FEMALE: OK, so last session. So, we're going to talk here about IRRP results and outputs, what do you do with them, what the implications of all that is. I want to say a little bit about--we talked a lot about models. I want to talk a little bit about what the direct outputs of the models are, and then some supplement analyses you might do with those.

So, Maria covered a lot of these. So, direct outputs of the model, you know, it's variable by model. But generally you will get information on prices, average energy costs, marginal energy costs, capacity prices, fuel prices, and total expenditures. Some models will also give you information on, sort of, solve internally for the fuel price. You know, IPM, in certain modes, as we run it, as an integrated coal and gas structure, and so it will also solve, if you have that kind of information, for those things.

Not the case in these applications, because we don't have that kind of data. You'll get emissions output if you've put them in. IPM, for example, tracks

carbon, SO_2, NOx, and mercury, or toxics, depending on how you represent them.

And if you have constraints on those emissions, you'll get a price, an allowance price, basically. If you've got a constrained carbon market, you'll get a carbon price out of the model. It will give you information on how to dispatch the system, the existing system. And it'll also tell you what new resources you should build, given your--what you've sort of modeled--the scenario you've modeled, as well as any constraints you might have put in with respect to emissions or minimum level of renewables.

It will give you information on what to build, when, and how to operate the system over time. Remember, these models are long-term models. Some are forward-looking. IPM, for example, is--has perfect vision, perfect foresight. So, it understands what's happening to technology cost and to fuel prices over time. And when making a decision for today, it's seeing that information and optimizing on that.

If you've modeled things--and not so much an issue here--but in the U.S., there's plants that are reaching 50, 60 years of operation, and you need to make a decision whether to extend the life of them or whether to retire them. And so, it'll give you that kind of information, as well. So, retirement decisions.

And then we talked about earlier, some models, IPM will let you get a screening on whether or not transmission is a constraint and whether you would benefit from building it out at a certain cost. Again, you'd have to go take that to other models to analyze in more detail, but it will give you that screening.

Supplemental analyses are really important. The model gives you a set of outputs, but there's all kinds of things you can do with that output. For example, you can look at compliance decisions. If you have an emissions constraint or a renewables constraint, I must build a certain amount of renewables. It'll tell

you how to comply with that and what the cost of that is.

And you can look at the output of these models directly, or you can do a comparative analysis. When you talk about compliance decisions or the cost of a constraint, you're always looking at a reference case versus a case with the constraint. It's, sort of, how you do it in--for an environmental policy analysis. You're always looking, sort of, with and without those kinds of policies. So, you're taking the difference between two model runs. And it will give you, then, the compliance cost or the cost of a decision that you've made.

You can also take the models output and do discounted cash-flow analysis or revenue requirements analysis. It's giving you, for every year that you run, how a unit is operated, what's built, how that unit is operated, existing or new, and what kind of revenue it's seeing. What the price it's facing is. And, therefore, you can do a cash-flow analysis.

I think, Scott, when--I was in Tanzania, you told me about some of the tools you built for TANESCO to look at revenue requirements and cash flow. And so, IPM can feed those kinds of models. And that's a lot of what Maria does in her work, in terms of valuing assets or systems.

And that graphic there, is just, kind of, a representation of a delta analysis, as I call it, the difference between two cases. Here is how case A might compare to case B, in terms of what you build or how you operate the system. Some things will go up. You may build more renewables in a case where you're requiring a certain amount of renewables. Less than a case where you're, you know, you might then be backing off of some other things, like gas or oil.

So, that, sort of, outputs of the model and, sort of, secondary outputs, as I'll call them. What kind of analyses can you use with the results of an IRRP? And I won't go through this whole list, but just point out a few things.

You know, retirement decisions, not so much an issue here, but sometimes if you have really high-cost resources, you may be better off just retiring them. And it'll let you know that.

DSM planning, we talked about that a lot today. It will tell you if you've put in a set of resources. And the model is making economic decisions about which of those resources makes sense. It'll tell you which--how much of that to buy. You may then also need to go off and do some supplemental analysis in terms of, for example, other perspectives.

You know, from a system-resource perspective, some DSM might be good. You might need to go screen it further on ratepayer perspective or, you know, other perspectives. You've probably done that screening beforehand, but again, you might need to do a little more analysis on that.

Asset screening assessments, just viewing different assets within the modeling framework and deciding how they might rank.

Valuation of assets, we talked about that.

Grid integration studies, sort of, how does a resource fit into the system? How you might incorporate that. And then build versus buy decisions kinds of things. I think Maria's going to talk a little bit more about this, as is Sanjay, so that-- I'll turn it over to Maria.

FEMALE: So, we've talked about, you know, who might perform an IRP and why, but what I wanted to focus on here was how different parties would utilize results of an IRP. How can it help different types of parties to inform their decision-making? And, specifically, to procurement. And, in particular, Sanjay will go into it, much more detail.

But traditionally, typically, utilities are the party that are performing IRPs. It's not always the case, but I've designed this graphic with that in mind. So, utility will use an IRP to look at alternate investments, alternate decisions in investing in

either resource assets or DSM programs in order to meet their customer demand. That's the primary question that utilities are trying to answer.

Additional questions that utilities will focus on are, you know, are there risks for stranded assets given this plan? Are there policies in place? Are there regulatory issues that are expected to happen that might actually prevent me from utilizing the assets that I'm investing in today to solve today's problems? Because there'll be environmental limitations on using these assets going forward.

They can also look at that for their existing portfolio. What is the lifetime that I can expect to achieve from the--given the condition of the equipment that I have today and given the policy expectations that I have going forward?

Cost-benefit analysis of alternate procurement options--often what you might see a utility be able to do is self-build versus purchase--a power purchase agreement. But in addition, what they can do is

evaluate different power purchase agreements against each other based off of the outputs of the IRP.

How do these resources that people are proposing to them, either through a competitive RFP or just through bilateral proposals, how do those resources compare? How do they perform in the future? How do they compare to other options that I have available to build by myself or to invest in DSM programs? That type of analysis is actually one of the most useful components--you know, we've been talking fairly high level, you know, big-picture plan. But this type of analysis actually can help you evaluate project by project decisions, both in self-build and procurement, as well.

But what might other stakeholders consider for IRP? What are the uses that they might have? Even if they're not performing their analysis, what value does it add?

So, IPPs, we've already talked about this a little bit earlier today. But if a developer is looking at,

you know, limited investments and resources, capital budget, but they want to identify where they're going to target their opportunities, a area that has a sound development plan in front of it, that understands what the resource and revenue requirements are going forward, that has prospectively thought about the future of demand growth, offers great opportunity to the IPP.

Now, they know that they can get--or believe that they can get return on their investment given the structural policies in place, given the utility operations, given the soundness of their rate-making procedures. Then an IPP's going to find that market more attractive. Or, an IPP who is a little bit more risk-adverse than others will definitely gravitate toward that environment.

Regulators, well, regulators use IRPs regularly. They inform the ability of the utilities to act. They look at the utilities and decide, are they making prudent decisions? Are they affecting our customer rates in a way that's appropriate, given, you know, both their

goals and operational requirements and our customer's needs? They use it to justify rate cases. They use it to justify new power plant investment decisions. They use it to justify transmission development decisions. All of that is very important from the regulator community. The IRP provides a wealth of information.

It also sets the framework. Virginia Power, we spoke about earlier, they don't get--well, it's an informative IRP. They don't get immediate approval to act on any items going forward. But, when they go in with their next power plant proposal, or when they go in with their next DSM program proposal, the regulators have previously filed IRPs to evaluate those proposals against the utility. It needs to either justify it based off the IRP analysis they have done, or explain to the regulators why their opinion has changed. What's new? What's different? That same planning exercise will inform regulators' ability or regulators' desire to approve certain developments outside of the IRP framework, as well.

Grid operators--so, to the extent that utilities can provide information, or even merchants, but utilities, generally, can provide information about where they will be developing new power plants. What type of power plants will they be developing? Because will they operate during the day only? Will they be ones that are dispatchable? Will they have storage? That information's available from the IRP. It helps inform grid operators so that they can plan their system for continued reliable operations going forward. This is where the IRP output becomes a transmission planning input.

Government agencies--so, you know, that there's huge--a broad spectrum that really can use the IRPs. One of the ones that, you know, we commonly--here at ICF--that we've commonly worked with is the Environmental Protection Agency.

That's--the analysis that EPA might perform is very similar to the utility-level IRP analysis. But the utility also helped inform government analysis and help the utilities lobby for different types of

programs, right? So, we--the utility might say, well, this environmental policy that you're projecting has an extreme rate impact, and, you know, we can't justify the expenses. They're going to be back and forth. There's going to be a lot of discussion. It's going to help governments inform policy, as well as, you know, parties that are trying to provide useful information, implement that design, implement the design of that policy, as well.

Financial investors--so, transparency, right? We hear that word a lot in financial markets and in economic textbooks. Price transparency, clear, appropriate signals, information sharing, this is what IRP provides, right?

Investors are more prone to look at the utility, the sector that has good, solid plans in place, and place their money, place their investments, whether in the utility, or in the individual projects, or in the IPP, or the developers. You know, that financial community is going to be more attractive to a area

that is doing sound planning and is providing information and appropriate signaling.

That doesn't have to be a ISO-type environment where you have price signals that are available, you know, every single hour. It can still be an IRP where you're providing very helpful, useful information. The financial community, the ones in particular looking at long-term investments, are going to consider that in the allocation of capital funds, as well.

And public power partnerships, as well as developers, very similar to the IPPs. They're looking for opportunities. They're looking for offers that make sense for them. You know, can we build a power plant that will serve the government agencies, yet have value to the rest of the system? That type of decision, the type of information needed to inform that decision, coming directly from our utility IRPs. So, identifying what types of projects we want to look at, that's going to feed these other systems to

look at, what are the specific projects which we should invest in?

Now, we've talked a lot about the value of the IRP, but, I'm not sure who mentioned it earlier today--it might have been Monica--about a, you know, a plan or a model or a tool that's just sitting on the shelf. You know, it really becomes shelfware instead of a useful tool that can be utilized by all of those parties that we just spoke about.

What are the roadblocks that commonly exist? Well, the first one--and actually just performing an IRP, or an IRRP--is the complexity involved. And we've spent a day talking about issues that we could spend weeks talking about, right? In training and understanding and how to utilize tools and systems in order to pull all of this information together. A solution's only as good as the data that's used to develop it.

Imagine--you know, we've spent the day talking about this. We could spend weeks training on it. Imagine

the time required to actually develop the data, right? Maintain the data. If you're starting from scratch where a system really--or where a company has not maintained information. Where you have two different sources that are giving you the exact opposite information.

Data--data analysis is going to be critical before really--beginning the IRP modeling. This could be a several-month effort. It could be longer, in order to get good quality data. Of course, you do need to make assumptions. There are reasonable methods and metrics and statistics that you can use. But the better the data, the better the data collection, the better the use of that data and the next IRP as well.

Staff--the solution here I have, as well, is only as good as the people using it. Is only as good as the--you know, that--the staff has to be comfortable with the analysis. They have to understand the data. They have to understand what it means to pull those two, you know, the multiple data elements together. They have to be able to do the processing of the

information. But, further, understand how to use that data, once the outputs--once they've actually performed the analysis.

How should they make a recommendation? What should the recommendation be? There's a lot of training involved to really get staff aware and able to form solid, robust recommendations going forward. So, a big chunk of the IRP is training. Training on how to utilize data, training on how to collect data, training on what to do with that data once you have it.

One of the key things that we always strive--in whatever project that we're working on--is repeatability. All right, we--you know, I don't want to be the only one that can run a model. I want to develop it so that somebody else can go out and repeat the analysis that I've done and make that analysis better. So, documentation of data, documentation of sources, all of that becomes critical for the ability for someone to be able to

perform this type of analysis and perform it again three years later, right?

Second challenge, just resource development. So--and continued operation. So, resource development, there's several different factors here. This is--these are generally, very long-lived assets, 40 years plus in some cases. They have ongoing maintenance requirements. They have development requirements. There's, in many cases, lack of the human resources available in the developing countries we're working in to actually do the feasibility studies, to do the ongoing maintenance. There's, again, that human element that needs to happen in order for these plans to successfully occur.

Understanding the transmission system, as Ken mentioned earlier, understanding the power flow, developing staff in more areas than just performing the IRP, needs to be a focus in many of these areas.

Stability--so, this is pretty broad. Investors are going to seek confidence in the area that they're

looking to build or to put funds into. Aligning the IRRP goals with national policies. Having consistent policies that, you know, are stable, that aren't changing from every five years, every few years. Including additional incremental goals for what the government or the companies are looking to achieve beyond the five-year horizon.

Again, these are long-lived assets. These companies, in the case of--and many of these companies are not just simple equity investors. They want to know that those assets are going to continue to perform over time.

And financial security. So, I think Sanjay will spend some time talking about the procurement and procurement decisions and what the implications are. That there is financial security for companies that are willing to come in and bid into RFPs or into other competitive procurement designs. So, that there is transparency. That there is financial health that--in the second party, you know, the off-taker--that they will be able to support these agreements going

forward. Whether it be through home guarantees, that's one option. But stable rate-making practices is, you know, a solid goal for anyone to have to come in and develop PPA agreements--development power plants with PPA agreements. And, I think that's leading right into our investors.

MALE: I realize that I'm the last person standing between you and the end. And, thankfully, Maria has touched on a lot of points already, so this will be brief.

A more appropriate way to put this question is, how can IRP results help attract investors? But before we get into that, what kind of investment do we mean? What do we mean by getting investment in? We're talking about creating an energy market. We're not talking about a one-off investment. We're not talking about where people come in, investors come in, and get into bilateral deals with agencies or state governments or provincial governments. And it'll do a one plant or two plant and just go away. We're talking about sustained climate of investment, and what will--what does that mean?

That means creating an energy market. And what is an energy market? Incorporates all forms of energy, which is what IRRP is going to do. It's going to look at all forms of energy and develop a plan that lays out the utilization of all those different forms of energies.

It's going to harmonize market and network rules. That's very important. So, you've got a market--you may have a market, a vibrant energy market where investors are coming and producing power. But the market itself--the network itself, the transmission, distribution, and just the utility network--is not able to take that input into it. It's not synchronized with it.

I'll give an example. The country of Colombia. A lot of things already in place. It says that it has a free energy market. And anybody can go in, put up a plant, and start selling energy to the system. Well, the truth is a little different. You can go in, and you can put up a plan, and you can start selling

energy. But some of the rules that are different, that are challenging are that, well, the plant needs to provide what's called a free-level of energy, which is a base level of energy at all times.

So, if you're a solar or wind producer, you are sort of at a disadvantage right there. And if you don't produce a certain level of energy that a contract specifies, you get fined very, very heavily.

Second thing is preference is given to state utilities and larger producers versus smaller producers in terms of transmission capacity. So, you run up against that great bottleneck where you're not able to evacuate your power that you're producing, even though you have a perfectly viable and signed contract with the utility. That's what I mean, harmonizing the market and network rules with each other.

Certainly, enforce competition and incentive tools. Again, a lot of things are in place, but they need to

be enforced. They need to be implemented. They need to be transparent.

Enhance investments in infrastructure. This is something that I favor very much. Instead of calling it a power-sector investment or investment in, you know, generating more electricity, it is infrastructure development, for the most part. It is, really, if you combine it with a national development plan, it's going to sell much, much, much better, much faster. As investors are going to be more secure in knowing that they are participating in something big. And, you know, that gets to some of the psychological part on--angle--and part of the investor that people want to help, generally. And if they know that this is going towards development and infrastructure as a whole, they will be on board.

Empower customers. Create choices for the customers. That's self-explanatory, I think.

And regional initiatives, so, not restrict yourself to just one city, one locality, or even one country.

Create a regional power pool. Create a regional network. I know that Latin America is trying to do that. The countries of Bolivia, Chile, Peru, and Ecuador, they are creating a network of--power network that they can all share together.

There is one in--there's a Western Africa power pool, for example, Southern Africa power pool. So, these regional networks, they help. I think, Ken talked about how he looks at, when he's doing transmission, not only does he look at that one country that's under the focus, but he looks at all the other neighboring countries. How that can be harmonized with that particular country. So, that's regional initiative.

When you put all these things in place, you're creating an energy market. There are different flavors of energy market. It could be completely, completely a free market. Or it could be a market that has some restrictions, but it's still an energy market, which is attractive to investors.

OK, we talked about that. So, objective is to achieve a climate of sustained, high-quality, impactful investment. And, certainly, you need--even after you create a market, there has to be some regulation. So, a national energy regulator is important for creating a competitive market.

We'll talk a little bit about a couple of ways how investment can take place. Well, let me go to this slide first. Sorry. So, again, Maria has touched on some of these things already, but how does IRRP help bring in investment? And these are some of the things.

We talked about policy. It reduces the risk of policy by establishing a long-term direction, a framework, an alignment with national development, if you will. We will think that it is integrated planning. We hope that it is. We--that it solicits and gets input from all different departments in a government, and on government stakeholders, so everybody is, at least, aware of what is going on, and they have provided their input to that plan.

It helps define a timeline for implementing that plan. So, the plan says we shall get 1,000 megawatts by 2020 and 2,000 by 2025. It helps define that, so investors know what to expect.

Impact investment--sometimes an IRRP, when it looks at economic and social impacts, it's going to identify projects that have those kind of impact, social and environmental, and that's something that's important to a certain group of investors.

The last two are extremely important. Portfolio--investors like to have a portfolio so that they can have hedge their risks. So, if you have an IRP, which has looked at multiple projects, or has conceptualized a long-term plan with multiple projects in it, investors can create portfolios for themselves of several projects. So, they can have a higher risk in one balanced by a lower risk in another one. A hydro project versus a gas project, for example, or something. Then, because it's a long-term plan--excuse me--it's--the projects are

generally larger scale. It is scale-friendly, another thing that investors look for. Nobody wants to invest in a small project. A scale defines economics of projects.

So, what does this do? It--the IRP then enhances the definition of a project. It looks at a project from many, many different angles. And it provides that comfort and security level to investors that it is a project that has been vetted, at least internally, by the government, and now it's their turn to vet it from their perspective.

It institutionalizes financing. So, we're not talking about, again, one-off investors--individual investors coming in. We're talking about institutions coming in. World Bank, and--I mean, the donor banks are certainly one group, but there are NGOs, Howard Buffett Foundation, for example, that I mentioned earlier. Other institutions that can look at a country and get into it from an institutionalized standpoint rather than a one-off standpoint. Certainly improves bankability of projects when you

put all these things in place. And investors can take that to the bank and reduce their risks. And it reduces the risk/reward ratio with all that.

So, a couple of slides on a couple of ways to do this. Public/private partnerships, again, was mentioned--Maria mentioned that. Again, we talked about recasting the plan and public support around a economic development initiative. Cast it in terms of a national development initiative, and that helps sell the project. It helps sell--bring private parties onto the table to start talking.

One of the ways it can be done is to create an incubator, an early incubator. So, identify your few projects initially--the government would do that. And put them in some sort of an incubator, and start developing them up to a certain point where it has reached a point where the risks have been reduced for the investors. That gives investor confidence that the government is on board with all of these projects, and they have incubated them already to a certain standpoint.

Another way to do this is to inject public funds as seed funds, or even as a first-loss position. What's a first-loss position? So, one of the things that investors are very wary of is--especially in renewable energy projects--is who's the off-taker of that power. And who's going to pay them? And most--more often than not, it is the distribution companies, or the DISCOs, which are at the state level or prevention level. And most of them are always in the red. They're not doing well. And that's where there's a huge risk for the investors to come in.

What the state--or what the government can do is to create a first-loss facility where it puts in funds. And have the investors come in, and they put up their plants and start injecting power into the system. If they don't get paid on time by the DISCOs, this first-loss facility will take care of it up to a certain point. It's a loan facility. It's not a grant. It's not free money, but it's a loan. But at least investors are confident and comforted that, you

know, they will--their risk will be covered by this first-loss facility.

You could stand up the public/private partnership--it won't be public then--just as a private enterprise to begin with, OK? Just a group of investors, a group of private investors who come in as a body and start advising the government on how to do this. And that, again, brings investors on board, creates a climate of trust and comfort.

Creating things, like, you give them high returns during the construction phase on their loans versus--and a lower returns during the O&M phase because the construction phase is a high risk. Just as an example of providing incentive to the investment community.

There's a typo there. So, the left side should read pure private. I'm sorry about that. So, that's sort of a spectrum of how you can go from one end to the other.

And just quickly, what does private--public/private partnership do? It provides you better solutions, obviously, because you've got now two heads, one government and one private. And the government is doing what it is doing best, and the private people are doing what they do best.

You can have a time to completion as a measure of performance. You have a signed contract with the private party. You can enforce that. Risks are fully defined, the marketed portion. So, the government has a certain amount of risk that it carries in a PPP. The private party has a certain amount of risk that it carries. Certainly has higher standards, increased efficiencies. You would think that's the case, and, you know, we hope that will be the case.

Again, we talked about this a little bit, competitive procurement. This--I prepared this slide in general. It's not really renewable energy-focused, but it could be for any power project. But what an IRP does, is, again, gives you this information that Maria talked in detail about. It plans out the horizon for

investors. How much power is going to be involved in our country's planning? What are we going to look at? How much hydro do we want? How much gas do we want? How much renewables do we want?

Part of that is renewable energy targets that some countries set. So, you know, we will have 10 percent solar by 2020. That's something that, you know, investors can look forward to and plan for that.

When is that going to happen? If the country is doing auctions, it can provide a timeline for auctions. That our first auction is going to be next year. Another one at two years after that. Again, something that investors can plan for.

Price point is something else that the government can provide. So, internally, the government will do an analysis. But it will say that, we think that, for example, a solar plant is going to cost, you know, $2.50 per watt. Investors now come in, and when they have an auction, they start bidding with that price as a reference, so they know they can do their own

internal financial analysis and come prepared for that.

Power is procured, typically, in two ways. One is incremental supply, where a utility puts out an RFP and says that we need so much power by such and such date to supplement what we are already producing. That is a traditional utility environment where there is no retail competition. On the other side of the coin is that you have full requirements. Where you say, it's--there's full retail competition. And we are a utility that is completely open. And we need all the energy that we need from private parties. And we go out for 100 percent there. That's the other end of the spectrum.

If you're doing an incremental-supply procurement, typically you do it through an RFP, because it's very specific. It's--the time frame is specified. The quantity is specified. Even the price may--price ban--may be specified.

Full requirements, when you have full retail competition, you may go out to auctions. Or you may also do RFPs at the same way.

What the competitive procurement does is, again, it identifies the "best" resources that "best" meet the customer's requirement under the "best" possible conditions. And the best is under quotation marks because it is something that you define, the government defines, or the person who is arranging the procurement defines.

What are the components of a competitive energy procurement? Strategic sourcing is important. And what does that mean? It means you need to set up--set your strategy right up front. What are you procuring? What are your cost points? How much transaction cost are you willing to bear? How much procurement cost are you willing to bear? How much administrative cost? What is the time frame that you're looking at? What is the market risk that you're willing to bear? What kind of capacity building you need to undertake before you get into competitive procurement?

That's the strategy for energy sourcing that you have to establish right up front. Energy market is dynamic. The power market is dynamic, and within the power market, renewable energy has its own quirks. And so, you need to have a strategy for all of those things.

Organizationwide input and buy-in--self-explanatory.

Sometimes you have priorities and a detail plan by market. In such and such market, for example, I'll get this much power. Another location, I may have this much power.

And a detailed spend analysis, in terms of how much money are you going to spend? What's your budget like?

A risk-management plan--certainly, some people may have a portfolio where they say, OK, we want 10 percent renewables and 20 percent coal and so much biomass and whatnot.

And criteria on timing. And, the last one, preapproval for specific procurement contract action. So, that’s for a short-term thing. So, if you are, sort of, in a crunch in an emergency where you need to procure power very quickly, you don't have to go through a complete procurement process again. You don't have the time for it. At that point, you have already put in place a preapproval process where you can just get approval from your management for very specific procurement actions. And that makes it quicker. Just a couple of--yes?

MALE: Five more minutes.

MAN: OK, thank you. So, I'm just going to talk about a couple of auctions. People have talked about at South Africa, for example, is that four rounds of competitive procurements for renewable energy. When they started out, it didn’t go so smoothly, because some of the things were not in place. Not all the government departments were on the same page. But as

they went through the process, they made it better. And the fourth round was much better.

But now they are up against a--sort of a roadblock, which is really grid capacity. And that's something that they're struggling with. So, they've got power, but there is no grid capacity. And ESCOM, the national utility, is also, in some ways, stonewalling the whole process, because they don't want so much renewable energy to come in. And they're also not willing to expand the grid capacity. So, that's the tussle going on. Hopefully, that will be resolved.

Brazil has had several auctions. Last year they canceled auctions because they had too much capacity. So, that's another data point.

Who else? India has had several auctions. The first one was a diverse auction, which was price-based. The second auction was what they call a viability gap funding, which meant that the--then--I'm talking solar now--where they invited bids saying that, we're auctioning so much solar power, and this is the price

that we want. How much can you--how much subsidy do you need to reach this price point and bid on this project successfully? So, whoever asked for the lowest amount of subsidy from the government got the project. Or, however many asked, so they sort of went through the list, and when the capacity was exceeded, they stopped the auction. So, that was called viability gap funding, where the government assistance made the project viable for a certain developer.

So, you know, auctions--designing an auction is also, you know, an art and a science. You need to look at demand. Your demand has to coincide with what you need. You need to be able to qualify bidders appropriately. You should have a good pool of bidders that you can qualify. If--the process should be transparent. You should have price points well-defined. You should have seller's liabilities well-defined, and buyer's liabilities, as well.

So, if the government is going to provide the grid connection and grid capacity, that's a liability and

part of the government or the off-taker, and that has to be defined and provided.

And, finally, how you qualify the winners in an auction. That's part of the procurement process. And I will leave you with this slide so you can look at it and have any questions if you want. Thank you.

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