

1. Introduction: background and objectives

The workshop “Accelerating Renewable Energy Investments in Southeast Asia”, hosted by the Ministry of Industry and Trade (MOIT) Vietnam and jointly organised by the International Renewable Energy Agency (IRENA) and the ASEAN Centre for Energy (ACE), was successfully held on 20-21 May 2019 in Da Nang, Vietnam. Participants included over 50 representatives from Brunei Darussalam, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, representatives from energy ministry, regulators, and other related agencies as well as development partners, financial institutions, investors and project developers. The complete list of participants is as [Annex 1](#).



The workshop was the second activity of the implementation of ASEAN-IRENA MoU and Action Plan which was signed at the ASEAN Ministers on Energy Meeting (AMEM) and Singapore International Energy Week (SIEW) at Singapore in October 2018.

The workshop supported the effort of the ASEAN Member States (AMS) to improve the understanding of renewable energy project financing and risk mitigation instruments, and to provides a knowledge sharing platform among policy makers and related key experts from the region and beyond. IRENA’s project facilitation tools such as Project Navigator and Sustainable Energy Market Place were introduced. The workshop also contributed to the achievement of outcome-based strategy 2 and 4 of ASEAN Plan of Action on Energy Cooperation (APAEC) Programme Areas for RE.¹

The workshop resulted in policy exchanges and in-depth discussions to support the AMS formulate appropriate actions to accelerate renewable energy investment, including auctions (as tool to improve investor’s confidence) and financial risk mitigation.

¹ Outcome-based strategy 2: Enhance awareness on the role of renewable energy among policy makers, private sectors and public

Outcome-based strategy 4: Increase the promotion of renewable energy financing schemes.

Full APAEC document could be downloaded at <http://go.aseanenergy.org/EmchA>

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The report summarises the main content and findings of the workshop. All presentations can be downloaded at <http://bit.do/ASEANREInvestment>

2. The workshop setup

The workshop was designed for one and half days in roundtable format. Keynote presentations and panel discussions from practitioners and international experts as well as ASEAN participants gave insights into different experiences in renewable energy policy, finance, auction and risk mitigation practices in the region and beyond that set the base for discussion during the workshop.

On the first day, the following topics were discussed: (i) Renewable Energy Policy and Regulatory Landscape in the ASEAN region; (ii) Renewable Energy Financing Landscape in ASEAN region; (iii) Best Practices and Examples of RE Project Development and Finance; and (iv) Enhancing Finance Flows through Project Facilitation. While the second day focused on (i) Auctions as a tool to improve investor's confidence and (ii) Financial Risk Mitigation Practices in the ASEAN region.

Participants had chances to share experiences on the current financing landscape, identify key barriers and explore how innovative finance and risk mitigation solutions can serve to attract more private investment into the region.

The final agenda is as [Annex 2](#).

3. Workshop activities

Day 1: 20 May 2019

Welcome remarks



The workshop started with welcome remarks from Nguyen Ninh Hai, Director of New and Renewable Energy Department Electricity and Renewable Energy Authority, Ministry of Industry and Trade (MOIT), Vietnam. He mentioned that Vietnam and ASEAN Member States recognize that renewable energy is crucial for increasing the diversity of energy supply and reducing the environmental impact of energy use in the region. To achieve the regional target of 23% RE in TPES, it would require a strong and long-term

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commitment and a holistic approach. He appreciated the signing of ASEAN-IRENA MoU and Action Plan last year at 36th AMEM and look forward to having deeper engagement with the Agency. He highlighted that Vietnam has laid out several policies and strategies, including masterplans to increase the use of renewable energy.

Septia Buntara, Acting Manager of ASEAN-German Energy Programme, ASEAN Centre for Energy (ACE) mentioned that ASEAN energy cooperation is characterised by diverse situations and needs of the Member States as well as multiple sets of regional and global policy targets and commitment, as stipulated in regional energy blueprint, ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025. On behalf of ASEAN, he expressed appreciation to IRENA for continuous coordination with related stakeholders in the region. He highlighted that with an improved understanding, better collaboration between renewable energy will follow and subsequently, the synergy formed between these stakeholders not only will accelerate the development of renewable energy but also will enhance ASEAN as a whole in contributing to global sustainable development.

Badariah Yosiyana, Program Officer, Southeast Asia, IRENA, mentioned that the workshop was the second activity under ASEAN-IRENA MoU. She emphasised the MoU and the Regional Action Plan reflect IRENA's strong commitment to work more closely with the region, to scale up the Agency's support to the energy transition of the region as well as to solidify the strong partnership with the AMS and institutions. She highlighted that the workshop is well aligned with the ongoing efforts of the AMS to accelerate investment on renewable energy to achieve the aspirational target of 23% RE in 2025 in TPES.

Session 1: Renewable Energy Policy and Regulatory Landscape in the ASEAN region

Scene setting presentations



Emanuele Bianco (Associate Programme Officer, Knowledge and Policy, IRENA) presented the *Overview of Global and Regional Renewable Energy Policy Landscape*. He mentioned that renewable power capacity additions have consistently exceeded conventional power additions since 2013 globally due to the strong business case for renewable energy. He also shared the socio-economic and environment footprint (in terms of GDP, employment, welfare) of the energy transition. He highlighted the Southeast Asia Renewable Energy Market Analysis study by IRENA that provide comprehensive information on renewable energy development in the region.

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Yudiandra Yuwono (Technical Officer of ASEAN-German Energy Programme, ACE) gave presentation on *Synergy in ASEAN for RE Development*. He outlined the regional and AMS efforts to increase renewable energy deployment by having regional and national target. He mentioned that RE share in 2017 was 13% and projected only to reach 17% by 2025 (6% gap from the target). He emphasised the efforts needed to close the gap including institutional support, funding mechanism, capacity building and stakeholders coordination.

Panel discussion



The panel discussion was moderated by Badariah Yosiyana (Program Officer, Southeast Asia, IRENA) with the following panellists: Jakob Stenby Lundsager (Long Term Adviser, Danish Energy Partnership Programme in Viet Nam); Jafar Soddik (Head of Section, Various Renewable Energy Investment, Directorate General of New, Renewable Energy and Conservation, Ministry of Energy and Mineral Resources, Indonesia); Ahmad Nazirul Akmal (Renewable Energy Division, Ministry of Energy, Science, Technology, Environment and Climate Change, Malaysia); Anousak Phongsavath (Deputy Director General, Ministry of Energy and Mines, Lao PDR). The panellists discussed the landscape of renewable energy policy and regulatory framework in their respective country and ASEAN region, as well as shared their knowledge and experiences on effective and innovative renewable energy policies that could accelerate the deployment of renewables.

The summary of discussion is as follow:

- Indonesia has successfully increased electrification ratio to 98.3%. Most of rural electrification activities are funded by state budget or donor. The country has huge potential on renewable energy. However, until 2017, installed capacity was only less than 7.8% in TPES, leaving huge gap in reaching 23% RE target in 2025. In the newest electricity supply planning, renewable power should achieve 24 GW by 2025. The government has put in place several policies and regulations to enhance the deployment of renewable energy. Currently, the government's focus is to reduce the power production cost which arguably could hinder the RE development.
- Malaysia's population is around 32 million with 5.3% annual GDP growth. The RE installed capacity in 2017 reached 33.7 GW. For RE development, the government started with policy, followed by regulatory frameworks, by having RE Act as the foundation of Sustainable Energy Development

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Agency (SEDA) establishment. The country first introduced feed in tariff for in 2009. In 2014 feed in tariff for large scale solar was ended, replaced by auction. In the 11th Malaysia Power Plan, auction for large scale solar PV (LSS) and net metering was implemented. In LSS 3, 500 MW quota was oversubscribed with 700 companies showed interest.



- Lao PDR has abundant hydro potential, more than 8 GW. Currently more than 40% of electricity generation is exported to neighbouring countries. Electrification is the priority and renewable energy is one of the keys to increase the ratio. There are many investors signed MoU with the government on various RE project, including electric vehicle and to utilize hydro power plant with floating solar PV (available surface around 500 km²). The regulation appears to be less complicated in Lao PDR, compared to other ASEAN Member States. The government has target to reach RE by 30% in 2025.
- Denmark government is assisting Vietnam on long term energy planning, including the development of Vietnam Energy Outlook. Vietnam energy demand is increasing very fast (around 10% annually), and Vietnam is now a net importer. Coal consumption is tripled over the last decade and large scale hydro is exhausted. Vietnam has lots of untapped potential on wind and solar. The new Power Development Plan will be published soon with updated role of RE. RE deployment still faces many challenges including feed in tariff uncertainty and un-bankable PPA.
- Malaysia mentioned the key success to their RE development is the certainty to the market, showed by strong commitment from government, consistent policy and regulatory framework, business innovation and strong stakeholders engagement. While for Indonesia, policy consistency is still huge challenges. Lao PDR mentioned that interconnection is very important as they aimed to export more power to neighbouring countries.
- It was agreed that stable and long-term policy including regulatory and fiscal incentives, transparency, and the establishment of a dedicated renewable energy agency with strong mandate, are key to enhance renewable energy deployment in the region. Interconnection is the key for the region to have higher share of RE, especially hydro for balancing, or conventional as back up and battery storage. There was a question if the subsidy scheme for RE is enabler or barrier. All panellists agreed

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that subsidy is enabler, however, careful consideration is important, especially to know when to stop it.

Session 2: Renewable Energy Financing Landscape in the ASEAN region

Scene setting presentations



Assaad Razzouk (CEO, Sindicatum Renewable Energy) opened the Session by giving speech on the latest RE development in the region and the myths that slow down renewable energy development, among others: renewable energy requires subsidies, renewable energy is not competitive, Singapore and other cities are too small and crowded, coal alleviates energy poverty, and renewable energy is intermittent. He mentioned that the ASEAN region faced huge challenge in transitioning to renewable energy, because most of its governments are leading from behind.

Intan Indriastari (Finance and Investment Division, PT. Sarana Multi Infrastruktur (PT. SMI)) started her presentation on *Initiative in Green Finance* by giving brief overview of PT SMI as state-owned enterprise under the Ministry of Finance of Indonesia as catalyst in accelerating national infrastructure development including renewable energy. She also shared several initiatives to support sustainable development goal including sustainable financing, green climate fund, SDG Indonesia One, green bond issuance and bilateral/multilateral partnerships.

Panel discussion

The panel discussion was moderated by Assaad Razzouk (CEO, Sindicatum Renewable Energy) with the following panellists: Ernest Navaratnam (Group CEO, Cenergi SEA Sdn Bhd); Vijay Nirmal, Program Manager (India Clean Energy Finance, Climate Policy Initiative); Koos Neefjes (Director & Climate Change Expert, Climate Sense); Arjun Guha (Programme Officer, RE Project Development and Finance, IRENA). The panellists discussed their perspective on RE Financing landscape in the region and beyond (India), also their experiences in accessing finance for RE projects.

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The summary of discussion is as follow:

- India experiences on its aggressive RE development was discussed. The government set ambitious RE target of 175 GW of which 100 GW from solar (60 GW for utility scale, and 40 GW for distributed), 60 GW from wind and the remaining from other sources. The price of solar PV has been decreased significantly from 12 Rupees (~20 US cents) in 2011 to 2 Rupees currently. The key policies and regulatory framework that were taken by the government was FIT, followed by competitive bidding. In addition, the strong payment security mechanism (PSM) was introduced in 2016/2017, then the set-up of nodal agency (solar energy cooperation India) as the off-taker for utility scale that revealed the low price of solar PV. The PSM mechanism overcomes the issues on payment delay. The reverse auction for wind was introduced in 2015. The success factors are consistent and coherent policy and regulatory framework, and continuous dialogue with all stakeholders. Several key takeaways from India including no subsidies, land guarantee, credit risk taken by government, quick transition from FIT to auction.
- In ASEAN region, investment decision is strongly correlated with policy and regulatory environment. Policy and regulatory consistency are still a challenge, hence the investors tend to helicopter in and out, without setting proper foundation. Investment needed to meet the gap for achieving the RE target is huge, however, not as much as fossil fuel subsidy given by most of the countries in the region.
- The form of fossil fuel subsidy differs among countries (direct and indirect), of which could hinder the renewable deployment. The public sector needs to look out beyond their comfort zone.
- For Vietnam, according to upcoming report on Nationally Determined Contributions (NDCs), its GDP growth will grow faster if the country goes beyond the target on energy, that could bring benefits to all parties. The public fund should be focused on transmission, not generation. There will be significant deployment of solar PV in Vietnam, of around 3 GW in the next few months, and more in the pipelines. However, the challenges of non-transparent and unclear permit and procedures are still high. The bankability of PPA is also an issue.

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- Renewable energy could provide significant number of jobs. In the US for example, solar and wind create jobs 12 time faster compare to others. The region could significantly benefit from renewables considering the huge untapped potential.
- ASEAN region could put more focus on small and medium RE scale (project cost of 3 – 10 million USD) as it has many islands and energy access challenges. However, financial requirement is a challenge as the process is similar with large scale project. Commercial banks need to put more focus in financing green project, and government needs to provide supports. The small and medium project need more access to finance as large scale project usually already had their mechanism. For small scale project, FiT is still an effective way.
- For distributed solar project in India, the current capacity is only around 3 GW (from 40 GW target and potential of 400 GW). There are several financing challenges such as lack of capacity from lender to appraise the RE project based on the case flow and the lack of credit worthiness from off-taker. The government has provided credits from multilateral development bank to local banks for solar rooftop project. The small and medium player also face challenges in accessing finance, due to lack of payment track record and credit rating. Demonstration project on credit guarantee mechanism is on-going to be references for the banks.
- PT. SMI has been providing loan to various RE project, from small scale to large scale (hundreds thousands to hundreds millions USD project).
- Central bank engagement is very important to formulate appropriate RE financing mechanism.

Session 3: Best Practices and Examples of RE project Development and Finance

Scene setting presentation



Arjun Guha (Programme Officer, RE Project Development and Finance, IRENA) presented *Renewable Energy Project Development and Finance in South East Asia*. He mentioned the rising energy demand to sustain development in the region and drivers for renewable energy. He highlighted the need to enhancing investment through policy frameworks and showed strong correlation between policy and regulatory environment and investment flows. He also shared several examples for RE project development in the region.

Kelvin Vuong (Associate, Astris Finance) presented the *Lesson Learnt in Arranging Long Term Project Financing with Local Banks*. He highlighted the achievement to secure first ever non-recourse domestic project financing of a foreign-owned 40 MW wind project and 49.5 MW solar farm in Vietnam (project

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closing within five months). He shared the key achievements in bridging the banking cultural gap, by bringing best project finance standards in the domestic banking market to increase the number of local currency project debt financing. Banks in Vietnam have different assessment mechanism compared to other ASEAN countries. The successful projects marked as important milestone to set confidence for the investors to have RE projects in Vietnam.



The panel discussion was moderated by Arjun Guha (Programme Officer, RE Project Development and Finance, IRENA) with following panellists: Surya Darma (Chairman of Indonesian Renewable Energy Society); Kelvin Vuong (Associate, Astris Finance); David Morgado (Senior Energy Policy Specialist, Asian Infrastructure Investment Bank); Ray McLaughlin (Head of Capital

Markets, Mainstream Renewable Power). The panellists discussed their experience in development and financing of renewable energy projects in the region – lessons learnt and best practices that can be replicated.

The summary of discussion is below:

- Currency risk and land acquisition are among the biggest concerns for foreign investors. For utility scale project that requires huge amount of equities, finding local partners with the financial capacity to meet the Government's requirements are difficult. Finding the right strategic local partners is very important.
- The biggest issue in Vietnam's current market is curtailment (technical and forced curtailment) – considering that there will be around 4 GW solar PV projects that will be on-line in the next few months. Information access and transparency on grid/network is very important to address this issue. Currently, the guarantee and insurance instruments are very limited. In addition, the current PPA still have bankability issues. The key success for Astris successful project was the willingness of forerunner stakeholders to take risk.
- The challenges of renewable energy project in Indonesia among others are the competitiveness, since the government provides subsidy for non-renewable energy, and policy and regulation inconsistency. The government and utility company/PLN as single buyer need to ensure transparency for RE project development. The country has huge gap to achieve the RE target of 23% RE in TPES in 2025.

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- From multilateral development bank (MDB) perspective, the key aspect for renewable energy project development are: bankable power purchase agreement, clear and transparent process, environmental assessment (especially for large hydro project), transmission capacity and grid planning, government priority/commitment on renewable energy. Cross border electricity is important to overcome intermittency. MDB could play role by investing in new technology/high risk projects such as off-shore wind, geothermal, hybrid.
- To achieve the regional RE target, scalability of projects is needed. The renewable energy projects need to be built in bigger scale and faster, otherwise, the target will not be reached.

Session 4: Enhancing Finance Flows through Project Facilitation

This session introduced IRENA's Project Facilitation tools. [Project Navigator](#) – a free, comprehensive platform that provides the tools to facilitate the creation of robust, bankable renewable energy project proposals. [Sustainable Energy Marketplace](#), an online platform developed by IRENA, that connects project owners, financiers/investors, host governments, service providers and technology suppliers to bring projects to fruition. [Global Atlas for Renewable Energy](#), IRENA's online platform offering the largest source of information on global renewable energy potential, featuring assessments of developing countries based on accurate data concerning population density, topography, local infrastructure, land use and protected areas.

Arjun Guha (Programme Officer, RE Project Development and Finance, IRENA) started the session by presenting *Access to Finance for Renewable Energy in Developing Countries*. He shared the global landscape of renewable energy finance and its source, such as private, public and green bonds. He also highlighted the barriers to financing RE transition and recommendations to unlocking renewable energy investments. He outlined IRENA's project facilitation tools and platform, including Global Atlas, Solar city engine, Sustainable Energy Market Place, and Open Solar Contracts. He also informed the capacity building initiated by IRENA on those topics.



Carlos Ruiz (Associate Programme Officer, Project Navigator, IRENA) continued the presentation on Project Navigator. He first explained on the RE project development challenges especially bankability of project proposals, and how IRENA Project Navigator aims to strengthen the project development base, enhance the quality of proposals and increase their bankability. He shared the features of Project Navigator, i.e. learning section, interactive workspace and financial navigator. He provided several case studies on project evaluation

model and risk evaluation matrices. Several publications on technical concept guidelines on various RE technology was also highlighted. Finally, he shared the status and outlook of Project Navigator.

Day 2: 21 May 2019

Session 5: Auctions as a tool to Improve Investor's Confidence

Scene setting presentation

Emanuele Bianco (Associate Programme Officer, Knowledge and Policy, IRENA) presented *How to Design an Auction? Design Elements and Their Influence on the Investor Confidence*. He started the presentation by mentioning that auction is the fastest growing policy for country to adapt and showing the trends of countries that have adopted auctions from 2005 -2018. He outlined how auctions keep pace with rapidly decreasing costs. He highlighted the flexibility of the design of auctions to achieve other objectives and how they could permit real price discovery as well as enable commitments and transparency. However, auctions are associated with relatively high transaction costs for both developer and auctioneer, and risk of underbidding and delays. The factors that impact the price such as country-specific conditions, investor confidence and learning curve, policies supporting renewables, and auction design were also mentioned. He underlined the key consideration in designing and implementing auctions, i.e. auction demand, qualification requirements, winner selection and sellers' liabilities.



Adam Bruce (Global Head of Corporate Affairs, Mainstream Renewable Power) presented *Auctions as a Tool to Improve Investor Confidence*. He shared the experiences of Mainstream Renewable Power on South Africa's Renewable Energy Independent Power Producers procurement programme (REI4P), that was held up as one of the best designed and best run energy procurement vehicles. He highlighted the interlocking parts of the policy and regulatory framework that support the REI4P, consisted of four elements, namely National Development Plan, Integrated Resources Plan, Ministerial Determination

and Independent Power Producer Programme. These four elements combine to provide very significant investor confidence that the REI4P is administratively robust, grounded in law, and not a one-off. The certainty of the process has resulted not only in driving down the bid cost of electricity, but also in delivering very significant wider socio-economic benefits. He finally emphasised the key success of REI4P, i.e. openness and transparency, and more than simple price discovery.

Panel discussion

The panel discussion was moderated by Emanuele Bianco (Associate Programme Officer, Knowledge and Policy, IRENA) with following panellists: Ernest Navaratnam (Group CEO, Cenergi SEA Sdn Bhd), Surya Darma (Chairman of Indonesian Renewable Energy Society), Liming Qiao (Asia Director, Global Wind Energy Council), Adam Bruce (Global Head of Corporate Affairs, Mainstream Renewable Power).

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The summary of the panel is as follow:

- At the early stage of RE market, it is important to have certainty and stability. Feed in tariff is the best way to initiate and create market. After that, auction is needed to bring down the cost. When switching to an auction system, transparency is the most important quality to be considered in the region.
- Malaysia started to implement auction for biogas (previously under FiT). It will also implement auction for energy efficiency projects. The implementation of auction attracts both national, regional and foreign investors. The LSS programmes gave lots of lesson learned both for government and project developers. The projects under LSS contributes to socio-economic benefits.
- It is important to recognise local and regional project developers that have technical capabilities to deliver the projects. Partnering with international players could bring benefit to enhance renewable deployment.
- Auction plays big role in bringing down the wind price globally. There is a 65% price reduction from 2009 to 2018 mostly driven by auction, in addition to technology improvement.
- In Indonesia, geothermal auction started in 2006/2007 and was based on price and technical selection. There are three steps for the auction: administrative selection, technical evaluation, price competition.
- There are still certain technologies (i.e. geothermal, wave, tidal) that could not compete with already mainstream RE technologies (such as solar PV and wind). Finding appropriate mechanism to compensate the market for those technologies is very important.
- In the case of UK for off-shore wind earlier development, innovation and collaboration between the industries on the supply chain, backed up by government commitment were the success factor that bring down the cost.

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- Comprehensive planning, such as grid infrastructure enhancement is important to support auction implementation. Transparency on the auction implementation is crucial. Effective risk allocation both for government and project developers should also be carefully considered.
- When communicating the auction to region's policy makers, especially when comparing the low results in other countries, complete information especially on auction design should be clearly mentioned. Conditions in every country is different, hence the auction results could vary.

Session 6: Financial Risk Mitigation Practices in the ASEAN Region

Scene setting presentation



The session was started by presentation from Paul Butarbutar (Executive Director, Indonesian RE Society) on *De-risking Investment in Renewable Energy*. He first shared on how investor and financial institutions perceive risk of renewable energy project. He further explained typical risks in RE projects in study/conceptual design, development/procurement, construction and operational stages. He also shared available insurance product for de-risking, such as guarantee for political risk, liquidity, payment, credit, performance and portfolio; however, these instruments availability in the region is still

limited. Lastly, he provided case on risks in small scale hydro project in Indonesia.

Second presentation on *Reducing Financial Risk to Renewable Energy Investment in Vietnam: Building a Green Finance Institution* was made by Michael DiGregorio (Vietnam Country Representative, the Asia Foundation). He mentioned that the Vietnam Business Forum has proposed regulatory and permitting changes as a means of leveraging private sector investment in renewable energy, including publication of market pricing of electricity roadmap, revision of model PPAs for wind and solar utilities, two-way meters application for residential rooftop and private sector access to invest in grid infrastructure. He also outlined key recommendations to accelerate RE investment in Vietnam which requires independent, fair and transparent governance.



The panel discussion was moderated by Paul Butarbutar (Executive Director, Indonesian RE Society) with following panellists: Vijay Nirmal (Program Manager, India Clean Energy Finance, Climate Policy Initiative), Michael Di Gregorio (Country Representative, The Asia Foundation/ Vietnam Business Forum Power), Alin Pratidina (Advisor, GIZ ASEAN-German Energy Programme), Arjun Guha (Programme Officer, RE Project Development and Finance, IRENA)

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The summary of discussion is below:

- The risk instruments have significant role in unlocking the RE investment in the region. IRENA is setting up a risk assessment and mitigation platform through Sustainable Energy Market Place, to improve transparency.
- Based on recent GIZ study on insurance and guarantee mapping in the region, currently, there are no product for guarantee/insurance products for small scale RE projects. One of the possibilities is 'project bundling' with other projects.
- In the case of Vietnam, there are policy risk and financial risk that should be addressed equally. Local companies tend not to buy the insurance, due to cost increment and tight margin. Credit enhancement facility has become very popular.
- Climate Policy India is managing a facility on India Clean Energy Finance, to support small scale solar PV (rooftop and mini grid). The main objective of the facility is to address investment/financial barriers into small scale projects, so the investment could flow in. Some of the key risks are high transaction cost, information discrepancy and consumer risk for net metering. For net-metering, credit mechanism needs to be adjusted based on the business model.
- Multilateral banks such as ADB, WB, IFC need to step in to bring investor's confidence to renewable energy market in the region. However, the investment target needs to be carefully considered. Supporting policy and bankable PPA are very important to bring investor's confidence.
- In Indonesia, PT SMI provides risk mitigation fund for exploration stage in geothermal project. PT SMI just launched SDG Indonesia One platform channelling fund from various sources to fund sustainable projects through innovative financing products.



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- Credit guarantee instrument has been very effective and efficient to mobilise investment. It could address most of the risk from the project also making public capital used effectively.

Closing remarks

In her closing remarks, Badariah Yosiyana (Program Officer, Southeast Asia, IRENA) once again highlighted the ASEAN-IRENA MoU and Action Plan implementation and the activities priority for 2019/2020, namely ASEAN RE Outlook update, bioenergy development outlook and webinars on various RE topics. In addition, IRENA will also organize RE Innovation Day in Bangkok in conjunction with ASEAN Ministers on Energy Meeting, Think tank roundtable at Singapore International Energy Week and Country roadmaps for two ASEAN countries. She finally thanked Vietnam for the hospitality as a host; ACE for the good coordination; speakers, panellists and AMS participants for active participation and fruitful discussion.

Annex 1 – List of Participants

No	Name	Organisation
1	Zaw Moe Win	Electric Power Generation Enterprise, Myanmar
2	Su Su Hlaing	Department of Electric Power Planning, Myanmar
3	Win Myint	Electric Power Generation Enterprise, Myanmar
4	Matiin Hj Muhd Kasim	Ministry of Energy, Man Power and Industry, Brunei Darussalam
5	Shaikh Faiz Shaikh Fadilah	Ministry of Energy, Man Power and Industry, Brunei Darussalam
6	Pengiran Jamra Weira	Ministry of Energy, Man Power and Industry, Brunei Darussalam
7	Liza V. Pangilinan	Department of Energy, the Philippines
8	Don Villanueva	Department of Energy, the Philippines
9	Heldilita Villanueva	Department of Energy, the Philippines
10	Jirawadee Suttarut	Department of Alternative Energy Development and Efficiency, Thailand
11	Rungrawee Yingyuad	Department of Alternative Energy Development and Efficiency, Thailand
12	Supatchalee Sophonthammaphat	Department of Alternative Energy Development and Efficiency, Thailand
13	Anousak Phongsavath	Research Institute for Energy and Mines, Ministry of Energy and Mines, Lao PDR
14	konethasine Boun Athone	Department of Energy and Mines of Luangprabang Province, Lao PDR
15	Kao Yong Nou	Department of Energy and Mines of Vientiane Capital, Lao PDR
16	Jafar Soddik	Ministry of Energy and Mineral Resources, Indonesia
17	Vanessa Koh	Energy Market Authority, Singapore
18	Surya Darma	Indonesia Renewable Energy Society/ PT. Hasera Sagoesa
19	Ruzaida binti Daud	Suruhanjaya Tenaga/Energy Commission, Malaysia
20	Ahmad Nazirul Akmal	Ministry of Energy, Science, Technology, Environment and Climate Change, Malaysia
21	Siti Aishah	Sustainable Energy Development Authority, Malaysia
22	Nguyen Ninh Hai	Ministry of Industry and Trade, Vietnam
23	Nguyen Thi Thuy	Ministry of Industry and Trade, Vietnam
24	Nguyen Thuy Huong	Ministry of Industry and Trade, Vietnam
25	Paul Butarbutar	Indonesia Renewable Energy Society/ JJB Sustainergy Indonesia
26	Intan Indriastari	PT. Sarana Multi Infrastruktur Indonesia
27	Vijay Nirmal	Climate Policy Initiatives, India

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28	Jakob Stenby Lundsager	Danish Energy Partnership Programme in Viet Nam
29	David Morgado	Asian Infrastructure and Investment Bank
30	Ernest Navaratnam	Cenergi SEA Sdn Bhd
31	Koos Neefjes	Climate Sense
32	Assaad Razzouk	Sindicatum Renewable Energy
33	Adam Bruce	Mainstream Renewable Power
34	Ray McLaughlin	Mainstream Renewable Power
35	Bui Thang	Mainstream Renewable Power
36	Liming Qiao	Global Wind Energy Council
37	Michael Di Gregorio	The Asia Foundation/ Vietnam Business Forum Power
38	Alin Pratidina	GIZ ASEAN-German Energy Project
39	Kelvin Vuong	Astris Finance
40	Badariah Yosiyana	International Renewable Energy Agency (IRENA)
41	Carlos Ruiz	International Renewable Energy Agency (IRENA)
42	Arjun Guha	International Renewable Energy Agency (IRENA)
43	Emanuele Bianco	International Renewable Energy Agency (IRENA)
44	Septia Buntara	ASEAN Centre for Energy (ACE)
45	Yudiandra Yuwono	ASEAN Centre for Energy (ACE)
46	Park Heegon	Hue Industrial College, Vietnam
47	Nobuo Tada	Hue Industrial College, Vietnam
48	Le Quoc	Hue Industrial College, Vietnam
49	Le Minh Tri	Hue Industrial College, Vietnam
50	Duong Hoang Van Ban	Danang Center of Energy Conservation and Technology Transfer, Vietnam
51	Pham Phu Thanh Son	Danang Center of Energy Conservation and Technology Transfer, Vietnam

Annex 2 – Agenda

Time	Session Title and Objective
DAY 1, 20 May 2019	
08.30 – 09.00	Registration
09.00 – 09.30	<p>Introduction and Welcome Remarks</p> <ul style="list-style-type: none"> - Nguyen Ninh Hai, Director of New and Renewable Energy Department Electricity and Renewable Energy Authority, Ministry of Industry and Trade (MOIT), Vietnam - Septia Buntara, Acting Manager AGEP, ASEAN Centre for Energy - Badariah Yosiyana, Programme Officer, Southeast Asia, IRENA
Session 1: Renewable Energy Policy and Regulatory Landscape in the ASEAN region	
09.30 – 09.45	<p>Overview of Global and Regional RE Policy and Regulatory Landscape</p> <p>Emanuele Bianco, Associate Programme Officer, Knowledge and Policy, IRENA</p>
09.45 – 10.00	<p>Synergy in ASEAN for RE Development</p> <p>Yudiandra Yuwono, Technical Officer, ASEAN-German Energy Programme, ACE</p>
10.00 – 10.45	<p>Panel discussion</p> <ul style="list-style-type: none"> • <i>What are the main policy and regulatory frameworks supporting renewable energy?</i> • <i>What are the relevant needs and challenges to accelerate RE deployment in the region?</i> <p>Moderator: Badariah Yosiyana, Programme Officer, Southeast Asia, IRENA</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Jakob Stenby Lundsager. Long Term Adviser. Danish Energy Partnership Programme in Viet Nam (DEPP) - Jafar Soddik, Head of Section, Various Renewable Energy Investment, Directorate General of New, Renewable Energy and Conservation. Ministry of Energy and Mineral Resources, Indonesia - Ahmad Nazirul Akmal, Renewable Energy Division, Ministry of Energy, Science, Technology, Environment and Climate Change, Malaysia - Anousak Phongsavath, Deputy Director General, Ministry of Energy and Mines, Lao PDR
10.45 – 11.10	Group photo and Coffee break

Session 2: Renewable Energy Financing Landscape in the ASEAN Region	
11.10 – 12.30	<p>Presentation:</p> <ul style="list-style-type: none"> - Myths of Renewable Energy (speech) Assaad Razzouk, CEO, Sindicatum Renewable Energy - Initiatives in Green Finance Intan Indriastari, Finance and Investment Division, PT. Sarana Multi infrastruktur <p>Followed by open discussion:</p> <ul style="list-style-type: none"> • <i>What are the key trends in RE investment in the region?</i> • <i>What are the main sources of current investments and how can we attract additional sources? Discuss green bonds, institutional investors, MDB/BDB, domestic financial institutions</i> <p>Moderator: Assaad Razzouk, CEO, Sindicatum Renewable Energy</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Ernest Navaratnam, Group CEO, Cenergi SEA Sdn Bhd - Vijay Nirmal, Program Manager, India Clean Energy Finance, Climate Policy Initiative - Koos Neefjes, Director & Climate Change Expert, Climate Sense - Arjun Guha, Programme Officer, RE Project Development and Finance, IRENA
12.30 – 13.30	Lunch
Session 3: Best practices and examples of RE project development and finance	
13.30 – 15.20	<p>Presentation:</p> <ul style="list-style-type: none"> - RE project Development and Finance Arjun Guha, Programme Officer, RE Project Development and Finance, IRENA - Lessons learnt in arranging long term project financing with local banks Kelvin Vuong, Associate, Astris Finance <ul style="list-style-type: none"> • <i>What are the key challenges in developing local RE projects? (issues with local currency finance, policy and regulatory hurdles, permitting, manpower etc).</i> • <i>What are the main challenges for financiers when originating and appraising RE projects?</i> <p>Moderator: Arjun Guha, Programme Officer, RE Project Development and Finance, IRENA</p> <p>Panelists:</p> <ul style="list-style-type: none"> - Surya Darma, Chairman of Indonesian Renewable Energy Society

	<ul style="list-style-type: none"> - Kelvin Vuong, Associate, Astris Finance - David Morgado, Senior Energy Policy Specialist, Asian Infrastructure Investment Bank - Ray McLaughlin, Head of Capital Markets, Mainstream Renewable Power
15.20 – 15.40	Coffee break
Session 4: Enhancing finance flows through Project Facilitation	
15.40 – 16.50	<p>IRENA presentation on Project Facilitation tools, followed by open discussion</p> <ul style="list-style-type: none"> - Access to finance for renewable energy in developing countries Arjun Guha, Programme Officer, RE Project Development and Finance, IRENA - IRENA Project Navigator Carlos Ruiz, Associate Programme Officer, Project Navigator, IRENA <ul style="list-style-type: none"> • <i>What are the key challenges holding back greater investment flows into RE?</i> • <i>What are some potential tools and opportunities that can help increase financing flows for RE</i>
18.00 – 20.00	<p>Networking Dinner</p> <p>Sky bar restaurant, 20th floor, Green Plaza Hotel, Da Nang</p>
DAY 2, 21 May 2019	
Session 5: Auctions as a tool to improve investor's confidence	
09.00-10.45	<p>Presentations:</p> <ul style="list-style-type: none"> - How to design an Auction? Design elements and their influence on the investor confidence Emanuele Bianco, Associate Programme Officer, Knowledge and Policy, IRENA - Auctions as a tool to improve investor confidence Adam Bruce, Global Head of Corporate Affairs, Mainstream Renewable Power <ul style="list-style-type: none"> • <i>Why and how auctions improve investor's confidence?</i> • <i>What are the potential auction design elements to be considered in the ASEAN region, to improve investor's confidence?</i> <p>Moderator: Emanuele Bianco, Associate Programme Officer, Knowledge and Policy, IRENA</p> <p>Speakers and Panellists:</p> <ul style="list-style-type: none"> - Ernest Navaratnam, Group CEO, Cenergi SEA Sdn Bhd - Surya Darma, Chairman of Indonesian Renewable Energy Society

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IRENA
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	<ul style="list-style-type: none"> - Liming Qiao, Asia Director. Global Wind Energy Council - Adam Bruce, Global Head of Corporate Affairs, Mainstream Renewable Power
10.45- 11.00	Coffee break
Session 6: Financial Risk Mitigation practices in the ASEAN region	
11.00 – 12.15	<p>Presentations</p> <ul style="list-style-type: none"> - De-risking Investment in Renewable Energy Paul Butarbutar, Executive Director of Indonesian RE Society/ Director of JJB Sustainergy Indonesia - Reducing Financial Risk to RE Investment in Vietnam Michael Di Gregorio, Country Representative, The Asia Foundation/ Vietnam Business Forum Power <ul style="list-style-type: none"> • <i>What are the current practices for financial risk mitigation in the region?</i> • <i>How can we effectively access and assess RM instruments that have the potential to increase investments in RE?</i> <p>Moderator: Paul Butarbutar, Executive Director of Indonesian RE Society/ Director of JJB Sustainergy Indonesia</p> <p>Speakers and Panelists:</p> <ul style="list-style-type: none"> - Vijay Nirmal, Program Manager, India Clean Energy Finance, Climate Policy Initiative - Michael Di Gregorio, Country Representative, The Asia Foundation/ Vietnam Business Forum Power - Alin Pratidina, Advisor, GIZ ASEAN-German Energy Programme - Arjun Guha, Programme Officer, RE Project Development and Finance, IRENA
12.15 – 12.30	<p>Overview of IRENA-ASEAN Engagement</p> <p>Badariah Yosiyana, Program Officer, Southeast Asia, IRENA</p> <p>Closing</p>
12.30	Lunch