

## Webinar Panelists

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## This Transcript

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Sean Esterly

Hi. I'm Sean Esterly with the National Renewable Energy Laboratory and welcome to today's webinar hosted by the Clean Energy Solutions Center and REN21. We're very fortunate to have Christine Lins and Rafael Senga joining us. This outstanding group of panelists will be discussing the REN21 Renewables 2013 Global Status where they focus on Southeast Asia.

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 Solution Center's resource library as one of many best practices resources reviewed and selected by technical experts.

And before we begin, I just want to go over some of the webinar features. For audio, you have two options. You may either listen through your computer or over your telephone. If you choose to listen to your computer, please select the "mic and speakers" options in the audio pane. By doing that you will eliminate the possibility of feedback and echo. And if you select the "telephone" option, a box on the right side will display the telephone number and the audio PIN that you should use to dial in.

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and you may follow along as our speakers present. So also, an audio recording of the presentation will be posted to the Solutions Center training page within a few weeks of today's broadcast.

So, we've a great agenda prepared for you today that is focused on the REN21 Renewables 2013 Global Status Report with a focus on Southeast Asia and before our speakers begin their presentations, I and just going to provide a short informative overview of the Clean Energy Solutions Center initiative. And then following the presentations, we'll have a Question and Answer session, and then some closing remarks, and a very brief survey.

So, that's why I provided a bit of background in terms of how the Solutions Center came to be. The Solutions Center is an initiative of the Clean Energy Ministerial and is supported through a partnership with UN Energy. It was launched in April of 2011 and is primarily led by Australia, the United States, and other CEM partners. Outcomes of this unique partnership includes support of developing countries through enhancement of resources on policies relating to energy access, the no cost expert policy assistance, and also peer-to-peer learning and training tools such as the webinar you're attending today.

And the Solutions Center's four primary goals. It serves as a clearinghouse of clean energy policy resources, also serves to share policy best practices, data and analysis tools specific to clean energy policies and programs, and the Solutions Center delivers dynamic services that enables expert assistance, learning, and peer-to-peer sharing of experiences. And then lastly, the center fosters dialogue on emerging policy issues and innovation from around the globe.

So, our primary audience is energy policy makers and analysts from governments and technical organizations in all countries, but then we also strive to engage with the private sector, NGOs, and civil societies.

So, a more key feature that the Solutions Center provides is that expert policy assistance known as Ask an Expert, and it's a great service offered to the Solution's Center at zero cost. So, we have established a broad team of over 30 experts from around the globe and they are all available to provide remote policy advice and analysis to all countries again at no cost.

So, for example, in the area of Renewable Energy Finance and Markets, we are very pleased to have Toby Couture of Meister serving as our expert. And if you have a need for policy assistance on renewable energy finance and markets, or any other clean energy sector, we just encourage to use this useful service. Again, it's provided free of charge. And to request assistance, you simple submit your request by registering through our Ask an Expert feature at [cleanenergysolutions.org](http://cleanenergysolutions.org), and then travel to the "expert" page.

So, we also invite you to spread the word about this service to those in your networks and organizations. So, we encourage you to explore and take advantage of the Solutions Center resources and services, including that expert policy assistance. You can subscribe to our newsletter for more information and participate in webinars like this.

And now, I'd like to provide a brief introduction for our distinguished panelists today. First off is Christine Lins, Executive Secretary of REN21. Christine will be providing an overview of the key findings from the 2013 Renewables Global Status Report. And then following Christine, we will hear from Rafael Senga, a manager specializing in energy policy for the Asia Pacific with WWF International. Rafael will provide an overview of the status on renewables in Southeast Asia. And now, please join me in welcoming Christine Lins to the webinar.

Christine Lins

Thank you very much, Sean. Good morning, ladies and gentlemen. I am going to minimize this now so that this is not in our way and you can see my presentation well. It is a pleasure for me to be here with you this morning and to provide you an overview on the global renewable energy status as from the Renewables 2013 Global Status Report that REN21 launches on an annual basis.

A quick word on REN21. We are a multi-stakeholder policy network grouping [inaudible][00:06:56] from both public and private sector. I will call it the coalition of the willing, of all those who worked towards a rapid transition for its renewable energy. We have a series of governments and a number of international organizations working in between industry associations, NGOs, as well as Science and Academia. We are based here at the United Nations Environment Program in Paris, France, and I am very happy to have Rafael Senga from WWF as my co-panelist, WWF being one of our steering committee members.

I already mentioned, we launch global status report on an annual basis. This is a report that was first established in 2005 that gives an overview on global markets for renewable energy, industry trends, that tracks policy development, and has a special focus on rural renewable energy. It covers all renewable energy technologies and all sectors from electricity to heating and cooling, as well as transport, and we are actually basing this report on contributions from over 500 contributors, researchers, and reviewers worldwide. We are continuously expanding this community so if anybody here on the webinar who is online who would like to contribute to the future, you are more than welcome to join our group. And we launch reports every year along with [inaudible][00:08:35] in renewable energy investments to get ready with this very comprehensive feature about the status of renewables in all sectors.

So, in a nutshell where we are going today, in 2011, renewable energy supplied an estimated 19% of global final energy consumption. So, you will notice that these figures for 2011 *because* effectively, it is now

possible to get more up to date figures for global final energy consumption of which the renewable shares presented here. However, all the other figures in the report are dated 2012.

And you will see that this 19% are composed of roughly half more than renewable as well as another half of traditional biomass. Fortunately, during the last year, since all the share of modern renewable increased and the one of traditional biomass decreased because also in the use of traditional biomass is not fully *sustained*.

What we do in the Global Status Report, we also portray the top renewable energy champions. And there, you clearly see that all these boxes marked in red that showed the Asian countries, I mean, a very clear dominance of China in the picture, but we also have some other countries such as Japan, the Philippines, Indonesia, as well as India, and Vietnam appearing on this chart. So, we clearly see that the geography of renewables is spreading.

So, what does this mean, this 19% in final energy consumption, what does it mean for the electricity sector in 2012, for renewables comprise more than 26% of global power generation capacity and about 22% of global electricity was produced from renewables. And renewables accounted for just over half of all the new electric capacity those installed globally in 2012. So basically, more than half of all new power plants that were built were renewables based. That is a global average in the European union. In this figure, for example, was in the order of 70% , so more than two-thirds of all new power plants where renewable space in 2012 in clear dominance of [inaudible][00:11:07].

As far as heating and cooling is concerned, we see that renewable energy solutions [inaudible][00:11:15] thermal biomass, geothermal energy make their way into heating and cooling markets. You will see a general trend for transition for larger systems including the use of combined heat and power for district schemes and for industrial purposes. Solar collectors have made it now in the energy mix of 56 countries all over the world for water, heating, and increasingly also for the space heating, and they are also merging technologies to provide cooling with renewables.

As far as transport is concerned, liquid biofuels provided about 3.4 % of global road transport fuels in 2012. And we see that many regions in the world put in place policies promoting electric mobility and often these policies are tied with renewable energy programs very often at the local level where such combinations are *promoted*.

So, let me now quickly take you through some of the key sectors. As far as hydropower is concerned, there were 30 gigawatt of new hydropower added in 2012, increasing capacity by nearly 3%. And we see that there is a growing prominence of joint venture business models involving local and international partnerships in new hydro projects as the size of the projects increase. There, you will also notice the clear trend towards

sustained and hydropower, and hydropower industry together with NGOs has developed the sustainability protocol and will more and more see that the focus on new projects is on sustainability aspect, and on involving local population in the different area. And there you clearly see, when you look at hydropower global capacity additions in 2012, you will see Vietnam, it's at quite prominent place.

As far as wind power is concerned, 2012 saw the installation of almost 45 gigawatts of wind power beginning operation. This increases the global wind capacity by 19% to 283 gigawatts. In China, wind power increased by 13 gigawatts out of these 283, starting with China and that surpasses the generation from coal and passed on to nuclear power output for the first time. I think that is very important to see that we have a lot of growth rates in many of the renewable technologies. India as well, adding 2.3 gigawatts just to name two of the largest markets in the region.

As far as solar photovoltaic is concerned, there were about 30 gigawatts of PV added in 2012, which brought the total operating capacity of solar PV up to 100 gigawatts. This was considered a milestone. And if you look at the graph, you will see technically that it took about 15 years—it led to 15 years to reach 40 gigawatts in solar capacity. This amount was more than doubled in just two years to a very, very steep increase of the curve. It means all considerable price reductions for solar PV modules, quite significant price reductions in 2011 of over 40% and another price reduction by more than 30% in 2012. So, these were partly due to [inaudible][00:15:22] of course. But of course, also are partly due to overcapacities in the industry and they led to some difficult situations for some industries [inaudible][00:15:33]. and some industry consolidation especially in [inaudible][00:15:39] countries.

By the end of 2012, Australia, China, India, and Japan had at least 1 gigawatt of total capacity and Australia, China, and Japan were among the 10 top markets for PV, which I think, shows already that the geography of renewables is really spreading. So, we have more and more countries in the world putting in place policies promoting renewables, but then and also putting in place installations in the renewables sector.

So, as far as concentrating solar thermal power is concerned, the graph also shows a steep increase or so from a much lower [inaudible][00:16:22] basis baseline. Interest in CSP is generally on the rise particularly in developing countries with investments spreading it from Africa, the Middle East, Asia, and Latin America. And we see that nowadays China, India, and South Korea have small kind of plants in operation. And there is—especially in the Middle East also, a lot of developments happened in Middle East and North Africa.

As far as geothermal energy is concerned, geothermal both for district heating and for electricity, also some increase. And we see that two-thirds of global capacity is located in the US, China, Sweden, Germany, and

Japan. So they are again different from other sources, of course, the usage of geothermal energy is dependent on an available potential, but still there is quite some [inaudible][00:17:25] available all around the world, some of which only is [inaudible][00:17:29].

Bioenergy. We see the use of biomass in heat, power, and transport sectors increasing by a power capacity as can be seen here on this chart. It goes up 12% to nearly 83 gigawatts in 2012 with notable increases in some of the BRICS countries. So, you see quite significant increase in China, in India, as well as in Japan as far as Asia is concerned.

Renewable energy and jobs. Worldwide renewable energy employment continues to increase. There are, apparently, according to a study from IRENA and the International Renewable Energy Agency, an estimated 5.7 million people work in renewable energy sector with the bulk of employment remaining concentrated in some countries of the world and as far as Asia is concerned, mainly in China and in India.

As far as global investment in renewable energy is concerned, we see that the picture was a bit differentiated in 2012. On the one hand, installed capacity increased, on the other hand, global investment in renewable power went down 12% from the previous year's record. We see it went to 244 billion US dollars and see that this is still the second highest investment amount ever. And we must not forget, as I indicated before that technology costs failed not only in the fields of [inaudible][00:19:09], but also in the field of wind. A total of a lesser extent, but still—so, capacities increased, technology costs failed, but I mean, clearly, what we see—one of the main reasons of this reduction is that there was quite some investment insecurity and investment went down, significantly down also as a result of the financial crisis in Europe and in the US. And what we noticed actually is a dramatic shift in the balance of investment activities between developed countries and developing economies. And I think that is very impressive to see.

So, if you look, I mentioned 244 billion. If you look how those are spread, we have 112 billion US dollars invested in developing countries, that was an increase of 34% compared to 211, and that continues an unbroken eight years growth trend, whereas developed economies and they are mainly the European Union and the US, their investment failed by 29% \$132 billion and that was the lowest level since 2009. So, we clearly see a shift in investment sectors, that is on the one hand I think due to the fact that there are more markets, but we also, and this is I think very encouraging that clearly shows that in emerging economies and developing countries which has an increase need for additional electricity capacity which have still to overcome an issue of providing energy excess for large parts of the population are investing in renewables as sustainable solutions where with installations come in quickly online. And there we see that in Asia, investment also on the rise. China, nearly 67 billion US dollars, Asia and

Oceania excluding India and China, 29 billion; India as well around 6.5 billion. There we see that investment is really on the rise.

Another renewables powerhouse that we see to emerge is Middle East and Africa, and also quite some dynamic developments in the Americas especially in Latin America. When you look at the United States and Europe you'll see effectively there the drastic reduction in investment in 2012 which is due to, in the U.S., mainly the changes in the policy framework and I would say the resize of the energy crisis for the European Union.

So, when it comes to policy, we see that now, there's at least 138 countries in the world had renewable energy targets and about 130 of those has policy frameworks in place providing measures, policy measures how to reach these targets. When you look at the map, there we basically show the member policy types enacted in different regions and there we see that there are things happening in the Asia Pacific region. However, we see that especially in Southeast Asia, there is still, some *white spots*..

So although we see, and I think Rafael will further detail this, there is a lot of things happening and there are many policy frameworks put in place. What is also encouraging to state here is the members of countries with renewable energy targets has more than doubled between 2005 and 2012. So again, we see really that more and more countries put in place renewables policies because they can rinse off the beneficial effects of renewables on their sustainable energy supply.

A quick outlook. The status I have basically provided to you and now on a global level. There is an agreed set of goals for sustainable energy for all. This is an initiative for UN secretary general *Ki-Moon* which foresees the universal access to modern energy services for all by 2013, which foresees the doubling of the global rate improvement in energy efficiency as well as the doubling of the share of renewable energy in the global energy mix.

We have together with consortium of international agencies under the coordination of the World Bank and the International Energy Agency contributed to a global tracking framework and basically provides a baseline on how these objectives can be *measured*. And when you look at the right column, you'll see the renewable share—the renewables objectives. So, this consists of the doubling of the share of renewable energy in the global energy mix from 2010, 18% to 33% in 2013.

There's a very detailed report available for those of you interested and we have also established in this report basically *measures* on how access to modern energy services can be advanced. There is a lot of need still to get going there. According to some estimates from the International Energy agency there are apparently \$9 billion spent annually on improving energy access. This figure would need to go up to over 45 billion per year if we

were to reach the universal energy access—or universal access to modern energy services for all by 2013 which is clearly a very important goal to be reached.

We have a series of—we recently looked at the series of different renewable energy scenarios showing pathways, possible pathways for renewables up to 2050. The red fonts in this graph indicates the sustainable energy for all target and there you can clearly see that the businesses' usual scenarios, the conservative scenarios will not get us to these shares of renewable however high renewable scenarios in those combining energy efficiency and renewable energy measures are indicating there as well beyond the this target, so there is a context target that is feasible, however, additional and bold policy measures are needed.

And when looking at this, I think it is important not to forget that historical projections fell short and I'm just going to spend a minute on the right part of the graph which shows the projections of the World Bank that were made in 1997 for wind power in China, and the blue bar is actually the share that was projected for 2020. So, it was about 6 gigawatts, and the red bar is the share that was actually reached in 2011 which is nearly 60 gigawatts. So, a factor of 10 for 10 years earlier. And I think that clearly shows and by no means the organizations mentioned here in the graph are the only ones getting these—having got it wrong even industry associations in Europe for example has completely under estimated the [inaudible][00:27:47] of the development and we clearly see which [inaudible][00:27:52] how significant the deployment of renewable will most likely be much quicker than many of these scenarios I mentioned before have actually really indicated.

However, in order for this to happen, policy frameworks are need to put in place. You might recall, one of my first slides indicating that the currency of renewables is in the order of 19%. [inaudible][00:28:17] traditional biomass which under sustainable energy for all is not subject to be further promoted. It's clear that this increase technically has to come from the modern renewables including sustainable hydropower and so the objective of [inaudible][00:28:36] of renewables for 2030 will most likely result in the tripling of the share of modern renewables and sustainable hydropower, which means that we will need all centralized and decentralized renewables. And for this to happen, stable and predictable police frameworks are absolutely key. Key on the one hand for the industry, but also key for attracting the necessary investment into the sector.

There is still lots of things that need to be done. Untargeted fossil fuel subsidies need to be phased out. We still have a situation where renewable energy support is six times less than fossil fuel subsidies and are also a point of what we see is clearly that integration of renewable is becoming more important both in the field of technical integration into renewable energy or into energy grids, electricity grids, but also in the field of policy



design and policy innovation to really make sure that the renewables are competing on a level playing field with the other energy sources. We are convinced that this need dialog between the private and the public sector.

In this respect, REN21 has its series of initiatives initiating debates about different subjects all around the world. One of which is this webinar series for which I would like to thank the Clean Energy Solutions Center for their support. And with this, I will thank you for your attention and head back to flow back to Rafael Senga from WWF for his presentation with more focus on the region.

Rafael Senga

Hi, everybody and good afternoon especially to my colleagues here in Southeast Asia. Okay, I will zoom in on the region and try to provide a bit of details to what is being presented earlier. Okay, I will start with the policy landscape in Southeast Asia and go country by country.

I will start with Thailand. And Thailand has renewable energy targets. It also has feed-in tariffs. It has biofuels obligations and it has—it provides fiscal incentives as well as public financing for renewable energy.

Now, for Malaysia, it also has renewable energy targets as well as feed-in tariffs and renewable portfolio standards. It also has a biofuels obligation and it also provides fiscal incentives and public financing.

For Indonesia, it has renewable energy targets just like the other three countries I mentioned earlier. It also has feed-in tariffs and this is focused on geothermal which I will be discussing in more detail a bit later. I will also discuss in further detail the renewable energy targets of these countries I'm mentioning right now. Indonesia also has biofuels obligation. It also provides fiscal incentives, public financing and public tendering, and again, this is focusing on the thermal energy. Next slide, please.

We now go to Vietnam. Vietnam has a renewable energy target, but so far, this is just focused on biofuels which the country has a target of 1% of domestic liquid fuels demand by 500 in 2015 and 5% by 2025. It also has tradable renewable energy certificates and provides some fiscal incentives for renewable energy projects.

For the Philippines, Philippines, which by the way is my country, it has, in 2008 passed a comprehensive renewable energy law which provides feed-in tariffs for solar, wind, run-of-river, hydropower and biomass, those four specific renewable energy technologies. The RE Law also has renewable portfolio standards, metering, and then there's a separate law that governs biofuels. It's the biofuels act of 2007. So, the country also has biofuels obligation aside from renewable energy targets which basically envisions the triple renewable energy capacity by 2030. It also provides a bit of public financing, not too much, because the power sector, for example the Philippines has been liberalized and privatized more than 10 years ago.

And then it also has some public tendering for some renewable energy technologies.

And then, for Singapore, it has net metering, it provides public financing and public tendering. Now, for the four other countries in the region that's Myanmar, Laos, Cambodia, and Brunei, unfortunately, we don't have that much data coming from these countries, although my organization, WWF, is trying to start an energy program in the greater Mekong region in which includes Myanmar, Laos, and Cambodia, as well as Vietnam and Thailand, of course. So hopefully, in the coming years, when we have better presence there, we can jumpstart something in the rest of the greater Mekong region. Next slide, please.

Okay, these are a few details on the renewable energy targets of selected countries in Southeast Asia. For primary energy targets, we only have two countries which have publicly announced renewable energy primary energy targets, and these are Indonesia, which seeks to source 25% of its primary energy demand from renewable energy by 2025. In 2011, the share of renewable energy in the primary energy in Indonesia is 3.8%.

Thailand, meanwhile, also targets 25% of its primary energy demand from renewable energy, but at an earlier date like 2022. In 2011, it has already achieved 21% from renewable energy its primary energy demand.

And then, we go to renewable energy electricity targets. Indonesia is targeting 26% of its electricity coming from renewable energy and again, I will detail that a bit later where it will be coming from primarily. So, 26% by 2025. In 2011, it's the renewable energy share of its electricity is around 16%. This is primarily from hydropower, but they are starting to increase their geothermal capacity.

Malaysia targets by 2030 11% renewable electricity supply by 2030, and then 15% by 2050. I didn't find their current renewable energy electricity supply at the moment. And then, for the Philippines, we are targeting 40% renewable electricity supply by 2020. In 2011, it's about 29% renewable electricity.

For Thailand, it is targeting 14% renewable electricity by 2022 and in 2011, renewable electricity supply is at 11%. Next slide, please.

And then, a few other notable information from Southeast Asia. The region is actually a host to global leaders in geothermal power development. This is geothermal electricity, not including geothermal heat which is —because the region is largely tropical, not developed in the region. So, this is primarily geothermal electricity.

The Philippines is second to the United States in terms of installed geothermal capacity with 1.98 gigawatts of installed geothermal capacity—geothermal electricity. And Indonesia is running third with

around 1.2 gigawatts. It is important to note that this 1.2 gigawatts of developed geothermal power capacity in Indonesia represents just 4% of its geothermal power potential of around 28.5 gigawatts. And I'm happy to note that the Indonesian government together with the private sector as well as with the help of civil society organizations, have taken big steps to jumpstart large-scale geothermal expansion in that country. The main buyer in Indonesia for accelerated geothermal expansion is primarily regulatory in nature. Geothermal right now is considered as a mining activity which severely restricts its development in some of the forest areas of Indonesia where most of its geothermal resources are located.

Now, the geothermal—the Indonesian government is in the process of legislating a new geothermal law which will remove those restrictions from geothermal development, primarily removing the mining classification of geothermal. So geothermal was—that law is passed, which by the way, has been endorsed by the Indonesian president to the country's parliament for legislation. Hopefully within the next few months, we—several groups are pushing for that legislation.

So once that is passed, we will expect to see a faster way of geothermal development in Indonesia and the—we are projecting Indonesia to actually become the largest geothermal producer in the world, easily overtaking the Philippines and the United States given its large potential.

And then, another note about figure from the region is on biofuels. Right now Thailand is globally number eight, producing around 1.6 billion liters combined ethanol and biodiesel. And then Indonesia shares that eighth spot with Thailand, producing the same number of liters of biofuels. Thailand is, according to the 2013 DSR, number eight in concentrating solar thermal power with around five megawatts of its own capacity.

Now, what are the key barriers in large-scale geothermal expansion in the region? The first is, in the case of countries where there are existing enabling policies, the implementation has been rather weak and slow. I think for example the case of my country, the Philippines. We passed the Renewal Energy Law in 2008 but it took more than three years for the Energy Regulatory Commission to hear and finally approve the feed-in tariffs for the four renewable energy technologies that I mentioned earlier.

So it took a long time, and I would hastily add that this is in no small reason due to the resistance coming from the fossil fuel industry. That was—I attended some of the hearings and it was very noticeable that the fossil fuel industry really tried to block or delay implementation of the feed-in tariffs, which is an important feature of the Renewable Energy Law. The government also unfortunately, provided ceilings which they call the installation targets, which in effect actually provided a ceiling for renewable energy development in the country until 2014. So we're trying to fight that installation targets which is actually a cut in the renewable energy development.

And then for some other countries, like for example in Vietnam and the less developed countries of the region like Cambodia, Myanmar and Laos, there are no enabling policies or very rich enabling policies to jumpstart renewable energy development, which is a very important—for example, in the case of Vietnam, it has very large wind energy potential. It has, if I remember correctly, around 90 gigawatts of wind energy potential. So that's the first barrier.

And then the second one is the long and complicated permitting process in most of the countries in the region. Citing examples Indonesia and the Philippines which are both rich in geothermal resources, the permitting process is just too long and complicated which slows down significantly the development of this very important renewable energy resource, which by the way is one of the most efficient among the different technologies. Some geothermal power plants have passive factors of 95% which means it can directly compete with coal, both in terms of reliability and increasingly in terms of economic competitiveness.

And then the last one, and this was mentioned by Christine earlier, is the perverse fossil fuel subsidies that still resist in most countries in the region. Some countries are taking steps to gradually reduce and hopefully phase out these perverse fossil fuel subsidies. For example, Indonesia has taken bold steps to remove subsidies for oil products, but of course, we also know that this is a very sensitive social issue because of its perceived impacts on the poor, which we all know is a misconception because a number of studies have already shown that this fossil fuel subsidies, especially on oil products, actually benefit the richer segment of the population and to a lesser degree the poor segment of the population.

So I guess I will stop there. Thank you very much for your attention and the opportunity to give this presentation.

Sean Esterly

All right and thank you Rafael and Christine for the presentations. And I just like to remind the audience that they can submit any questions that they might have through the questions pane on the Go to Webinar sidebar. I did receive a question during the webinar so I'd like to present that to the panelists for them to answer.

It is kind of a two-part question so the question is they note that in a study by IEA, Southeast Asia's energy demand is projected to increase over 80% by 2035. And the first part of the question is, "How can renewables contribute to meeting this demand?" and the second part involves hydropower, "They note that's a controversial source of energy among the community, government and also crosses boundaries so what is your opinion on that issue?"

Christine Lins

Maybe I would start? Well, I think we have a situation that is like great progress in improving people life. The Asia Pacific which has still 628 million people that don't have access to electricity, and nearly 2 billion

people who still use traditional fuels such as wood charcoal, agricultural waste, animal waste, so it is clear that there is a need of providing access.

I'm not exactly familiar with both figures by the audience in terms of how much energy will increase but I think what we clearly see is that Southeast Asia as a region has demand for additional capacities, and with the investment figures that I have shown, we clearly see that countries are realizing that renewable energy options are often the ones that in the relatively short period of time in a decentralized manner can provide energy access and can provide solutions because I think—and this is also coming back to the point I made.

It will not be possible to only work with centralized renewables. It is very important also to work on decentralized renewables. I look at mini grid because very often the electricity grid is not covering all the territories. There are lots of options and we just see through the modular nature decentralized renewables are providing a lot of possibilities there. So I do see that a lot of this future energy demand in Southeast Asia will be met with renewables, of course, depending on policy frameworks.

I think also this clearly shows that there is a lot of need and I think it is important not to discriminate any technology. I think depending on the choice of the country and depending on the policy options, all renewables have a role to play including sustainable hydropower. So I put again the focus on sustainability. We had in this year's global status report also a sidebar focusing on sustainability of hydropower.

Yes, there is a lot of controversies, discussion, but there are also a lot of examples emerging where collaborative approaches between the project developers and the local population solutions are found that are acceptable by—we must not forget that any human intervention has a consequence and has an impact. It is clear that sustainability measures need to be deployed. This is acknowledged by the industry and they are releasing this sustainability protocol that was developed also incorporation with WWF.

IHA, International Hydropower Association, is providing a tool to really ensure that hydropower is deployed in a sustainable environment. Maybe Rafael wants to give some further information on this. But I think also the decision of the World Trade to again, fund hydropower projects clearly shows that this is going to be an important future sustainable energy resource that will be exploited in the region. And with this, maybe [inaudible 0:52:42.9] complementary chances.

Rafael Senga

Yes. Thank you very much for that very important question. Indeed, it's not only China and India which are going very fast in the region. Southeast Asia is also a very fast growing region and together with the very fast going energy demand as well. As you mentioned, the IEA is projecting an 80% increase of energy demand in the region.

Now, we actually see renewable energy contributing a significant portion to the energy demand of the region leading to 2030 and 2050. As I've mentioned—or in my presentation, most of the renewable energy potential in the region has barely been tapped.

I mentioned the case of Indonesia which has only developed only 4% of its geothermal energy resources. Vietnam has barely developed its 90 gigawatts of wind power potential. The Philippines, aside from geothermal—has only developed less than half of its geothermal potential. And then on wind power we have about 76 gigawatts of wind power potential and we only have 33 megawatts right now installed capacity.

And then in the Greater Mekong, which includes Thailand, Vietnam, Laos, Cambodia and Myanmar, it is very rich not only in hydropower resources—but because of its agricultural-based economy, it's very rich in biomass. And this is sustainable biomass I'm talking about, primarily agricultural residue. Vietnam has—not Vietnam, sorry—Thailand has made some significant strides in developing its biomass potential and I think it is a model for the rest of the Great Mekong region to emulate or to develop its sustainable biomass potential.

So what I'm trying to say is as Christine mentioned, given the right enabling policy environment, appropriate financing both from multi-lateral development agencies and the private sector, and governments as well, and the most important one is the political will from governments, we strongly believe that renewable energy can contribute significantly in the burgeoning energy demand of the region. But having said that, it is also a region threatened by massive coal expansion so it's absolutely important that this enabling policies and the political will and financing are put in place as soon as possible.

Hopefully, within the next few years—because as we all know the years leading to 2017 and 2020 are very important not only for Southeast Asia but for the whole world because of the energy infrastructure being built right now leading to 2020. Now on hydropower, Christine mentioned already how WWF worked with the International Hydropower Association in developing sustainability standards in the form of the hydropower sustainability protocol. This is a way to somehow mitigate the environmental and social impacts of hydropower which you all know is very much present if not properly—if this hydropower projects especially—not only the large ones but even the smaller ones are not properly developed or does not adequately follow strict sustainability guidelines in the social environmental spheres.

This is particularly acute in the Greater Mekong region. The Greater Mekong—the Mekong River is the greatest river system in the Southeast Asia region and according to most studies is one of the most biologically diverse river system, which provides a great chunk of the livelihood and the protein requirement of the population in that particular sub-region.

So we are trying to work with governments and other multilateral agencies to minimize the impact of hydropower development, for example in the Greater Mekong region, by identifying go and no-go areas, trying to tell governments and these financial institutions to observe or heed advice of environmental experts where it is advisable to develop their hydropower projects and where not to develop hydropower projects because they are so biologically important and important to the livelihoods and well-being of people in the region.

So hydropower has a place and should have a place in a clean energy future but we need to work with the industry to ensure the sustainability of this particular technology.

Sean Esterly

Right. Thank you for that answer. And I received another question that was directed towards you, Rafael. And this question asks what do you think about the potential growth for micro and mini grids in rural areas in Southeast Asia, particularly Myanmar, Cambodia and Indonesia? And then the second part of that question is what are the key barriers to micro and mini grids and how can they be overcome?

Rafael Senga

Yes, that's a very relevant question especially for the less developed countries in the Mekong region, as you mentioned Myanmar, Laos, Cambodia, as well as Indonesia which I think right now is about 61% electrification rate.

So the role of micro and mini grid, as Christine mentioned earlier, of the centralized system is very important in this region because as we all know centralized grid systems are not always the most practical or the most economical solution in solving these energy access problems in this countries. So a number of institutions including NGO's and international organizations are actually taking steps and starting initiatives to develop micro/mini grids at the community or district levels, tapping into different renewable energy technologies like for example, micro-hydro systems, solar systems that are large enough to power communities, as well as biomass systems that are increasing to be entering application in this remote places.

Now, how do we do that? Again, enabling policies should be put into place at different levels, to be started of course by the national governments and gradually enabling the capacity of local governments at all levels of governments, at the district, provincial, municipality, down to the village level. So it's enabling policies and building capacities at all levels that is important. But having said that, financing the development of this micro and mini grids is also important, and creative financing models should be developed and applied because most of these communities are really poor and they certainly need assistance to develop this micro and mini grids for them to be able to enjoy these modern energy services that they badly need to develop as communities.

This creative financing modality does not necessarily mean providing just grants to these communities. There are several creative financing modalities that have been shown to work at the community or village level which includes contribution from the communities themselves, whether in cash or in kind like labor, local materials and other things. So these are the things that I think are necessary to accelerate the development of this important system, the micro and mini grids, that are necessary to provide access to modern energy services to these off-grid areas.

Sean Esterly All right. Thank you, Rafael. Another question that came in is do you have any specific policy recommendations for Cambodia to increase renewable energy?

Rafael Senga For Cambodia, I think it will be good if the country can start looking into developing legislation that will enable development of renewable energy in that country. As far as I know, Cambodia is rich not only in biomass—and of course hydropower resource because of the Mekong River and the other river systems there, as well as solar and probably some wind resources as well. And Cambodia can take a leaf from the other countries in the region that have already provided enabling policy legislation to develop their renewable energy resources, for example Thailand, the Philippines I mentioned, Malaysia as well has enabling policies in place, and some extent Indonesia, although Indonesia is improving on its renewable energy enabling policy legislation.

So that will be my suggestion to jumpstart the development of renewable energy potential in Cambodia. So it's enabling policies that is very important to start that process. And then once the enabling policies are in place, of course the implementation is another matter. Political will is very important in that, as shown by the Philippine experience. A renewable energy legislation is not everything. The political will of the government to implement those legislations, those enabling policies, is very important. So advocates need to follow through on the work. The work doesn't stop with the passage of a renewable energy legislation. We all need to push government to implement these enabling policies.

Sean Esterly All right. Thank you. And now it's the last question that I received from the audience. Just a follow-up just came in, do you have any specific examples of those enabling policies?

Rafael Senga Okay. So example of this is—I mentioned earlier this is the renewable energy legislation in the Philippines. This one, I think, is one of the more comprehensive renewable energy legislations in the region. It provides feed-in tariffs for certain renewable energy technologies that need feed-in tariffs, for example solar, wind, biomass and [inaudible 1:07:32.9] hydropower. For other renewable energy technologies—for example, geothermal, it doesn't have feed-in tariffs because it doesn't need feed-in tariffs. It's economical competitive. So that's feeds-in tariffs.



And then it also as renewable portfolio standards, it also has net metering, which is present as well in other countries in the region, for example, Singapore also has net metering. Thailand also had feed-in tariffs, as well as Malaysia and Indonesia for geothermal power. And then aside from this—net metering, I mentioned that already. And then fiscal incentives as well. An example of fiscal incentive is the exemption from value added tax, which is quite important because it tends to lower the generation cost of renewable energy electricity.

Another example is exemption from import tariffs for capital equipment. For example, in the Philippines, we don't yet manufacture on a large scale wind turbines, for example, to develop our wind energy potential so we have to import most of this large wind turbines coming usually from Europe—either Europe or China or India. So an important feature of that renewable energy legislation is exempting renewable energy power developers from the import duties for this important capital equipment for renewable energy projects.

I think other countries have those fiscal incentives as well, like Thailand, Malaysia and to some extent Indonesia. Vietnam still has to develop a comprehensive renewable energy legislation. And I understand there's a board coalition of NGO's there that are working with the Vietnamese government to craft and hopefully pass a comprehensive renewable energy legislation for Vietnam.

Sean Esterly All right. Thank you, Rafael. And again, I just want to thank both of the panelists, Christine —

Christine Lins Okay.

Sean Esterly Yeah.

Christine Lins No, I just wanted to add on what Rafael has just said. I mean, I think Rafael's answer, it was very comprehensive, already shows that there is a multitude of policy options. In the global status report, we have a policy table that gives an overview on all this different elements that a country can put in place, and we also classify countries according to income, between high income, low income, middle-income countries, and all the different options. But what we see all around the world what is the most important is the stability of the policy and predictability.

So we have different countries choosing for different frameworks, but what is key is that the laws are not changed on a continuous basis because that is making the investors insecure and that is also difficult for the industry. So whatever measures are chosen, predictability and stability are absolutely key in my opinion, just to add on Rafael's very detailed descriptions.

Sean Esterly

All right. Thank you, Christine. And with that, I'd just like to thank you both again for the presentations.

And I would let the audience know that we would like them to just take a quick minute to answer a brief survey on the webinar that you viewed today. So we just have three short questions for you to answer, and Heather, if you could go ahead and display that first question. That question is the webinar content provided me with useful information and insight. And the next question is the webinar's presenters were effective. And then the last question is overall the webinar met my expectations. All right. Thank you very much for answering our survey.

And behalf of the Clean Energy Solutions Center, I'd just like to send a thank you to both Christine and Rafael today and to our attendees for participating in the webinar. We've had a great audience and we very appreciate your time.

Again, I invite you to check the Solutions Center website over the next few weeks if you would like to view the slides and listen to a recording of today's presentation as well as any of the previously held webinars. Additionally, you can find information on upcoming webinars and other training events.

And we also invite you to inform your colleagues and those in your networks about Solutions Center resources and services, including the no-cost policy support. Hope everyone has a great rest of your day and we hope to see you again at future Clean Energy Solutions Center events. This concludes our webinar.