

## **DOE Office of Indian Energy Professional Courses: Tribal Renewable Energy Project Development and Financing Essentials (text version)**

Below is the text version of the Webinar titled "DOE Office of Indian Energy Professional Course: Tribal Renewable Energy Development and Financing Essentials."

### *Slide 1*

*Sara Farrar-Nagy:*

Hello. I'm Sara Farrar-Nagy with the National Renewable Energy Laboratory. Welcome to today's webinar on tribal renewable energy project development and financing essentials sponsored by the U.S. Department of Energy Office of Indian Energy Policy and Programs. Our "Tribal Renewable Energy Project Development and Financing Essentials" presentation is one of several webinars in the series from the DOE Office of Indian Energy designed to assist tribes with renewable energy project planning, development, and financing. This is in addition to nine webinars covering foundational topics and renewable energy technology and applications.

### *Slide 2*

The DOE Office of Indian Energy Policy and Programs is responsible for assisting tribes with energy planning and development, infrastructure, energy costs and electrification of Indian lands and homes. As part of this commitment and on behalf of DOE, the Office of Indian Energy is leading education and capacity-building efforts in Indian Country.

### *Slide 3*

For this webinar, I am pleased to introduce Elizabeth Doris of the National Renewable Energy Laboratory or NREL. Ms. Doris received her undergraduate degree in Environmental Science from Boston University and a Master's in Environmental Science and Policy from Johns Hopkins University. She has extensive experience providing policy analysis and assistance to state, local and tribal governments, public-utility commissions, and weatherization agencies. She specializes in strategies for developing clean energy technologies in both public and private markets. As a senior project leader, she is the project manager for the DOE Indian Energy project team here at NREL. And with that we will start the webinar with Liz Doris.

### *Slide 4*

*Elizabeth Doris:*

Thank you so much, Sara, and thanks, everyone for listening in today. I really appreciate it. Before we even get started I wanted to take just a minute to talk about why you may be here, which is about the benefits of tribal renewable energy development. There are a variety of benefits, as listed in this slide, and the extent to which they can be reaped really depends on the scale and the style of the project that you're trying to put together.

Understanding the tribal prioritized goals for renewable energy projects is a critical piece to having an effective renewable energy developed project. In order to do that, we really suggest that you start your process with a strategic energy plan. Strategic energy plans are stakeholder-group-driven projects where you really identify what the goals of the

tribe are for energy, whether that be cost stabilization or energy reliability or long-term environmental sustainability.

We have a whole webinar on sustainable energy planning located at the same URL where you found this one if you're interested in getting more detail on that.

#### *Slide 5*

Today what I'm going to talk about is an overview of our training purpose and structure, how we have sort of developed this and how we want to make it useful for you. And then I'm going to talk about the project development and financing key concepts as well as talk about the development process that we have, direct you to some other resources that we have that you can find more detail about each of these.

#### *Slide 6*

I'm just going to start with giving a brief overview of the structure of our curriculum so that you know where to go to get more information on many of the topics that I'm talking about today.

#### *Slide 7*

The purpose of the courses that we've put together is really to provide a framework for renewable energy project development and financing for tribes. We really want to give you the context, the confidence, and the capability to make decisions regarding the development of renewable energy on tribal lands. We recognize, however, that every project is different and every tribe is unique. And so what we really did was take a step back and look at the decision points of what are the critical decisions that need to be made and by who and then give you the tools to be able to make those decisions and have the information you need.

#### *Slide 8*

We've designed the courses for two different audiences: tribal leaders and staff or project management. So with tribal leaders, what we're really trying to do is assist decision makers in understanding the terminology that they'll hear as they go through this project development process and also understand where they need to make key decisions and what are the types of factors that influence those decisions; what kinds of information will they need?

For the staff and project management piece we're really trying to help staff – either those that are self-managing the whole development of a project, or those that are managing consultants that are assisting in the development of the project – figure out how to get the information they need for each stage of project development and communicate those points to decision makers. We feel that staff and project management need to have both the communication skills as well as the information and knowledge to drive the process.

#### *Slide 9*

This is the overview of the structure of the courses that we have put together to help accomplish these goals. We broke them up because we feel that some of the courses will

be useful for both of those audiences – the tribal leaders and the staff – and some of them will be useful really just for one audience or the other. The course you're listening to today is this Essentials course that's highlighted on this slide, where I'm really going to give just a basic overview of the process, the decisions, and the general concepts that are needed.

Almost everything I'm going to mention today will be covered again and in more depth in the other four courses that are also listed here. The Advanced course offers detailed information for a deep understanding of the concepts, which is really probably more appropriate for the staff-level understanding, although hopefully also of interest to tribal leadership. And then we've also done scale-level walkthroughs, so one at a facility scale, for example, a solar panel on a building, and how one might go about developing that; at the community level, in which you'd have sort of either multiple renewable-energy facilities on different buildings or a large facility serving your community load; and on commercial, which is a larger revenue-generating project. I'll talk more about those in just a moment, but the three courses really provide a full walk-through of how development with each of those scales might work.

#### *Slide 10*

So speaking of facility, community, and commercial, I want to talk a little bit about the terminology in these courses. In the development of these, we discovered that terminology is really very important to being able to participate in the project-development process. It provides not only a common language for tribal leadership and staff as they go forward on internal discussion but it also helps you understand what project developers who may be coming to you to offer their assistance or to come into business with you to help you understand what they're saying. And that really increases your credibility in getting a good deal with those types of developers. So the common terms that I'm talking about are really anything from technical financial terms to acronyms for and the roles of federal agencies just to words that often describe the project-development process.

We have put together two things. One is this icon that you see in the corner, the magnifying glass, which indicates when we have put a piece of terminology on the page that we think probably requires a little more information. And then we also have a terminology guide, which is located at the same URL where you found this course.

#### *Slide 11*

In addition to walking through the process steps and talking a little bit about terminology today, I'm also going to go over these key concepts. And there are several of these throughout the courses, and these five are the primary concepts that we'll come back to over and over. Each of these is addressed in depth in the advanced courses and also addressed in the walk-throughs, and today I'll just briefly talk about each of them and give you a taste of the types of information we'll be giving you later on, hopefully getting you interested in those courses as well.

#### *Slide 12*

So when it comes to terminology, one of the very first things we need to talk about is what kind of project you're looking at developing. Obviously, again, as I mentioned, this comes from your strategic energy plan and what types of projects you're interested in and what the goals of the tribe really are. Following the goals of the tribe, you can make a call as to whether you would like to have a small facility-scale project, which usually serves one building and offsets that building's energy use; or a community-scale project, which is multiple buildings or possibly even multiple campuses in certain areas. Also serves to offset the whole community energy costs and provide energy self-sufficiency. And then you also have a large commercial, stand-alone project. The primary motivation for the commercial project is revenue generation and financial self-sufficiency. There are cases in which the commercial project doesn't even provide electricity to the tribe; it just sells to someone else.

These three terms really vary across the renewable energy industry and I want to bring that to note. We have here defined them in this way and this is how we will refer to them throughout all of the courses. However, you may hear other terms, and it is well worth your time and effort to clarify with the people you're speaking with what type of project they are talking about.

#### *Slide 13*

So a very important piece of determining the project scale is talking about the goal, and I know I've touched on this several times. But when you're determining the scale of the project that you want to put together, you really do want to focus on the tribal goals, and here I've listed a few factors that the different scales can really affect in terms of accomplishing those goals.

I've also listed a little bit of a timeline for each of these. This is highly variant and really depends on many different factors including buy-in from various parts of the tribe, the availability of the land, all kinds of different factors that go into this...

#### *Slide 14*

...which I'm going to talk about right now in the project-development process. So for the remainder of the presentation I'm going to walk through a framework that we've developed based on our experience with successful projects, both tribal and done with state and local governments.

#### *Slide 15*

This framework focuses on key decision points and really looks at how decision makers – so tribal leaders and their staff – really try to get through the process. One of the things that it does is it allows for a chronological development of the project. In reality, however, the project development process is iterative and really involves looking at information, deciding whether a project is viable, and then looking at more detailed project information and deciding again if it's viable.

One of the things that we really wanted to emphasize with this process is that delaying or deciding against a project is a very viable outcome and it's one that you want to consider

seriously every time you make a decision about pursuing a project further. At the very beginning of a project you'll be investing a chunk of time but not very much money into the development. And as you get further along, getting more and more information, getting more and more ready to start building the project or complete building the project, you're really investing a lot of money. So cutting off when you first realize that the project isn't viable can save you a lot of time and a lot of money as you move forward.

*Slide 16*

The first step in the process here is to develop the project potential. This step is all about data collection and opportunity assessment.

*Slide 17*

The purpose of this step, again, is to determine if a project is viable, and really what you're looking to do is identify possible sites or project locations. Many of these may have come up over the past few years as you talk about what to do with your land or identify land nearby.

Confirm that there's a renewable energy resource there. Review the electricity cost data that you have. So understanding what you pay for, understanding what your utility buys power for, which are two different prices – wholesale is what they buy for and retail is what you buy for – and the regulations and connection requirements with your utility. Oftentimes worth a call to the utility to discuss a potential project with them. Last thing, you want to evaluate the potential markets. So who's going to use the power, whether that be internal – a single building – or the community itself. Or if the idea is to sell to another facility, and then identifying potential facilities where that might be likely. You also want to take a brief look at analyzing some of the initial risks. Are you likely to get funding for this project through banks or if it's self-funded or through a different financing mechanism. How long the permitting costs are. You might be able to do this with other projects you've done on your lands in the past that may or may not have been renewable; and then also take a brief look at how much it costs to build one of these things.

A lot of this information is available in different places on the Office of Indian Energy website as well as on the NREL website, and we have a list of links to that throughout this presentation and at the end.

*Slide 18*

One of the key concepts that is really critical in this decision-making process and in understanding at this first cut whether your project is going to be economically viable is this levelized cost of energy or something that we call LCOE. Don't worry about the equation up in the corner. It's the concept that's what's important right now. We offer more detail on how to calculate LCOE and a list to links of pre-made tools you can use given the data you have in the advanced course that includes more information on LCOE. What's important for today is the concept.

LCOE is a calculation that captures all the costs, including the capital investment, operations and maintenance, and fuel over the lifetime of a system or a renewable energy facility. It allows you to do an apples-to-apples comparison on various different types of systems with various different kinds of costs.

The concept here is that renewable energy technology installations are typically more expensive than what you're paying now for electricity, but their costs escalate at a much slower and, possibly more importantly, more predictable rate than what you would otherwise be paying for fuel or electricity. At some point here, where the green and blue lines cross, you are actually paying less for the renewable energy than you would for the fossil fuel or for electricity from the grid. If you're buying the power for yourself for a facility or community use you'd be comparing the retail price of utility electricity to the price of electricity from a renewable energy project. If you're selling power to the market you need to compare your renewable energy project, LCOE, to the market wholesale rate since that's how much money you'll be getting for that power that you're putting out.

So what you're looking for in LCOE really depends on the scale of the project. You compare your LCOE for facility projects and sometimes community projects at the retail rate and the commercial scale to the wholesale rate.

#### *Slide 19*

So at the end of Step 1, you need to be really comfortable that there's a project potential in terms of renewable resource at a location that you're looking at – or in multiple locations you're looking at – and that the cost of that resource is going to accomplish the goal that you're looking to do. Now we're going to talk about the next step in the process, which is really to identify and narrow your project options.

#### *Slide 20*

To narrow your project options you'll need to finalize the location and resource you'll be utilizing. So make some decisions about which piece of land is the highest priority for you. Determine what role the tribe wants to play in the transaction, also based on the project goals. Start to narrow the financing options and determine if you need a tax equity structure. We'll talk about that a little bit. And get going on some of the procurement processes including potential project partners if you are looking for people to help you either finance the project or assist in development.

It's also a good idea in Step 2 to identify which permits are needed because you may discover that these can take a very long time and you want to be prepared for that as you develop your project. In the advanced courses we've developed, we'll have more detail on each of these tasks. In the next two slides I'm going to get into a few of the more critical concepts that you need to understand at a very high level. The idea here, though, is that you come out of this step being able to make the decision that this project is the one you want to continue to develop. Like I said earlier, up until this point you've invested a lot of time and a little money. In the next steps you'll probably be investing a

lot more money and it's important by the time you get to the end of this step to take stock of whether or not the project is going to meet your goals.

### *Slide 21*

And here we are at another key concept that's really critical to understand as you move forward. There are several roles that a tribe can play in the development of a project. Most of these are listed here on the right side of the screen with resource owner, lender, capital provider, utility off-taker, and project developer.

Just about the only role that a tribe cannot play is as a tax equity investor because tribes do not have tax appetite. We'll talk about that more in a moment. So there are several roles that the tribe can play and this slide provides an overview of those. The first one is as the resource owner, and that means that you have control over the site and it's on your land and you get rent or royalty payments from the development that is on it. Second, for tribes that don't have land use – land that they want to use for renewable energy projects – or don't have land at all but do have investment money, they can be the lender or the capital provider for a project on different land. Thirdly, you can buy the electricity from a renewable project through a Power Purchase Agreement from either your utility or another project, typically through the utility. This is a good option for tribes that want to stabilize their prices or want to purchase sustainable electricity but don't want to participate in the development of the project.

Lastly, you can be the project developer. Project development involves understanding the project-development process in extreme detail and knowing all of the nuances. We have seen no projects so far that are developed by tribes and it takes an extreme amount of advanced knowledge. From the tax equity perspective, it is often helpful to have a partner and I'm going to talk about that next.

### *Slide 2*

So talking about tax equity partnerships we often, when we talk to governments – state, local, tribal – they often want to be the sole owner of the project. But we'd like to talk about, particularly with larger commercial-scale projects, the opportunity that can arise from being in a partnership with a tax equity partnership. The reason here is that there are tax incentives offered for renewable energy development that can often lower the capital cost for projects by 40 to 50 percent. How that benefits the tribe is if you partner with someone who can take advantage of those benefits then they, as part of their agreement with you, offer a more competitive price for the electricity or for the renewable energy attributes and that can really make your project cost competitive.

So tribes can—and there are a number of ways we talk about in the advanced courses as well as the walk-throughs for each of the different scales—partner with third-party tax investors and gain the advantage and the savings and the capital costs of the project.

### *Slide 23*

So you need to make the decisions at the end of the Step 2 about how you want to proceed with the project. What role does the tribe want to have? The end of Step 2 is a

really critical time to check in with the council and make sure that the project is still on a track towards meeting council goals and leadership goals. Once you have made those decisions you can start to either pursue a partner or not. You can start to do some procurement of different resources that you'll need like actual equipment for your project and other consultants that you may need through the development; and then you get into project refinement, which is the third step.

So at this step you've narrowed your project's options and determined that the project is still viable given the goal and the project economics. This step is a huge step, and for most larger projects it's typically done with a project developer who may or may not be the tax equity partner.

#### *Slide 24*

So in this step you make the big decisions about go ahead or not go ahead. Significant increase in investment from the tribal perspective in time and funding, so it's important that you are sure that this is something you want to do at this stage. You finalize the ownership structure. You get your project team together, so you identify your partners and your tax equity partner if you choose to go that direction. You have full understanding of the permitting, which you can also hire a consultant to assist with, including environmental reviews for larger projects. These can be long-term studies that need to be undertaken to complete a project. So it's important that you think about them in the first step, but here you really get them completed.

Interconnection agreements – so that's the agreement you make with your utility that you talk to in Step 1 about what that process was so you have more understanding of that. You complete it in this step, and then also in this step you finalize which specific technology you're going to use to capture the resource you identified in Steps 1 and 2, which specific financing you'll use and what the development costs will be. So you'll know for the most part your costs at this stage. At the end of this you really want to have a finalized economic model, organizational structure. You want to know who is getting your equipment and what kind of equipment it is. You want to be able to go ahead with the project and understand who's going to be buying the power. These are all more detailed pieces of the Steps in 1 and 2 that you have already put together.

#### *Slide 25*

The next step is this implementation step, and this is when steel goes in the ground. So you complete your financing first and then you have the actual construction of the project.

#### *Slide 26*

So in this one you have final project agreements. Your vendor is in the middle of their delivery process to you. All of your preconstruction tasks as designed by the project developer have been completed and you start building it and you have a ribbon cutting when it's done. Hooray! You have worked with your utility. They understand when you're going to start producing and you have an agreement as to what price that is and you are leading towards commercial operation.

*Slide 27*

Once your project is operating – so once it's passed its commercial operation date, which is the end of Step 4 – you have to consider operations and maintenance of the project. I spoke earlier a little bit about how renewable energy projects have lower operations and maintenance, but there's still elements here that are very important to be considered as you go forward, understanding the costs when the project is operating.

*Slide 28*

So you'll need to understand how to take care of the equipment and train humans on the equipment that you're going to use. So a lot of that is typically done with, if you're using a developer partner, they often have in their contract an understanding of how the equipment will be maintained and operated over time. These types of things can include cleaning of the equipment; if it's a solar piece of equipment, inverter replacement; insurance for the equipment; labor and staffing, including how to train the people that will be cleaning it and will be maintaining it and who to call when it breaks, all of that kind of thing. And then also getting extended-warranty agreements for technologies that you're using as the equipment.

*Slide 29*

So now you have a functioning project and you're accomplishing your goals, either of self-sustainability or electricity price stability or selling electricity and generating revenue for the tribe. And it feels like you're done but you're not quite done yet because you have to check back in with your planning document to see how you're accomplishing your goals and maybe what your next set of goals is. You can then identify additional projects that might be possible. You can codify your lessons learned so that next time you try to do a renewable energy project you can move more quickly and help ease the decision-making process, those types of things. And you can check back in with that plan and make sure that everything you're doing still falls in line with what the tribal goals are for energy planning over time.

*Slide 30*

So what I've talked about today is just a very, very quick overview, giving reference to the other webinars that we have in this series on the different steps and the development of the project process. I've summarized them here, but what I really want to do is encourage you to think through the pieces of the project that you might be most interested in developing and get into more detail with the webinars that we have there. We really hope that overall the webinar series helps you understand the development process and moves you toward project completion.

*Slide 31*

With that, I want to offer you an opportunity to provide questions and comments on these webinars and on the series in general. That's at this e-mail address, [indianenergy@hq.doe.gov](mailto:indianenergy@hq.doe.gov).

I also want to direct you to more information. Both these webinars and a host of additional project development and financing information can be found at the Department of Energy website, which is [www.energy.gov/indianenergy](http://www.energy.gov/indianenergy) and all of these courses can be accessed at [www.nterlearning.org](http://www.nterlearning.org), which is the department's learning management system. I also want to mention that these webinars were developed in a partnership between the Office of Indian Energy, the National Renewable Energy Lab, Cohn Reznick, Dearhouse Consulting, and Red Mountain Energy Partners. We really appreciate everyone's contributions and we particularly appreciate the time and effort that you've put into listening today and hope that we can provide a service to you as you go forward developing projects. Thank you so much.

*Slide 32*

*Sara Farrar-Nagy:*

Thank you, Liz, for your presentation of Tribal Renewable Energy Project Development and Financing Essentials. I now want to turn your attention to information on the curriculum program and offerings in the DOE Office of Indian Energy Education Program.

*Slide 33*

There are two series in the program: the Foundational courses and the Leadership and Professional series. The Foundational courses give basic information on renewable-energy technologies, strategic energy planning, and grid basics. The Leadership and Professional courses cover more detail on the components of the project-development process and existing financing structures. The Project Development and Financing Essentials webinar presented by Liz Doris today is a good course for the tribal leadership as well as an introduction for tribal professionals.

*Slide 34*

For reference, the Foundational courses are divided into energy basics and renewable-energy technologies. Energy basics include assessing energy resources based on the tribe's location. Electricity grid basics reviews the types of utility power grids in the United States and resources on how tribes can tie into or be independent of existing power grids. Strategic energy planning teaches the steps to take for a comprehensive tribal renewable energy plan. The renewable technology webinars give basic information on the types of renewable energy applications that are available in the marketplace today. Be sure to visit the DOE Office of Indian Energy website to find these webinars and other tools. This concludes our webinar. Thank you so much for your attendance.

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