

## REN21 2014 Global Status Report: South East Asia

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### Webinar Panelists

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**Sean** Hello everyone. I'm Sean Esterly with the National Renewable Energy Laboratory and welcome to today's webinar which is hosted by the Clean Energy Solutions Center. In partnership with the Renewable Energy Policy Network for the 21st Century also known as REN21. In today's webinar is focus on the launch of REN21's flagship report. The Renewables 2014 Global Status Report and it will have a special focus on the South East Asia region.

And one important note of mention before we begin our presentation is that the Clean Energy Solutions Center does not endorse or recommend specific products or services. Information provided in this webinar is featured in the Solutions Center's resource library as one of many best practices resources reviewed and selected by technical experts.

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on mute please. And if anyone has technical difficulties with the webinar, you can contact the GoToWebinars Help Desk at the number at the bottom of the slide. That number is 888-259-3826.

I encourage anyone from the audience to ask questions at any point during the webinar. We do keep the attendees muted. So, to ask a question, simply type it in to the question pane and this go to webinar window and submit it through there. And then I will present those questions to the panelist during the Q and A session at the end, following the presentations. And if you're having difficulty viewing the materials through the webinar portal, you'll find PDF copies of the presentations at [cleanenergysolutions.org/training](http://cleanenergysolutions.org/training). And you may follow along as our speakers present. And also we post and audio recording of the presentations to the Solution Center Training page within about a week of the broadcast and we are also now adding webinars to the Solution Center YouTube channel where you will also find other informative webinars as well as video interviews with top leaders on clean energy policy topics.

Now, in today's webinar agenda is centered around the presentations from our guest panelist, Christine Lins and Mr. Arne Schweinfurth. And these distinguished panelist have been kind enough to join us to discuss the launch of REN21's flagship Report, the Renewable 2014 Global Status Report.

In this 90-minute-webinar, we'll look in detail at the South East Asia region and we will find out what renewable changes happened in the region over the course of 2013. Learn which technologies are contributing to increase power capacity and hear how changes in policies have affected investment levels and market development in the region.

And before our speakers begin their presentations, I just want to provide a short informative overview of the Clean Energy Solutions Center initiative and then following the presentations is when we will have the Question and Answer session followed by closing remarks and a brief survey.

And this slide provide a bit of background in terms of how the Solution Center came to be formed and the Solution Center is one of 13 initiatives of the Clean Energy Ministerial that was launch in April of 2011. And it is primarily lead by Australia, the United States and other CEM partners. In some of the outcomes of this unique initiative includes support of developing countries and emerging economies, giving enhancement resources and policies relating to energy access, no cost expert policy assistance, peer-to-peer learning and training tools such as the webinar you are attending today.

There's four primary goals for Solution Center. First goal is to serve as a clearing house of clean energy policy resources. Second is to share policy best practices, data, and analysis tools specific to clean energy policies and programs. And third is to deliver dynamic services that enable expert

assistance, learning, and peer-to-peer sharing of experiences. And then lastly, the center also foster dialogue on emerging policy issues and innovation around the globe. And our primary audience is energy policy makers and analyst from governments and technical organizations in all countries. But then we also strive to engage with the private sector, NGOs and civil society.

And one of the marked features that the Solution Center provides is the no-cost expert policy assistance which is known as Ask-an-Expert. An Ask-an-Expert program has established a broad team of over 30 experts from around the globe who are each available to provide remote policy advise and analysis to all countries at no cost. So, for example, in the area of Carbon Management, we are very pleased to have Craig Hart. He is an Associate Professor of the School of Environment and Natural Resources at the People's University of China, serving as one of our experts. So, if you ever need for policy assistance in Carbon Management or any other clean energy sector, we do encourage you to use the Ask-an-Expert service. Again, it is provided to you free of charge. And to request assistance, go to [cleanenergysolutions.org/expert](http://cleanenergysolutions.org/expert) and submit your request by registering through the Ask-an-Expert form there. And, I invite you to spread the word about the service to those networks and organizations.

And so, in summary, we just encourage you to explore and take advantage of the Solution Center resources. Visit the webpage and browse the services that we offer including the expert policy assistance, the database of clean energy policy resources, subscribe to the newsletter to learn about more opportunities in resources like this and participate in webinars like this one.

And now, I'd like to provide brief introductions for ours distinguish panelists today. Our first speaker that we'll be hearing from is Christine Lins and Christine is the Executive Secretary of the Renewable Energy Policy Network for REN21 and will be discussing the key findings from the REN21 Renewable 2014 Global Status Report. And then, following Christine, we'll hear from Arne Schweinfurth, an economist and principal advisor on renewable energy at GIZ and he is located in Jakarta, Indonesia. And Arne will discuss the status of renewable in the South East Asia region. And so now, I'd like to welcome Christine to the webinar.

### **Christine**

Thank you very much and good morning – good afternoon ladies and gentlemen. It's my pleasure to be here with you today at this webinar and to take you to the key findings of the global status report. It was launched on 4th of July – 4th of June this year. So, I'm very happy to take you through this findings and then particularly add also that Arne Schweinfurth is here with me today to provide specific perspectives on South East Asia.

The Global Status report is a collaborative effort of over 500 contributors, researchers and reviewers worldwide. To give an overview of the global

status of market industry, policy and investments in the field of renewables, this year's report has a special feature of tracking the global energy transition of the last decade and we also provide an overview of distributed renewable energy in developing countries. The report covers all technologies and all sectors from power, heating and cooling as well as transport. And if I could start, I would really say that the last decade of renewable energy growth has surpassed all expectations.

Global installed capacity and production from all renewable technologies have increased substantially. Renewable power capacity, excluding hydropower saw a 7-fold increase during the past decade, from 85 going back to 2004 to 560 going back to 2013. We have seen cost, for most technologies, decreasing and that what's support policies continuing to spread throughout the world. Many of the scenarios that was set in place in the early 2000s were largely surpassed and I think we can really see that the renewable energy work has been significantly changing and evolving over this last decade. When it comes to renewable energy in the world, renewable provided an estimated 19% of global final energy consumption in 2012.

The share of modern renewables increased to about 10%. The share of traditional biomass decreased to about 9%. But overall, I'm seeing that the level of renewable energy remained about level with 2011, even as the share of modern renewable increased and this is because the rapid growth in modern renewables is tempered by both slow migration away from traditional biomass and a continued rise in total global energy demand. Sustainable energy for all the UN Secretary General Initiative sets the objectives to probably share for renewables by 2013 from 2010 level from 18% to 36% and in order to reach this, it becomes clear that increase efforts to speed up renewable energy development deployment are needed as well as more action in the field of energy efficiency to cope demand is absolutely essential.

So, let me have a quick look at renewable energy champions. Not only football people like to compete, and by the way, congratulations to reaching – to Germany, reaching the quarter finals. So, also in renewable energy, we see that nations are interested to see where they stand in the overall ranking and then, it's interesting when you look at and just concentrate on the first two lines. When you look at investment in renewable power and fuels, in absolute terms, then of course, you have countries like China, United States, Japan, United Kingdom and Germany. But as soon as you look at share of GDP invested, then you have completely different picture and you see that as small countries and developing countries are really – and emerging economies are dominating the scene there. So you have these Uruguay, Mauritius, Costa Rica, South Africa, and Nicaragua. South East Asia countries are also highlighted here in the slide.

They feature in the top 5 list in different areas, the geothermal, hydropower, CSP and solar water heating. When it comes to total generation installed, here we see that per capita, the EU is leading. So, basically all the per capita rankings accumulated by EU countries and 42% of non-hydro renewable capacity located in Europe compared to less than 17% of global electricity demand. And this high share of renewable energy also explain the need for increased attention on integration of variable renewables in the energy system as we can imagine.

Now, let me discuss the renewable power sector. Renewables comprise 1,000 and 13% and 26% of global power generation capacity and 22% of global electricity was produced from renewables. Renewables accounted for 56% of new installed power capacity in 2013. Bringing up to total capacity to 1,560 gigawatts. We are at the situation that the variable renewables achieving high levels of penetration in several countries. For example, throughout 2013, wind power met 33% of electricity demand in Denmark and 21% in Spain and solar PV met 8% of total annual electricity demand in Italy. We have seen that in 2013, China's new renewable power capacity surpassed new fossil fuel and nuclear capacity for the first time. And we also see in the South East Asia that we see increases the number of community in cooperative projects. In Thailand for example has increased, just to name one example.

In the field of heating and cooling. There is a small but growing renewable share of final global heat demand of approximately 10%. We see increase in trends of the use of renewables in combined heat and power plants in each heating system and also the use of renewable heat for industrial purposes. Renewable energy met more than 20% of final energy demand in Thailand, 11% in India, and 7% in Indonesia. So, also quite impressive numbers there.

As far as transport is concern. Liquid biofuels met about 2.3% of total transport fuel demand. And we see growing interest but still limited initiatives to link electric mobility with renewables in particular at city and regional level.

I've take you to some of the heat technologies, featured in Global Status Report. In the field of hydropower, about 40 gigawatts of new hydropower capacity were commissioned in 2013, increasing the global total around 4% to approximately 1,000 gigawatts. Modernization of ageing hydropower facilities is a growing global market. And we see there's increasing recognition of the potential for hydropower to complement other renewable technologies, such as variable wind and solar power. Vietnam added at least 1.3 gigawatts for a total of 14.2 gigawatts and we see the Chinese banks and industries are pursuing hydropower projects in South East Asia.

When it comes to Solar Photovoltaics, we see that Solar PV – the e solar PV market had a record year. In 2013, adding about 39 gigawatts for a

total of approximately 139 gigawatts. For the first time in history, there was more PV capacity added than wind. China saw spectacular growth, accounting for nearly one-third of global capacity added, followed by Japan and the United States. And also India added 1.1 gigawatts and Thailand 0.3 gigawatts. And in general, we see that Solar PV is starting to play a substantial role in electricity generation in some countries, particularly in Europe, while lower prices are opening new markets for Africa, the Middle East, Asia and Latin America.

As far as wind is concern, there were – there was an addition of 35 gigawatts. However, following several record years, the market was down nearly 10 gigawatts compared to 2012, which mainly reflects the steep drop in the U.S. market. Offshore wind had a record year, with 1.6 gigawatts was added, almost all in the EU. And globally wind power by the end of 2013 was enough to meet an estimated 3% of total electricity consumption. And also in South East Asia, for example, we see that Thailand doubled its power capacity, Europe remained, the top rating but it's very close that's followed by Asia.

In the field of bioenergy, we have a situation that demands continues to grow steadily in the heat, power, and transport sectors. Heat account for the majority of biomass use and global bio-power capacity was up an estimated 5 gigawatts to 88 gigawatts which needed. A demand for modern biomass is driving increased international trade in solid biofuels, including wood pellets. In Thailand, energy generated from biomass increased perfectly [indiscernible][00:17:55] and a new 9.5 megawatts facility was constructed in 2013.

And we still see that almost 60% of the bioenergy use is actually traditional biomass. I already mentioned liquid biofuels meeting 2.3% of global transport fuel demand. Also, there we see interesting examples from the regions. Singapore producing 0.9 billion liters of HVO – of hydro-treated vegetable oils in 2013 and Thailand also continues to rapidly expand in to biofuel production with an increase of 30%.

Geothermal energy, also interesting for the region, especially Philippines and Indonesia. We can also see increase bringing the – net increase was about 455 megawatts, bringing the total global capacity to 12 gigawatts. And there, we see that, as I mentioned, the two countries in South East Asia are playing, Philippines and Indonesia are playing in the league of the top country.

Solar thermal heating and cooling, also has increase there. The overall capacity reached an estimated 330 gigawatts thermal by the end of 2013. We see that the market is dominated by China which accounts for more than 80% of the global market. And we see that the trend towards deploying large domestic systems continued, as did growing interest in the use of solar thermal technologies for district heating, cooling, and industrial applications. After in Thailand, five years of steady growth

driven by the national incentive program and rising fuel prices, the market was subsidized systems declined 28% last year. So, there was some fluctuation in some countries.

As far as jobs are concerned, an estimated 6.5 million people work directly or indirectly in the renewable energy sector. Renewable energy employment continues to advance in more – to more and more countries. However, the majority of investment is concentrated in China, Brazil, the United States, India, and some European countries. And China remains the largest employment in the sector with 60% of employment concentrated in Solar PV. And we see some noteworthy shifts along the value chain segments, from manufacturing to installation and maintenance.

When it comes to global investments, in renewable power and fuels, the investment was about USD 214 billion without hydropower investments or USD 249 billion including hydro investment larger than 50 megawatts. New investment in – net investment in new renewable power capacity outpaced fossil fuels for the fourth year running. And it is second consecutive year of decline in investment after several years of growth and that was due in part to uncertainty over incentive policies within Europe and the United States. But it was also due to the reduction in technology cost. And some technologies is illustrated on the next slide.

And there you see that even as global investment in Solar PV has declined, that is the grey curve, by nearly 22% relative to 2012. New capacity installations increased by more than 32%, so that's the orange curve. So we see interesting and so far the curve was always parallel and now it goes in different directions. The main reason is low module prices. Of course as you can imagine, this provides lots of opportunities for new markets. And when you look at – actually at job investment in renewable energy by world regions, you clearly see that there are – I mean some regions such as the US, such Europe, and even some decline in investment compare to 2012, China. But the area where the investment went up is Asia and Oceania and the America excluding the US and Brazil. And we see that the investment in Japan, for example, went up 80% relative to 2012 levels.

Investment in Europe was found 44% the previous year. And despite the overall decline in China's investment, for the first time ever, China invested more in renewable energy than did all of Europe combined, and it invested more in renewable power capacity than in fossil fuels. Thailand, Hong Kong, and the Philippines dominated investment in renewable energy in emerging [indiscernible][00:23:39]

So, when it comes to the renewables policy landscape, by early 2014, we had 144 countries with renewable energy targets and 138 countries with renewable energy policy in place, out of which 95 are developing or emerging economies. You see, comparing the situation to a decade ago, that we have made rapid progress. At the early 2004, only 48 countries have renewable energy policy targets. Most policies can be found in the

power sector with feed-in-tariffs being the most prominent, followed by renewable portfolio standards and also tendering, becoming more prominent.

Over the years, we have a handful – no, more than handful – yes, some countries, about 19 with obligations amended in place. And also, series of countries with biofuel obligation amended. However, this very positive increase, we have seen lots of revision and retroactive reduction in several countries mainly in the US and in Europe, where of course, the situation is a bit different that in the emerging economies who are in high demand of additional power. In Europe and the US, you have, also due to energy, due to some reactions, due to economic – economic crisis. You had overcapacity in their – some of the countries decided to reduce renewable energy support.

A whole series of policy nation in South East Asia, I'm not going to go in to them in detail as I guess Arne will shed some light on these.

A last word about distributed renewable energy in developing countries. There we see that energy access and use of distributed renewable technologies increased. On all continents except Africa, the growth in population electrified is bigger than the growth in total population. In Africa, however, the population growth rate exceeded the rate of electrification and there are still only 43% of the population electrified. We see that new business and finance models for rural energy markets are emerging, as the potential of rural energy market is being recognized. Technically, solutions are available from mini-grids to ICT applications.

And also, we have lots of examples in South East Asia; Indonesia and Vietnam were among the countries with multiple public-private partnership projects in the distributing renewable energy sector. Thailand finances renewable energy deployment for taxis on fossil fuel based energy consumption and Vietnam uses biogas produced from plywood to fuel engine and it's a great generators set to supply electricity to mini-grids, and those are just some examples.

So, in conclusion, I would say that we have, over the last decade, seen a change in global perception of renewables. Renewables have arrive in the mainstream and are the preferred energy source of the general public in many parts of the world. And also, all the figures I have presented are very positive and need to move faster and more deliberately if we are serious about tackling the global share of renewables by 2030 and specially about ensuring access to clean and sustainable energy for all people by 2030. For this to become a reality, certain parameters have to be looked at.

We need a levelised playing field for the entire energy sector. We still have a strong distortion due to fossil fuel subsidies. We need stable policy frameworks, the most important driver to renewable energy deployment. We need, in the future, I think to pay great attentions to the heating and



cooling sector as most advances has been in the electricity sector and also most focus of policy is still there. And last but not least, we need improved initiatives for energy data monitoring as only informed decisions are good decision. And finally, it is important to continue the close collaboration between all actors from the public and the private sector in order to make different energy transition with renewables a reality soon. With this I would like to thank you for your attention and give the floor to Arne for his insights in to the South East Asia region. Thank you.

**Sean**

Arne, just to remind you that you're still on mute, so you'll have to unmute your mic. Arne, you're still on mute, just hit the same button you hit to mute yourself and it will take you off of mute.

**Arne**

Okay, thank you very much Christine for this very impressive presentation and congratulation to your work in establishing the global status report 2014. I can imagine how – what an effort it is to get all this data in a consistent way together. Thank you also very much organizers for inviting me to give inputs of you, on the regional perspective here in Asia-Pacific and specifically with the focus on the ASEAN community.

During my presentation, I will touch upon three main issues, but briefly about ASEAN region itself then the RE development in the ASEAN over the last years and some thoughts and information on the future outlook here in the region.

So, let me start with the ASEAN region. As most of you already know, ASEAN region consist of 10 member states ranging from countries like Singapore to Myanmar, Laos, it has a total population of more 600 million people. The GDP in the last 2013 was USD 2,400 billion and the GDP growth is quite steadily positive and around 5% in the last year. The primary energy demand is around 550 million tons of oil equivalent in 2011 and electricity generated is around 130,000 gigawatt hour also in 2011. What is also very important and one of the main drivers also for here, renewable energy for the region is electricity demand which over the last years was around +4% in a regional average and is also expected to continue growing in the immediate future.

So, that's the start insights on the RE development in the ASEAN. I will give the overview of the overall region, the 10 ASEAN member states and not go too much into details of specific countries. Nevertheless, in the end, I will give you some links where to get more country specific information and data.

So, what other, regarding renewable energy development, what other common drivers here in the region over the last years. As I mention already, it definitely increasing demand for electricity, but due to the economic growth. Another concern is security of energy supply and energy subsidies which are quite considerable burden on most of the public budget here in the ASEAN member states. Just to give you an

example, here on Thailand and Malaysia, you can see that a large extent of the electricity generation is based on fossil fuels, natural gas and coal, which the majority is imported. So, the dependence of import is quite high and definitely a concern of those countries.

Another driver, and this was already mention in the presentation of Christine, is energy access. If you look in this table, the figures, actually, they look at least the further you go down, quite promising. Over the last year and the last years, there was considerable growth or increase in electrification rate in the ASEAN member states. However, if you compare with the overall population of 600 million people, there are still more or less 100 million people without access to reliable and sustainable electricity in the remote area of the ASEAN countries.

The last driver, which was also mention from the global point of view by Christine, it's definitely decreasing development cost for renewable energy technologies. Here is an example for the Thais and I don't want to show you the very broad general figures globally but also very specifically here in the region in Thailand, how those cost for PV module prices in country and also EPC prices went down over the last 4 to 5 years. So, you can see, if you see price in Thailand went down by almost 50% which is definitely, also leading to more interesting investment opportunities here in the region and specifically in Thailand.

So, another thing is the targets which are set by here in the ASEAN. So, the collective renewable energy target for the ASEAN region of the 10 members is 15% RE share in total installed capacity of power generation by 2015. 8 out of these 10 ASEAN members state have set concrete RE targets. But the RE targets of the ASEAN member state were also very different focuses. It's depending on the countries. So Indonesia, for example, has a target of 17% share of RE in national energy mix by 2025 and including, for example, liquefied coal. Thailand aims at a 20% share of RE in national energy mix by 2021. Philippines aim at 15 gigawatts installed capacity. Myanmar aim to a 15% to 20% share of RE in power generation by 2020. Just some highlight of the quite ambitious targets here in the region.

If we go to the achievements and here again on the ASEAN regional end view. The primary energy mix in the ASEAN, they're renewable energy contributed 24%. This data, unfortunately, is from 2011, just the latest collective data available but still it is expected that the rate is more or less is the same over the last years and slightly increasing. If you look in to RE in the ASEAN power sector, also here data from 2011, which was published last year, we see that on the top that the share of renewable energy in the ASEAN installed capacity is almost 30%

[indiscernible][00:36:50] hydropower, so large. Hydropower has definitely the bulk share of almost 80%. The other contributors are biomass and geothermal – geothermal, especially in Philippines and Indonesia. Solar and wind power have only played minor role. The same applies for the

[indiscernible][00:37:13] for the generation – renewable energy power generation. Also, hydropower has definitely the largest share followed by geothermal and biomass.

So, summarize a little bit of RE development in the regions. It's very clear the ambitious targets are set and are in place, but not fully met on the country level as stated on before. The RE markets are also very diverse and leading to different challenges in the countries. Countries like Malaysia and Thailand have large shares of renewable energies already installed. They have concerns regarding the adjustment of grid codes. Other countries need basic electricity supply for remote areas. So, there's a whole range of concern and challenges here in the region. What we also saw over the last year and the last, I will say, 5 years here in the region is that there is considerable development on the regulation and policy side in some ASEAN countries especially Indonesia, Malaysia, Philippines, Thailand and Vietnam.

For example, Indonesia, just recently published a new increase fee and tariff hydropower plants, solar power, there is also guaranteed price by the tendering process and at the moment, this has to increase the biomass and [indiscernible][00:39:03] Indonesia. In Thailand, was briefly mention by Christine, there's developments on the solar rooftop. PV where a regulation is in place and the last, let's say hurdles, were cleared. Also the feed-in-tariffs for—is replacing the original other program is enforced. The Philippines, the discussion over the last year was turning a lot around net metering.

A regulation was published and put into forced last year. However, it's, let's say, the deployment of net metering project systems is still relatively slow due to a number of reason which I will explain a little bit further on. And also, in the Philippines, one major step was done just a couple of weeks ago when a large – the first large 23 megawatts PV power plant, another feed-in-tariff was inaugurated, so now, after years of policy development and regulation and laws, nowadays, we need the first large PV power plant under this rules.

So, we have a lot of developments which can be observed [indiscernible][00:40:44] in most of the countries. So, the problems which occurs during implementation are cleaned and step-by-step, regulation are develop further. However, this leads also to the fact that the investment environment for renewable energy is still relatively unstable, at least due to the many changes which occurred over the last years.

So, a couple of words to the future outlook, I already mentioned it, there is definitely a need for power. There is different scenario and outlooks. One of them is done by the ASEAN Center for Energy. The other one from IEA which has different assumption. So, ACE with the assumption of renewable energy – 25% renewable energy in the generation mix – power generation mix leads to very high increase in generation. IEA is a little bit

more cautious on that, but also renewable energy play a minor role in the consideration on the energy outlook.

What other remaining challenges here in the region and in the countries. As I mentioned, the teething trouble which accompanies the new development in the countries. They are still a reactor. Frequent changes, the adjustment of RE support schemes, definitely not very supportive for private investments here in the countries. And definitely in transparent and complicated administrative procedures and case-by-case decision making hinders the large deployment of renewable energies in the ASEAN member state. This is – then on top of that, what is the major concern, especially also for investors, the lack of data and data inconsistency. No regional market is in place. No common technical norms and standards between the different countries are in place, even though there is some development insight due to the fact that by the end of next year of 2015, the ASEAN economic community will be put in force. So, that is also more investments and trade in the renewable energy market possible.

So, I would like to highlight one remaining challenge which is from my point-of-view, the most important here at the moment. It's about the procedures. It's less about the policies, the regulation, and laws but how they are put into force, how they can be actually be used also for project developers and investors. If the big challenge that the many different government levels are involved, usually in RE projects, from the central level to the provincial to the local government. The different procedures in different regions of many countries depending where the RE project are placed and therefore, the involvement of many authorities for only minor licenses is a big challenge.

This lead of course to the mismatch between size the project and number of licenses. It's to say that for a relatively small PV power plant of let say 100 kilowatts, more or less the same licenses than for a 50 megawatts PV power plant have to obtained, which makes it in the end of not bankable of course. So, there is definitely the need for guidance on those procedures and from my point-of-view, definitely one of the main homework for policy makers and governments here in the region to do.

Another challenge is, apart from, the procedures themselves, is the transparency about those procedures. Just hear some snapshots which are questions which arise from project developer. So, where to find eligible locations? How much time takes and the cost involved? And also the fact it takes up to 3 years to obtain several hundred licenses for regular PV power plant. These are all facts that are practical. It shows which are concerns here in the ASEAN member state. So, the need for transparency is definitely very prominent and [indiscernible][00:46:11] transparency and guidance can be met.

So, the ASEAN Center for Energy established the guidelines for the ASEAN member state where [indiscernible][00:46:26] project

development cycle is transparently shown and also the different sub-steps are made transparent for project developers. This kind of guidance is to be developed for Indonesia, Vietnam, Philippines, and Malaysia. The first step is definitely an important, let's say tool – an instrument, to improve the market activities in the different countries.

So, to close my presentation and as I said I could not go too much into detail for each countries, but there are definitely further information here available in the region. One is the RE guidelines which I just mentioned and showcased and the other thing is the ASEAN renewable web portal where RE country profiles are put and very detailed and complete information on the RE development in those 10 ASEAN member state countries can be obtained.

With that I would like to close. Thank you very much and looking forward to your questions and comments. Thank you.

**Sean**

Thank you both Christine and Arne for the presentations on the REN21 Global Status Report and Renewable Status in South East Asia. And I just want to remind the audience, if you have any questions for the panelist, you can submit those through the question pane and I can present them to the panelist for discussions. One of the question we have is “What is the status of distributed generation, particularly with PV in South East Asia. Do you see a future there and what are some of the barriers?

**Arne**

Should I directly answer or do we collect the questions?

**Sean**

Am sorry?

**Arne**

Should I directly it? Yeah?

**Sean**

Yeah. Yeah. Go ahead

**Arne**

Okay. Okay. Sorry. Sorry for the confusion. Yeah, as I mentioned that there is definitely a huge need still for distributed generation for remote areas here in the South East Asia region. Definitely, it's for Indonesia and the Philippines, to the many islands and it's a bit of concern. And also countries like Myanmar and Cambodia where large part of the rural areas are not yet electrified. There distributed generation is definitely an option which is also actively pursued by the governments. One example is in the Philippines, which also come close directly to the question.

There's a quite interesting development recently that the Department of Energy just announce, they are working now on a regulation and a policy in order to attract private investments for PV or mini-grids – PV hybrid mini-grids for off-grid or remote electrification. So, there is a lot of activities going on. Here in Indonesia, on the other hand, just as a second and last example, there's several ministries also looking into remote

electrification. And there's regularly relatively large tenders for small grids and solar appliances.

Yeah, with that, definitely there is a needs, there is activities, there is programs and support mechanism. One, let's say, challenge for distributed generation in all the four countries I mentioned, maybe to a lesser extend in Cambodia. One challenge is definitely the number of different actors involved. For example, here in Indonesia, there is a public utility – power utility year-end plus several ministries. There's sometimes a lack of coordination which leads to in transparency but still the need and the potential is there.

**Sean** Great. Thank you for that answer and actually another question came in. “Along similar lines to the off-grid question. It mentions that still 100 million people are without electricity access, primarily due to the geographical spread and lack of infrastructure. Are there available guidelines to rural or off-grid electrification projects in the region and are these harmonized at the regional level?”

**Arne** Yeah, there is. What I showed in my slide at the end. The ASEAN Renewable Energy portal, there is also a lot of presentations and publication, database and there are, actually there is ASEAN guideline for rule electrification. They were developed and published last year, 2013. However, those are rather best practices of guidance. There is no, let's say, ASEAN binding, ASEAN policy or recommendation or harmonize approach on rural electrification. Nevertheless, that the best practice guidance is available and can be downloaded also in this web portal.

**Sean** Thanks again Arne. And now, shifting gear a little bit.

**Christine** I can talk to compliment on what Arne just said and draw people's attention to a mini-grid policy tool kit that REN21, the Alliance for Rural Electrification and [indiscernible][00:53:08] are currently working on. That will be launched somewhere in autumn which will provide guidelines for policy makers on what to do to promote mini-grids. And I think that could also be complementing the several handbook that Arne has mentioned. Thank you.

**Sean** Great. Thank you Christine. And the next question is “In both of your opinions, what are your views on the next future RE champion markets in the region will be?”

**Arne** Yeah. May I just go first? Let's say talking about ASEAN itself, if you go outside ASEAN, there's definitely at the moment. It's Japan. It's the largest market, exploding actually, and – but here in the ASEAN region, there's – well, it's not so easy. There is, at the moment, definitely the champion is Thailand since they're the most consistence and most effective support mechanism are in place, followed by Malaysia where

also the policy approach is relatively consistence even though the teething – teething trouble is of course still true.

Then Philippines is step-by-step, also putting into force, there are e-law and applying different regulations. So, this is the countries where I see definitely the short-term most development in the region. Nevertheless, the potential and the need is, for my point-of-view, largest here in [indiscernible][00:55:15] and but there's still homework to be done on the policy side to make it more effective and efficient but there's, let's say, the medium term, definitely the largest markets but it's quite easy. The demand is rising. There's a need for alternatives or complements to the fossil fuel powered power plants and definitely, a large market to be tap in the future.

**Christine** I have nothing to say to add here to what Arne said. I share his assessment. I think that really – I mean, what we see now in the situation in Japan, for example, where investment in renewables increased 80% compared to 2012 levels last year. We clearly see, and this is aftermath of change in energy policy. Also, at the Fukushima, we see that the policy – the development of renewables is largely policy driven and it will be definitely the countries with stable frameworks. Not less complicated frameworks, that will be the ones that will show most –

**Arne** Hello?

**Sean** Did we lose you Christine?

**Christine** Sorry. No. Suddenly I got muted again. So when we look at China – when we see the China is the champion in most areas. This is a development that has not been there forever. It is really something that happened in the last decade. In 2004, China had basically nearly know renewable energy supply and then, they can't established itself to be the champion with a renewable energy law and with very straight forward policy framework and initiatives and I think that they can really serve as an example for many other countries on how such as framework came and put in place and how [indiscernible][00:57:39] countries can also benefits from renewable energy deployment, not only in sustainable – in providing sustainable energy supply but also in providing employment and economic development in their countries.

**Sean** Okay. Thank you both. That is the last question that I received from the audience at this point. So, moving along. I'd like to give both Christine and Arne. Maybe starting with Christine a chance for any closing remarks that you might have.

**Christine** Thank you very much Sean. I would like to thank the audience for their attention. It was another great webinar. Clearly, South East Asia is a very promising region when it comes to renewables and I think, and I'm very confident, that we will see quite a lot of future growth in the region and

look forward to being in touch with many of you in the weeks and years to come. Clearly, as I said before, the Renewable Energy Status, the Global Status Report is based on voluntary contributions from all over 500 peoples throughout the world. If you would like to contribute, your knowledge, your data, you're more than welcome. Just contacting us at [secretariat@REN21.net](mailto:secretariat@REN21.net) and we will look forward to seeing how you can contribute to the process. Thank you very much.

**Arne**

Thank you Christine and also the organizers and the audience. Thank you very much for this webinar. From my point-of-view as a closing remarks, I just would highlight again. It's maybe not so much about policy, whether it's in [indiscernible][00:59:41] tendering. Whether it's another process, but it's how this policy is implemented here in the ASEAN countries. So, the administrative and permit procedures, they have to be put in place, have to be made more align and transparent.

So, that also investors are not – are really interested in those projects for a large scale deployment. This is from our perspective, the greatest or one of the largest homework in the short term but I'm quite confident that observing also the development in the Philippine, Indonesia, Malaysia, and Thailand as just as an examples that there will be from now to next year's webinar, a little progress on that. Thank you very much.

**Sean**

Great. Thanks again to both the panelist and now, I just like to ask the audience to participate in a very brief survey that we have for you, that helps us evaluate how we did on the webinar and improve for future webinars and the first questions has been displayed and that question is "The Webinar content provided me with useful information and insight" and you can respond right in the GoToWebinar window. And the second question is "The Webinar's presenters were effective." And then the final question is "Overall, the Webinar met my expectations." Great. Thank you for answering the survey in.

On behalf of the Clean Energy Solutions Center, I just like to Thank Christine and Arne once again and also to our attendees for joining us for today's webinar. We very much appreciate your time and I hope you'll come back for future Solutions Center events. Please feel free to go up to the Solution Center website to view the presentations from today's webinar as well as the other regional REN21 webinars that are out there. We do still have some upcoming ones, so you can register for those as well. You can also visit the Clean Energy Solution database and ask-an-expert feature as well. Just a reminder, we'll be posting the recording of this webinar to the Solution Center Training page within about a week of today's broadcast. And so with that, I hope everyone has a great rest of your day and we hope to see you again at future Clean Energy Solution events. And this concludes our webinar.