) removal of unnecessary regulatory bottlenecks that come in the way of renewables development; (iv) building of suitable infrastructure for the renewables sector; and (v) development of a suitable skill base for the renewables industries. It was noted that the future energy needs may be analysed in the context of population growth in different geographies and increasing urbanisation.

In the session on '**Energy Needs of IORA**', representatives of Australia, Bangladesh, Comoros, Iran, Mauritius and Somalia shared their perspectives on the renewables sector and the technologies that are being leveraged to drive renewable energy development. For instance, innovative technological solutions like Blockchain, virtual power plants and microgrids, storage and smart management, clean hydrogen and solar fuels were cited as key to clean renewable energy catalysing the socio-economic transformation of Indian Ocean Region. Cross-border trade in renewable energy was advocated as a major step in the direction of regional energy cooperation.

The session on '**Renewable Energy Vistas**' brought to the fore the opportunities for Independent Power Producers (IPPs) in the renewable energy sector, as also the challenges that underpin the businesses. It was cited that the long-term success of IPPs would hinge on robust regulation of the industry, capacity building, skills development programmes, and promotion of a transparent and competitive business environment. Solar PV is one of the most promising areas in the renewable's spectrum. It was pointed out that solar PV accounts for 66% of 1,767GW of renewal energy capacity added globally last year (2017) and that renewable energy is gaining a large share of the power sector portfolio of many countries. The session featured presentations covering IORA Chair, South Africa, India (represented by TERI), Tanzania, Seychelles, IRENA as also the state of Andhra Pradesh in India.

In the session on the '**Challenges in Renewable Energy Implementation**', individual presentations were made on the challenges, especially in G2B synergy, that confront countries like Indonesia, India, Kenya, Oman and Sri Lanka. The challenges pertain to financing of projects, investments and collaborations, public-private partnerships (PPP models), policy interventions, rural development, capacity building, technology sharing, among others.

The imperative for deeper cooperation among IORA Member States came to the fore in the session on the '**Possibilities and Opportunities for International Collaboration**'. Individual presentations were made by representatives of UAE, India, Mozambique, Mauritius and Yemen. The presenters highlighted the need for identifying opportunities for cross-country technological exchanges, skills development and industrial innovation, based on which a common IORA approach to renewable energy development is to be adopted.

The concluding session of the Experts Meeting saw lively discussions on the formulation of the outcome document of the meeting entitled 'Key Takeaways'. This document listed concrete recommendations made in each session, as a way forward to direct the future efforts of IORA Member States in the renewable energy sector.

On 4 October 2018, the 2<sup>nd</sup> IORA Renewable Energy Ministerial Meeting was launched by H.E. Mr R K Singh, Minister of State for New and Renewable Energy, Government of India, who commended the "initiatives that the IORA members have taken for sustainable development and balanced economic growth". In view of the exponential rise in demand for energy and depletion of conventional energy resources globally, the Hon'ble Minister expressed the requirement for an increased share of renewables in the energy mix. He also emphasised the imperative for higher energy efficiency standards in IORA countries.

Dr Nomvuyo N Nokwe, Secretary General of IORA highlighted the importance of greater regional collaboration in this sector and noted the auspiciousness of holding the event in the birth centenary year of Late Nelson Mandela, the founding father of IORA. She expressed great hope that a renewable energy architecture could be developed for the region thus paving the way forward for mutually beneficial cooperation through a consensus based, evolutionary and non-intrusive approach. She also underlined the importance of the Memorandum of Understanding signed between IORA and the International Solar Alliance (ISA) on 3 October 2018.

Ms Thembisile Majola, Deputy Minister of Energy of South Africa, as the current IORA Chair, posited that IORA as an increasingly prominent inter-government organisation for the Indian Ocean Region is a significantly influential platform to promote collaboration, peace and prosperity in the region. She stated that by harnessing solar energy and ensuring development of renewable, sustainable and clean energy resources as a common goal, a better future can be ensured for our planet.

IORA Member States and Dialogue Partners availed of the opportunity to deliver country statements during the Ministerial Meeting, thus providing a comprehensive overview of the state of renewables development in their respective geographies.

The Key Takeaways of Experts Meeting held on 3 October 2018 were read out by the IORA Vice Chair, UAE to the acclaim of the distinguished delegates. The Energy Ministers and Heads of Delegations adopted the IORA Delhi Declaration on Renewable Energy to move forward on the path of sustainable development.

17 IORA Member States and 3 Dialogue Partners attended the event.

## Day 1: October 3, 2018

### Opening Session

Welcome Address:	Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India
Keynote Address:	Ms Mokgadi Modise, Acting Deputy General: Clean Energy, Ministry of Energy, South Africa
Opening Remarks:	Mr Tejpreet Singh Chopra, Co-Chairman, CII National Committee on Make in India - Renewables & CEO, Bharat Light & Power Private Ltd
Remarks:	Ms Ruchika Rishi, Director, IORA Secretariat

### Key Assertions

The Indian Ocean Rim countries together account for 15% of the global energy demand but command only 8.13% of world's solar energy installed capacity. Given that conventional energy sources are fast depleting everywhere, even as the world recognises the increasing importance of meeting the UN Sustainable Development Goals, it is imperative for the Indian Ocean Rim countries to collectively accelerate the development and use of renewable energy.

Stating this in his welcome address, Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India, said that sustainable development and balanced growth are the intrinsic guiding principles of the Indian Ocean Rim Association (IORA). In keeping with this goal, the 1<sup>st</sup> Renewable Energy Experts Meeting was held alongside the 1<sup>st</sup> IORA Ministerial Meeting in Abu Dhabi in 2014, where the 1<sup>st</sup> IORA Declaration on Renewable Energy was adopted.

Referring to India's ambitious target of creating 175GW renewable energy capacity by year 2022, Mr Kumar said the country has already established 72.95GW renewable energy capacity as at August 31, 2018 and that the overall target will be met ahead of time. Today, India ranks 4<sup>th</sup> in terms of grid power capacity, and 5<sup>th</sup> in regard to renewable power and solar power installed capacity. The thrust on renewable energy was significantly augmented by Government of India's policy initiatives such as the Renewable Purchase Obligation, Renewable Generation Obligation to diversify the renewable energy portfolio, National Wind-Solar Hybrid Policy, Solar Park Guidelines aimed at boosting private sector participation in solar energy development, among others.

Mr Kumar also highlighted Government of India's efforts to build an eco-system for manufacturing of solar equipment and cells, and development of Green Energy Corridor projects, which have enhanced India's attractiveness as a destination for domestic and foreign investment in renewable energy, as well as generating employment opportunities.

Mr Kumar urged the IORA Member States to intensify the sharing of best practices in renewables. Throwing light on the current energy scenario in Africa, Ms Mokgadi Modise, Acting Deputy General: Clean Energy, Ministry of Energy, South Africa, said in her keynote address that while the world population is expected to grow to 9.2 billion by year 2040, Africa's population will double in that period from about 1 billion to 1.8 billion. Energy demand in Africa too will grow exponentially, accentuated by accelerated urbanisation in the region. However, large parts of Africa even today have limited access to electricity, which will remain a big challenge in the future.

Against this backdrop, Ms Modise urged the IORA Member States to embrace the vision of the Prime of India, Mr Narendra Modi of 'One World, One Sun, One Grid'. In a similar vein, IORA Member States may look to collectively promote the development of renewables like solar, wind, hydel, geothermal, biomass, etc. She also highlighted that the critical areas to be looked into are: (i) integration of renewable energy into the existing grids; (ii) policy steps to create universal access to electricity; (iii) removal of unnecessary regulatory bottlenecks that come in the way of renewables development; (iv) building of suitable infrastructure for the renewables sector; and (v) development of a suitable skill base for the renewables industries.

Mr Tejpreet Singh Chopra, Co-Chairman, CII National Committee on Make in India - Renewables & CEO, Bharat Light & Power Private Ltd pointed out that India ranked 2<sup>nd</sup> on the Renewal Energy Attractiveness Index in 2017. Growing energy demand, an enabling regulatory environment, and abundant sunshine available across the country have all contributed to India becoming a strategic investment destination for global solar energy companies. By year 2040, 49% of the country's energy need is expected to be met from renewables.

Mr Chopra called for collaboration between Indian and IORA companies in the areas of energy storage technologies, development of bio-energy, development of sophisticated technologies for energy efficiency, and use of Big Data, cloud, analytics, and IoT convergence for renewable energy. He underlined the importance of having policies that are aligned with the new dynamics of the renewable sector. He also pointed to the innovative financing mechanisms that are coming into play for the sector, to deliver efficient and cost competitive capital.

Ms Rishi, Director at the IORA Secretariat, apprised the gathering that the principle limitations in energy use have been of availability and energy conversion. She pointed out that, as the Industrial Revolution demonstrated, technological innovations have shown there is no limit to the amount of energy at man's disposal. The challenge that the world faces is the knowledge necessary to harness and convert various forms of energy to meet the growing needs. She urged the delegates to utilise the opportunity provided by the Experts Meeting to pool in concrete and actionable recommendations for increasing the acceptability and applicability of renewable energy resources across the region.

Ms Rishi highlighted the importance given to renewable energy under the aegis of IORA, which has especially set targets in this field under its ongoing Action Plan (2017-2021). She urged Member States to work together to realise the goal of the region emerging as a major cost competitive market, by capitalising on their suitable geographical locations which provide diverse opportunities in this sector.



## Session One: Energy Needs for IORA

Chair:	Mr Steve Blume, President, Smart Energy Council and Treasurer, Global Solar Energy Council
Speakers:	<p>Md Helal Uddin, Chairman, SREDA, Power Division, Ministry of Power, Energy and Mineral Resources, Bangladesh</p> <p>Mr M Ali Moissi, Assistant to the General Directorate of Energy, Moroni, Comoros</p> <p>Dr Mohammad Sadeghzadeh, Deputy Minister of Energy, Ministry of Power and Energy, Iran</p> <p>Dr Pradeep Kumar Soonarane, Director Technical Services, Ministry of Energy and Public Utilities, Mauritius</p> <p>Eng Abdulkadir Mohamed Abdulle, Director of Renewable Energy Department, Ministry of Energy and Water Resources, Federal Government of Somalia</p>

### Key Assertions

As 1/3rd of the world's population live in 21 IORA Member States located around the Indian Ocean, safe climate targets have serious implications for this region. Innovative technological solutions like Blockchain, virtual power plants and microgrids, storage and smart management, clean hydrogen and solar fuels hold the key to ensuring that clean renewable energy is adopted in the region to bring about its socio-economic transformation, said Mr Steve Blume, President of the Smart Energy Council and Treasurer of the Global Solar Energy Council, Australia.

He stated that Australia has developed solutions like virtual power plants and microgrids and have been using Blockchain, and smart storage and management in the renewable energy sector. Clean hydrogen and solar fuels could solve long-term energy challenges and those are going to be Australia's "next great exports".

Speaking on the status of renewable energy in Bangladesh, Md Helal Uddin, Chairman, SREDA, Power Division, Ministry of Power, Energy and Mineral Resources, Bangladesh, said the mission of Government of Bangladesh is to ensure electricity for all by 2021, the year the country will celebrate the Golden Jubilee of its Independence. "At present, 90% of our population enjoy access to electricity. Government has prepared a long-term plan titled 'Power System Master Plan – 2016' to meet the goals of electricity generation from renewable energy resources and thereby meet the sustainable development goals," he said.

Md Helal Uddin highlighted that 2017 was a record year for renewable energy development in Bangladesh as the country realised its highest increase in renewable energy power capacity. He informed that several energy technologies in hydropower, bio-energy and geothermal power have long been established as mainstream sources of power. He also informed the gathering of the increasing focus on mitigating the impact of climate change and increasing energy security in



order to achieve lower carbon emissions as well as more resilient development. In this regard, he shared that Bangladesh has set an unconditional target to reduce greenhouse emissions by at least 5% through their own contribution as well as investments by year 2030.

He noted challenges, such as energy deficit, high dependency on traditional fuels, rising dependence on primary fuel imports, limited exploitation of renewable energy resources, lack of adequate energy infrastructure, limited use of energy efficient technology and implementation of bilateral and multilateral agreements.

Mr M Ali Moissi, Assistant to the General Directorate of Energy, Moroni, Comoros said that biomass is a major energy source in the island country. However, nearly all the electricity is generated from petrol and diesel.

Mr Moissi informed that transportation accounts for 57% of the total energy consumed in Comoros. He was optimistic for the future of renewable energy sector in Comoros and noted that although it provided as yet a very small percentage of the total energy mix, the Government of Comoros has already formulated and started implementing a programme for the development of renewable energy, especially in regard to solar energy.

Dr Mohammad Sadeghzadeh, Deputy Minister of Energy, Ministry of Power and Energy of Iran, said the country's solar energy potential assessment shows that it has about 300 sunny days a year and the country is well placed to fulfil its energy demand as also meet the demand for electricity in neighbouring countries. "We have the potential for generating 30GW from wind resources and 1,000GW from biomass," he added.

Speaking on Iran's commitment to renewable energy, Mr Sadeghzadeh informed that their government aims to reduce by 4% the greenhouse emissions relative to business, which can be extended to 12% provided Iran attracts sufficient foreign investments. He added that Iran is hopeful of undertaking 5000MW of renewable energy development by year 2021.

He said the Iran Government has put in place strong legislation to support renewable energy companies operating in the country, which are backed by a 20-year PPP option. The legislation also takes care of the financial requirements of the sector.

Speaking about Vision 2030 of the Government of Mauritius, Dr Pradeep Kumar Soonarane, Director Technical Services, Ministry of Energy and Public Utilities, Mauritius said that energy security is seen as the central plank of the government policy, with transportation as a big sector in terms of energy consumption.

He pointed out the importance of suitable storage technologies for renewable energy integration into the network, especially solar energy, adding that energy is the only commodity where demand and supply at any given moment are exactly the same. "In 2017, we achieved 20% share of renewable energy in the total energy mix which included electricity consumed by the sugar industry and we will move to 35% in 2025 and by 2030 at least at 35% of our energy will come from renewable resources," he stated.

He said the UN Sustainable Development Goals are taken into account in the country's energy planning and that solar energy is a good sector to ensure involvement of more women in economic activities.

Highlighting the state of renewable energy sector in Somalia, Eng Abdulkadir Mohamed Abdulle, Director of Renewable Energy Department, Ministry of Energy and Water Resources, Federal Government of Somalia, said that 89% of the total energy supply in Somalia comes from biomass, while electricity accounts for only 3% of the total energy consumption in the country. He informed that 90% of Somalia's 12 million people are not connected to the national energy grid. Speaking on the energy security challenges of the country, he said, "Somalia is one of the few countries with high dependence on solid biomass fuel. The overall consumption of wood exceeds sustainable supply."

Giving a breakup of Somalia's energy use, he said the household sector uses 85% of the energy generated while the industrial and transport sectors account for only 2% and 3%, respectively. He also said the Somalia government's aim of electricity access for all by year 2030 is in line with the UN SDGs and for that a special project under the National Development Plan 2017-19 is currently under implementation.

He said that development and support of Somalia's human resource is important, and the goal of the Somalia Government is to allow private companies to produce renewable energy power independently without any state interference.

## Session Two: Renewable Energy Vistas

Chair:	Ms Mokgadi Modise, Acting Deputy DG: Clean Energy, Ministry of Energy, South Africa
Speakers:	<p>Mr Gurbuz Gonul, Acting Director, Country Support and Partnerships, International Renewable Energy Agency (IRENA)</p> <p>Mr Amit Kumar, Senior Director – Social Transformation, Tata Energy Research Institute (TERI)</p> <p>Eng Styden Rwebangila, Principal Energy Engineer and ISA Focal Point, Tanzania</p> <p>Mr Theodore Marguerite, ISA National Focal Point for Seychelles</p> <p>Dr M Kamalakar Babu, Vice Chairman &amp; Managing Director, Renewable Energy Development Corporation of Andhra Pradesh Ltd (Government of Andhra Pradesh Undertaking)</p>

### Key Assertions

Ms Mokgadi Modise, Acting Deputy DG: Clean Energy, Ministry of Energy, South Africa, in her opening remarks as the Chair of the session, called for sharing of experiences of Independent Power Producers (IPPs) in the renewable energy sector. She highlighted the need for capacity building and skill development initiatives that support this sector and underlined the need for (i) sharing of renewable energy technologies among the Member States; (ii) combined efforts to enhance the technical and commercial feasibility of the technologies; and (iii) promotion of the renewable energy sector as a whole.

Ms Modise mentioned that in South Africa, IPPs operate in a highly competitive environment – governed by the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) -- that is characterised by strong policy and government support, a fair and transparent evaluation system and a standard suite of documents that is accessible to all concerned stakeholders. However, she pointed out that a similar approach adopted for the small projects programme did not yield the desired outcome. Hence, a more simplified and light-handed approach is being adopted for the small projects now.

Commenting on the current global renewable energy landscape, Mr Gurbuz Gonul, Acting Director, Country Support and Partnerships, IRENA, pointed out that solar PV accounts for 66% of 1,767GW of renewal energy capacity that was added last year (2017). He also shared that for 5 years in a row, globally, in the power sector, capacity addition for renewables has exceeded that of conventional energy and that renewable energy is gaining a large share of the power sector portfolio of many countries.

Citing that IRENA maintains rigorous monitoring of renewable energy costs across markets, with the aid of a broad database and indepth studies of the power purchase agreements, Mr Gonul highlighted that cost of solar PV power has reduced by some 72% since 2010. He also highlighted that on a larger scale, wider use of renewable energy will add 1% to the global GDP growth by year 2050, apart from creating 11 million new jobs in the sector.

With respect to penetration of renewable energy in the heating and transportation sectors, Mr Gonul cited that the penetration in the heating sector is of the order of 25%-27%, whereas it is only a mere 3% in the transportation sector. He said that in the industrial and transportation sectors, renewables share of the energy supply is projected to go up to 60%. He said that IRENA expects renewables to meet 85% of the global energy needs by year 2050, even as globally energy demand in the power sector continues to grow.

Mr Gonul called for closer collaboration between IRENA and IORA in the area of renewable energy and accelerated sharing of knowledge and best practices.

In a similar vein, India put forward its aims to reduce the energy intensity to GDP ratio to 33%-35% by year 2030. Stating this, Mr Amit Kumar, Senior Director – Social Transformation, TERI, said the country's focus on renewables was principally guided by the imperatives for rural development, that precedes the current climate change debate. Solar and wind energy constitute the major renewable energy supply to the power utilities, with solar being a more recent entrant. Last year, India produced record 100 billion units of electricity from renewable energy. He stressed on the fact that the use of solar energy could assist farmers across the country to increase their income levels.

Mr Kumar pointed out that Government's policy thrust on the development of solar parks has greatly helped reduce the cost of solar power through aggregated capacity building and economies of scale. Ultra-Mega Solar Power Plants are being developed whereby 500MW power can be generated from a single location. A 2GW single solar power plant has also been established.

Mr Kumar said that the Indian Government has addressed the concerns of IPPs with regard to payments from the power utilities by ensuring payment against power generation and through guaranteed offtake of renewable energy generated electricity.

Eng Styden Rwebangila, Principal Energy Engineer & ISA Focal Point, Tanzania highlighted the renewables plank of the country which has 53 million cubic feet of proven reserves of natural gas, and 1.2 billion tonnes of coal of which 304 million tonnes are proven reserves. During his presentation, he also added that 5000MW of geothermal energy has been assessed. Tanzania has significant hydel power resources, but only 12% of the resources have been developed so far. Stating this, Eng Rwebangila said that private sector participation in the energy and power sectors are vital to the country's economic development. Today, private power producers are permitted to sell directly to consumers or to TANESCO which owns and operates the country's transmission and distribution network.

Mr Rwebangila observed that private sector participation in wind and solar PV power projects are picking up under the IPP arrangements. Tanzania does not have a dedicated renewable energy policy, and so the sector's development is guided by the National Energy Policy, 2015 and Electricity Act, 2008. Mr Rwebangila stated that there is ample scope for solar energy development in the central parts of Tanzania.

Making a broad comparison of the outcomes of renewable energy policies in IORA Member States, Mr Theodore Marguerite, ISA National Focal Point for Seychelles, said that a market-led approach and economies of scale would be critical to the growth and development of the renewables sector in the Indian Ocean Rim countries.

He advocated the use of floating solar PV to address the issue of limited land availability for solar energy development, as well as to check evaporation in the water bodies. He also called for the development of solar grids and underscored the need for more efficient financial mechanisms for renewables projects. Mr Marguerite underlined the importance of engaging communities in achieving higher energy efficiency goals.

Dr M Kamalakar Babu, Vice Chairman & Managing Director, Renewable Energy Development Corporation of Andhra Pradesh Ltd (Government of Andhra Pradesh Undertaking), India, highlighted that Andhra Pradesh is among the foremost states to promote waste to energy projects and is implementing the largest solar pumpset programme in India. He said that 32,000 solar pumpsets have been installed in the last four years and that the number is expected to go up to 100,000 by year 2019. He mentioned that the state Government is extending financial support to farmers for the installations and that additional power generated could also be channelled to the grid, providing extra income to them.

Mr Babu cited that the state has set the goal of achieving about 10% of the national renewable energy target by year 2022, that is, 18,000MW. Andhra Pradesh has already realised 7000MW capacity, and the remaining 11,000MW will be added in the next four years. He also said that Andhra Pradesh Government is establishing one of the largest solar park schemes in the country with a capacity of 4000MW and a 1000MW solar power project under the Kurnool Ultra Mega Solar Park, which is the world's largest solar power project in a single location.

## Session Three: Challenges in Renewable Energy Implementation

Chair:	Mr Dadan Kusdiana, Senior Advisor for Economic and Natural Resources, Ministry of Energy & Mineral Resources Republic of Indonesia
Speakers:	<p>Mr K Somasundaram, Head of Strategic Initiatives, Mytrah Energy, India</p> <p>Eng. Benson Mlambo Mwakina, HSC, Director of Renewable Energy, Ministry of Energy, Kenya</p> <p>Mr Khalil Ibrahim Zahir Al Zeidi, Renewable Energy Manager, Public Authority for Electricity &amp; Water, Oman</p> <p>Mr S H Padmadewa Samaranayaka, Technical Officer, Sri Lanka Sustainable Energy Authority</p>

### Key Assertions

Mr Dadan Kusdiana, Senior Advisor for Economic and Natural Resources, Ministry of Energy & Mineral Resources Republic of Indonesia highlighted that the development of renewable resources should be done not only for mitigating climate change but also for enhancing the region's prosperity and economic development. He said that Indonesia continues to have a high dependence on fossil fuels and highlighted the challenges confronting the renewable energy sector, such as, (i) financial constraints for small-scale renewable energy projects; (ii) limited investments for deployment of renewable energy technologies and hurdles to collaboration through legislations; (iii) lack of an equitable business model for creating sustainable energy access; (iv) geographical constraints; uncertainty of the PPP model and its synchronisation.

Mr K Somasundaram, Head of Strategic Initiatives, Mytrah Energy highlighted that the electricity demand is rapidly increasing in India and there is significant dependence on oil. While there are targets set to enhance the country's energy self-sufficiency, it is important to efficiently navigate the pathway to the targets. He stated emphatically that it is not enough to harness the energy resources and that robust transmission and distribution systems are equally important.

A pan-India market for renewable energy needs to be developed, he stated, while adding that energy is still not equitably distributed to all parts of the country, especially in the rural areas. He also noted that sustainable energy infrastructure development is the "need of the hour" and that the renewable energy sector has not grown in a linear fashion but instead shows an S-curved growth pattern.

Mr Somasundaram said that from the developer's perspective, there are challenges in dealing with multiple levels of approvals and the gaps between policies adopted at the Central level and the requirements seen at the regional level. From the capacity building perspective, tariffs are falling but there are hidden costs owing to inefficiencies in the system.



He stressed that there should be consistency in the policies and better coordination among the authorities, industry and academia. Looking ahead, he proposed that decision makers need to take a systematic and holistic view, supported with active dialogue while extending support that is relevant and contextual, identifying implementation challenges, and promoting consistent policies and capacity building for the sector.

Eng Benson Mlambo Mwakina, HSC, Director of Renewable Energy, Ministry of Energy from Kenya provided valuable insights on the types of renewable energy resources available in the country, with hydro energy being the biggest, followed by thermal and geo-thermal resources. However, he highlighted that energy supply in Kenya is not sufficient in relation to the current demand and that the country is aiming to achieve universal access to energy by year 2022. He also mentioned that a solar PV and solar water heating curriculum has been developed within Kenya.

A New Energy Bill is being enacted and key measures have been initiated to mitigate the energy-related challenges in Kenya. As mentioned by Eng Mwakina, the implementation of energy regulations, partnerships for consumer awareness and capacity building are essential for the country's development. These projects have a consumer awareness component as well as a training component to comprehensively deal with the challenges seen in the implementation of energy plans.

Mr Khalil Ibrahim Zahir Al Zeidi, Renewable Energy Manager, Public Authority for Electricity & Water, Oman said in his presentation that the Middle East country has set a national target of increasing the share of renewable energy to the overall energy mix to 10% by year 2025. He said that initiatives are underway to develop 500MW solar plants, programme for rooftop solar panels and other industrial applications of solar energy. In addition there are programmes for developing captive power plants and off-grid solutions. Coastal areas in the southern part of Oman have good potential for wind energy development, he said.

Mr Zeidi noted that Oman also has plans to convert waste to energy. Among the challenges that confront the country's renewable energy sector, he pointed out that cost of renewable energy technologies are still relatively high, although the costs have come down in recent years. He also cited issues with regard to financing of renewable energy projects and highlighted the need for bankable data supporting the sector.

Mr S H Padmadewa Samaranayaka, Technical Officer, Sri Lanka Sustainable Energy Authority highlighted the country's vision to achieve complete carbon neutrality by year 2050. Mr Samaranayaka provided valuable insights into the key challenges that confront Sri Lanka's renewable energy sector, such as, constraints in the national grid absorbing renewable energy- based electricity; lack of local capacity for manufacturing to support the renewable sector; mismatch in the dynamic renewable sector modelling; information gaps and absence of case studies; lack of a conducive environment for local manufacturing and R&D.



## Session Four: Possibilities and Opportunities for International Collaboration

Chair:	Mr Abdulla Mohamed Abdulla Zayed, Business Development Manager, Abu Dhabi Future Development Company “Masdar”
Speakers:	Mr Naveen Gahlawat, CEO, Neochlorus Energy Solutions, India Ms Marcelina Andrea Mataveia, National Director for Energy, Ministry of Mineral Resources and Energy, Mozambique Prof (Dr) Towfick Sufian, Director, The Ministry’s Technical Office, Ministry of Electricity and Energy, Yemen Prof V N Attri, Chair in Indian Ocean Studies at the University of Mauritius, IORA

### Key Assertions

Masdar is owned by Mubadala Investment Company which in turn is owned by the Abu Dhabi Government. The company was established in 2006 with a mandate to invest in and develop renewable energy projects locally as well as internationally. Masdar is considered one of the first movers in the renewable energy field in the region; in 2009, the company started operation of the first renewable energy plant within the MENA region with a capacity of 10MW. In addition, in 2013 Masdar started operation of a 100MW concentrated solar power plant in the UAE; globally and locally Masdar has nearly 3GW under operation and development. “We are constructing 830MW in UAE; a 800MW PV plant and 30MW Waste to Energy plant,” said Mr Abdulla Mohamed Abdulla Zayed, Business Development Manager, Abu Dhabi Future Development Company “Masdar”. Talking about UAE, he said, “UAE have nearly 3GW of renewable energy projects under construction, and almost 500MW projects are under operation.”

Mr Zayed said, “If we skip propagation of utility among IORA Member States, we cannot find a common approach and common technologies because every country has different needs in terms of electricity. Every country has a different landscape and different natural resources and norms in place.”

He stressed upon the need to identify the strengths of each IORA Member State and find out “what we are willing to do for each other”. “I see the propagation happening in two ways -- soft propagation, where we share our experiences, and business to business propagation where we come together as IORA Member States to realise the various business opportunities,” he said.

Mr Zayed also underlined the need for good connectivity between IORA Member States, knowledge transfer and sharing of experiences.

Sharing India’s experience in the renewable energy sector, Mr Naveen Gahlawat, CEO, Neochlorus Energy Solutions, said, “We have heard this statement many times that we do not inherit the planet from our ancestors but we borrow it from our children. With this as a theme we have gathered here. India has been extremely active in strengthening the International Solar Alliance.”

Mr Gahlawat stated that India is well on its way to establishing the target 175GW renewable energy capacity by year 2022. He mentioned that the country started this journey by setting up the power plants, and ushering in a transparent bidding process that has greatly contributed to bringing down the costs. He also cited that the creation of Dedicated Green Energy Corridors for transmissions have helped the sector overcome some of the geographical barriers, thereby encouraging the industry and international financial institutions to come together to facilitate seamless transmission of energy.

On the skills development front, India has trained more than 18,000 Surya Mitras (Friends of Sun) who are grassroots solar technicians. As highlighted by Mr Gahlawat, India has launched a national policy for setting up labs for testing, standardisation and certification as well as a National Electric Mobility Mission, whereby India is aspiring to sell only electric cars by 2030.

At the industry level, the Indian government has directed focus on off-grid applications like solar pumps, solar streetlighting, solar water heaters, he said, and recommended that “while we make policies at the national level, we ought to make sure that integration of renewable technology should happen till the last mile. For example, introduction of renewable energy at an early stage of schooling and teaching school students how to assemble solar lamps are some of the other steps that would help people develop a better understanding of renewables.”

Sharing Mozambique’s experience in energy development, Ms Marcelina Andrea Mataveia, National Director for Energy, Ministry of Mineral Resources and Energy, Mozambique said the main objective of her government is to promote energy access in a sustainable manner using renewable energy, which can be both grid-based and off-grid for achieving the goal of universal access by 2030.

She said that Mozambique has both conventional and renewable resources, but their energy market is dominated by hydro energy, followed by natural gas. She cited that in 2016 Mozambique came up with a renewable energy atlas that shows the country has 3GW of solar potential, 18GW of hydro potential, 4.5GW of wind potential and 2GW of biomass potential.

Now, with the support of KFW, a favourable environment is being created in the country for investments in power generation from renewables to mitigate the impact of climate change. Ms Mataveia said that Mozambique is also introducing reforms in the sector by simplifying the licensing procedures for small and medium renewable energy projects and off-grid solutions.

Prof. (Dr) Towfick Sufian, Technical Advisor to the Minister and Director of the Ministry’s Technical Office, Ministry of Electricity and Energy, Yemen, said the two problems that the country is trying to solve are water scarcity and rural electrification and sought partnership with the IORA Member States toward solving the issues. Speaking on the availability of renewable energy in Yemen, he said, “We have numerous wind, solar and geothermal energy resources. We have wind speeds of 7.0 to 15.0 meters per second along the coastal area. We are talking about harnessing solar energy to desalinate water in our cities and electrify rural areas. The average daily solar irradiation in Yemen ranges between 5.2 – 6.8 kWh/m<sup>2</sup>/day and the average sunshine hours Yemen receive ranges between 7.3 to 9.1 hrs per day.”

The geographical terrain in Yemen is mainly mountainous with 35,000 small clusters of houses/villages distributed across the country. “As high as 80% of Yemen’s population live in 20% of

the area,” he said. Dr Sufian said that harnessing solar energy makes sense for Yemen as the water is fast depleting in the capital city Sana’a and the city is faced with severe water crisis; it is projected that by 2025 the city will run out of water.

He also highlighted that only 41% of Yemen’s population is connected with the national grid and that harnessing solar energy is the most viable option to electrify rural areas in the country. Dr Sufian shared that due to high returns, companies making investments in solar plants in Yemen can expect to recover their cost in a matter of several years.

Prof V N Attri, Chair, Indian Ocean Studies at the University of Mauritius, IORA, highlighted that “by 2050 we can ensure that sustainable energy is available to all in the Indian Ocean Region and that fits well with the IORA objective. When IORA was established in 1997, one of its objectives was to ensure and promote sustainable development in the Indian Ocean Region.”

He mentioned that various studies provide evidence that “by the year 2050, we can have 100% renewable energy throughout the globe, if we focus on SDG 7, Affordable Energy for All”. Prof Attri also mentioned that China, Indonesia, South Africa, USA and India are emerging as the top powers in renewable energy.

## Session Five: Key Takeaways and Conclusion

Chair:	Mr Anjani Nandan Sharan, Joint Secretary, Ministry of New and Renewable Energy, Government of India
Speakers:	Ms Ruchika Rishi, Director, IORA Secretariat Mr Rajiv Ranjan Mishra, Co-Chair, CII National Committee on Power and Managing Director, CLP India

## Proceedings

Ms Ruchika Rishi, Director, IORA Secretariat presented the draft Key Takeaways from the Working Sessions of the Second IORA Renewable Energy Experts Meeting in the session chaired by Mr Anjani Nandan Sharan, Joint Secretary, Ministry of New and Renewable Energy, Government of India.

IORA delegates present at the session deliberated upon each takeaway and collectively finalised this outcome document which was based on the recommendations of each session as summarised by the Session Chairs. The Key Takeaways were presented in the Closing Session of the 2nd IORA Renewable Energy Ministerial Meeting on October 4, 2018 by the IORA Vice Chair (UAE).

Mr Rajiv Ranjan Mishra, Co-Chair, CII National Committee on Power and Managing Director, CLP India in his closing remarks said the IORA Member States are among the most vulnerable to the fallout of global climate change. He, therefore, urged the Member States to take a lead in the development of renewable energy technologies to usher in clean energy, as also shore up the per capita availability of energy in the developing world, that is far lesser than those in the developed world.

**Day 2: October 4, 2018****2<sup>nd</sup> IORA Renewable Energy Ministerial Meeting**

Welcome Address:	Mr R K Singh, Minister of New and Renewable Energy, Government of India
Opening Remarks:	Dr N Nokwe, Secretary General, IORA
Keynote Address:	Ms Thembisile Majola, Deputy Minister of Energy of South Africa, Ministry of Energy, South Africa & Chair, IORA

**Proceedings**

The Session opened with the Welcome Address by H.E. Mr R K Singh, Minister of New and Renewable Energy, Government of India, to IORA Energy Ministers. He observed that the Indian Ocean Region is a vast reservoir of renewables that should be fully leveraged. As stated by Hon'ble Minister, "Most of our Member States are well placed to harness solar, wind, hydro and bio energy that in turn will promote economic growth, job creation, trade and investments and contribute towards stability and poverty alleviation in the region." He highlighted the imperative for higher energy efficiency standards to be followed in the IORA countries. Mr Singh also advocated promotion of sustainable tourism in the Indian Ocean Region by leveraging renewable energy technologies.

H.E. Dr Nomvuyo N Nokwe, Secretary General of IORA, in her Opening Remarks highlighted the importance of renewable energy for the region and the efforts that have been made by IORA to promote it. She recalled that the first meeting on renewable energy was held in UAE in 2014 on the sidelines of the Abu Dhabi Sustainability Meet with the support of IRENA, and stated her appreciation to India for associating the present meeting with the ISA General Assembly and the REINVEST Meet and Expo. She stated that while the demand for renewable energy will continue to grow, "we can hold the hope that by year 2050 renewables will make up 2/3rd of the total energy mix, especially in developing economies".

H.E. Ms Thembisile Majola, Deputy Minister of Energy of South Africa, Ministry of Energy, South Africa & Chair, IORA, in her keynote address highlighted that while countries like South Africa are endowed with renewable resources, Member States need to rise to the challenge of reducing the dependency on conventional energy fuels. She also referred to the energy sector developments in the Southern African Development Community (SADC) region, Ms Majola said that "exploiting reserves like natural gas and methane reserves will create significant job opportunities, contribute millions of dollars to the regional GDP and help alleviate poverty."

H.E. Majola opened the floor for country statements from the IORA Ministers and Heads of Delegation present at the meeting. A copy of the same may be referred to in Annexure III (Transcripts are provided in instances where a copy of the statement was not available).

## Closing Session: Key Takeaways and IORA Delhi Declaration on Renewable Energy

Presentation of Key Takeaways of Experts Meeting:	Dr Fatima Alfoora Al Shamsi, Assistant Undersecretary for Electricity and Future Energy, Ministry of Energy & Industry UAE and Vice Chair, IORA
Presentation of IORA Delhi Declaration on Renewable Energy	Mr R K Singh, Minister of New and Renewable Energy, Government of India
Closing Remarks and Vote of Thanks:	Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India

## Proceedings

The Session opened with Dr Fatima Alfoora Al Shamsi, Assistant Undersecretary for Electricity and Future Energy, Ministry of Energy & Industry, UAE, presenting the Key Takeaways from the Second IORA Renewable Energy Experts Meeting held on October 3, 2018 in her capacity as the representative of IORA Vice Chair. The Takeaways (appended in Annexure I) were noted with acclaim by the Ministerial delegations.

Mr R K Singh, Minister of New and Renewable Energy, Government of India, presented the Delhi Declaration of the Second IORA Renewable Energy Ministerial Meeting, which was adopted by the IORA Ministers and Heads of Delegation (The Declaration is appended in Annexure II).

In his closing remarks, Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India, expressed hope that the IORA Member States shall deepen the cooperation to develop and establish renewable energy access to people at affordable rates. Mr Kumar proposed the Vote of Thanks.

## ANNEXURE I

### Key Takeaways of the Second IORA Renewable Energy Experts Meeting

#### Session One: Energy Needs for IORA

- The UN SDG Goal 7 to underpin the energy policy development of IORA Countries.
- Energy equity and resilience to be the focal points in delivering renewable energy.
- Better mechanisms of funding to be identified to accelerate the financial support to the renewable energy sector.
- Needs analysis to be country-specific to reflect the varied perspectives and requirements of IORA Member States.
- Development of sophisticated assessment systems to accurately gauge the time value of energy in place of the existing simple averaging methods.
- Firm steps to be taken to drive capacity building, education and knowledge transfer.
- IORA to explore the possibility of promoting regional grid connectivity.

#### Session Two: Renewable Energy Vistas

- IRENA to work with IORA by sharing its knowledge and experience based on its access to experts across the world. IRENA platform may be used to assess the potential of ocean energy.
- IORA platform to be used for knowledge sharing and developing appropriate technologies that meet the specific needs of Member States through collaborations in the national and international arena, particularly by encouraging private sector involvement including through public-private partnership (PPP) models.
- Member States that are more advanced in the renewable energy sector are encouraged to help others develop competitive frameworks in specified areas of need, including procurement of power projects.
- IORA Special Fund to be used to support renewable energy pilot projects and promote a common development agenda.
- Encourage sharing of experience in the integration of renewable energy into the power grid system.
- Enhanced involvement of communities and academia for capacity building, skill development, and development of energy efficiency strategies.
- Market policies to be developed to help the renewable energy sector meet competition from the established fossil fuel industries.
- Promote large scale use of solar pumpsets in the agriculture sector and implementation of solar parks.



### **Session Three: Challenges in Renewable Energy Implementation (G2B)**

- Adopt a long-term perspective for consistency in policy-making to enhance investor confidence and progressively reduce project costs.
- Provide targeted support contextual to the requirements of each renewable energy sub-sector.
- Leverage the IORA platform to collaborate with international organisations including financial institutions to explore avenues for green financing.
- Empower local communities through capacity building and knowledge transfer from the international to national level.
- Encourage R&D in the area of renewable energy including storage, mini grids, floating solars and advanced forecasting tools.
- Encourage IORA Member States to take all possible steps to achieve energy efficiency.
- Accelerate renewable energy development through detailed resource mapping, resource development roadmap, grid impact studies, and reinforcement of system operations for distribution of renewable energy on high priority.
- IORA to develop a database of renewable energy resources for the use of Member States.

### **Session Four: Possibilities and Opportunities for International Collaboration**

- IORA to define a plan for collaboration including expert meetings in specific fields as per requirements of Member States.
- IORA to establish a platform for B2B collaboration, enabling Member States to leverage each other's strengths.
- IORA to help facilitate collaboration among Member States to implement strategic renewable energy projects and promote bilateral cooperation.
- IORA to assist in facilitating project finance to implement renewable energy projects that will help alleviate the problem of power deficit, especially in rural areas.
- IORA to promote technology sharing among Member States for the development of green corridors and energy storage.
- IORA Member States to promote digitisation in energy markets.
- IORA Member States to promote off-grid products that have direct impact on the last mile user including but not limited to solar water heaters, solar home and street lighting systems and solar air drying-cum-heating systems.
- Training of manpower to serve the aims of information exchange, knowledge sharing and real-time benchmarking of adoption of rapidly changing technologies between IORA Member States

## ANNEXURE II



# DELHI DECLARATION ON RENEWABLE ENERGY IN THE INDIAN OCEAN REGION

Delhi NCR, India  
2-4 October 2018

**We**, the Ministers and Heads of Delegations from the Member States of the Indian Ocean Rim Association (hereinafter referred to as "IORA"), **Australia, the People's Republic of Bangladesh, the Union of Comoros, the Republic of India, the Republic of Indonesia, the Islamic Republic of Iran, the Republic of Kenya, the Republic of Madagascar, Malaysia, the Republic of Mauritius, the Republic of Mozambique, the Sultanate of Oman, the Republic of Seychelles, the Republic of Singapore, the Federal Republic of Somalia, the Republic of South Africa, the Democratic Socialist Republic of Sri Lanka, the United Republic of Tanzania, the Kingdom of Thailand, the United Arab Emirates and the Republic of Yemen** attended the Second IORA Renewable Energy Ministerial Meeting in Delhi NCR, India, from 2 to 4 October 2018

### RECALLING

- the 1992 United Nations Convention on Climate Change (UNFCCC), the Paris Agreement, and other international conventions and instruments related to the activities in the energy sector;
- Goal 7 of the Sustainable Development Goals (SDGs), to ensure access to affordable, reliable, sustainable and modern energy for all;
- the Recommendations and the Declaration of the First Indian Ocean Renewable Energy Ministerial Forum (which was the First IORA Renewable Energy Ministerial Meeting) on 21 January 2014;
- the Durban Communiqué of the 17th IORA Council of Ministers' Meeting on 18 October 2017;
- the Recommendations of the Abu Dhabi Consensus of the Fourth IORA Indian Ocean Dialogue on 9-10 October 2017

**RECALLING ALSO** the intention to implement the IORA Action Plan of 2017-2021 as adopted by the IORA Council of Ministers' Meeting in Jakarta, Indonesia, on 6 March 2017 in the margins of the IORA Leaders' Summit to commemorate the 20th Anniversary of IORA;

**RECOGNISING** the essential and constantly increasing role of renewable sources of energy for human well-being and social and economic development with multiple benefits of sustainable development, increased resource efficiency, eradication of poverty and environmental security;

**NOTING** the increasing demand for energy in the Indian Ocean region, and the need to harness energy resources in a sustainable way, including through the use of renewable energy and energy efficiency, to achieve both economic objectives and to address the damage to human health and the natural environment and the adverse impacts of global climate change and associated natural disasters;

**ACKNOWLEDGING** the growing prominence of renewable energy in the region's energy portfolio;

**HIGHLIGHTING** the need for the IORA Member States to harness the potential of Renewable Energy to promote economic growth, job creation, trade and investment, and contribute to food security, poverty alleviation, and women's economic empowerment;

**DESIROUS** of harnessing the potential and promoting increased adoption of renewable energy in the Indian Ocean region so as to support the needs of the present without comprising the opportunities of future generations;

**REITERATING** the need for IORA Member States to leverage cooperative initiatives to increase the share of renewable energy in their total energy mix;

**ACKNOWLEDGING** the establishment of the IORA Working Group on Blue Economy which would also enhance cooperation to promote renewable energy;

**EMPHASIZING** the need to foster supportive policy, legal, and institutional frameworks and financing opportunities; as well as promote transfer of technology, capacity building and skills development through research, training, sharing of information, expertise and best practices; the importance of public-private partnerships, entrepreneurship, innovation and Small and Medium scale Enterprises (SMEs) in the development of, and cooperation in, the renewable energy sector; the importance of collaborating and cooperating with regional and international organizations for the promotion of the renewable energy sector in the Indian Ocean region;

**WELCOMING** the participation and contributions made, at IORA meetings by experts, local and regional authorities, international institutions, the private sector, international industry associations, NGOs, civil society and academia and emphasize the importance of their continued role in increasing the development and use of renewable energy.

We, the Renewable Energy Ministers/Head of Delegations of the Member States of the Indian Ocean Rim Association

**HEREBY DECLARE:**

That the Member States of IORA will be guided by the following principles when developing and applying renewable energy approaches to the promotion of sustainable development and enhancement of socio-economic benefits, in the Indian Ocean Region:

1. **Collaboration among IORA Member States** in meeting the growing demand for renewable energy in the Indian Ocean littorals, with a focus on the four areas of cooperation of Resource Assessment; Cost Analysis and Reduction; Capacity Building; and Sustainable Tourism, as identified during the First Indian Ocean Renewable Energy Ministerial Forum (which was the First IORA Renewable Energy Ministerial Meeting in 2014).
2. **Development of a common renewable energy agenda** for the Indian Ocean region, with a view:
  - a. to provide resources for a more effective approach to promote adoption of and provide access to renewable energy across the region;
  - b. to involve stakeholders across the public and private sectors and the civil society, at national and international levels; and
  - c. to actively work towards overcoming policy, institutional, financial and legal constraints faced by this sector.
3. **Promote regional capacity building through:**
  - a. sharing of knowledge and best practices to allow for an efficient adoption of renewable energy among IORA Member States;
  - b. skill building through the promotion of educational opportunities in the renewable energy sector and creation of specific training programmes particularly tailored to the needs and aspirations of the IORA Member States' renewable energy sectors; and
  - c. promotion of innovation and entrepreneurship in renewable energy research and development in the region.
4. **Promotion of technology development and transfer**, with the sharing of new innovations in the renewable energy spaces of wind, solar, biomass, hydro and geothermal energy, between member countries with the collaboration and engagement of relevant IORA specialized agencies, such as the IORA Regional Centre for Science and Technology Transfer (RCSTT), and other IORA working groups and expert bodies, as appropriate; with similar efforts to be made across private and public sectors within and among IORA Member States.
5. **Strengthening of Public Private Partnerships (PPP)** to further renewable energy development in the region and reduce costs of harnessing renewable energy resources through supportive policies and improved economies of scale thus transforming economies and improving living standards across the region.

6. **Promotion of sustainable tourism** through the promotion and application of renewable energy technologies to the Tourism Industry, which is of especial significance to the IORA Small Island Developing States (SIDS), for whom it forms an essential component of the economy.
7. **Collaboration among IORA Member States and the Member nations of the International Solar Alliance (ISA)** to exchange knowledge and share views and potential interests in the renewable energy sector; paved by the non-legally binding Memorandum of Understanding (MoU) signed between IORA and ISA on 3 October 2018 with a focus on joint capacity building programmes, research & development activities in solar energy and exchange of best practices.
8. **Collaboration between IORA Member States and the International Renewable Energy Agency (IRENA)** to actively undertake the expansion of the Global Renewable Energy Atlas, the world's largest-ever joint renewable resource data project, coordinated by the International Renewable Energy Agency (IRENA), thereby creating the Indian Ocean region's first and most comprehensive map and database which can then be used to tap the sizable renewable energy potential of the region; and to collaborate on opportunities available under the International Renewable Energy Learning Platform (IRELP).

**ADOPTED** by the Ministers and representatives of the Member States of the Indian Ocean Rim Association (IORA) on 4 October 2018 in Delhi NCR, India

## ANNEXURE III

### Country Statements – as Provided & Speech Transcripts

#### BANGLADESH

**Statement presented by H.E. Mr Md Shahriar Alam, MP, Hon'ble State  
Minister for Foreign Affairs of Bangladesh**

**His Excellency Raj Kumar Singh, Hon'ble State Minister for Power and New and  
Renewable Energy, Government of India**

**Her Excellency Dr Nomvuyo Nokwe, Secretary General of IORA,**

**Secretary Mr Anand Kumar, Ministry of New & Renewable Energy, Govt of India**

**Excellencies and Dear colleagues,**

Good Morning.

I deem it a great honour and opportunity to be here in the beautiful city of New Delhi to attend the 2nd IORA Renewable Energy Ministerial Meeting. I thank the friendly Government of India for their sincere hospitality and IORA Secretariat for the excellent arrangements.

During the last two decades of its existence, there is much that the IORA can be proud of. It has evolved into a responsible forum that comprehensively addresses regional maritime security issues pertinent to the Indian region. Through sustained dialogue and cooperation, it has gathered strength and is now playing as a key driving force to ensure development, peace and stability in the region. It is heartening to see that IORA is taking resolute steps in the right direction, as it has successfully organised its first ever summit in March 2017 on the occasion of its 20<sup>th</sup> anniversary. Apart from a multitude of initiatives ranging from workshops to training programmes to conferences, the IORA today has four ministerial levels of specialised engagement - Trade, Blue Economy, Renewable Energy and Tourism.

Excellencies,

Energy is an important source for economic opportunities. However, during the past century, energy has mainly been harnessed through the exploitation of fossil fuels and natural gas. As a result, the extensive exploitation of fossil fuels is now causing serious climatic damage such as air pollution as well as land and ocean pollution through the emission of carbon dioxide and other volatile pollutants in our natural environment. With the rising attention to Climate Change, it is now high time for the global population to shift from using fossil fuels to renewable energy resources for a sustainable and secure future of humanity.

According to the Inter-Governmental Panel on Climate Change (IPCC), around 80% of the world's energy could be generated by renewable energy resources. The Indian Ocean is the world's third largest ocean and is host to approximately one-third of the world's population connecting Africa, the Middle-East, Asia and Australia. The Indian Ocean Rim region, representing approximately 15% of global energy demand, is rapidly emerging as a cost competitive market for renewable energy.

Dear colleagues,

According to the International Renewable Energy Agency (IRENA), renewable energy data in the Indian Ocean region is very limited. In this regard, the Indian Ocean Rim Association (IORA) in collaboration with IRENA organised the "First Meeting of the Renewable Energy Ministerial Forum of the IORA" on 21 January 2014 in the United Arab Emirates where the Ministers adopted Abu Dhabi Declaration.

This First Ministerial meeting addressed potential future areas of cooperation on renewable energy between IORA and IRENA. This meeting also encouraged the Member States to increase the use of Renewable Energy as an alternative to fossil fuels and natural gas within the Indian Ocean region through the acquisition of knowledge and expertise on the exploration, development and applications of renewable energy.

Excellencies,

Bangladesh is endowed with plentiful supply of renewable sources of energy. Bangladesh Government under the dynamic leadership of Prime Minister Sheikh Hasina is committed to securing sustainable development of its energy sector.

Out of the various renewable sources, solar and biomass and to a limited extent, wind and hydropower are being effectively used.

Bangladesh receives an average daily solar radiation of 4-6.5 kilowatt hours per square metre ( $\text{kWh/m}^2$ ). Solar photovoltaic (PV) is gaining ground for providing electricity to households and small business enterprises in remote rural areas. At present, total production from solar energy is around 540 MW.

The next effective source of renewable energy is biomass. Under this category improved stoves, biogas plant and bio-mass briquetting are noteworthy. The Institute of Fuel Research and Development (IFRD) has developed a number of improved stoves. These stoves save 50-70% fuel as compared to the traditional ones. The potential of biogas technology is immense. In Bangladesh, there is a cattle population of more than 25 million and poultry population of 150 million. This can produce billions cubic-metre of biogas. Our Government has taken several initiatives to install the biogas plants in the rural areas.

Because the country is flat, hydropower is not abundant. At present, 230 MW is harnessed from the Kaptai Dam. Besides, in the southeastern hilly regions some micro-hydro sites have been identified.

Wind energy potential is moderately encouraging in the coastal areas of Bangladesh. Few wind turbines have been installed as demonstration units.



**Ladies and Gentlemen,**

I believe, at our Meeting and the preceding expert group meeting have been able to attain a focused direction towards formulation of a dynamic road map of cooperation on renewable energy, in line with the two historic documents namely IORA Concord and IORA Plan of Action. In this backdrop, in line with IORA Charter and from our own experience, I call upon the fellow members and dialogue partners:

To focus on the possible areas of co-operation which provide maximum opportunities to develop shared interests and reap mutual benefits;

To formulate and implement projects for co-operation relating to renewable energy with special and preferential arrangements for developing economies of the region which have dearth of energy;

To adopt means and ways towards development of infrastructure and human resources to flourish the renewable energy sectors.

Finally, as IORA is marching forward to celebrate its 21st anniversary, we do believe that the two Outcome Documents of the Ministerial Meeting, namely, the Memorandum of Understanding (MoU) between IORA and the International Solar Alliance (ISA) and the Delhi Declaration on Renewable Energy will be able to address the challenges to enhance the existing collaboration among IORA Member States and escalate the regional capacity building by promoting technology transfer, innovation and entrepreneurship.

It is us, ladies and gentlemen, who will need to ensure that our people keep achieving torrential progress that they deserve and show the world that Indian Ocean region can be the beacon of hope at the time of greater needs of mankind.

I thank you all.

## INDONESIA



### Ministry of Energy and Mineral Resources

**Country Statement presented by H.E. Mr IGNASIUS JONAN, Minister of Energy and Mineral Resources of the Republic of Indonesia represented by DADAN KUSDIANA, Senior Advisor to the Minister of Energy and Mineral Resources the Republic of Indonesia on Natural Resources Economic**

**Excellency** Ambassador Dr Nomvuyo N. Nokwe, Secretary General of Indian Ocean Rim Association (IORA)

Your Excellencies Ministers, colleagues from the IORA member states and IORA Dialogue Partners;

Distinguished Delegates, Ladies and gentlemen;

Good Morning,

#### *I. Opening*

- 1 First of all, I am pleased and honored for being here in "The Second Renewable Energy Ministerial Forum of the IORA" which is perceived as a strategic forum to boost the cooperation among Indian Ocean States, in particular for the development of new and renewable energy in the region which leads to sustainable economic growth and prosperity in the IORA member states;
- 2 In this excellent forum, I am speaking on behalf of the Indonesian Minister of Energy and Mineral Resources, Mr Ignasius Jonan. I would like to convey his apology for regretfully cannot attend this forum due to unavoidable agenda. As he has assigned me to participate in this forum, let me send his warmest regards and wish you all have a successful meeting;
- 3 I would also like to extend our gratitude and appreciation to the Indian Government as the host of this ministerial meeting, and to the South African Government who holds the current chairmanship of IORA;

## Distinguished Delegates and Participants

### Ladies and Gentlemen

#### *II. Indonesia's Commitment in IORA*

- 4 As the Head of Indonesian Delegates, I would like to remark the Indonesian chairmanship in this excellent forum in 2015-2017. During the leadership tenure, the Government of Indonesia has hosted the first ever IORA summit, while the cooperation activities among IORA member states continue to flourish;
- 5 By the spirit of IORA cooperation, I would like to reaffirm our commitment as IORA member in the IORA Declaration on the Blue Economy in the Indian Ocean Region on 8 to 10 May 2017 in Jakarta, which includes renewables development, promotion of public-private partnerships and involvement of business communities in infrastructure development, capacity building and transfer of technology. Renewable energy development is no longer viewed as an alternative but it has now considered as a need which has to be mainstreamed. Various obstacles and issues in developing renewables have been trying to be tackled by players in all sectors;

## Distinguished Guests and Participants

### Ladies and Gentlemen

#### *III. Indonesia's Efforts in Developing RE*

- 6 As an archipelagic country with 17,000 islands as well as numerous remote areas and islands, Indonesia bears enormous challenges to provide equitable energy access throughout our country. However, we have successfully increased our electrification ratio from 84.4% in 2014 to 95.35% in 2017, and in the first semester of 2018, it has achieved for 97.13%. Thanks to the utilization of the renewables resources in actualizing our vision;
- 7 While Government of Indonesia (GoI)'s has committed within our Intended Nationally-Determined Contributions (INDC) in Paris Agreement, we have ambitious targets with considerable efforts in developing renewable energy, as a major part of achieving our national target in reducing Greenhouse Gases (GHG) Emissions for 29% with business-as-usual (BAU) scenario or 41% with international partnership by 2030. The targets are based the National Energy Policy, set forth in Government Regulation No.79/2014, which has targeted New and Renewable Energy (NRE) will contribute up to 23% by 2025 and will scale up to 31% in 2050. Currently, renewables share 8.43% in National Energy Mix and 12.25% in National Electricity Mix;
- 8 Developing renewables has become massive efforts, while Indonesia has recognized our renewable potentials such as hydro power, geothermal, solar, wind, bioenergy, and ocean energy; and incorporate them in our National Energy Planning. In utilizing these resources, we have been doing our optimum efforts in simplifying investment and business process, including in clean and renewable energy. In 2017, we have terminated 96 regulations and 90 licenses in oil and gas, coal, power and renewables;

## **Distinguished Guests and Participants Ladies and Gentlemen**

### *IV. Center of Excellence*

- 9 Having been driven by free-and-active foreign policy, Indonesia is open to cooperate with all states based on mutual benefits and the vision on enhancing prosperity and maintaining peace. In relation to renewable energy development, Indonesia has some sectors which can be promoted for becoming Centre of Excellence which includes educational training and capacity building in geothermal power. While Indonesia's location in the ring of fire has endowed us for 28 GW potentials. Indonesia has also become one of top geothermal power producers.

### *V. Closing*

- 10 As we have noted that road to developing more renewables and achieving renewable targets are so mountainous, especially for developing countries, as the IORA states, we have to consider the importance of affordability and equitability in renewable energy development, which is based on best practices, experiences and national conditions;
- 11 In sum, we are looking forward to working with fellows of IORA nations. Considering our same visions, we are keen to ensure the development of renewable energy resources through promoting best practices and mainstreaming renewables as the leading energy - not only for alternatives any longer. We do hope that cooperation between IORA member states on renewable energy could enhance sustainable economic growth for all member states and create a strong foundation for regional economic cooperation.
- 12 Distinguished delegates, Ladies and gentlemen, I would also thank for your thoughts and sympathies for the current devastating tsunami disaster in Palu, Indonesia. We currently put all our best efforts for the immediate post-disaster recovery.

Thank you for your kind attention.

Dadan Kusdiana

*Senior Advisor to the Minister of Energy and Mineral Resources the Republic of Indonesia on  
Natural Resources Economic*

## IRAN

### **Statement Presented by H. E. Dr Mohammad Sadeghzadeh, Deputy Minister of Energy and Head of the Iran Renewable Energy Organization, Minister of Power and Energy, Islamic Republic of Iran**

**Mr President,  
Madam Chair,  
Excellencies,  
Distinguished Participants,**

**Ladies and Gentlemen,**

I have the honor to address this august meeting today and would like to join other speakers in thanking the government of India for organizing the 2<sup>nd</sup> IORA meeting and the warm and excellent hospitality extended to us.

**Mr President;**

I am pleased to announce that the Government of the Islamic Republic of Iran with determination to sustainable development has taken important measures in the fields of energy efficiency and renewable and clean energy that I would like to point out to some of them in the field of renewable and clean energies in Iran:

- Active Involvement of private sector in the field of renewable technologies and projects
- The conclusion of guaranteed renewable power purchase agreement (PPA) for both large- and small-scale power plants
- Approval of a system benefits charge (SBC) mechanism for implementation of the PPA contracts from renewable and clean sources
- Extension of the PPA contracts duration to 20 years
- Resource assessment of various renewable energy sources
- Preparing a renewable atlas for Iran
- Supplying sustainable and affordable energy for deprived and remote areas
- Paving the way for export of non-governmental renewable electricity to other countries
- The Feed-in-Tariffs to be added up to a maximum of 30% for the localized technologies.

Due to the approval of the low carbon economy program, the construction of a capacity of 26,000MW of new power plants has been developed which the share of renewable power plants in the country's energy mix equal to 5000 MW. The current capacity of the power plants in Iran is more than 80,000 MW and in this regard, Iran is ranked first in the Middle East and 14<sup>th</sup> in the world.

Currently, a capacity of more than 11,000 MW of large hydropower and almost 700MW wind, PV, biomass, small hydro and waste heat recovery (WHR) power plants are in operation. In this regards, we have adopted a new approach by announcing an interesting Feed-in-Tariffs (FiT) in July 2015 for various renewable energy sources by guaranteed price with the duration of 20 years.

The result of encouraging policies for the development of renewable and clean energies in Iran has been welcomed by local and foreign companies to invest in this field. During this time, the total installed capacities includes 85 units of megawatt scale power plants and 2000 units of rooftops. Due to the concluded PPA contracts and the follow-ups, it is predicted that by July 2019, the total capacity of renewables will reach 1100 MW.

**Mr Chairman,**

Finally, please allow me to say some concluding words. We believe that to ensure a key role of renewable energies in sustainable development, there are some prerequisites to be properly met. It is clear that through IORA cooperation and collaboration between the more advanced and less advanced countries, we may achieve our objectives of advancing the share of renewable and clean energies in global energy supply. A coherent institutional framework to support the promotion and deployment of renewable energy production and application should be established particularly in developing countries. Promoting research and development aimed at reducing costs and enabling renewable and clean energies to become competitive in the energy market is one of the main targets.

It is worth mentioning that due to the required regulations, the opportunities to invest in the field of renewable and clean energies are available in Iran. In this regard, I invite all companies and entities active in the field of renewable and clean energies to cooperate and enhance mutual interactions for more concrete results.

Thank you very much for your kind attention.

## MAURITIUS

**Statement presented by H.E. Mr Ivan Leslie Colledavelloo, Deputy Prime Minister and Minister of Energy and Public Utilities, Ministry of Energy and Public Utilities of Mauritius**

**H.E. Shri Raj Kumar Singh, Minister of State for Power and New and Renewable Energy, Government of India,**

**Honourable Thembisile Majola, Deputy Minister of Energy of South Africa**

**Dr Nokwe, Secretary General IORA**

**Honourable Ministers,**

Allow me to thank Honourable Shri Raj Kumar Singh, Minister of State for Power and New and Renewable Energy of India for the cordial hospitality extended to our delegation and the logistics arrangements for this meeting.

As we gather today in New Delhi, we are reminded of one of the most admired men in world history, Nelson Mandela. It was during what he described as an "*emotional visit*" to India in 1995, that the concept of an Indian Ocean Rim association began taking shape.

He himself drew much inspiration from Mahatma Gandhi whose freedom campaign started in South Africa.

I have no doubt that the ideals of these two iconic leaders would guide us in our works and the adoption of the IORA Delhi Declaration.

This immediately leads me to straightaway thank the overwhelming majority of IORA members who supported us before the United Nations and before the International Court of Justice in our legal struggle to achieve the decolonisation process of Mauritius and to recognise our sovereignty over the Chagos Archipelago which were illegally excised from our territory prior to our Independence.

Yesterday IORA signed a Memorandum of Understanding with the International Solar Alliance. A matter of great moment. Both organisations have pledged to work together for the development of renewable energy.

I represent one of the three small island states of IORA



We are suffering the brunt of climate change with rising seas, violent cyclones, floods and changing rainfall patterns. Recovering from such disasters is a human challenge. And of course, a financial disaster.

According to the World Risk Report 2017, Mauritius is classified as the 13<sup>th</sup> country with the highest disaster risk and 7<sup>th</sup> most exposed to natural hazards.

My second point is that we need urgently to accelerate progress towards cleaner energy.

The IORA concept paper mentions that 15% of the global demand for electricity comes from IORA region and most of the member countries use fossil fuels.

In our case, 52.7% of our electricity is produced from coal and 26.8% from fuel oil. Importation of fuel oil and coal represents 10% of monetary value of total imports.

Mauritius has pledged at COP 21 to reduce emissions by 30% by 2030. We need investment, technology and research and innovation capacity.

The Green Climate Fund has provided to Mauritius a grant of USD 28 million for strengthening of the grid and the regulatory framework, and extending solar energy to the remote island of Agalega.

By 2030, we would require a total investment of USD 5.5 billion, USD 1.5 billion for mitigation measures and USD 4 billion for adaptation measures.

We share the vision of Prime Minister of India Shri Narendra Modi that solar rich countries, which he refers to as "surya putra" that is sons of the sun – should focus on use the solar resource optimally. Solar energy is the future.

We have encouraged investment in solar energy and next year, there will be 11 Solar farms in operation of a total capacity of 70 MW.

Over a period of five years, 10,000 families from poorer communities will benefit from free rooftop solar panels and therefore free electricity for 20 years. It is an example of how renewable energy can be combined with social objectives and alleviate poverty.

The IORA Ministers meeting in 2014 identified the blue economy as one of its focus areas. The extent of ocean covered by member states of IORA, including the 2 million square kilometres of Exclusive Economic Zone of Mauritius, holds infinite opportunities.

Developing energy from this resource requires greater attention and can be further pursued if a framework is developed for cooperation in research, technology development and innovation between IORA member states.

I listened with attention to the intervention of my colleague, the Deputy Minister of Energy of South Africa on the gender issues relating to renewable energy.

Mauritius hosted an IORA Ministerial Conference on 28-29 August, 2018 on the theme "*Women's Economic Empowerment: A Pre- Requisite for Sustainable Development*". The Conference

culminated in the adoption of a *Ministerial Declaration on Women's Economic Empowerment and a Work Plan*.

These two documents highlight the pertinence of mainstreaming gender in all IORA's intervention areas. It is, therefore, relevant for us to reflect on how we can incorporate gender in our energy policies and programmes.

Chairperson, to conclude, we are pleased that IORA is focussing on renewable energy and has partnered with the International Solar Alliance. The declaration which we will adopt today, will no doubt establish a long-term cooperation framework in the field of renewable energy.

Thank you for your attention.

## MOZAMBIQUE

### **Statement presented by Ms Marcelina Andrea Mataveia, National Director for Energy, Ministry of Mineral Resources & Energy, Mozambique**

**Excellencies, Ministers and Deputy Ministers, all**

**protocol observed,**

**Ladies and Gentlemen,**

Warm greetings from H.E. Mr Ernesto Max Tonela, Minister of Mineral Resources and Energy from Mozambique who due to internal agenda could not be here with us.

We congratulate the Government of India for hosting the 2<sup>nd</sup> IORA Renewable Energy Ministerial and Experts Meeting, and the IORA Secretariat for making possible this very important meeting.

Mozambique highly recognises the role of IORA among the member states by its contribution of finding solutions for their challenge based on its information exchange platform.

We believe that the New Delhi Declaration will be a strong tool to help all of us focus on the challenges that we are facing as Indian Ocean Group, and the proposed ways of their solutions.

To conclude, we want, as Mozambique, to reaffirm our commitment to IORA objectives.

I thank you!

## SEYCHELLES

### Statement presented by H.E. Mr Wallace Cosgrov, Minister for Environment, Energy and Climate Change of the Republic of Seychelles

Minister Shri R K Singh of New Energy of India

IORA Chair - Minister for Energy of South Africa  
IORA Secretary General, Dr N Nokwe

Ministers, Excellencies, ladies and gentlemen,

A very Good Morning to you all

We thank you Mr Chair, for having convened this meeting in Delhi, as India's is one of the three countries in the world leading the renewable energy revolution and is running one of the largest and most ambitious renewable capacity expansion programs in the world.

We also thank the government and people of India for their warm hospitality and the strategic commitment to this Indian Ocean space-a space which continues to gain geo-strategic importance, and economic relevance, as emphasised by the engagement of the region's business community.

#### Mr Chair

As we start this meeting, allow me to re-state our solidarity and sympathy with the government and people of Indonesia in relation to the powerful earthquake of 7.5 magnitude which rocked the Indonesian island of Sulawesi on Friday 28th September, triggering a 5-feet-tall tsunami which swept away houses in the cities of Palu and Donggala. This tragic incident, and the coordinated efforts of all our states to assist, have illustrated the importance of renewed commitments towards defining the Indian Ocean as a zone of partnership, peace, solidarity and development.

#### Mr Chair,

The fact that we have placed the Renewable Energy at the heart of the agenda of this meeting, recognises the importance that we all place on **energy as a catalyst for our development.**

A coordinated and inclusive approach towards better harnessing our territories' wealth and energy resources will yield shared benefits for all. To fully implement the Renewable Energy agenda, Seychelles has highlighted the importance of a deeper commitment to Renewable Energy research, better marine spatial planning and more effective and judicious management of Renewable Energy within our territory, and we have also empowered and facilitated the contribution of the private sector to these efforts.

We firmly believe that IORA is the ideal framework through which to facilitate the sharing of best practices and research relating to Renewable Energy management and governance in the Indian Ocean.

We believe that we can further strengthen our understanding and implementation of Renewable Energy by also learning from the many innovations being undertaken in our region and we hope to build such partnerships with the support of IORA.

**Mr Chair,**

Seychelles as a SIDS is accelerating its efforts to scale up Renewable Energy in the country and will take this occasion to connect and consult with all the members of IORA for suitable investment opportunities in Renewable Energy. We will also discuss future energy sources for the country to facilitate collaboration and cooperation with key stakeholders in the region.

That partnership had strengthened the role renewable energy would play in balancing the Indian Ocean region's energy mix and addressing its long-term energy security.

Today, Seychelles can report that renewable energy is one of the most cost-effective options for new power generation. Renewables provide an unprecedented opportunity to address our growing energy demand sustainably and to improve access to energy and security of supply at the same time. As we all know the renewable energy market is growing and commercially attractive at both large and small scales, particularly for a SIDS like Seychelles that burn petroleum products for electricity, so therefore, renewable energy offers cross-cutting benefits for member countries of the Indian Ocean region. Also the role of Independent Power Producer (IPP) in the renewable energy sector is quite encouraging through the launching of a tender for the right to develop, finance, own and operate a 5 MW floating grid-connected solar PV plant in one of the Lagoons in Seychelles. The tender and project will represent a path-breaking opportunity for the eventual successful bidder as it will be the first utility-scale floating solar PV project in all of Africa and it will be one of the first salt-water floating solar PV plants in the world.

**Mr Chair,**

Allow me to reiterate our profound conviction that the Indian Ocean Rim Association is the ideal vehicle to bring about the Renewable Energy transformation that we are all committed to. If the last 100 years was very much about how we could maximise the use of our land, this century is very much about making the most of our ocean.

The Indian Ocean is at the crest of this wave, and with our leadership and commitment we can bring about this transformative change that we all believe in.

**Finally, Mr Chair,**

I am pleased to inform all members that Seychelles will fully support the Delhi Declaration of the Second IORA Renewable Energy Ministerial Meeting. And Seychelles is committed to work closely with the secretariat, member states, dialogue partners and stakeholders as per the IORA charter with the aim to accelerate the deployment of renewable energy throughout the Indian Ocean rim, thus achieving sustainable economic growth and development within the region.

I thank you.

## TANZANIA

### Statement presented by H.E. Mr Baraka H Luvanda, High Commissioner of Tanzania to India

**Honourable Shri. Raj Kumar Singh, Minister of State (IC) for Power and New and Renewable Energy,**

**Honourable Ministers from IORA member states,**

**The Secretary General of IORA,**

**Excellencies Ambassadors and High Commissioner, Invited**

**Guests,**

**The Media,**

**Ladies and Gentlemen;**

**Namaskaram! Jambo!**

On behalf of the Tanzania delegation and on my own behalf, I would like to express our profound gratitude for Government of India for hosting this Special 2nd IORA Ministerial Meeting.

Let me also thank our host for the hospitality extended to my delegation and for the warm reception.

**Honourable Ministers,**

I know you were expecting your Colleague, the Minister of Energy, Honourable Dr Medard Kalemani who is unable to join you this time and has sent his sincere apologies.

I kindly ask you to indulge me the honour of representing him, and be "his master's voice. I can assure you that even though I am a substitute, I will try to be absolutely faithful to his instructions as to what I should speak to you.

**Madam Chairperson,**

Tanzania's participation to this august assembly is in compliance with the IORA Charter as one of the 21 IORA Member States. We are glad and hopeful that our collaboration and cooperation with our fellow member states will be further strengthened as we continue to embrace the principles and purpose of our association.

And for us, this cooperation is a vehicle through which we can achieve our Sustainable Development Goals (SDGs) and other priority agenda in upholding the principles of the Association in the IORA 8 focus areas which are anchored by energy availability.

### **Ladies and Gentlemen;**

As member states, we have the responsibility of championing the development of renewable energy in our respective countries. Our 7 Dialogue Partners are privileged to have advanced in Renewable Energy development and this is an opportunity for us to learn from them.

Indeed, their valuable assistance in the field of technology, environmental issues, the promotion of trade and investment, technical assistance and assistance to our Special Fund have made a significant impact to our Association.

It is a matter of pride that the Indian Ocean provides a wide range of renewable resources from Tide waves, off and on shores projects which could harness almost all renewable energy technologies.

### **Friends,**

Tanzania just like any other members of IORA is blessed with abundance of renewable and other energy resources, including natural gas, biomass, hydro, solar, wind, geothermal, coal and uranium.

However, it is unfortunate that our current installed capacity in the main grid is just 1,319 MW of which 567 MW (41.5%) is Hydro; 670.94 MW Natural Gas (55.8%); Fuel Oil 70.4 MW (2%) and Biomass 10.5 MW (0.79%). The off-grid stations provide 84.13 MW mainly from isolated diesel based plants.

### **Ladies and Gentlemen;**

I am pleased to inform this august assembly that our ambitious plans are underway to develop Renewable energy in a big way. The Solar energy resources in the Country are quite promising. With Solar Home Systems (SHS), most of the rural areas which are not served by the grid are currently served by solar energy.

It is estimated that electricity equivalent to 16MW is available through the SHS technology. Small scale solar mini grids are quite prominent with estimated total capacity not more than 5 MW.

### **Ladies and Gentlemen; Dear Friends,**

Regarding to the utility scale projects, nothing has been fully developed. However, the Government in collaboration with the National Utility Company (TANESCO), has mapped Solar potential in different parts of the Country.

The Competitive bidding framework for procuring of Solar and Wind projects have been prepared and first round of tenders have been advertised both within and outside Tanzania, including in India for procuring 200 MW and 150MW of wind and solar projects respectively from different locations in the period of 2018-2021. The capacity will be increased at later stage based on power infrastructure expansion.



### **Ladies and Gentlemen;**

Tanzania has a potential of 4.7 GW of renewable hydro resources. However, only 12% of this has been developed to date. Out of this, 0.5 % is from Mini-hydro operated by Private developers.

The Government through the Ministry of Energy is developing the Rufiji Hydro Power which is expected to generate 2,100 MW. Other hydro projects in pipeline include the Ruhudji (358MW), Rumakali (222MW) and Songwe (340 MW) which are sharing with Malawi.

### **Friends;**

Before I conclude it would not be redundant if I touched on the challenges that we face in our efforts to develop and implement renewable energy projects in Tanzania. Of course, the financing, the technical and limited knowledge are the common ones in most of Developing Countries.

But it has been proven that experience sharing with our colleagues in the IORA is the right approach for us. We hope, through this Assembly, our dear partners will take time to firm up strategic actions which will be of great contribution for rapid acceleration of renewable energy in our Countries.

### **Finally, Ladies and Gentlemen;**

As a country, and member of this strong Association, we are determined and committed to continue working with all of you and we believe we can count on your usual cooperation for the fulfilment of our IORA objectives not only in the area of renewable and other forms of energy but also in other spheres of development.

I thank you for your kind attention!

## EGYPT

### **Statement presented by H.E. Dr Mohamed Mousa Omran, Principal Secretary of Ministry of Electricity and Renewable Energy, Egypt**

**H.E. Minister of State for Power and New & Renewable Energy of India,**

**Secretary General of IORA,**

**Deputy Minister of Energy of South Africa, Chair of IORA,**

**Honourable Ministers**

**Ladies and gentlemen.**

First of all, I would like to thank the Government of India for the warm hospitality extended to us since our arrival to India.

I would like also to seize this opportunity to congratulate the government of India for hosting the first assembly of ISA, and we are very much looking forward to work with all ISA member countries for the benefits of our people.

**Honourable Ministers**

**Ladies and gentlemen**

The world is witnessing a new era in energy transition which will require changing in the form of production and consumption of electricity, especially after the 2015 United Nations Climate Change Conference in Paris, COP 21, During this conference, H.E President Abdel Fattah El Sisi launched the African Renewable Energy initiative (AREI) to accelerate and scale up the harnessing of the continent's huge renewable energy potential. The Initiative is set to achieve 10 GW of new and additional renewable energy generation capacity by 2020, and mobilize the African potential to generate 300 GW by 2030.

**Excellencies,**

**Ladies and Gentlemen**

Egypt is located at middle point of the three continents Africa, Asia and Europe. Also, Egypt is a transcontinental country because of its location in the northeast of Africa and it also has an Asian extension.

Grid interconnections in Africa will help achieve the operation of solar and wind power bases in North Africa jointly with the hydropower bases in Central Africa and the solar energy bases in Southern Africa to meet rising power demand in Africa.

Regional electrical interconnection could play a significant role in strengthening power security over the medium and long-term. So, Egypt is participating effectively in all regional Electrical interconnection projects as following:

- Egypt has a significant role for grid interconnection of Arab Mashreq with North African countries. These include efforts to strengthening the existing interconnections with both Jordan and Libya. The Jordan project is being studied for increasing the capacity to 2000 -3000 MW instead of 450 MW
- Additionally, Egypt and Saudi Arabia in the way to finalize their electrical interconnection through DC lines of 3000 MW to be in operation in 2022.
- A Memorandum of Understanding was signed with both Greece and Cyprus to implement a direct interconnection project with Europe as a step towards strengthening the electrical interconnection between North and South-Mediterranean. The interconnection routes are being located to help absorb the huge capacities of renewable energy that will be generated in the South-Mediterranean.
- In addition to what was mentioned, we have come a long way in the electrical interconnection with Sudan, which is scheduled to complete the first phase of this project by the end of this year.

After finishing these projects, Egypt will be an energy Hub as a nodal point between Europe, Asia and African countries.

## **Excellencies,**

### **Ladies and Gentlemen**

A full-scale program has been adopted to encourage private sector participation in the energy sector projects and there are different mechanisms to encourage generating the electricity from RE sources through different development schemes as follows (EPC+F- BOO including Reverse Auctions- IPP-FIT).

Currently, we moved to a new sustainable development phase. This includes; ensuring security of supply, affording financial sustainability, improving power sector institutional setup and developing the electricity and renewable energy sector.

The supreme council of energy approved "the integrated sustainable energy strategy for 2035", which depends on the optimal scenario that achieves the required energy balance in Egypt. Energy Strategy is being reviewed to increase the participation of the Renewable Energy in the power mix in Egypt to reach 46% as a long-term target, a medium-term target has been set to achieve 20% of total installed capacity from renewable by 2022

In the same context, Electricity sector strategy is depending on securing electricity supply by using new technology for electricity generation such as (Nuclear, Coal, pumping and storage... etc)

As a result of the above-mentioned actions a great number of investors became confident in the Egyptian electricity and renewable energy sector, a foreign and domestic private sector investor



have been encouraged to invest in the sector projects through different contractual schemes such as EPC+ Finance, BOO, IPP, Competitive Bidding and FIT. Currently we are concentration on the improvement and upgrading transmission and distribution networks including Extra High voltage substations, control centers as well as smart grids

Excellences, Ladies and Gentlemen

The global changes confirm that any country alone cannot face the new challenges and cannot secure its own energy sources, so there is a need to increase the cooperation among all countries, regional and international organization through technology transfer, exchange experiences, and enhancing regional markets.

I thank you for your kind attention.

## Speech Transcripts

### MAURITIUS

#### **H. E. Mr Ivan Leslie Colledavelloo, Deputy Prime Minister and Minister of Energy and Public Utilities, Ministry of Energy and Public Utilities of Mauritius**

We are reminded today of one of the most admired men in world history Nelson Mandela. It was during what he described as an emotional visit to India in 1995 that the concept of Indian Ocean Rim Association started taking shape. He himself drew inspiration from Mahatma Gandhi whose Freedom Struggle had started in South Africa. I am sure the great ideals of these two iconic leaders will guide us in our words and the adoption of IORA Delhi Declaration.

We urge IORA Members to support Mauritius before the United Nations and before the International Court of Justice in our legal struggle to achieve our decolonisation process and recognise our sovereignty over Chagos Archipelago.

Yesterday, IORA signed an MoU with the International Solar Alliance. Both organisations have pledged to work together for the development of renewable energy. Excellencies, I represent one of the three small island states of IORA. We suffer the brunt of climate change. Rising seas, floods, cyclones are now an everyday pre-occupation of our population. Recovering from these disasters is an economic challenge. We are classified as the 13<sup>th</sup> country with the highest disaster index and the 2<sup>nd</sup> most exposed to natural hazards. That brings me to the subject of clean and green energy.

The IORA concept paper mentions 15% of world's demand for electricity comes from IORA countries. Most of our member countries use fossil fuels. Half of our electricity is produced from coal.

We need investments and technologies to strengthen our renewable energy capacity. We require investments of up to \$5.5 billion by year 2030. We are aiming to generate 35% of our electricity from renewables by year 2035. We have invested some \$250 million in the last 3 years.

We have also assisted up to 10,000 families from poor background to obtain free rooftop solar panels and therefore free electricity for 20 years. This illustrates how renewable energy can be combined with social goals and alleviation of poverty.

One way of achieving the goals would be to engage with energy stakeholders in IORA, leverage IORA knowledge platform, share energy statistics, research, data and investment opportunities.

Excellencies, the IORA Ministers who took part in this meeting identified blue economy as one of its focus areas. The extent of ocean covered by the Member States including 2 million sq. km. of EPZ. We need to develop technology to capitalise on this large raw material which is available with us.

I listened with great attention the gender issues related to renewable energy. Mauritius firmly believes that women's economic empowerment is a pre-requisite for sustainable development, and that it should reflect in IORA policies and statements.

## SEYCHELLES

### **H. E. Mr Wallace Cosgrow, Minister for Environment, Energy and Climate Change, Ministry of Energy and Climate Change of Seychelles**

India is one of the 3 countries in the world leading the renewable energy revolution. India is running one of the most ambitious and largest renewable energy capacity expansion programmes in the world. We thank the government and people of India for their strategic commitment to this important energy resource.

We express our solidarity and sympathy with the government and people of Indonesia in the wake of a powerful 7.5 magnitude earthquake which impacted the Indonesian islands on September 28, causing a 5-foot tall tsunami. The particular incident calls for coordinated efforts from all IORA Member States and renew their commitment toward defining the Indian Ocean as a zone of partnership for peace, solidarity and development.

Renewable energy is a catalyst for development. An inclusive approach to harnessing renewable energy resources will give shared benefits to all.

Seychelles is committed to according high priority to renewable energy research, judicious use of renewable energy and engagement of the private sector in renewable energy development. We have also facilitated the contribution of private sector to this effort.

We firmly believe that IORA is an ideal framework for facilitating sharing of best practices and research on renewable energy management and governance in the Indian Ocean.

Seychelles is accelerating its efforts to scale up renewable energy development in the country. We invite IORA Member Countries to pursue make suitable investment opportunities in this sector.

We will also discuss further the opportunities for collaborations and partnerships that strengthen the role that renewable energy will play in balancing Indian Ocean Region's energy mix.

The role of Independent Power Producers in the renewable energy sector is quite encouraging. Seychelles has floated a tender for 5MW solar PV build-own-operate project that offers good opportunities for the eventual successful bidder. It will be one of the first salt water floating solar plants in the world.

Seychelles is committed to work with the IORA member states and Secretariat in realising the Declaration.

## YEMEN

### **H. E. Mr Abdullah Mohsen Abdullan Al-akwa, Minister of Electricity and Energy**

Ministry of Electricity and Energy of Yemen Solar energy and other renewables are the main energy resources for some regions in Yemen, where solar energy is the only choice to provide themselves with electricity. We seek the cooperation of IORA Member States in realising our renewable energy goals. Yemen has good potential for harnessing solar, wind and thermal energy. However, we face various challenges of which financing of energy projects poses the biggest challenge.

In the wake of political disturbances that caused power outages in our country, people started to rely on rooftop solar panels for electricity. This shows how optimistic we are about the future of renewable energy.

## SRI LANKA

### **H. E. Mr Sangarange Ajith Pathmakanatha Perera, State Minister of Power and Renewable Energy, Ministry of Power and Renewable Energy, Sri Lanka**

I am sure that we have had very fruitful and meaningful deliberations on matters pertaining to renewable energy. The deliberations will provide ample opportunity for the Indian Ocean Region to step up the efforts to tap renewable energy, and contribute to realising the global green and sustainability goals.

The cooperation between IORA and ISA will be a good opportunity for the regional countries to achieve the common goals, especially in solar energy development.

In the wake of COP1, most of the regional countries have committed to global greenhouse gas emission reduction. We all know there are some issues and barriers, but with this global commitment as well as recent technological developments, an opportunity has been created for a paradigm shift in the adoption of renewable energy technologies.

From the technological point of view, in a small island nation our electricity is not connected with any other national grid. This results in limitation in absorbing more and more renewable energy resources due to the technical limitations. Addressing the technical and economic imitations, we have set an ambitious target of meeting 50% of our power generation from renewable energy by 2030, and 100% by 2050. On the other hand, plans are already underway to shift thermal power generation using more cleaner fuels. That will create more grid opportunities for solar energy.

Sri Lanka is a firm believer in regional and sub-regional connectivity, not just in energy, but in all other spheres like movement of people and goods, etc., so that the end result will be to harmonise all the activities towards economic, efficient and sustainable allocation of resources. This will address the burning issues of environmental concerns, and in particular, sustainability of our planet.



The IORA Member States shall share and support R&D in addressing technological issues in harnessing more and more renewable energy resources. Sri Lanka endorses the initiatives already taken by IORA and would like to gratefully acknowledge the same.

## UAE

### **Dr Fatima Alfoora Al Shamsi, Assistant Undersecretary for Electricity and Future Energy, Ministry of Energy & Industry UAE and Vice Chair, IORA**

We have been a participant in the United Nations Climate Framework Convention on Climate Change and one of the first countries to ratify the Paris Agreement. We are deeply committed to the goals of ushering in clean energy, realisation of SDG 7 and creation of universal access to electricity and low cost power that supports businesses, education, health and education services.

We are very optimistic about renewables. We have brought the cost of solar energy below that of natural gas for day time power generation.

We have launched our National Energy Strategy by which we are looking to use 40% clean energy for power generation by year 2030, of which 44% will mainly come from solar energy.

We believe that distributed renewable resources will support energy security, and for that we have to have necessary regulations.

UAE has contributed nearly \$4 billion aid since 2013 for renewable energy projects in other developing countries, in addition to investment in commercial projects.

UAE will continue to deeply collaborate with IORA, especially in the priority areas.

In 2019, UAE will host the 24<sup>th</sup> World Energy Congress, where renewable energy will figure prominently in the deliberations.

## BANGLADESH

### **H. E. Md Shahriar Alam M.P., State Minister for Foreign Affairs, Ministry of Foreign Affairs, Bangladesh**

Energy is an important source of economic opportunities. During the past century, energy was harnessed through the exploitation of fossil fuels and natural gas. As a result, the exploitation of fossil fuels has caused serious climate damage, such as, air pollution, emission of carbon dioxide, and release of other pollutants in our natural environment. It is high time that the global population shifted from fossil fuels to renewable energy resources for a sustainable and secure future of the planet.

According to the Inter-Governmental Panel for Climate Change, around 80% of the world's energy can be generated from renewal resources. Indian Ocean Region hosts approx. 1/3<sup>rd</sup> of world's

population, covering Africa, Middle East, Asia and Australia. Indian Ocean Region accounts for approx. 15% of global energy demand holds the potential to emerge as a cost competitive market for renewable energy.

According to the International Renewable Energy Agency (IRENA), renewable energy data in the Indian Ocean Region is very limited.

The 1<sup>st</sup> Ministerial Meeting looked at all potential areas of cooperation in renewable energy between IORA and IRENA. This Meeting encouraged the Member States to adopt renewable energy as an alternative to fossil fuels and natural gas within the Indian Ocean Region with the acquisition of knowledge and expertise, exploration, development and applications of renewable energy.

Bangladesh is endowed with plentiful sources of renewable energy. Bangladesh under the dynamic leadership of Prime Minister Sheikh Hasina is committed to securing sustainable development of its energy resources. Of the renewables, solar and biomass, and to a limited extent wind and hydel resources, are being effectively used. Bangladesh receives an average daily of solar radiation 4-6 kW per sq. km. At present, the total solar energy production is around 540MW.

The next effective source of renewable energy is biomass. This includes stoves, biogas plants.

The Institute of Fuel Research & Development has developed a number of improved stoves that uses 50% less fuels than the traditional ones. The potential of biogas is immense. Bangladesh has a cattle population of over 25 million and poultry population of 150 million. These helps produce billions of cubic meters of biogas. Our Government has taken strong steps to restore biogas plants in the rural areas.

At present 230MW is harnessed from Kaptai Dam. In the south-eastern region, some micro-hydel project sites have been identified.

Wind energy potential is high in the coastal areas of Bangladesh.

Ladies and Gentlemen, at our meeting I believe in our expert group meeting we achieved focused direction toward building a dynamic roadmap for cooperation in renewable energy. Against this backdrop, and in line with IORA Charter and from our own experience, I call upon our fellow Members and Dialogue Partners to focus upon the possibility of creating maximum opportunities for shared interests and mutual benefits – to formulate and implement projects of renewal energy and preferential arrangements for developing economies of this region.

We have to develop means and ways to develop infrastructure and human resources to strengthen the renewal energy sectors. The outcomes of the Ministerial meeting, the MoU signed between IORA and ISA and Delhi Declaration will help address the challenges, enhance the existing cooperation and enhance the renewable energy capacity building, technology transfer, and innovation.

## INDONESIA

### **Mr Dadan Kusdiana, Senior Advisor to the Minister of Energy and Mineral Resources the Republic of Indonesia on Natural Resources Economic**

The 2nd Energy Ministerial Meet of IORA is building cooperation and norms in the Indian Ocean Rim states, in particular in the development of renewable energy, which will strengthen economic growth and prosperity in the IORA Member States. We would also like to extend our gratitude and appreciation to Minister Singh, the Indian government as the host of this ministerial meeting, and also South Africa which holds the current chairmanship of IORA.

Going by the spirit of IORA cooperation, I would like to reaffirm our commitment as an IORA member to the IORA Declaration on the Blue Economy in the mid Indian Ocean Region made on 8th to 10<sup>th</sup> May, 2017, in Jakarta. It includes renewable energy development, promotion of public private partnerships and also involvement of business communities in the infrastructure development, capacity development and transfer of technology.

As an archipelago country with 17,000 islands and a number of remote islands, Indonesia faces challenges to provide portable energy access to the country. With progressive policies and approach we have successfully increased our electricity access from 84% in 2014 to 97% in 2017, thanks to more efficient allocation of renewable energy resources.

Developing renewables has become massively important. Indonesia recognises our renewable potential in hydro, geothermal, solar, wind and bio-energy and the ocean energy. We are utilising these resources through optimum planning, investments and adoption of business processes, including in clean and renewable energy.

In 2017 we have terminated 96 regulations and 90 license processes in oil and gas, coal power and renewables sectors. Indonesia is open to cooperating with all states for mutual benefit toward enhancing the prosperity and maintaining the peace in the region. In regard to renewable energy development, Indonesia has some sectors which can be promoted to become centres of excellence of IORA, which includes educational, training and capacity building. We recognise the importance of promoting affordability and equitability in renewable energy development, which is based on best practices, competitiveness, analysis and national conditions.

## IRAN

### **H. E. Dr Mohammad Sadeghzadeh, Deputy Minister of Energy and Head of the Iran Renewable Energy Organization, Minister of Power and Energy, Islamic Republic of Iran**

I am pleased to announce that the Government of Islamic Republic of Iran has taken important measures in the field of energy efficiency and renewable and clean energy development. I would like to point out some of them -- active involvement of private sector in the field of renewable technologies and projects; conclusion of guaranteed renewable cooperation agreements -- TPAs for both large and small scale power plants; approval of SPC mechanism for the implementation of the TPA contracts for renewable and clean resources; extension of the TPA contracts to 20 years; resource assessments of values of renewable energy resources in the vast domain of renewable technologies; creation of a renewable energy atlas for Iran; supplying sustainable and affordable energy to the deprived and remote areas;

approval of a low carbon economic programme, construction of capacity of 26,000MW of new power plants, in which the share of renewable energy power plants in the country's energy mix will be 5000 MW. The current capacity of power plants in Iran is more than 80,000MW, and in this regard Iran is ranked 1<sup>st</sup> in the Middle East and 14th in the world.

Iran has the capacity of more than 11,000MW of large hydro power and almost 700MW from wind, biomass, etc. The policies for the development of renewable and clean energy in Iran has been welcomed by local and foreign companies investing in this area.

The total installed capacity includes 85 units of MW scale of power plants and more than 2000 units of rooftops due to the concluded TPA contracts and the follow-ups it is predicted that by July 2019 the total capacity of green and solar power plants will reach 1100MW.

We believe that there is a key role for renewable energy in sustainable development and there are some objectives to be properly met. It is clear that through the IORA Declaration and collaboration between IORA countries, we may achieve the objective of advancing the share of renewable and clean energy in electricity generation. We support the institutional framework for the promotion and deployment of renewable energy production and applications, particularly in the developing countries, and promotion of research and development aimed at reducing the of renewable and clean energy for them to become competitive in the energy market.

The opportunity to invest in the field of renewable energy are available in Iran. In this regard, I invite all companies and communities acting in the field of renewable energy for enhanced mutual interaction for more concrete results.

## MOZAMBIQUE

### **Ms Marcelina Andrea Mataveia, National Director for Energy, Ministry of Mineral Resources & Energy, Mozambique**

Excellencies, ministers, deputy ministers, observers, ladies and gentlemen.

Warm greetings from his Excellency Mr Letícia Klemens, Minister of Mineral Resources and Energy from Mozambique, who due to prior engagement could not be with us. We congratulate the Government of India for hosting the 2nd IORA Renewable Energy Ministerial and Expert Meet, and the IORA Secretariat for making possible this very important meeting. Mozambique highly recognises the role of IORA and its member states who are making contribution to find solutions for our challenges based on this information exchange platform.

We believe that the renewable declaration will be a strong tool to make all of us to focus on the challenge that we have been facing in the area of renewable energy as an Indian Ocean group and find ways of their solutions. To conclude, Mozambique reaffirms its commitment to the IORA objectives.

## OMAN

### **H. E. Mohd Bin Salim Al-Toobi Minister of Environment and Climate Affairs, Oman**

I would like to thank India for hosting this very important meeting. I would like to say that Oman also gives solar energy a priority and has set the target for the country to reach by 2025, 100% of energy produced will come from solar and like other members of IORA we are committed to contribute in the development of renewable energy.

## TANZANIA

### **H.E. Mr Baraka H Luvanda, High Commissioner of the United Republic of Tanzania to India**

On behalf of Tanzania delegation, I would like to express my profound gratitude to the government of India for organizing this 2nd IORA Energy Ministerial and Expert Meeting.

Hon'ble Minister of Energy from Tanzania could not participate and has sent his sincere apology. I can assure that even though I am a substitute, I will make sure to do justice as to what I speak to you.

Tanzania's participation in this august assembly is in compliance with the IORA Charter as one of the 21 IORA member states. We are grateful that our collaboration and cooperation with our fellow member states will be further strengthened as we continue to embrace the principles and policies of

our association, and for us this cooperation is a vehicle through which we can achieve our sustainable development goals. In our priority agenda with IORA the focus is on energy.

Our civil dialogue partners are privileged and have advanced in renewable energy development and this is an opportunity for us. There is a meaningful cooperation in the field of technology, the promotion of trade and investment and technical assistance in our respective countries.

Tanzania, like any other member, is blessed with abundance of renewable and other energy resources including biomass, hydro, solar and wind, coal and Uranium. However, our current installed capacity is only 1300MW out of which 507MW or 27 % is hydro, 55MW from fuel oil, 670MW comes from natural gas and only 2% comes from biomass - 12.5MW.

I am pleased to inform this assembly about our ambitious plan and goal in the renewable energy sector is to develop solar energy resources in the country which is quite promising in the country, especially in the rural areas which are not connected to the grid. We thank the Government of India for assisting us to develop solar energy resources in rural Tanzania.

It is estimated that around 16MW is available in rural areas through solar home technologies and small scale projects are quite prominent with an estimated capacity of more than 5MW.

The solar projects are not fully developed in Tanzania. However, the government in collaboration with NSO has assessed the solar potential in different parts of the country. To procure energy from solar and wind projects, the first round of tenders have been floated both within the country and outside Tanzania, including here in India. So, nearly 200MW and 150MW of wind and solar projects are expected in different locations.

Tanzania has the potential of 4.7GW in installed capacity. However, only 12% has been developed today, out of this only 0.5% is from renewable resources like hydro. We are expected to reach 2000MW in hydro power. Other hydro projects in the pipeline include 350MW and 202MW and solar 340MW.

Before I conclude, I want to touch upon a few challenges that we face in the IORA countries in terms of renewable energy projects. Financing, technical assistance, limited knowledge are common to most of the IORA members. We hope through this association with IORA, our dear partners will take time to team up to take strategic action which will make great contribution to the rapid acceleration of renewable energy adoption in our countries. As a country, as a member of this strong association, we are entirely committed at working in cooperation with all of you towards the fulfilment of our IORA pledge not only in the area of renewable energy but also in other areas.

## FRANCE

### **Ms Nastassja Hoffet, Policy Officer, Climate and Environment Department, Ministry of Foreign Affairs of France**

I would like to express France's gratitude for the opportunity to participate in the 2nd IORA Energy Ministerial and also, I would like to take the opportunity to congratulate India for the successful hosting of this series of events. France has been a partner of the Indian Ocean Rim Association since 2001. Our government participates regularly in ministerial conferences and workshops. Our government, in fact, participated in the first IORA Summit in March last year. France, along with seven dialogue partners of the territory of Indian Ocean and a million citizens of France actually live in this part of the world. We also have strong partnerships with countries in the area. For the more than 30 years, France is one of the five members of the Indian Ocean Commission and held its presidency from February 2016 to March 2017.

France also plays the role of fully securing this maritime area. We shall also protect Indian Ocean Rim countries and act in consultation with them. France also promotes blue economy and sustainable management of Indian Ocean in order to promote long-term economic benefits.

The Indian Ocean Rim is at the forefront of the current climate change patterns seen in rising sea levels, sea erosion and the like. Countries of the region are already taking important steps to implement the Paris Agreement on Climate Change. The direction set by the Paris agreement is clear and France is convinced that now is the time to turn our commitments into action. France has taken action in all possible ways. At the national level, with the implementation of the Climate Plan we target to reach 20% of renewable energy in electricity supply by 2030.

Renewable energy is the best tool to deliver on the Paris Agreement. We know that to reach the Paris Agreement goals, new renewable energy generation has to increase and investments need to be doubled by 2030.

We must take strong action to develop the potential of solar energy with joint financial mechanisms, regional projects and capacity building.

With 12 IORA countries as members of the ISA, we look forward to further cooperation between these two organisations..

In addition, France also provides support the efforts to create additional capacity in geothermal mini-hydro and other renewable energy in the IORA states.

France also supports the Indian Ocean Region for the deployment of renewable energy. We can see a lot of opportunities for collaboration within IORA and we look forward to a closer cooperation for completing the actions. France is fully committed to the IORA mandate and we look forward to strengthening this partnership.



## SOMALIA

**Eng Abdulkadir Mohamed Abdulle, Director of Renewable Energy Department,  
Ministry of Energy & Water Resources Federal Government of Somalia**

I would like to express my gratitude to the Government and the people of India for their support, warm welcome and hospitality. Excellencies, on October 27, 2016, Somalia signed the IORA charter during an inter-ministerial meeting in Indonesia. The charter promotes cooperation in many field including maritime trade and security, trade and investment facilitation and promotion of tourism and cultural exchange.

Somalia is an Important member of the Indian Ocean Region and has built a strong partnership with almost all IORA member states. Through our membership, our endeavour is to provide strength to this forum, while building cooperation with all our valuable partners in all the areas of mutual interest.

Somalia both contributes and benefits from the partnership with ISA and IORA, from both land and sea as Somalia has one of the longest coastlines in Africa extending to 2,233 km. Friendly countries of IORA played a historical role in eliminating the pirates and terrorism from the Indian Ocean that we share. Since all the obstacles have been removed, it has enabled us to further extend our trade and industry and also enhance our cooperation with other IORA countries.

I would like to congratulate IORA secretariat for organising the 2nd IORA Energy Ministerial Meeting. We look forward to working with fellow members to fulfil our commitment to IORA initiatives.

## KENYA

**Eng Benson Mlambo Mwakina, HSC, Director of Renewable Energy, Ministry of  
Energy, Kenya**

Kenya supports the efforts of IORA and stands by all the pronouncements in the meetings. As a country, Kenya has scaled up use of renewable energy in its power generation where currently the generation mix is over 67% from renewables while the energy dispatch to the national grid is more than 80% from renewable energy sources.

Currently, the Government of Kenya is commissioning a 310MW wind project – the biggest in Africa – and a 54MW solar PV project which will further increase the uptake of renewables in the energy mix. This will even be improved by the renewable energy projects lined up in the Kenya National Electrification Strategy covering 2018 – 2035. These are in all technologies including wind, solar, small hydro, biomass / biogas and geothermal.

## EGYPT

### **H.E. Dr Mohamed Mousa Omran, Principal Secretary of Ministry of Electricity and Renewable Energy, Egypt**

I would like to thank the Government of India for the warm hospitality extended to us since our arrival in India. I would also like to utilise this opportunity to congratulate the Government of India for hosting the First Assembly of ISA and are very much looking forward to working with ISA member countries for the betterment of our people.

The world is witnessing a new era of energy transition, which will require a change in the form of reduction and consumption of conventional energy resources. Egypt has launched the Africa Renewable Energy Initiatives (ARIA) to accelerate and scale up the huge energy potential of the continent. The initiative aims to add additional energy capacity by 2020 and mobilise the potential of African countries to generate 300GW of electricity by 2030.

Egypt is located at the melting point of three continents -- Africa, Asia and Europe. Regional cooperation will play a crucial role in ensuring power security in the region. So, Egypt is participating repeatedly in all regional projects. An MoU was signed recently with Cyprus on a direct interconnection project. We have also come a long way in interconnection with Sudan. After completing this project Egypt will be a hub, a nodal point between Europe, Asia and African countries.

## INDIA

### **Welcome Address by Mr R K Singh, Minister of New and Renewable Energy, Government of India**

**Your Excellency, Ms Thembisile Majola, Hon. Deputy Minister of Energy of South Africa,  
and The Chair of the Indian Ocean Rim Association (IORA) countries**

**My colleagues and honorable ministers from the various IORA countries**

**Her Excellency, Dr N Nokwe, Secretary General, IORA**

**Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India**

**Colleagues, friends, Ladies & Gentlemen**

It is an honour and it gives me immense pleasure to welcome the honourable ministers and distinguished delegates from the Member States of Indian Ocean Rim Association to this 2<sup>nd</sup> IORA Renewable Energy Ministerial Meeting here in New Delhi. The initiatives that the IORA

Member States have taken for sustainable development and balanced economic growth are commendable, and I congratulate each one of you for the very important role that you have played in making this happen.

As our Honourable Prime Minister succinctly described it, India's approach to this region is SAGAR – Security and Growth for All in the Region. We remain committed to realising this vision together in cooperation and collaboration with all of you. One most useful aspect of this Vision is sustainable use of energy resources.

Today, we must acknowledge the exponentially increasing demand for energy, electricity, and the limited availability of conventional energy resources in our region. And, not only in our region, in fact in the world. Thus, we have to give the utmost importance to increasing the share of renewable energy in the overall energy mix on the one hand, and improving the energy efficiency of our economies on the other, in our national and international economies.

We took a first step in this direction with the First IORA Renewable Energy Ministerial Meeting back in 2014 at Abu Dhabi. Today, we carry forward what we started at Abu Dhabi and build upon the objectives identified in the IORA Abu Dhabi Declaration on Renewable Energy.

Our region is home to around 1/3<sup>rd</sup> of the world's population and represents approximately 50% of the world's energy demand. However, the RE installed capacity of IORA Member States is only around 8.13%. Your excellency, we need to accelerate our efforts to improve the share of renewable energy in the total energy mix of our Member States individually, as well as in our region collectively.

Excellencies, the Indian Ocean that washes our shores is a vast reservoir of energy and it is only imperative that we make collective efforts to harness it. Most of our Member States are well placed to harness energy from solar, wind, hydro and bio-energy projects. Let us keep in mind that the advantages of such a shift in our energy mix are many. It will promote economic growth, job creation, trade and investments and contribute to food security and poverty alleviation, while safeguarding the region's health through sustainable development of its resources.

In this context, we encourage and support the six priority areas and two cross-cutting issues identified in IORA. Excellencies, we must collaborate to meet the growing demand for energy, and more specifically, renewable energy in the region, with particular focus on four areas of cooperation identified during the first Indian Ocean Renewable Energy Ministerial Forum in 2014, namely, resource assessment, cost analysis and reduction, capacity building and sustainable tourism.

I would like to take this opportunity to congratulate all of us collectively for the adoption of IORA Action Plan 2017-21 by the IORA Council of Ministers Meeting at the IORA Leaders' Summit in Jakarta, Indonesia on 6<sup>th</sup> of March 2017.

It envisages exploration of cooperation between the International Solar Alliance and the International Renewable Energy Agency as a long-term initiative in the priority areas of academics, science and technology.

Excellencies, it is also a matter of great pleasure that this Ministerial Meeting coincides with the first General Assembly of the International Solar Alliance. With the exception of our friends

from the Islamic Republic of Iran, all the IORA Member States are also prospective members of ISA. In fact, the International Solar Alliance framework agreement had already been ratified by 9 Indian Ocean Rim Association Member States – Australia, Bangladesh, Comoros, India, Mauritius, Madagascar, Seychelles, Sri Lanka, Somalia, and our Dialogue Partner France.

I am sure the ratification of the Framework Agreement by the rest of our Member States will be realised very soon. A Memorandum of Understanding was signed between IORA and ISA yesterday, on 3<sup>rd</sup> of October, 2018 which focuses on joint capacity building programmes, research and development activities in solar and exchange of best practices.

I believe that both IORA and ISA have immense potential to collectively collaborate and contribute to our shared vision of a clean, green and sustainable planet Earth.

Excellencies, I would also like to emphasise the need to promote sustainable tourism through the application of renewable energy technologies in the tourism sector, particularly in the small, developing island states of the region, since tourism is the cornerstone of the economies for these states.

Excellencies, we need to reaffirm our resolve to actively undertake the expansion of the Global Renewable Energy Atlas, the world's largest ever joint renewable resources data project coordinated by IRENA, thereby creating the Indian Ocean Region's first and most comprehensive map and database which will be used to tap the substantial renewable energy potential of our region.

We also have a lot of scope to collaborate for opportunities available under the International Renewable Energy Learning Platform which will help us achieve our goals faster.

I would like to take this opportunity to reaffirm India's continued commitment to the development of renewable energy landscape in the country. We are well on track to achieving the target of 175GW of renewable energy by 2022. We have already added more than 35GW capacity of renewables during the last four years and almost touched installed capacity of 72GW.

We notified competitive bidding guidelines for solar-wind power in 2017, following which we have received record low of tariff bids. A number of initiatives that the Indian Government is working towards includes Renewal Purchase Obligation, Renewable Generation Obligation, the Solar-Wind Hybrid Policy, Solar Parks, Offshore Wind Policy, Solar PV manufacturing capacities, Green Energy Corridors, securing foreign investment in India in the RE sector, quality assurance programmes and capacity building.

Excellencies, I wish you the very best for each of you and I hope that our deliberations at this Inter-Ministerial Meeting here today will be comprehensive and fruitful.

Thank you and welcome again to India!

## SOUTH AFRICA

### Keynote Address by H.E. Ambassador Dr N.N Nokwe, Secretary General IORA

Your Excellency, Mr Raj Kumar Singh, Minister of State (Independent Charge) for the Ministry of New and Renewable Energy of the Republic of India, our hosts,

Ambassador Thembisile Cheryl Majora, Deputy Minister of Energy of the Republic of South Africa and IORA Chair, and IORA Vice Chair, Her Excellency Engineer Fatima Alfoora Alshamsi, Assistant Undersecretary for Electricity and Future Energy Affairs of the United Arab Emirates.

**Honourable Ministers from IORA Member States,**

**IORA Dialogue Partners,**

**Excellencies,**

**Distinguished Delegates,**

**Members of the diplomatic corp.**

**Ladies and Gentlemen,**

I wish you a Very Good Morning at this august occasion.

It is a privilege and my honour to welcome you to the Second IORA Renewable Energy Ministerial Meeting in the beautiful city of Delhi. I wish to express my deepest appreciation and gratitude to the Ministry of New and Renewable Energy, the Ministry of External Affairs of the Government of India along with the Confederation of Indian Industry for facilitating this Ministerial Meeting and for the excellent hospitality we have been accorded to. It is a matter of great pride for us to have had the Hon'ble Prime Minister of India, Mr Narendra Modi to inaugurate this excellent Renewable Energy event, in the presence of the United Nations Secretary General, His Excellency Mr António Guterres and many other countries from across the globe. **(African Saying)**

Excellencies, we have to be the change we want to see in the world, as the iconic Father of the Indian Nation, Mahatma Gandhi stated. What a marvelous idea to link the present events that have an impact on the whole world, with the 150th birth anniversary of Mahatma Gandhi, who himself is known for his great impact on the world.

Ladies and Gentlemen, I would like to mention another iconic global leader, the Late President Nelson Mandela of the Republic of South Africa, who also contributed in innumerable ways to our region and the world. During an official visit to India in 1995, he stated:

"The natural urge of the facts of history and geography ... should broaden itself to include the concept of an Indian Ocean Rim for socio-economic co-operation and other peaceful endeavours.

Recent changes in the international system demand that the countries of the Indian Ocean shall become a single platform.”

This is what led to the formation of IORA and what a wonderful coincidence that we are gathered here today, 23 years later, to carry on his legacy during his centenary year.

IORA is an intergovernmental organisation consisting of 21 Member States and 7 Dialogue Partners, stretching from South Africa in the west, running up the eastern coast of Africa, along the Gulf to South and Southeast Asia, ending with Australia in the east.

It is one of the few organisations where diverse countries of the Indian Ocean and the Pacific can sit at the same table and discuss areas of cooperation. No doubt it is an ambitious project, but we must continue to explore it step by step. We have managed to build a critical mass of cooperation that has yielded great results for the countries of the Indian Ocean. I am very pleased to have been able to witness that there is no difference of view between countries to affect cooperation within IORA.

The IORA Charter defined the objective of the Association as:

To promote the sustained growth and balanced development of the region and of the Member States, and to create common ground for regional economic co-operation.

To achieve the objective of the Charter, IORA under India’s Chairmanship in 2011, under the leadership of my predecessor Ambassador K.V Bhagirath, defined six priority areas as follows:

- Maritime Safety and Security;
- Trade & Investment Facilitation;
- Fisheries Management;
- Disaster Risk Management;
- Academic and Science & Technology Cooperation;
- Tourism and Cultural Exchanges.

The two cross-cutting focus areas of cooperation were added by Australia, the Chair in 2014. They are:

- The Blue Economy
- Women’s Economic Empowerment

In 2015, Indonesia as Chair, took the momentum forward by hosting the First IORA Leaders’ Summit in 2017, providing us the Action Plan for the next five years.

South Africa as the current Chair adopted the theme of “IORA – uniting the peoples of Africa, Asia, Australasia, and the Middle East through enhanced cooperation for peace, stability and sustainable development”. This encompasses South Africa’s view that the Indian Ocean Region should be characterized as a region of peace, stability and development within which to pursue the goal of promoting socio-economic cooperation for the wellbeing and development of the countries and peoples of the Indian Ocean Rim.



The fact that four G20 countries chaired the Association for a period of two years each, have enabled the Indian Ocean region to take off by setting objectives and expanding and deepening cooperation among all Member States. We look forward to UAE as the next Chair and Bangladesh as the Vice Chair. One of the most important aspects of this cooperation has been the emergence of the least developed countries, such as Comoros, Madagascar, Somalia and Yemen. Today, these countries are full-time members of the Association and participate fully in their activities and sponsor projects.

Renewable Energy is not a stand-alone Priority Area, but it is so important for us that now we are having the Second Renewable Energy Ministerial for IORA.

The First Meeting of the Renewable Energy Ministerial Forum was hosted in Abu Dhabi by the United Arab Emirates in 2014, on the side lines of the Abu Dhabi Sustainability Week with the support of the International Renewable Energy Agency (IRENA). At that Ministerial, the Abu Dhabi Declaration on Renewable Energy was adopted. It focussed on resource assessment, cost analysis and reduction, capacity building and sustainable tourism practises.

Today, the demand for renewable energy resources continues to rise within our region, especially in developing economies. Countries, cities, businesses and consumers around the globe are embracing renewables as a preferred source of energy. It is estimated that renewables could make up two-thirds of the energy mix by 2050, improving energy intensity and generating more than 11 million additional jobs. The Indian Ocean represents approximately 15% of global energy demand, providing IORA Member States with a cost-competitive market.

According to the Inter-Governmental Panel on Climate Change (IPCC), around 80% of the world's energy could be generated by renewable sources and the International Renewable Energy Agency (IRENA), headquarters in Abu Dhabi, UAE, also recently indicated that the world's oceans, as an example, have the potential to provide the equivalent of 4 – 18 million tonnes of oil.

### **Excellencies, Ladies and Gentlemen,**

As recognised by the 12<sup>th</sup> Council of Ministers Meeting of IORA, in November 2012, renewable energy represents a strategic aspect to regional collaboration and trade, simultaneously addressing green and blue growth, climate change, energy and environmental security. To do this, technology transfer, capacity building and international cooperation are a necessity. IORA is honoured to be part of this global movement towards sustainability. We are privileged by the generous gesture by the Government of India (one of the most active Members of IORA) to host the Second Renewable Energy Ministerial Meeting in parallel with the First General Assembly of the International Solar Alliance (ISA) and the Second Global Re-INVEST Meet and Expo. It will go a long way in boosting the visibility and importance of Renewable Energy within the Indian ocean region.

This Second Ministerial Meeting provides us with an ideal platform to develop a '*Renewable Energy Architecture*' for the region, with a specific focus on the needs, requirements and opportunities within this field, thus paving the way forward for mutually beneficial co-operation through a



consensus based, evolutionary and non-intrusive approach. The need to achieve common goals to increase the use of renewable energy in a safe, convenient, affordable, equitable and in a sustainable manner, is prominent.

It gives me great pleasure to highlight that a very concrete objective of this Meeting has already been attained through the signing of the 1<sup>st</sup> IORA MoU on Renewable Energy with the International Solar Alliance (ISA). We look forward to building upon this MoU and strengthening our ties in the pathway of the renewable energy sector with the support and involvement of ISA, Member States and Dialogue Partners.

### **Excellencies, Ladies and Gentlemen,**

As you are aware, the IORA Experts Meeting on Renewable Energy was held yesterday, on 3 October 2018. The deliberations have resulted in an outcome document entitled "Key Takeaways".

The lessons laid out in this document, will be shared later this afternoon, by the Her Excellency Engineer Alshamsi from UAE. As the upcoming IORA Chair (from 2019 – 2021), who better to introduce this document which shows us the way forward in the area of Renewable Energy. I am confident that the findings from the Experts Meeting will contribute to the ongoing discussions on strategies to further increase the share of renewable energy in the global energy system. The present challenges for incumbent stakeholders are also touched upon in the takeaways, and need to be accounted for in policy-making process to allow a smooth market integration of renewables and ensure the long-term reliability of the energy system

Excellencies, Ladies and Gentlemen, adding to the success of the Second IORA Renewable Energy Ministerial Meeting, we may also look forward to the upcoming adoption of the Delhi Declaration on Renewable Energy at the end of this Ministerial.

As Late President Nelson Mandela stated, "Nothing is impossible, until it's done" ....

It is therefore quite befitting that we not only celebrate Late President Mandela in this centenary year, but also move strongly ahead with the vision that he envisaged.

I am confident that this Meeting will provide momentum to achieve tangible proposals and enhance collaboration within the renewable energy sector of IORA....

With that, Excellencies, Ladies and Gentlemen, I come to the end of my speech.

Thank you for your kind attention.

## CLOSING SESSION

### **Vote of Thanks by Mr Anand Kumar, Secretary, Ministry of New and Renewable Energy, Government of India**

It is my privilege to thank the distinguished delegates here at the 2nd IORA Renewable Energy Ministerial Meeting.

This edition of the IORA Renewable Energy Ministerial Meeting is focused on the concerted efforts to find out ways and means for energy transformations to next level for strengthening climate resilience and contribute to achieve the sustainable development goals where Renewable Energy plays a pivotal role.

I am sure you all agree that our Prime Minister Narendra Modi has provided us a valuable perspective and vision SAGAR- "Security and Growth for All in the Region" on the salience of Indian Ocean Region. There could be no better start to our deliberations of the 2<sup>nd</sup> IORA Renewable Energy Ministerial Meeting and the 1<sup>st</sup> ISA General Assembly.

We the IORA Member States are on the frontlines of climate change and at the forefront of Global energy transformation. The time has come to strengthen our bonds as IORA Member States to combat the challenges prevalent in the Indian Ocean Region.

I am grateful to Hon'ble Minister MNRE Shri R K Singh for his guidance in organizing this meet and for delivering his inaugural speech.

I wish to express my deep appreciation to the Excellencies and Head of Delegations of IORA Member States for delivering truly inspiring and memorable addresses. A special word of thanks to Minister Majola of South Africa, who represents the current IORA Chair, and also to IORA Secretary General Dr Nokwe for gracing the Renewable Energy Ministerial Meeting with their presence.

I now take this opportunity to thank all the distinguished delegates and experts participating in this event. I am sure their deliberations during the experts meeting could generate fresh ideas, insights and solutions to our common global challenges pertaining to Renewable Energy.

I would like to thank Ministry of External Affairs for partnering on this successful endeavor. I am thankful to Confederation of Indian Industry for their excellent organizational skills and commitment which made 2<sup>nd</sup> IORA Renewable Energy Ministerial and Experts meeting successful.

Last but not the least, I would like to thank the IORA Secretariat and informed participants from public and private sectors without whose participation and involvement no such meeting could have been successful.



Before I conclude, may I echo the vision of our Prime Minister that we have ONE SUN, ONE WORLD and we need to have ONE Grid to cater the challenges and growth in the sector of Renewable Energy. And, to attain this objective, we need to work together with a sense of commitment.

Once again, I thank you all for your presence!