CLEAN ENERGY SOLUTIONS CENTER
ASSISTING COUNTRIES WITH CLEAN ENERGY POLICY

REN21 Global Status Report Launch: Domination of Renewables

—Transcript of a webinar offered by the Clean Energy Solutions Center on 18 June 2015—
For more information, see the clean energy policy trainings offered by the Solutions Center.

Webinar Presenter

Christine Lins Executive Secretary, Renewable Energy Policy Network for the 21st Century

This Transcript Because this transcript was created using transcription software, the content it contains might not represent precisely the audio content of the webinar. If you have questions about the content of the transcript, please contact us or refer to the actual webinar recording.

Tim Reber Hello everyone. I'm Tim Reber with the National Renewable Energy Laboratory. I'd like to welcome you to today's webinar. Our webinar today hosted by the Clean Energy Solutions Center in partnership with the REN21 initiative and will be focused on REN21's flagship report, the Global Status Report. One important note of mention before we begin our presentations is that the Clean Energy Solutions Center does not endorse or recommend specific products or services. Information provided in this webinar is featured in Solution Center's resource library as one of many best practice resources reviewed and selected by technical efforts. And before we begin, I'll quickly go over some of the webinar features.

For audio, you have two options. You can either listen through your computer or over your telephone. If you choose to listen through your computer, please select the mic and speakers option in the audio pane. To eliminate the possibility of feedback and echo. If you choose to dial in by phone please select the telephone option and the box on the right side will display the telephone where an audio you should use to dial in. Panelists we ask that you please mute your audio device while you're not presenting. If anyone is having technical difficulties with the webinar, you may contact the go to webinar help desk at 888-259-3826 for assistance.

If you'd like to ask a question and we please ask that you do, we ask that you use the questions pane where you may type in your questions. If you are having difficulty viewing the materials through the webinar portal you will see PDF copies of the presentations, cleanenergysoltuions.org/training and you may follow along as our speakers present. Also, an audio recording and

the presentations will be posted to the Solution Center training page within a few weeks of the webinar and will also be added to the Solution Center YouTube where you can find other informative webinars as well as video interviews with thought leaders of clean energy policy topics.

Today's webinar agenda is centered around the presentation from our guest panelist, Miss Christine Lins. Miss Lins has been kind enough to join us today to discuss just what made 2014 yet another record year for renewables. Before Miss Lins begins her presentation, I will provide a short informative overview of the clean energy Solution Center initiative. Following the presentation we'll have a question and answer session where Miss Lins will address questions sent in by the audience. We'll have some closing remarks and a brief survey. We should finish within an hour.

So this slide will present a bit of overview in terms of how the Solution Center came to be. The Solution Center is one of 13 initiatives of the clean energy ministry that was launched in April of 2011 and is primarily led by Australia, United States and other clean energy ministerial partners. What comes of this initiative in support of developed countries and emerging economies to enhancement of resources on policies relating to energy access, no cost expert policy assistance and better peer learning and training tools such as the webinar you're attending today.

The Solution Center has four primary goals. It's serves as a clearinghouse of clean energy policy resources. It serves to share policy best practice data and analysis tools specific to clean energy policies and programs. It also delivers dynamic services that enable expert assistance, learning and peer to peer sharing of experiences. Finally, the Solution Center fosters dialogue on emerging policy issues and innovation around the globe. Our primary audience is energy policymakers and analysts from governments and technical organizations in all countries but we also strive to engage with the private sector NGOs as well a civil society.

One of the marquee features that the Solution Center provides is the no cost expert policy assistance know as ask an expert. The Ask an Expert program has established a broad view of over 30 experts from around the globe who are available to provide remote policy advice and analysis to all countries, no cost. For example in the area of renewable energy policy markets and finance mechanisms. We are very pleased to have __ Ramos serving as one of our experts. If you have a need for policy assistance in the area or any other clean energy sector, we encourage you to use valuable service.

Again the assistance is provided free of charge. If you have a question for our experts please submit it through our simple online forum at cleanenergysolutions.org/expert. Or, find out how the ask an expert service can benefit your work please contact Shawn Esterly directly at shawn.esterly@nrel.gov or call him at 303-384-7436. We also invite you to spread the word about this service to those in your network's organizations.

Now I'd like to provide a brief introduction for today's panelist, Miss Christie Lins. Miss Lins serves as the executive secretary for REN21 where she works

with a broad network of international organizations, governments, industries, associations, academic and research institutions and other NGOs all working in the field of renewable energy. Miss Lins has over 18 years of experience in the field of renewable energy resources. At that, I'd like to go ahead and hand it over to Miss Lins for her presentation.

Christine Lins Thank you very much. Good afternoon. Good morning ladies and gentlemen. And gosh, where is my screen? There we go. You should be able to see my lights now if that's the case.

Tim Reber Yes, now we can Christine.

Christine Lins Fantastic. Thank you much. We are excited to again be having a lunch webinar with the Energy Solution Center on this year's available renewable energy status report. It's the tenth in the series that REN21 is producing. REN21 is a multi-stakeholder network as it was already referred to before of both public and private sectors with the objective of promoting a rapid uptake of renewable energy worldwide. We are loaning this year's report at tenth in a series. We have started reporting on renewables back in 2005 and this year's report is another highlight on contributions from over 500 contributors, researchers and reviewers worldwide. It is launched today here at the energy forum and it is yet another review of renewables, covers all sectors from bioheating, cooling and well as transport and the attached data that we collect for the production of the Renewables Global Status Report is each year REN21 review. That is also quite fit to our resource panel, the resource report so for connection and full transparency on all of the data.

Yeah. I mentioned that we are very proud to yet present another record of renewables and I think it is fair to say that the evolution of renewable energy over the past decade has really surpassed all expectations. It is 10 years going for 20 interaction from all renewable energies have increased substantially and for most renewable energy technologies we saw significant cost reductions which also resulted in a spring of support policies throughout the world. On the slide here you see the massive upward trends of installed capacities in all of the different areas be it power, be it heat, be it transport.

So when we look at renewable energy in the world today we see that renewables provide an estimated 90.1 percent of global clean energy in 2013. This share is composed of about one tenth of renewables and a share of traditional biomass, which was in the order of __. So the modern renewable share is increasing. The share of traditional biomass is the same, was the same in 2013 as it was in the year before. So we see that the share of renewed energy and final energy consumption is only very slowly increasing. It is on the one hand the result of final energy consumption has increased by about 25 percent and in recent years driven by primarily the rising demand in developing countries. And I think it also gives us a signal of caution that the sustainability for all goal of establishing renewable at global energies which starts from a baseline share of 18 percent in 2010 to 36 percent 2013 is achievable according to many efforts but here is still some way to go to get us there.

As overall progress in final consumption is relatively slow and we would see later on that that is mainly due to the fact that progress in heating and in cooling and in transport to introduce renewable technologies is fairly slow. Some would say the key success story of the past decade in the renewable sector was the power sector which very much increased and there's still quite some way to go to getting our overall energy system more sustainable. The focus has to be on integration of renewables on stable policy frameworks, with businesses as usual with as with all objectives will be difficult to achieve. And of course, also it shows that we must not only focus on the supply side but we must also put measures on the demand side to stabilize demand. Because with rising shares of finding energy consumption it is more difficult to rapidly increase the share of renewables.

We know that people in the world are competitive not only in football. So what we do in the Global Status Report is that we point out the renewable energy champions and here on the slide you see the champions in terms of annual investment capacity additions. So when you look at investment in renewable power and fuels excluding hydro the top countries are China, United States, Japan, United Kingdom and Germany in absolute terms. But when – very interesting when you look at investment relative to annual GDP the list is completely different. Then you have __, Kenya, Honduras, Jordan, Uruguay which is already a clear indication about how emerging economies in developing countries are really rapidly scaling up their renewable energy implement.

When we look at total capacities you have including hydropower it reads China, U.S., Brazil, Germany and Canada like on the first line of the slide. What we also did here on in terms of renewed power capacity per capita not including hydro we see that the list is mainly dominated by European countries with Denmark, Germany, Sweden, Spain and Portugal here in the lead very clearly showing that there was a lot of things happening in the last decade both in the U.S. and in Europe but now in the last years as we come to this as we walk through the presentation development has really broadened and has spread all around the globe and I'm happy to report that renewable energy program is becoming a global phenomenon.

Now let me stop a second at the power sector. Renewables in 2014 and all the data basically except to find out energy consumption which is 2013. All the rest of the data 2014 and all of the data in the Global Status Report is based on contributions from our broad network of over 500 contributors. I guess some of them might be on the line here coming from both the private and the public sector. We are really telling the story through the contributions of many people and we have the most up to date data up until end of 2014. So in 2014 renewables accounted 27.7 percent of global power generation capacity and 22.8 percent of global electricity demand. What is also very interesting is the renewables made up for 59 percent of additions to global capacity so meaning that 59 percent of all new power plants in the world 2014 were renewable space. And this year is increasing.

And so total renewable managed power capacity is in the order of 1,712 gigahertz which represents an increase of more than 8.5 percent over 2013.

So you see in the power sector the demand is rapidly increasing. __ countries renewable power capacity including hydropower with 38 percent of global capacity and E.U. is leading for non-hydro renewable power capacity with 42 percent of global capacity in the power sector.

Now we must not forget that energy use for heat accounts for about half of total world final energy consumption and in these – it's really the lion's share and in any sector, we have a small but growing modern renewable energy share of final global heat demand of approximately 8 percent. So we see that there is still a long way to go and we see that the growth continues to be relatively slow despite the fact that there is growing interest. There is potential for renewables in providing heating and cooling and it is absolutely key to get this sector moving quicker as it is key to the global energy tradition. So the fuel need will be on the heating and cooling sector.

In the field of transport renewable energy accounted for an estimated 3.5 percent of global energy demand for road export in 2013 which is up from 2 percent in 2007 so there you also see that things are moving however also on the relatively low side. So the report then provides detailed overviews of all different renewable energy power and heating, cooling and transport technologies. I'm not going to go through all of them in detail otherwise we would run out of time but I've just picked a couple of them and then when you look for example at hydro power we saw that 2014, 37 gigabytes of new capacity was commissioned. That presents 3.6 percent increase. The industry growth driven by China's expansion and also by the modernization of aging hydropower facilities and this 37-gigahertz addition springs the total hydropower capacity up to 1,055 gigabytes. In terms of top countries, you will find this in all, for all technologies. So here, you see hydropower capacity additions. The top countries very clearly are China but also substantial additions commissioned by Brazil, by Canada, Turkey, India and Russia.

In the field of PV we had an addition of 40 gigahertz added to the system in 2014 bringing the total capacity up at 177 gigahertz and then when you actually look at the graph at the slide that you see that in the last couple of years progress was exponential and I think it's very interesting to note that more than 60 percent of all PV capacity and operation worldwide in 2014 was added over the past three years. And 2014 was a particularly interesting year in Asia. Asia clearly eclipses all other markets accounting for almost 60 percent of global additions. Very strong in China, very strong in Japan so lots of things happening in Asia and a very, very new trend to increase rapid development in the last years. Also, here in terms of annual investment, net capacity additions in 2014 it is the ranking is China, Japan, U.S., Germany and the United Kingdom. China accounting for a third of global capacity additions followed by Japan and the U.S. So quite impressive development.

2014 was a record year for wind power. There were 51 gigahertz of capacity added bringing total up to 370 gigahertz. We have a situation that by the end of 2014 at least 85 countries have seen commercial wind activity while at least 74 countries have more than 10 gigahertz of capacity in operation and 24 had more than one gigahertz of capacity installed.

2014 was also interesting for offshore wind as offshore grew by an estimate 1.7 gigahertz of __ capacity for world total exceeding 8.5 gigahertz. So of course, we see that offshore wind is still a small share of total wind capacity but we also clearly see that the share is growing. Europe remains the top region however closely followed by Asia with China adding 23.2 gigahertz in 2014 and wind became cost competitive in many markets resulting from falling capital costs and technology advances. China alone accounted for 45 percent of global additions followed distantly Germany, the United States, Brazil and India. New and vital markets are developing elsewhere in Asia including Indonesia, Mongolia, Pakistan, the Philippines, Thailand and Vietnam so very progressive development also here.

When it comes to bioenergy, we see that demand continues to grow steadily for heat, power and the transport sector. We clearly see it on the slide here that solid biomass provides the lion's share of biomass sources both for heat and electricity generation. And we also see that total energy from biomass in 2014 was approximately 16,250 terawatt hours and bioenergy share in total over primary energy consumption has remained steady since before the year 2000 at around 10 percent so things are __. Bio power capacity increased an estimated 5 gigahertz in 2014 bringing the total, the global total to approximately 93 gigahertz.

You also see that demand from biomass such as wood pellets increase rapidly. The wood pellet global production was at 24.1 million tons at the end of 2014 and continues to increase the national rate. This increase in production was about nine percent and continued a strong upwards trend. The main wood pellet markets – the wood pellet producing regions continue to be in Europe with about 60 percent and America with roughly 34 percent and the top national producers were the U.S., Germany, Canada, Sweden and last but not least Latvia.

Now when it comes to bioenergy and to lead with biofuels the top countries for production of biofuels were the U.S., Brazil, Germany, China and Argentina. And global biofuel production increased 8 percent in 2014 to a total of 127.7 billion liters with each type of biofuel reaching its highest year to date. So all of the biofuels increased be it by diesel, by it ethanol product. The global investment in biofuel production capacity continues to fall. Yeah. I'll cover the investment figures a little bit later.

Now concentrating on solar power the global capacity increased by about 0.9 gigahertz to 4.4 gigahertz, a 27 percent increase and we see the markets continue to shift. And we also see the diversification of CSP technology landscape increase in power capacity was due to commissioning in the United States. __ plans the largest CSP plant in the world and the world's largest linear __ plant equivalent to 13 planned of global added capacity came on in India with further diversifies the needs of added technologies.

Geothermal energy about 50 gigahertz additions came online bringing the total global geothermal capacity to 12.8 gigahertz and geothermal electricity generation is estimated to be half of the total geothermal output. Countries with added capacity in 2014 were Kenya with the lion's share, Turkey,

Indonesia, Germany, United States and Japan. Now solar thermal heating and cooling, that we have the cumulative capacity of all collective types in operation rising by a net of 44 gigawatt thermal for a yearend total of about 374.7 percent gigahertz thermal. I'm sorry here. On the slide, there is obviously the wrong graph. You have the PV graph there and not the solar thermal that the figures that I just gave you are the ones that are correct for that.

In terms of markets, China maintains the multiyear lead in the global solar heating industry and added another 37.7-gigahertz thermal capacity of production. In terms of – and with this accounted for about 81 percent of the global market. Solar water heating capacity for Canada leads Cypress, Austria, Israel, Barbados, Greece. So the __ ranking is also quite an interesting one especially for the country in which we launched the renewable Global Status Report today in the clean energy forum in Austria which ranks second in capacity per capita. Now of course policy makers are interested in __.

According to __ from Irena, global estimated 7.7 million people work directly or indirectly in the renewable energy sector and these technologies contribute differently to these numbers. Solar PV is the largest employer with 2.5 million jobs, most of which are concentrated in China, producing, manufacturing as well as rapidly expanding domestic markets. Japan, United States and Bangladesh have posted solar PV employment. And global wind power employment crossed 1-million job threshold in 2014.

Now when we come to investments 2014 was an interesting year. You see it there on the graph. For the first time in three years, the U.S. went up again. Global investment in renewable energy power and fuels was estimated at 270.2 billion. When we include the investment in hydropower, the investment goes up to 301 billion. This represents a rise of 17 percent compared to the previous year and is the first increase in three years. It's interesting to note that renewables outpaced fossil fuels for the fifth year running in terms of net investment in power capacity additions and reasons for this increase was increase in the solar power installations in Asia, mainly in China. Investment in solar power was up 25 percent and also was record investment in off shoring projects in Europe.

So and then I think what is very interesting is when you actually look at the breadth and when you see how this investment is spread all around the world. In 2014, all regions of the world experienced an increase in the investment relative to 2013 but of course, this increase was not the same in each region of the world. And we have a situation that investment groups are 3 percent in developed countries, in USCP countries, whereas in emerging economies in the breaks and in developing countries annual investment grew by 36 percent. And when you look at the absolute figures you see that investment in developing countries is now nearly on par with investment in developed countries and I think that is something very interesting, a very interesting trend to notice because of course it's the developing countries that have a need for increased energy demand and we clearly see the types are shifting

and that renewables are playing an essential role in the energy demand, in the energy mix of these countries.

We mentioned it before; solar power was clearly leading, the leading sector for money committed during 2014, receiving more than 55 percent of the total new investment in renewables, power and fuel. Wind followed there so the overall amount for solar was $150 billion roughly whereas the wind was just roughly below $100 billion which was an increase of 11 percent. And that's a new record effectively. So this trend is based purely on policy frameworks from wanting renewable energy and on this map you see that countries with renewable energy policy and targets are quite rapidly or quite broadly covering – can basically be found in all the continents are rapidly diversifying behavior situations.

Since 2005, about 48 countries have renewable energy policies and targets in place and now we have a situation that we have 164 countries in the world with renewable energy policy targets out of which 145 countries have renewable energy policies in place. So 164 with targets, some of them are not yet implementing or supported with policies but in the majority of countries this is also the case. We see that most policies focus on power and it's mainly __ and renewable portfolio standards. And we see also that there is an interest in heating and cooling. We have 21 countries with renewable heat obligations, about 45 countries with targets for heating and cooling and about 64 states, provinces or countries with biofuel mandates.

The, but still the power sector is the main focus with __ being the most popular type of policy but we also see that net metering, net billing policies were enforced in some countries and tendering systems are rapidly increasing with about in early 2015 about 50 countries having such policies in place. In 2014 policy makers have focused their attention on adapting existing policies to keep pace with rapidly changing cause and circumstances and recent trends in policy design include the merging of components of different policy mechanisms, growing linkage of support between electricity, heat and transport and the development of different mechanisms to integrate growing shares in renewables into the energy mix.

Again, here the overview on how the policy landscape has developed in the last couple of years in the heating and cooling as well as in the transport sector. The Global Status Report also contains a section on distributed renewable energy in developing countries and the other situation is that still 15 percent of global population lack electricity access and that already shows us that there is still a long way to go to reach the objective of universal access for all. And when we note that with an installed capacity of roughly 147 gigahertz, all of Africa has less power generation capacity than a country like Germany. We see that there is still a long way to go. Distributed renewable energy systems clearly offer an unprecedented opportunity to accelerate the transition to modern energy services in remote and rural areas.

And despite the fact that little quantitative information on distributed renewable energy markets exists in the cases that these markets are really significant for instance off grids solar PV at approximately $64 billion of U.S.

investment in 2014. So that already shows that there is progress. So in conclusion 2014 was a record year and that is very interesting because renewable is developed against the backdrop of increasing global energy consumption. I said an average 1.5 percent increase in consumption but also the developed against a drastic decline in oil prices during the second half of last year, 2014 and I think it's very interesting to note that for the first time in 40 years economic and tier two growth has picked up which means despite the world's average annual 1.5 increase in energy consumption and an average 3 percent growth in GDP year two emissions in 2014 were unchanged from 2013.

And one of the reasons for this is China's commitment to renewable energy and the deployment of energy efficiency and renewable energy in all significant countries. And I think this is really especially ahead of REN21 in Paris. This is a very encouraging signal because it shows that renewables are in central pillar of the solutions agenda to abate a climate change and to help us stay within the two-degree threshold. So in summary I think we can say that the past decade has clearly set the wheels in motion for a global transition to renewables. However, a concerted and sustained effort continues to be needed in order to really achieve these energy transitions with renewables.

We need long term and stable policy frameworks which can adapt to changing environments and to sustain and increase investment. We need to have great attention to the heating and cooling sector and the transport sector and to systemic approach to really have an energy system thinking and not focused purely on one or the other sector. And last but not least, a key to improving access to up from finance for distributed renewable energy is the provision of information on these markets on quantifying the potential and making decision makers aware that there are multiple possibilities in this area.

What is clearly needed is a massive stakeholder approach. I think there needs to be cooperation from anchors of the private and public sector. REN21 is committed to facilitate this cooperation and also to continuing to tell your story about renewables and in this respect, I would also draw the attention of the audience to an upcoming conference that REN21 organizes with the government, the department of energy of South African. The South African International Renewable Energy Conference is taking place from the 4th to the 7th of October where hopefully this will create a platform for some of us not only to meet virtually via this webinar but maybe also to meet face to face. And with this, I would like to thank the Clean Energy Solution Center for hosting this webinar today, give it back to them and remain at your disposal for any further questions. Thank you very much.

Tim Reber

Great. Well thank you so much Christine. That was quite interesting and very informative. We do have a couple questions from the audience and again I will let the audience know that if you guys have any questions please feel free to ask them via the questions pane on the right side of your go to webinar dashboard there. So without any further ado I guess we'll just jump right into them. So the first question here says that you stated it's essential to focus on heating and cooling. They'd like to know how you plan to promote and

encourage renewables in heating globally and then as well in cooling globally.

Christine Lins Thanks for the question. You've seen that half of final energy consumption is used to generate heat. Heat is consumed on the one hand through buildings so you have the building sector, you have industrial applications. And then also up in the part of the world I'm living in heating is an issue. In many parts of the world, cooling is an issue. Nowadays we have technologies for both heating and cooling. It's not anymore a technology question. It is as we said a growing question. I also get asked often why there is so little progress in the heating and cooling sector. This is because there is a need for a series of __ of changing heating systems in houses which requires more time than normal investments for larger scale electricity investment.

So this is one thing I think there needs to be a lot of awareness rising. There is a lot of also joining forces with __ especially in houses and buildings to first of all reduce the energy demand readings and then contribute the remaining share with a sustainable source and renewables. I think we need to look better into raising the share of renewables in street heating systems which we already see in some parts of the world. And then last but not least I think it's also very important to promote best practices policy approaches of heating and cooling mandates better out there.

There are some countries that implement for example __ for heating and cooling so there are some examples and there are alternatives and I think there needs to be awareness that more needs to be done in the heating sector to make things happening. There's also discussion about providing electric to some parts of the heating sector in order to deal with less reliable renewables in the power sector. There are different modes and I think as countries are permitted to significantly increasing the share of renewables in all then we need to look closer at heating and cooling sector in order to make the progress that they have committed to in order to achieve establishing of renewables by 2013.

Tim Reber Ok. Wonderful. Thank you. Let's see. This next one I think you may have touched on briefly at the end but curious to know what are your thoughts on the future of renewables regarding off grid versus grid connected resources and the challenges and opportunities?

Christine Lins I think we need them both. Let me be very clear. When we talk about __ of renewables this means both large scale and small scale with both on grid and off grid installations. We still see 15 percent of global population are not having access to electricity there is an absolute need to not only rely on central air solutions which are of course important but also to have a focus on decentralized solutions. We have examples that countries like Brazil, China, India, South Africa have taken the lead in developing renewable energy programs where we see that they're really making – they're making progress in addressing the fuel challenges of energy access and sustainability. I think we will need them both but what I think is important to have is a master plan. We have also last year a mini grid policy tool kit with fantastic opportunities also with rollout of mini grids. And what is just needed there is adequate

planning and the also increased involvement in the private sector so solutions for off grids and rural identification out there. Very often the challenge is access to finance up front, access finance for these systems and I think this is something which through initiatives needs to be addressed and where it is absolutely important finance is mobilized to really promote not only the grid connected but also the off grid approaches.

Tim Reber Ok. Wonderful. We have another question here. This person would like to know if you have any ideas about the size of investment in research and development in renewable energy technologies.

Christine Lins The Global Status Report also gives some information on the share of R&D. The things is that we are giving here containing R&D. I don't have then on the top of my head but I'm happy to if the person who will ask the question would like to send me an email to basically address the question on an electronic basis.

Tim Reber Ok. Yeah. We will let them know that they can feel free to follow up with you via email. We have one more here. So what are the dominating structures to finance? Is it government, individual power producers or just for somebody else?

Christine Lins Well we have basically a mix. All investment types increased for 2013 with finance and utilities products counting for the majority of total investment. We also have to notice that in 2014 that when general developing banks are still playing an important role. In 2014, we saw the creation of two new __ development banks, Bricks Bank which will start operation next year as well as in Asia, Asian Infrastructure Investment Bank which was created by 23 Asian countries. And we also see that there is an expansion of new investment vehicle for renewables such green bonds, heat companies and crowd funding. And these have attracted new classes of capital providers such as pension funds, etcetera and are really helping to reduce the cost of financing so it's not either or. It's a mix of two __ companies are increasing in importance I financing renewable energy projects.

Tim Reber Ok. Wonderful. One more here. So you mentioned earlier India's investment in solar in China and Japan and power in Europe that contributed to the renewed investment. But what really caused these increased investments? Was there change in the global investment climate or policy climate?

Christine Lins I think that I mean we have seen another record year of import capacities, 135 gigahertz in 2014 on new renewable power capacity. The, this comes also with reduced technology costs, with reduced costs of __ situation that many renewables or some renewables in certain conditions are absolutely cost competitive. So for example, there were these tenders in Brazil where wind worked out as the cheapest option or also solar PV in South Africa or also solar PV in the Middle East. It's absolutely cost competitive and I think this reduction of technology cost is incentivizing countries to invest in renewables.

And of course there is countries where energy demand is growing and in China which has absolutely the most impressive growth in investment from

$62.6 billion to $83.3 billion from 2013 to 2014 is clearly focusing on renewable feeds, hydro between feeds all of PV because these options are coming in as very, very cost competitive. And I would add here that if you would have less distorted situation on energy prices because we still have according to the international energy agency over $550 billion U.S. dollars of annual fossil fuel subsidies. If this would not be the case, there would even be more appetite to invest in renewable energy projects.

And let's be also very clear if these figures – if __ renewables under control is to become a reality by 2040 we have to significantly increase investment amounts in this sector, different – according to different projections the different organizations talk about the doubling of current demands so from 272 something like 500 billion per year. So clearly, it's encouraging to see that investment is again going up. In the last years it went down because on the one hand falling technology costs but also falling much less investment you see on investment because there's a significant reduction from 2011 to 2012 which is clearly a result of economic crisis in OECD countries, particularly in Europe. Also to some extent we saw that in the United States but it is clearly also a signal that costs have come down so much that renewables are the cheapest option in many jurisdictions and for many situations.

Tim Reber Ok. Wonderful. So I think we have time for just one more question and then we'll move on to our brief survey so anybody who didn't get a chance to have their question answered we'll ask that you can please reach out to Miss Lins via email. So our last question here is small island states are still facing problems to attract investment in renewable energy due to small economies of scale and lucrative bankable projects. How can governments in small island states curb this issue?

Christine Lins I didn't fully understand you. I think what the question is that small island states they have difficulty to attract investment and what can be done to counteract that. Is that the question?

Tim Reber Yeah. That's exactly it.

Christine Lins Ok. Thank you. Well I think it is important and we've seen this in different regions of the world it is important to tell your story. Many of us working on renewables are excited by the progress that we have made and by all of the development unless there is still – there's not so much information out there on this sector and very often when they go to conferences and talk about effective now nearly 60 percent of all new power plants are renewable space then people get very big eyes and look at it. And then I think also that for small island states it probably needs to be told because it's clear that islands are laboratories.

We have nowadays a situation that we have examples where islands or cities or regions are committing to reaching 100 percent renewables so basically generating all of their electricity and energy demand through renewables and I think it's working to on the one hand pave the clear political commitment to go in that direction and build up and establish master plans on how to make

that happen. REN21 is currently working with __ on different regional status reports. We did one last year on __ region. Right now, we work on __ and Eastern Africa. There's also a plan to continue and spread this work on to cities and in general I think that it is very important that clear cut visions are developed, policy frameworks are developed and the master plan then on how to implement them probably regional cooperation in this field can help in order to pool resources and attract investors all together. But I do agree that islands technologies are very viable options and more needs to be done to really make these sustainable technologies deploy rapidly in this island context.

Tim Reber Ok. Wonderful. Thank you so much. Those were some great questions. We still had a few more questions that we'll follow and email some answers to. We'll move on to a quick poll but briefly before we move on to the poll Christine I would like to give you a chance to provide any final closing thoughts you might have before we move on.

Christine Lins Well I just want to thank again the Solution Center for providing us with this opportunity and inform everybody that as of today the full renewable status report is available on our website. You'll also find the key findings in English, in French and in Spanish as well as the press release in nine different languages, English, French, Spanish, German, Portuguese, Japanese, Chinese, Arabic and Greek to help us spread the word. And thanks again for your attention and we are there to answer your questions and to interact with you and to try and influence to promote a rapid uptake of renewables on this planet. Thank you very much.

Tim Reber All right. Wonderful. Thank you so much Christine. I'd like to ask the audience to take just a minute or two to answer a quick survey on the webinar you just viewed. We have three short questions for you to answer and your feedback is very important to us. So if you'll go ahead please and just answer the poll you see on your screen now. Ok. Thank you. There should be on second question. And then one final survey question. All right. Well thank you so much for answering our survey. On behalf of the clean energy Solution Center, I'd like to extend a thank you to Miss Lins our panelist and to all of our attendees for participating in today's webinar. We've had a terrific audience and we very much appreciate your time.

I invite all of our attendees to check the Solution Center website. If you'd like to view the slides and listen to recording or today's presentations as well as any previously help webinars. Additionally you'll find information on upcoming webinars and other training events. We are now posting webinar recordings to the clean energy Solution Center YouTube channel as well. Please allow for about one week for the audio recording to be posted. We also invite you to inform your colleagues and those in your networks that solutions center resources and services and clean air no cost policy support. Have a great rest of the day and we hope to see you all again at future clean energy Solution Center events. Thank you very much.