CLEAN ENERGY SOLUTIONS CENTER
ASSISTING COUNTRIES WITH CLEAN ENERGY POLICY

Policies to Strengthen the Role of Citizens in the Energy Transition

—Transcript of a webinar offered by the Clean Energy Solutions Center on 20 September 2018—
For more information, see the clean energy policy trainings offered by the Solutions Center.

Webinar Panelists

Hugo Lucas	Factor
Miquel Muñoz Cabré	Global Economic Governance Initiative

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Katie (moderator) Katie [Begins mid-sentence] Clean Energy Solutions Center, in partnership with Factor. Today's webinar is focused on the policies, the strengths, and the roles of citizens in energy transition.

Before we begin I'll quickly go over some of the webinar features. For audio you have to options: you may either listen through your computer or over the telephone. If you choose to listen through—through your computer please select the mic and speakers option in the audio pane. Doing so will eliminate the possibility of feedback and echo. If you choose to dial in by phone please select the telephone option and a box on the right side will display the telephone number and the audio pane you should use to dial in. If anyone is having any 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 we ask that you use the questions pane where you may type it in. If you're having technical difficulty viewing the materials through the webinar portal you will find PDF copies of the presentations at cleanenergysolutions.org/training, and you may follow along as our speakers present. Also the audio recording and presentations will be posted to the Solutions Center training page within a few days of the broadcast and will be added to the Solutions Center YouTube channel where you'll find other informative webinars as well as video interviews with thought leaders on clean energy policy topics.

Finally one important note to 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 features in the Solutions Center resource library as one of many best practice resources reviewed and selected by technical experts.

Today's webinar agenda is centered around the presentations from our guest panelists, Hugo Lucas, and Dr. Miquel Muñoz Cabré, who has joined us to discuss the best practices to promote citizen participation in the energy transition. Before we jump into the presentations I'll provide a quick overview of the Clean Energy Solutions Center. Then following the panelists' presentations we'll have a question and answer session where the panelists will address questions submitted by the audience. At the end of the webinar you'll be automatically prompted to fill out a brief survey as well. So thank you in advance for taking a moment to respond.

The Solutions Center was launched in 2011 under the Clean Energy Ministerial. The Clean Energy Ministerial is a high-level global forum to promote policies and programs that advance clean energy technology to share lessons learned and best practices and to encourage the transition to a global clean energy economy. Twenty-four countries in the European Commission are members contributing 90 percent of clean energy investment, and responsibility for 75 per cent of the global greenhouse gas emissions.

This webinar is provided by the Clean Energy Solutions Center, which focuses on helping the government policy makers design and adopt policies and programs that support the deployment of clean energy technologies. This is accomplished through the support in crafting and implementing policies related to energy access, no-cost expert policy assistance, and peer-to-peer learning and training tools such as this webinar. The Clean Energy Solutions Center is co-sponsored by the governments of Australia, Sweden and United States with in-kind support from the government of Chile.

The Solutions Center provides several clean energy policy programs and services including a team of over 60 global experts that can provide remote and in-person technical assistance to government and government-supported institutions, no-cost virtual webinar trainings on a variety of clean energy topics, partnership building with development agencies, and regional and global organizations to deliver support, and an online library containing over 5,500 clean energy policy-related publications, tools, videos and other resources. Our primary audience is made up of energy policy makers and analysts from governments and technical organizations with all in-country—with all in countries, but we also strive to engage with private sectors, NGOs and civil society.

The Solutions Center is an international initiative that works with more than 35 international partners across the suite of different programs. Several of the partners are listed above and include resource organizations like IRENA and IEA and programs like SEforALL and regional focus entities such as ECOWAS, Center for Renewable Energy and Energy Efficiency.

A marquis feature of the Solutions Center provides a no-cost expert policy assistance known as Ask an Expert. The Ask an Expert service matches

policy makers with more than 60 global experts selected as authoritative leaders on specific clean energy finance and policy topics. For example, in the area of energy transition we are very pleased to have Alexander Oates, CEO of SC Strategies, serving as one of our experts. If you have a need for policy assistance in energy transition or any other clean energy sector we encourage you to use this valuable service. Again, this assistance is provided free of charge. If you have a question for our experts please submit it through our online simple form at cleanenergysolutions.org/expert. We also invite you to spread the word about this service to those in your networks and organizations.

Now I'd like to provide a brief introduction to our expert panelists today. First up is Hugo Lucas, who is the head of the energy department at Factor. He has 19 years of experience in the private sector, the government and multilateral institutions, working in design and implementation of support mechanisms for promotion of renewable energy and energy efficient technologies. And our final speak today is Dr. Miquel Muñoz Cabré, who is the senior program manager and policy analyst on clean energy and climate change at BU Global Development Policy Center. And with those brief introductions I'd like to welcome Hugo to the webinar. Hugo?

Hugo

Thank you very much, Katie. And good morning, or good afternoon, to all the audience. I would like also to thank you, National _____ Energy Laboratory and the Clean Energy Solutions Center for the opportunity that you gave to Miquel and myself to present part of the work that we are jointly conducting presently on what we believe is a topic that is developing very fast, which is the role of citizens in the energy transition. Katie, you did a very kind introduction of us; nevertheless I would like to say a few words of Factor. Factor is a consulting firm specialized in the energy transition and climate change. It's multinational and its headquarters are in Spain, and myself I'm responsible for the office in Barcelona.

And my colleague, Miquel, is a senior researcher in the global economic governance initiative in Boston University, and we have more than 40 years' research in working together on energy transition, and developing energy policy issues. And so Miquel, I think I will give you the floor for this first part of our presentation. Thank you.

Miquel

Thank you, Hugo, and thank you, Katie, and also thank you to all the participants for coming and sharing this time with us. I know that time is valuable and I hope you will get something useful from us moving forward.

So today we are addressing citizens' participation in the energy transition. And the first question is what is citizen participation, what is meant because it definitely has different meanings for different people and different interpretations both for "citizen" and "participation." What we have done for this webinar is that we have identified ten roles that we are going to explore, ten potential roles for citizen participation and the energy transition. We loosely characterize these roles as either reactive or proactive.

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So we identify these roles as reactive or proactive. This is a definition we make for the purposes of this webinar and for understand these roles could be identified in different ways as well. So in the reactive roles we identify we mean those roles that are imposed upon people, or where people are not the protagonists but rather the receiving actor of the story. Proactive roles we identify those where citizens are the actors, the principle actors, the protagonists of the story.

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We'll start with the reactive roles. We are going to present five different roles for citizen participation in the energy transition. The first one is NIMBY, "Not in my back yard." The second one is public consultation. The third one is benefit sharing. Then we go into job creation and labor. And lastly, for the reactive roles, into human rights.

So let's start with NIMBY. NIMBY is an acronym that stands for "Not In My Back Yard." It's very well-known. It's basically an issue of social acceptance. People want infrastructure, people want the benefits of having infrastructure, they just don't want it affecting them personally, "not in their back yard."

NIMBY usually reflects legitimate concerns, and NIMBY can be addressed in general with good practice, and the acceptance evolves over time. It has been shown _____ _____ energy, that initial position truly evolves, when addressed with good practices, which we're going to ascribe to demands, including consultation and benefit sharing. That ultimately leads towards acceptance of the projects, and this acceptance evolves over time, as cumulative experience in _____ as well as in the particular location evolves.

A different concept, though, is BANANA, which has been one—it's like a funky acronym but it is "Build Absolutely Nothing Anywhere Near Anything." This has been seen in many, not only renewables, but it's basically fundamental opposition to anything developing. And this is a general, more radical and more minority opposition to projects. We contend that while NIMBY should be addressed with good practice and NIMBY is ultimately solved and should be solved because many of the concerns are legitimate concerns, BANANA, on the other hand, tends to reflect more fringe, more radical opposition, and in many cases you are personal, ignoring—not ignoring but those concerns are not as legitimate to be considered.

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So public consultation was the first means of addressing opposition; also of gaining support for the projects. Public consultation has been—it's informed by the free, prior and informed consent procedures about for other processes. Functionally the first consultation basically was a developer comes to the community, makes a PowerPoint presentation or slides, and that was a consultation. This was in the initial days; it was very—it was illustrated not to work in gaining social acceptance. This has evolved _____. Today public consultation is, in most jurisdictions, is a regulated process, regulated through national legislation. Most large energy projects are regulated how they have

to conduct their public consultation and what the requirements are. It's not necessarily a case for smaller projects.

There is a few basic items that have or should be included in public consultations. One of them is a representation. When you have public consultation with the local communities, who represents a community? Who can make a decision for the community? Who should be invited? And this is particularly relevant in places where there is informal tenure of land, informal uses, non-regulated or _____ partial uses or relaxed rule of law—the issue of representation becomes very crucial.

Linked to this is the issues or procedures and processes. What is the decision making process? What is the timeline? How does it happen? What are the steps? And it is important here to note that the public consultation should be done as early as possible in the design process, preferably in the pre-project design because once the project has been designed and is ready to implement it's too late to do a meaningful public consultation. It would be a rubber stamp thing, not a consultation, not informing the public. The project does not address the concerns of the community.

The next point that I have is the timeframes and it's particularly relevant here because the timeframes for developing community consensus and community acceptance are very different than the timeframes for developing projects. And communities need their time for understanding and for deliberation and for decision making. And usually this is one of the weak points of public consultation is that the timeframes are limited, are not appropriate to the timeframes required by the different communities and the different stakeholders to participate meaningfully in the process. That's why we also are looking for strong flexibility over the process.

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Next, the public consultation benefit sharing has been demonstrated to be one of the main mechanisms for public acceptance and for community acceptance and for community participation in the projects. For benefit sharing it is important that we do not mean paying for services or paying compensation for damages. After this has been netted of the benefit of the project, sharing and partnering with community is what we mean. This can be done in many different ways; it's very context-specific to the local circumstances. And here we have a few examples of what it can include. But again, it's very local. And the same applies before with the consultation process—community consultation has to be tailored to the local context. Very, very important. There is no cookie cutter, there is no one size fits all. This process has to be tailored to the local context and to the national circumstances.

So some of the benefit sharing mechanism includes, for instance one of the basic ones, and I'm not going to go in the order of the bullet points, is providing of services to the community and providing of infrastructure, so the services that can be provided, for instance free electricity, like what happens in Switzerland with the hydropower companies, or it can happen—some of the benefits from the project can be derived towards developing local

infrastructure projects, be it schools, hospitals, roads, it doesn't matter what it is but it's local infrastructure projects regarding the local community or energy efficiency programs can be sponsored via benefit sharing.

In a way there's also like part of some companies of CSR, or corporate social responsibility. Other mechanisms are the creation of local jobs and procurement, and here we are meaning additional. So one is the local jobs it would generate but you can also have benefit sharing by including a higher fraction than the market would bear of local jobs or of procurement. So these are other ways of sharing the benefits. And again, in the one before last point benefit sharing is beyond compliance of what they have to do, or beyond mitigating impacts and beyond paying for rent.

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Some argue, and it's a very valid argument, that local taxation is the best, most effective way of benefit sharing because if it's a local impact like local taxes, local taxes gets distributed locally according to the local priorities, and this may be a _____ document in some jurisdictions—there's three main drawbacks. One big drawback is that because local taxation goes to the general budget and benefits distributed according to local priorities in many cases there exists at least a disconnect—not in all, but in many a disconnect between the communities that bare the impact of the project or the various consequences and the communities that benefit from the investments generated by this extra tax revenue. This is particularly relevant in large municipalities where there is marginal communities, where the [audio garbled] impact.

Additionally local taxation is largely contingent on the national circumstances. In many regulatory frameworks it's not allowed, or it's separately hindered, constraints, so it may or may not be a possibility. Actually some countries have laws excepting renewable energy projects from local taxation.

Finally local taxation reduces the competitiveness of a particular location, which from a pure economic point of view may or may not be positive or negative, but if the next location next to you is going to get the project and you are going to get the impacts anyways then you end up being worse off.

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Other means for benefit sharing are policy mandates. These are generally included as part of the real energy support schemes; that's what we have found so far, but you could have mandates. For instance we have a case; in Ecuador they used to have a feed-in-tariff, which is no longer in place. So the renewable energy projects who were benefitting from this feed-in-tariff, had the mandate to contribute an amount per kilowatt-hour, to social community and development projects.

In El Salvador we had an option of our _____ in 2014 of 100 MW and the projects that were awarded this option were required to invest 3 per cent of

their revenue in social projects. Here an interesting aspect that we want to highlight is who decides where the investment goes—who decides what project that investment's for. And this is also every country is different, every [inaudible]. In these two particular cases, in the first case the developers decide how and where to invest their social mandate, the social community development project mandate, while in El Salvador the 3 per cent of revenue went to a government-controlled fund, a development fund that then decided how to _____, so it was the public sector deciding how to invest these funds. This becomes important because the decision making of how the funds get invested is a very important aspect to take into consideration.

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Another case of policy mandates was in Australia. For instance in the Province of Victoria there was an option for—there's an option for renewable energy projects, and part of the option requirements is that the bidders have to provide a benefit sharing plan, and the quality of the benefit sharing plan, according to the points that are in this slide, will be used to rank other indicators, to rank them and to accord the contracts. So in this case the benefit sharing is not mandated specifically but it's mandated to have one and it's up to the developers to come up with a good scheme that they will be _____ upon.

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A completely different approach to benefit sharing is the voluntary approaches. Voluntary approaches can be done _____ through philanthropy, through foundations, through dedicated funds, through donating to funds controlled by the company or by the government or by a third party or through employee-drive or employee-operated programs. There's really many, many ways of sharing in a voluntary way. Here we're going to focus on one as an example, but just the important thing here is the fact it's voluntary benefit sharing.

And again, why would companies do this? Main drivers? One of them is public acceptance. It is very important to follow the acceptance and this translates into long-term sustainability of the project. And in some cases lower costs. It's not the same to have the community supporting you to the community opposing you. And in our case this is because of political reasons, and in other cases is for social responsibility, and in other areas is because of the supply chain requirements.

So I'm going to go into this case in El Salvador. So in El Salvador is a geothermal plant; it's call LaGeo, and it has two locations. And for over a decade they have funded activities in the surrounding communities. This was initiated as an employee-driven program where the local employees decided they wanted to help the community, so they started working on that. And eventually derived into the geothermal power plant, creating a fund where they contribute part of their benefits and they invest them in the neighboring

community. So there's seven communities encompassing nearly 15,000 inhabitants.

And the reason we selected this example is because here we have a good case study, a success story or a best practice of decision making. In this case the local communities, every year they present projects that they want funded. Each year the communities also, through an assembly process, elect representatives. And these representatives from the communities they get together with the foundation and the geothermal power plant, and together they vote and they decide which proposals get implemented. So the communities themselves are ranking their own proposals to asses which ones get implemented.

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In addition this power plant, these geo Ks, they have a very strong role for gender. So they do incorporate and ensure that women are among the [audio garbled]. So that's an extra good practice. And so far they have funded problems on training and location, a school of health and environment, a health facility, productive development, some greenhouses and basic infrastructure.

Next slide I'm going to pass to Hugo, who is going to explain about renewables and jobs.

Hugo

Thank you very much, Miquel. One of the main drivers behind renewable energy deployment policies is job creation. Since 2014 we have international renewable energy agency monitoring job creation in the renewable energy sector every year. And we can see here how at the end of 2016 almost 10 million people were employed directly or indirectly in the renewable energy sector. These figures they have grown steadily. The last year, thanks to more countries putting the frame and policies in place.

We have seen also how the jobs are moving geographically. In the beginning jobs were concentrated in Europe: Germany, Denmark and Spain—and Brazil; Brazil has also been a leader in renewable energy employment because most of the employment is happening in the BMR sector and biomass and particularly liquid biofuels for transport is very strong in Brazil.

But besides Brazil we have seen in the latest year how employment was moving from developing industrialized countries like Europe, European countries to developing countries like China or India. And we have seen now the same agency is also developing scenarios for 2030, in this case to meet the 2020 goals of developing renewables, and then to only wind employment can be multiplied by three in 15 years, one million jobs in 2003 to include 3.5 million jobs in 2030. Similar case in those scenarios for solar technologies, [inaudible] power, and we see how these scenarios are making the case for renewable energy deployment thanks to the deployment. But I think that based on the figures it's a scenario, some million people, and I think it's important to talk a little bit how is this employment.

I think the first thing that I would like to highlight is the myth that employment is created in manufacturing. There is a tendency to design policies, deployment policies, link it to industrialization through local mandatory content. Even to the employment policies that demand that manufacturing facilities are built to get the contract, we see like on the left wind: only 17 per cent of all the employment is in manufacturing. In the case of PV in orange on the right is 22 per cent.

So most of the employment, most of the jobs is in operation and maintenance. And this

has a very simple ratio: it's the more you deploy, the more systems you have to operate and maintain. So you are always going to manufacture every year the same capacity so there is employment in manufacturing, but you need more and more every year in cumulative working hours in operation and maintenance.

We basically conducted a study at Palo Alto to assess employment in renewable energies. There is also the idea that renewable energy jobs are less than the conventional energy jobs. And this is on the average true. But it is not because of renewables conventionally, it's because the renewable energy companies are smaller than conventional energy companies where salaries tend to be lower, and also because many renewable energy companies they have their headquarters in rural areas, or many of the projects they are in rural areas. So these are the two main reasons why salaries in the renewable energy sector tend to be a little bit lower than in conventional.

We also quantify the scarcity of professionals in the sector and there are also reports from the industry for the way they use the _____ industry. We test scenarios on the many professionals that are missing in the sector and the many more that are going to be missing. And one of the possible, or the many approaches to address the scarcity of professionals in this sector, today or in the future, is to attract women to the renewable energy sector.

We also conducted interviews with human resources experts, different companies, and they both agreed that the renewable energy sector is more suitable to employ women than the conventional, basically because employment often it is found because of professional networks and the professional networks in the conventional energy sector they are very close, they are male dominated and they have been there for many, many years, while the renewable energy professional networks are being built today, they are more open and women are calling more women.

Yeah, and then I think the last aspect on the reactive [audio garbled] has to be with project development and human rights, and I will pass the floor again to my college Miquel. Thank you, Miquel.

Miquel

Thanks, Hugo.

Human rights—and I think it was a good segue to talk about salaries, human rights including labor rights. This is an area that has received very little

attention so far in the renewable energy sector, other than large hydropower which has a long history, and in some cases with biomass.

Why is the reason—and here I am going to separate new renewables for solar, for wind, for geothermal—why is the reason of human rights have not received a lot of attention? One of it is that it was a small sector, it was a good ____ sector, where it is doing environmental good. Therefore it's like _____ plastics in some ways and having to worry about other things because it was considered, since it wasn't environmentally helpful, helping with climate change, _____ _____ there was no need to.

Well, the story is changing as renewable energies are mainstream and they're like the main source of _____ employment now and they keep growing. Human rights impacts—negative human rights impacts are increasingly apparent and need to be addressed. Here I'm going to draw on some very recent research which is [audio garbled].

A recent research published just two weeks ago by the Business & Human Rights Resource Centre—and this research was prompted by allegations they received. They compiled _____ received allegations of human rights violations. They had received over 100 human rights abuse allegations against renewable energy projects. And we're talking about killings, we're talking about displacing communities, harm to indigenous people, and also abuses of worker rights.

And of the things that struck them is that the renewable energy sector was among the three sectors most frequently linked with _____ human rights factors. A lot of this is about—we're talking about large hydro power, but not only. It also affects solar, wind and other technologies.

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So what this research did is they went and they contacted nearly 60 large companies of renewable energy, developed _____ or equipment providers, and they sent questionnaires and asked about five key areas, whether they had a commitment to human rights and _____ in their company policies, whether they engaged with community consultations _____ describe it for. Whether they had grievance mechanisms in place. What was their position on labor rights or the policies, and whether they monitored the supply chain for good conduct on human rights.

And the results were not very good for the sector, so basically funded only five out of 59 major companies, so less than 10 per cent met the four basic criteria to protect _____ _____ workers in the project. And even worse, like almost half of the people have like no basic standards in place. So again, I just want to emphasize this is emerging research. It's not comprehensive, it's not systematic. It's a snapshot. So I'm sure more research is needed. But this is a snapshot that I fear it will be also a reality and it's that human rights have not been taken seriously so far by this sector because they have not been pushed to and there has been complacency. And this is something that will emerge

more and more strongly as the renewables become more and more mainstream, as the energy transition unfolds.

So we just want to put that because it's an important in the future and in the present because they're asked _____ citizen engage and how the other human _____ of human rights interact with the renewables sector.

And this concludes the reactive roles that we have identified and now we're going to move to the proactive roles, and I'll pass it back to my colleague, Hugo.

Hugo

Thank you again, Miquel. So we can see how more and more in the markets that it is possible people is conducting _____ consuming 100 per cent renewables we have here the data that 22 per cent of the homes in Germany they have a contract with a supplier, 100 per cent renewables. How the deployment of renewable energies in Germany the main source was citizen savings of citizens' money of 50 per cent of renewable energy investment in Germany [inaudible] individual ones, no? And we have seen also, and we will see, in the slides, how grant funding platform has also arisen to the sector and it's leveraging millions in renewable energy projects.

So we find five proactive roles. The first two are related with proactively consuming renewable energies. Consumers, as I mentioned before, that contract the electricity supply, but also they can become prosumers, so they produce and consume their own energy. And you can invest in third party projects but also you can invest in your own community and your own projects. And finally of course you can be an advocate of renewable energy, which is this engagement of consuming or putting your money in the projects.

As mentioned before, you could—and now you go to the next slide because I believe it's more clear—you could go to a web page and look for 100 per cent renewable energy providers. And you can, in this web page, in the Netherlands it's not only that you can contract your monthly concession with 100 per cent renewable energy provided, it is that you can choose the complete project and the complete development. And as you can see here you can option for several wind farms and a biogas project, or the complete family.

But of course it has to be a legislation where it is clear that this project, they can commercialize thoroughly, bilaterally, the electricity with the proactive consumers.

And then we have a case where, in this case it's municipalities, they provide the platform for people to become proactive. In this case in Town of Arlington the consumers they have the possibility to join a community church aggregation for their electricity supply. The community is facilitating, then the consumers they get together to do a bulk purchasing of the electricity and they can choose from the average electricity to 100 per cent renewable energy electricity. Once again, this is only possible because the legislation allows it. And in this case, in the United States, there are seven states that have in place

the legislation to facilitate this proactive behavior of consuming electricity, in this case in an aggregated way.

You can also produce and consume your own electricity. Of course we know that the main regulation for this is net metering. I mean there are trainings on net metering and there are books on net metering and there is a lot of literature experience on net metering. But basically it is to have the legislation that allows you to have in your roof a _____ in parallel in case your production is higher than your consumption; you can export this to the grid and you will be compensated with energy or with money and you will be compensated.

Around this we have seen how there are more and more new business models that try to benefit and take advantage in the countries where they have the net metering scheme. And we have here a poor town in Italy where basically anyone can put their roof, and they will receive protection from different PV developers and PV storers. So we put the basic information where is the location of our house, how is our roof, how many people live there, the consumption, the electricity, the electricity bills, and different providers they will send quotation to install or to try to sell a solar home system.

We have seen now there is more and more new business model around once again not only aggregation but also peer-to-peer is for utilities, like Luft-_____ in Germany that will have several prosumers and they will be exchanging electricity from one consumer to another consumer, or even they will be also maximizing or optimizing the portfolio on trying to buy electricity in the grid when it's cheap and trying to sell it with this high _____ aggregated mode. But also we've seen the people in the same community trade or balance their consumptions.

There is also the possibility for citizens to invest. Here we are not mentioning stocks, but it's also a possibility just to put your savings in the stock market, and then you have the main one you _____ companies there like the stocks were not _____ and General Electric and so on. But besides, of course, a very conventional way of putting your investment in renewable energy company which is going to the stock markets, then you have the possibility to thoroughly participate in project and invest in complete projects. And there are two basic models that they are used more often: the equity partnership and the subscription. The equity partnership basically is an in-kind contribution from the participant, from the citizen or the community. Basically they more often provide the land and instead of getting paid for renting the land they are part of the equity of the project and they will have also—they will participate in the management of the project and the position of the project and then we'll participate in the benefit or the losses of the project, while a more financial approach is this, the subscription model, in which part of the equity simply is open for a small investor. And we hear one of the best examples: if the public utility, Uruguay UTE has promoted three wind farms 90 per cent of the equity of this wind farm was open for small inventors like Qul, invest in $100 to $2,000. I mean in the three cases they have over subscription of the wind farms. There were a lot more people willing to put money down the equity

that was offered. There is one thing it seems the subscription model that is, of course, only where CT goal people that can invest and communities that can invest in this project would be able to benefit.

Another model that we have here, the solar city model where basically the solar company is asking for savings and then promise a return. And then with this money is putting in solar rooftops. And he's paying back to the investors with the incomes that are made by selling electricity on rooftops.

And as I mentioned before I mean there is a growing market in the crowdfunding platforms. One of the things that is more attractive about the crowdfunding platform is that they are faster in making the decision and in providing the investment, than if you go through the conventional financial channels. And we can see how they have proliferated in the main market and how they have leveraged millions and billions in the last year. And also not only on solar and wind but also biomass project, biomass and biogas projects.

One of the latest trends now is the community-driven projects. And only last January, and there is some level of international renewable energy agency, there was a meeting when a document was presented, trying to provide a definition of what a community-driven project is. And for them, for the [inaudible] international renewable energy agency a community project has to have two of the same four-way peers. So local stakeholders on the majority will follow the renewable energy project. They're both in control of risk with the community-based organization, or the majority of social and economic benefits are distributed locally. So this is hopefully this will be then the definition of _____ for community-driven projects.

So here I mean it's just a simple contract for the community-driven project in Barcelona, in Spain with basically two or three that the community, normally a cooperative, will manage the project, and you provide a small participation with money.

There is already [inaudible] of all the benefits of community-driven projects. They are reporting in Scotland that are quantifying the impact and they are quantifying ten times the economic benefit for local communities higher, than when the project is a community-driven against a project from international project developer.

Of course as mentioned also by Miquel all these kind of benefits are in an instrument and proactive tools on the _____ transition increase social acceptance, increase also the economic resilience of the community; of course they're going to have a new source of income. They tend to _____ strength and a common identity in the community. Of course when the community is actually involved in the decision this transparency—there has been always traditional—in the energy sector this _____ seems that a generation is a natural legal colleague that only a few companies can participate, or even in the transmission it's a natural legal colleague, you know? But now with renewable energy that they are smaller, they are modular, and these illegal polling generation has been broken and this new actor has community ask

coming. So we are starting to see the now the assets are not in the hands of a few big companies but it can be in the hands of many people.

And this we recently worked, Miquel and I, for the Renewable Energy Network Trend 21 and also we were trying to see the impact on indigenous people because particularly for Latin America it is important. And it's clear that, like many other business managers in this case attach it to the local resources, energy resources. It could be a way to increase socioeconomic benefits in indigenous people. And of course and then also energy security is higher for the community and so the energy needs are more likely to be met when you have local generation. And it has been—we saw words on the various slides, it's becoming to be a very important source of fund for renewable energy sector. And also increase knowledge and _____ beliefs and of course—I mean it gets the topic of energy more close to people. There are studies that say that people—they are participating in renewable energy cooperatives; they are also adopting more often energy efficiency practices.

It's very difficult. We found it very difficult to find figures, and community-driven projects, as I mentioned before, the main legal formula is the cooperative, some figures is the _____ and energy cooperative between Europe, 2000 public electric cooperative, and United States providing service to 48 million people; 65 in Canada; 19 community-driven projects in Australia and 2000 community-driven projects in Japan. But as I say, it seems it's only a few months that we have a definition of community-driven projects, and in general one of the main program _____ policy makers because you cannot make an informed decision if you don't have the data. Then one of the difficulties we have experienced about this topic is the lack of data.

But we see how for instance in Europe there is always a Federation of National Associations. So the countries in Europe and they develop cooperatives; they get together in the national association. And now they even cooperate together in a Federation of National Associations; this is what it's called, based in Brussels.

We have also recently studied the impact that the auctions, renewable energy auction has on community-driven projects. So basically it was an increasing concern that auctions lock out community-driven projects and after research with many interviews and analyzing the results of many auctions we found data to sustain this. So basically the renewable energy power auction lock out community power. And basically because the community cannot bear incertitude in the timeline and incertitude in the results. So if we don't know how much they are going to pay us, if we don't know if we are going to win the auction, and conceivably worse than that: we are going to compete against General Electric, against Energy Green Power, so [inaudible] as a result that we are going to lose, then why to get it together to decide to beat, no, the financial guarantees, the cost of the financial guarantees, of course it's a lot lower for a big player than for the community. And we have financial _____ that are community-driven. They use social banks for—banks that they are

different than the commercial financial institutions, and those banks cannot provide the financial guarantees.

And the degree of development of the project, I mean once again, if the auction is asking us to have measures of wind for the last two years, and this is going to cost us half a million dollars, I mean a big corporation can invest that money in project development, but the community will not do it. Many of the times the auction, they're asking for technical and financial reputation; they're asking that you have already developed three wind farms of at least 50 megawatts. And of course only international corporations have this track record, and never a community.

And then of course any administrative issues, more about them for a small player than a big player, and of course the access to finances is not that easy for the community: access to human resources. Many, most of the time the big players they have already land agreement in the places with the best resources. So when you come there, try to develop your project and to put sites together to develop your project it's almost impossible because they are very compromised with the project developers.

And another issue is what Miquel mentioned: governments, they don't like to put in their auction mandatory benefit sharing because at the end it's a tradeoff with a final price of the electricity at the _____ auction or they decided to have the cheapest electricity and to have a benefit sharing plan as a mandatory document to beat in an auction it seems like another burden that would increase the final project [audio static].

So basically what do we propose? So what are the recommendations to support citizens in the energy transition, particularly community-driven projects? That means there are several case in Scotland and Australia where they have put the certificate target for community power projects. And then what we propose is that these projects will not get a contract participating in the auction, but afterwards they should get a fitting tariff power purchase agreement based on a fitting tariff. That's—we agree it has to be linked to the auction, has to be the price of the auction plus something. But finally, when it's not somebody important, you have to have an urgency, an institution that we can call Community Power Authority, where this project can get support, they can see how the municipal procedure is easier for them. They may get the financial guarantee from the Community Power Authority. The Community Power Authority may promote aggregation, so different projects will make one single purchase of wind machines for cheaper. So there are many possibilities and _____ why these Community Power Authority could help to realize these community development employers.

And finally, of course, [inaudible] citizens _____ becoming more and more [audio static] renewable energy. But again, this attitude has to be to support and promote an institutional agency who would be also, once again, the vehicle to raise awareness and education. We know that the awareness raising it has an impact in the short term, six months, but the location is the one that we have the impact in the long term. And—and we'll _____ be fundamental for citizens to participate in [inaudible].

I think this is, from our side, everything that we wanted to share today. So thank you very much for listening, and any question is welcome.

Katie Wonderful. Thank you to each of the panelists for the outstanding presentations. As we shift to the Q&A I would like to remind our attendees to please submit the questions using the question pane at any time. We will also keep up several links on the screen throughout for a quick reference that points to where you'll find information on other upcoming and previously held webinars and how to take advantage of the Ask an Expert program.

We've had some great questions so far and I'd like to start. And I'll address each of the panelists, but please feel free to jump in as well.

Starting with Miquel, at the start of your presentation you mentioned the status of NIMBA and BANANA. What is the status of NIMBY and BANANA, I'm sorry, and the strategy to address those?

Miquel Thanks, Katie. Thanks for the question. What is the status?

So NIMBY, whenever there is large infrastructure projects, be it renewables or anything else proposed in a particular location there are concerns by the community as well as opportunities perceived that often translate or are categorized as NIMBY, which may or may not be NIMBY because NIMBY, again, means to different people different things. For some people it's just people who opposes; for others show of _____ concerns.

So the status is today there is a realization by developers that when you plan or project to have a big project anywhere where people live you have to engage with the local community. So we are—I think we are past the point where developers can just go to a place and assume that there would be no community reaction to it.

So third _____ _____ we are in the stage where either by mandate because, as you mentioned, with the community consultations or by practice developers know that they are committing us to engage or expected to react to the projects and therefore account that in their plans.

Unfortunately in some places [audio static] the developers know that they can step over the community if there is not the right protections in place and they're simple, and that's something that should be avoided and should be denounced when it happens. But I think in most cases we are asked ____ renewables was there 50 years ago with the bats, the flickering of the wind turbines and all those things that we heard in the media because we have evolved as that, and now the communities are either engaged or take into consideration with the _____ projects.

So I think we are—the issue has evolved, and while it's still there now it's considered normal that the community should be engaged, and therefore that problem in particular has been mitigated or which is known how to mitigate it when it arises.

The issue of BANANA, which we use an acronym, but basically [inaudible] other, it's a more problematic one because here we're dealing with fringe opposition that is on the principle basis, not on the particular issues that could be addressed basis; it could put it this way, just to make energy efficient separation because all of it is a spectrum.

So when there is BANANA type of opposition—to mention somehow but even though it may not the people who's opposing may not be seen this way. That's more problematic because opposition—there will always be fringe opposition to _____ _____. And the question is whether this opposition is fringe and is—or it's—I mean a significant portion of the community, having legitimate arguments can be addressed.

And here is the key: any legitimate arguments that can be addressed should be addressed and the community should be heard. Fringe opposition should not be allowed to derail projects. And that, again, is a very delicate call because the boundaries are not clear in what constitutes opposition or not. It's very hard to say. And how to address it is very complicated. It's like in a way it's like the climate deniers. People who are set out to say that climate change does not exist there may not be a point to engage with. However, there are enough concerns of a majority or—not the majority—of a significant portion of a population about a particular aspect of climate change. Well, this can be discussed and addressed and that consensus eventually is reached. I think that's kind of what we see with the renewable energy and the NIMBY and the BANANAs. Thank you.

Katie Wonderful. Thank you so much for addressing that.

Our next question is for Hugo. Hugo, what are the drivers behind the increase in proactive attitudes towards renewable deployment, through noble energy deployment?

Hugo Thank you very much, Katie, for the question. And as mentioned by Miquel no social acceptance evolves when people are opposed to renewable energies. So this has entered into our bid _____ cycle. The more renewable energy deployment we have the more that people is aware about renewable energy, the more they see it normal, and also as something that is good and beneficial for the community. So this awareness is a key factor and a key driver for proactive attitudes toward renewable energy employment in particular and energy transition in general.

But it's also true that this has been also supported by the development of IT. You know, we see how old this mission is smaller than I have presented in the presentation. They are mainly feasible today because of the different IT tools and the different telecommunications, technologies that has been deployed.

And finally there is always the need to find an able environment. There is always the need for the right policies. There are many countries where you cannot put your investment in _____ funding or countries, like in Spain there is cap to 50,000 _____, the presentation in a specific project. So at the

end regulation is the enabled environment but has to provide an enabled environment but the drivers is increasing awareness among citizens and the great possibilities that IT has brought to us today. Thank you.

Katie Wonderful. Thank you. Um, the next question from the audience is for either Hugo or Miquel. This is Henry, wanted to know: "The growing concept of energy justice that's been occurring over the last five years or so in academic publications, did you include energy justice at all in your research?"

Miquel Maybe I'll start with this one. Justice is a very loaded term, so there is an incented _____ _____ for this question which is it's very important. In my particular research energy justice as such has not been included. I am very aware of it, though. My PT director is one of the promoters of the energy justice atlas, which you may be aware of. So it is a very interesting concept.

And it links with the human rights part that's presented. So we want to transition to an energy transition—we want to just transition. And those are two elements that, unfortunately for the people who wanted just transition and not necessarily—one doesn't necessarily imply the other. So many people is pushing for an energy transition for motivations, ranging from environmental to economical, to energy security. A bit chunk of those share the concerns of it has to be a just transition and by just it is generally accepted that is benefits the people, it reflects in the people and _____ there it improves in the current situation in terms of human rights and other human well-being.

So part of the human rights—again, I'm just addressing a _____—but the sector will not consider his—and that's my personal perspective, by the way, the sector right now it's a commercial mature sector driven by benefit. It will not consider social justice or human rights issues unless it's pushed to. Up until now—and again, that's my personal perspective, the renewables has gotten a green pass, or an easy pass on human rights. And this does not apply to hydro, by the way. I'm talking about soil and winter.

They have got an easy pass on other aspects because they were perceived to be such a good social good in terms of the environmental impact in terms of reducing climate change that there was relaxation regarding the other social justice and human rights aspects. These have and will change—has to and will change. It has to change because the sector pros those impacts become larger, also because the pushback will grow more and more. And then there's a final aspect here which is what moral we're having to, right? And we could be heading to _____ because this model is, _____ with the AT enabling and with the other enablers it enables—and here's another _____ term: democratization of energy. Because people right now they do not control the energy lights or the energy supply by a company and is paid to a company and you don't have much control over it. With the new technologies there is an opportunity to democratize energy where people are the owners of the energy supply, people as individuals, not as through corporations we're stuck.

And there's an opportunity for that, but there's also an opportunity for the energy transition to be controlled by large corporations and just replicate existing model where people is dependent on their energy and their

companies for their energy. And where we will go we don't know, and the jury is out. But those options are up as [inaudible].

Hugo I think you mentioned all _____ in our research we only mention these two concepts but we will never take a deep dive on the use transition of energy democracy. I thank you for mentioning the energy democracy concept. Only to mention that myself, I've been participating together with WWF, and in workshop on the use transition. So I do believe they are the most advanced in not only developing the concept but also trying to implement the concept and in this case our colleague _____ _____ on the _____ WWF has been very interesting work in the just transition.

Katie Wonderful. Thank you both. Um, to follow up that question—and you covered this a little bit but in the terms of human rights can all the renewable energy technology be treated equally? Or should we make difference between conventional renewable like hydro, geothermal, biomass and new renewable like wind and solar.

Miquel So let me take that one too. I think it's very clear there needs to be differentiation just because technologies are fundamentally different, everything, in scale, in impact. So when we're talking large hydro—and here the impacts are known as human rights [inaudible] they're well-know. We're talking about regional impacts, we're talking about communities, placement, we're talking about tenure. And in addition we're talking after _____ about labor and management of the water, water rights, land rights.

So we're talking about biomass; we're talking about all the issues associated with agribusiness. So we have a whole collection of business there, including labor, many _____ with labor but also land rights and livelihoods and that's food and that's just water. We were talking about the solar and hydro, we're talking more about the manufacturing and about the land rights issues, not necessarily at the regional scale but more on the local scale. And also we're talking about the benefit sharing. And many of them indicated wind, _____ good sites are in traditionally marginal sites where there's lots of informal pieces of land in business communities. So that's also a particular right.

_____ solar, we'll talk some more about _____ issues and because is it scalable and it's more open because we have issues of environmental impact like [inaudible]. So _____, and I think the impacts are very different _____ _____. Some of them overlap, some don't. And then overall _____ good labor practices and the good human rights practices that apply across the board to all private companies and these apply also to [inaudible].

Katie Wonderful. Thank you, Miquel. Hugo, our next question I can this bottom up approaches be followed as well by corporations?

Hugo Thank you very much for the question, Katie. In fact this is happening. This is happening. We have Factor—we just finished the 100 per cent renewal energy strategy for Ikea _____ area, Helvetica so the 14 stores of Ikea in Spain. We follow the similar approach. It is what opportunities a corporation has today in a [inaudible] 100 per cent renewable energy _____ electricity.

Once again, the regulation here is very important because today the markets in Europe, they allow the green washing. They allow someone to buy gray electricity, to buy the green attribute and put it together. So they are different quality markets of 100 per cent renewable and this also has to be understood. But as a corporation—and we look to the 35 main companies in Spain. The biggest one, the ones from the stock market are most of them for how they have investments in renewable energies. So they are also investing _____ _____ investing, and some of them are also producing their own renewable energy. This is not most of the time the _____ but you can find also some pilot project or rooftop or of course the mandatory solar water heater. But yes, I think also there is today a movement of companies from the new economy, mainly, like Facebook, like Google, or Ikea. They are really a Walmart; they are trying to play a role in the energy sector and become proactive in terms of energy. As I mentioned consuming clean energy, investing all _____ or producing their own. Thank you.

Katie Wonderful. Thank you so much. Our next question from the audience is based on your research that you've done what is your best advice or how do you approach policy makers to build policies based on it. And the second part is how do you also encourage consumers to become prosumers or invest in energy efficiency technology.

Hugo Okay, I'll start, no? Um, and I think both for policy makers, so for the citizens at the end, the first step is the one _____, no? We have participated, as I said, [inaudible] AWF, or water economic [inaudible], international renewable energy agency and the _____ _____ doing awareness for parliamentarians and this bringing to them these new topics. And trying, in a very neutral way to solve then the data, to solve the benefits and to solve what could be the enabling policies. But at the end politicians they are citizens like all of us and why they should have more knowledge on energy. Often it's not the case, or the first vehicle, of course it has to be to raise awareness among policy makers and citizens.

And then what was the second part of the question, once again?

Katie Yes, Hugo, it was how do you encourage consumers to invest in energy efficiency?

Hugo That's also a very interesting question because also when we did our research we found that you cannot put on the same level energy efficiency and renewable energies. And there is a lot of research on economic behavior, trying to explain why people that's not investing in energy efficiency, why it's good for the environment. Most probably they support it with conserving the environment, and also good for the package, no? And there are many barriers; it's not only about awareness but it's a lot. So access to technologies, about access to the initial finance and so on.

But in the case of renewable energy it is different. For prosumers let's say that they are less lazy, or the people is less lazy to invest in something that they see, they can touch, they can manage and they believe they own to them. Like

if a PV solar rooftop than trying to do an installation _____, that is to put something in the world that at the end you really don't realize, no?

But it is very interesting how this drastic behavior there is an increasing trend among citizens for becoming consumers but on the other hand it's taking a lot more time and is becoming more difficult and it has to be through legislation that at the end we are advancing energy efficiency. We have to mandate on technical building costs but it's because if you let these _____ to do it voluntarily this _____ thing will not happen, no? While simply with—I mean not simply but with increasing information, increasing awareness and exposing to people, to renewable energy technology they become proactive. Thank you.

Miquel

And maybe I want to add a couple things here, building on what Hugo said. So the visibility. Two very pragmatic options for those of you [inaudible]. The first one is why people _____ it. If your labor has it you want it. So make it visible. That's demonstrated to work so you can make it visible here because you see the solar panels in the room but you can make it visible from many other ways including _____ _____ municipality [inaudible] opportunities.

Another one for political economy and that's here I'm going to go into the community [inaudible] example we had is opt people in by default. So they are in unless they opt out. So this is one of the successes of the community choice _____ programs at the municipal level, and I'll talk about the one in Arlington because this is my town, so I'll just explain it. But basically when the program was created and the rate was negotiated there was an agreement after all the public consultation and everything else that everyone in the municipality would be opted into the program at the default five per cent extra _____ energy. And people could opt out if they wanted to at no cost or they could opt up to 50 per cent renewables or 100 per cent renewables at no cost and they were allowed to opt out at any point for no reason to any other provider.

And this has been tremendously effective most people they just don't want the hassle. They don't care. I mean they like the idea; they would love to participate, but don't give them the hassle. So if you make it easy for them in a way that they don't have to do anything about it—I mean they don't like it they can take action. That is very, very powerful. So I would say opting people in by default and with an easy opt out option, that's a very good approach.

Katie

Thank you, Miquel. Our final question for today is for Hugo. Hugo, is the 100 per cent renewable energy supply more expensive?

Hugo

Thank you very much for the question, Katie. Not necessarily. As you saw in my presentation there are these web portals. When you have many offers, not necessarily 100 per cent renewable energies, has contact, has to be higher, and on top of that usually they give you a fixed price, or at the end to prevent you from volatility. So it's not only that we, at the end, are going to pay the same as with an average provider and supplying great electricity we are going

to pay the same but we are also going to promote local benefits to protect ourselves from whatever is in the monthly bill. Thank you.

Katie Thank you again to both Hugo and Miquel for that informative question and answer sessions. Now I'd just like to provide each of the panelists with an opportunity to provide any additional or closing remarks you'd like to make before we close the webinar today. Hugo, would you like any additional or closing remarks today?

Hugo No, only to thank you once again and thank you [inaudible] for the opportunity, and of course it's always a pleasure to work with Miquel. Thank you.

Katie Wonderful. Thank you so much, Hugo. And Miquel, would you have any closing remarks for today before we close the webinar?

Miquel As Hugo I would like to thank everyone, and especially thank the participants who have listened to us so for and for us to be engaged, and also open to any follow-up discussions and question and thanks to the Clean Energy Solutions Center for organizing this webinar. And I hope that we were _____ for everyone. Thank you.

Katie Great. And thank you again. On behalf of the Clean Energy Solutions Center I would like to extend a thank you to all of our expert panelists and to our attendees for participating in today's webinar. We very much appreciate your time and hoping in return that you have some valuable insights that you can take back to your ministries department for organizations. We also invite you do inform your colleagues and those in your networks about the Solutions Center resources and services, including no-cost policy support through our Ask an Expert service.

I invite you to check the Solutions Center website if you'd like to view the slides and listen to the recording for today's presentation, as well as previously held webinars. Additionally you'll find information on upcoming webinars and other training events.

We are now also posting webinar recordings to the Solutions Center YouTube Channel. Please allow about a week for these recordings to be posted.

Finally I'd kindly ask you to take a moment to complete the short survey that will appear when we conclude the webinar. Please enjoy the rest of your day and we hope to see you again at future Clean Energy Solutions Center events. This concludes our webinar.