

## **TRANSMISSION AND WIND WEBINAR**

**May 18, 2011**

Coordinator: Thank you for standing by. At this time all participants will be placed on listen-only throughout the duration of today's conference. Today's conference is being recorded. If you have any objections please disconnect at this time. Now I would like to introduce your first presenter, Mr. Guy Nelson. You may begin, Sir.

Guy Nelson: Thank you, Operator, and welcome everybody. Thank you for joining the Transmission and Wind Webinar. I'm Guy Nelson, a WPA contractor and I'd like to begin by acknowledging several people and organizations, including our speakers that you'll hear more from; Jeff Hein with the National Renewable Energy Laboratory, George Shultz with the USDA's Rural Utility Service Program, and Theresa Williams with Western Area Power.

We'd also like to extend great acknowledgements and thanks to our host, the US DOE Wind and Water Power Program, Western Area Power, and Wind Power in America.

Our agenda today will include presentations by Jeff, George, and Theresa. And then we'll have a question-and-answer period following their presentations. To ask a question you can do this any time during the presentations, click on the Q&A at the top of your Live Meeting window, type in your question in that Q&A box, and then click Ask to Send The Question. And then we'll answer them. We'll attempt to answer as many as we can during the time period.

And let's just jump right into it with our first presenter is Jeff Hein. He's a Senior Engineer and Policy Analyst with the National Renewable Energy Laboratory. He came to NREL in 2009 and is now part of the Systems Integration Team at the National Wind Technology Center. He's working on advanced transmission studies and technologies and how they relate to NREL's Renewable Energy Integration Studies, Western Renewable Energy Zones Initiative, and Transmission Planning and Methods and Policies.

He has analyzed energy industry policy for the (unintelligible) PDCU in his earlier life and performed transmission system analysis and design for utilities and engineering and consulting firms. He has a total of 23 years of experience.

He has a BS degree in electrical engineering from Michigan Technology University and an MS degree in electrical engineering specializing in extra high voltage and high voltage power systems from the University of Colorado, which is one of the new members of the PAC 12. With that, Jeffrey, let me turn it over to you, the floor is yours.

Jeff Hein: Thanks, Guy. Hopefully everybody can hear me. Welcome. I will be speaking about - introducing to some of you or reviewing the status of the Western Renewable Energy Zone Initiative.

And as kind of a - I don't know, some information feedback that we find useful, if the listeners to this webinar, if you could in the Q&A area state if you have heard of the Western Renewable Energy Zone, the Western REZ as I will refer to it as, before listening to this webinar - how many people are aware of this initiative that's going on in the West?

Okay, with that out of the way, what you see here is a map of the Western Renewable Energy Zones. This is a map of the Western Interconnection and

you see these oval - basically kind of grayed out areas, those ovals represent renewable energy zones. And the southwest, in this area, they're typically solar. There is some wind. Solar resources are orange and red. Wind is blue.

You can see some in New Mexico, some in Colorado, Wyoming, Montana. So that's a high level view of what the Western Renewable Energy Zone Initiative is. The Phase 1 identified what the zones were.

The Western REZ vision or the goals were first of all introduced and the Western REZ vision was initiated in May of 2008. Western Governors Association and DOE initiated this West-wide initiative to identify renewable clean energy resources to reduce greenhouse gas emissions.

The Western REZ was intended to be a high-level screening tool to identify potential projects that - both resource and transmission that could then be - continued up the WECC, Western Electricity Coordinating Council study process. Excuse me, and basically it was a tool to identify both generation - renewable generation resources and the transmission lines required to bring that energy to the load centers.

One of the driving points behind this effort was the fact that there was so many RPS mandates across the West. You can see that all the states in blue had RPS legislations. They based - so the Western Governors decided to approach this issue from an interconnection-wide - at an interconnection-wide level.

So the Western REZ basically operates - what you're looking at here is a screenshot of the Western REZ load center areas and these yellow stars indicate the major load centers or cities across the West. For example, this is Denver, Colorado.

You have the southern - California load centers or the California load center cities, San Francisco, LA, San Diego down here, etc. Seattle, Portland, etc. So the Western REZ operates - these are the loads that you're trying to serve and that's in one screen shot. Next if you were to overlay onto the Western Interconnection these resources, these are the resources that you can select.

Say you are in Southern California and you want to bring in wind from Montana and say solar from either California or Arizona, you would click on these areas. And then the third layer to this effort is a transmission line map. And so if you are serving, let's say, Southern California load, you've clicked on this star.

And you've clicked on, say, the wind from Montana and solar from Arizona, you would then come up into your transmission screen and select your terminal from Montana that your wind is connected to, the solar resource from Arizona that you've selected to bring solar resources, energy into your Southern California load center. And then these transmission paths would be highlighted.

And this tool would then take the cost to generate the electricity, combine it with the costs for the transmission to bring the energy to load. And then that is - that formulates the cost - localized cost of electricity that you would then have to - it would take to bring those resources to load. And this tool would allow you to compare different resource portfolios, say, combine wind and solar from Arizona, compare that to a pure solar resource portfolio from, say, California or, say, Arizona.

This tool allows you very high-level economic comparative analysis of different types of resources. That's at a very high level of what the Western

REZ initiative and the resulting economic analysis tool resulted in at this time. For more information you can go to the Western REZ Phase 1 report. If you Goggle WGA and WREZ or Western Renewable Energy Zones you will find that report or you can just contact me and I can send you the link.

There were lessons learned, environmental hurdles that had to be overcome were quite significant. State versus state issues were also very significant and offered some significant hurdles. But at the end there seems to be some pretty good progress and it's a pretty good tool.

We are presently working on Phases 3 and 4, the next steps, and that's to have coordinated purchasing of these renewable energy zones from, say, consortium of utilities sharing the costs of transmission and the cost of getting those resources down to their load centers. The final phase is trying to get states to work together to approve these large transmission and resource projects.

Here is the link for the Western REZ efforts, there's quite a bit of information available at that site on this work. Here's my contact information you see here. And I believe we're going to wait until the end for questions and comments. So that is the end of my presentation.

Guy Nelson: And Jeffrey, thank you so much. You are a truly amazing gentlemen. You actually got us back on schedule due to our five minute delay in getting started. Thank you so much.

And now let's move on to George Schultz who is the Director of the Electric Staff Division at USDA Rural Utilities Service Development. And his responsibilities encompass electric engineering standards, load forecasting, renewable energy, and energy efficiency as they relate to rural electric

utilities. In his 30 years at USDA his work has encompassed distribution, transmission, and generating - generation engineering responsibilities.

He has - prior to that he worked for three years at the Potomac Electric Power Company in its civil and substation division. He is a graduate, BS graduate in electrical engineering from the University of Maryland and he has lived in the DC area since 1962. And in his spare time rides his Harley. George, tell us something about the USDA's RUS program, please.

George Shultz: Okay, well, one thing is that, you know, since I've been in the area since 1962 that makes me a commensurate inside the beltway bureaucrat. And one of the things that we always have to do is reach out to people outside the beltway to understand what actually goes on in the real world and how to do things.

So anyhow, but with that being said, this is - what you're going to hear from is essentially my script that I would - if you were to call in with a viable renewable energy project I would go through this basic script and let you know what the agency can and can't do and what's our basic missions.

The - let's see, I'm trying to advance my slides here, folks, and I don't seem to have control. If we go to Slide 2, I'd appreciate that. Okay, and that - well, our Electric Loan program, it's essentially designed to furnish - you know, provide loans to furnish and improve electric service to persons in rural areas. Our program is different than a lot of other federal programs in that you have, you know - it's where the energy goes and not where the project is.

We finance utilities-scaled facilities and which are an integral part of an electric utility - of an electric utility systems, part of the plan. This is something - we finance utilities. We look at utilities. We don't do merchant

plants. We do plants that essentially serve and furnish, you know, electric - furnish and approve electric service to persons in rural areas.

If you go down to the next bullet, the program is not a renewable energy incentive program but renewables have been since the inception of the program a viable alternative source of primary energy and the Congress has provided express authority in the - in our Sections 2 and Sections 4 of the Act that we are to look at renewable - you know, provide and furnish, you know, loans to - for renewable energy systems and energy efficiency.

Move on to Slide 3. And we provide loans and one of the - people are always interested in the Rural Utility Service because we provide loans at the cost of money to the government, treasury plus an eighth. The 8% actually means that - it's a small fee that's collected as part of the loan amount but essentially has little impact on the overall interest rates.

The next bullet, well, we'll talk about the loan - because of this the loans carry no risk premium. And the - how we handle this is our underwriting and servicing manages risk but can't manage interest rates, and that's shown up in the next bullet in that - so by not - so that - we'll require, make certain, you know, our US loans have certain requirements that you would not necessarily see in a pure project financing.

And it's an important point to make. We call these - this project loans within RUS should have quotes around them. It's not pure project financing but we are looking at the specific project and we are financing a specific project. So we call them, you know - we will call them, you know, a project loan.

Now the next bullet we talk about, we have a standard approach to financing - go back to the previous slide. Okay, so this is good. I saw the blank. A

standard approach to financing provides low administrative overheads and - but that also means that we're not terribly flexible. We have 100 people essentially in the agency that to manage a \$6 billion a year loan portfolio.

So we can't afford to be writing deals and collecting fees all a Wall Street, you know, in the past. Our deals are fairly straightforward with what we're looking at is an arrangement between us and the developer and the utility such at, you know, those parties all have their responsibilities clearly laid out.

Next slide, we talk about our fundamental eligibility criteria. The first one is authority. We can make loans that provide - that build and develop facilities that provide electricity to serve persons in rural areas and that's, you know - gets back to my original bullet right at the beginning.

But rural is defined as census places where the population is less than 20,000. This is a fairly generous rural definition compared to what we've been used to in the past. And it is the only reason we, you know - I can be talking to you today.

The next thing is - I call it our reliability bullet is that we don't deal in the new innovative technologies. DOE has a program to do that. They have a - and if you have something new and innovative that's where you should go.

However, if you are dealing with, you know, good, solid, you know, wind turbines that actually have solid gearboxes and can generate energy over a long period of time, that would be the type of technology we would be interested in providing support for.

Our environmental concern, and I cannot overestimate this, and this is an important process, a (NEPA) review must be completed by the - you know, by

our agency prior to any construction at the site. If there is any despoliation of the site prior to that determination your project would probably not be eligible for our US financing. I cannot overemphasize this enough. I mean it's the quickest way to stop, you know, or lose access.

The last thing - item is credit support and security. Credit support is essentially providing in, you know, the purchase power arrangement language in a capital lease or a corporate guarantee creating a constructive system loan. You know, we make - that's our normal business model is to make a system loan.

And we make system loans to, you know, the rural electric cooperatives. They essentially put up 100% of their balance sheet to support any loan that we make to them. And that is in effect what we will be looking at with regards to the off taking utility is that any loan we would make supporting renewable energy, transmission involved, would have to have the support of the off taking utility.

Now let me talk about rural determination on my next slide. We can finance - we can lend to finance projects that serve rural loads only, the previous presentation with the REZ is that, you know, it was identified to be load centers.

Now each one of those load centers is served by a utility which has some rural load. And we can then, you know - let's say we were talking about the Public Service of Colorado and they would have a certain amount of urban load and they would have a certain amount of rural load. Those loads would then have to be, you know - the utility, sponsoring utility, the off taking utility, would have to then establish what percentage of their overall load is rural.

And we would - we are limited to only financing the pro-rata share of the project cost based on that urban-rural percentage. Just for discussion sake, you know, say 50% of public service of Colorado is rural, we could finance 50% of the project. The project costs \$100 million, we could provide a loan up to \$50 million.

(NEPA) thresholds and timelines, which are my next slide, is extremely - jump - we should be on a (NEPA) slide now. If we're not I will - I say, I'll go the - I'll adjust.

Okay, the risk and mitigation in revenue assurances, this is what we're looking for when we look at part of the terms and conditions of a PPA. Normal project financing usually uses what is called a take-and-pay contract. And that purchase arrangement, which essentially means that if the energy is delivered the off taking utility pays for it. Now we are looking at this as kind of like a take-or-pay contract but not a total - not totally but it will cover the RUS debt.

And so what we're looking at here is that a PPA provisions, that we want a fixed charge obligation of the PPA equivalent to the RUS debt service, i.e. the off taking utility will pay this under any circumstances whether, you know, they're taking any energy from the project or not. We're identified as a third-party beneficiary of this fixed charge obligation.

So for whatever reason, the LLOC or the - that is essentially running the wind farm ceases to exist, you know, the funds would still be, you know, paid to the RUS.

There's no further consideration for this obligation and that means that, you know, it makes it more simple in a foreclosure or bankruptcy situation for us

to take whatever actions are necessary. And that survives regardless of whether or not the obligations under the PPA or the contract itself is terminated for any reason.

And this is a hell or high water provision here. I mean if the project just for whatever reason disappeared off the face of the earth, the off taking utility would essentially still be responsible for making the debt service. These are very strenuous considerations but given, you know, my earlier comments with regards to managing risk because we can't manage the interest rate.

We can't charge you extra premiums to cover our - cover the perceived, you know, estimated risk for the project. We have to minimize that risk and this is one the ways - this is a way we can do it. I did mention other options with, you know, guarantees and capital leases but this kind of gets, I hope, the point across.

Moving on to the next slide please. Other relative financing considerations, first of all, we better mention the interest, treasury plus an eighth, that's the good news. Term also is - which is the next bullet, it's going to have to be the shorter of the PPA term or the useful life of the generating asset. Equity, there's an equity requirement for these project-type loans.

We want to see a start-off of a minimum of 25%. And which, of course, would build - we want to see that build over time to 35%. What this equity does is essentially allows the project to take access or to accesses the federal tax incentives. And this would be an equity contribution and their return on that equity would be the tax incentive. Now that can build up higher, of course. They better take better advantage of that incentive.

Good news, again, on the loan amount. There is no loan size limit. We can make loans as - in fact, I was - you know, we've made loans as large as \$1 billion and so doubt that any of the projects that we'd be talking about have that level of scale right now but in effect, the point being that we can make large loans. There are no limits up to 75% of the eligible costs. And 75% matches the 25% equity requirement.

Again, with the belt and suspenders approach to our loan security and feasibility, we want to see a one-year debt service reserve and overhaul and maintenance reserves in play at the beginning of the project. And last item, considerably important is that we only do term lending. We won't do construction lending for project-type loans. And that - so in effect, you know, that you would have to be - find some interim financing to actually build the projects. And once the project meets its pro form as the agency would take it out.

Next slide please. This is a possible financing structure in developing renewable energy projects. It's the simplest one that we have but you can see the various parties involved, the agency, RUS. You have your equity investors, your tax investors and then obviously the project LLC and the off taking facility.

This has several advantages is that, you know, one, if the off taking utility is a rural electric cooperative which has no tax appetite, I mean the LLC can take - can mine the equity and the tax incentives. The second area is if the off taking utility is an IOU they can - the LLC essentially acts as the - an interface to us and they don't have to meet our oversight and oversight requirements. The LLC will have to deal with that.

So this particular model here kind of lays out as a way that something could actually happen. It suits the rural cooperatives and it suits the IOU. Then obviously - I don't want to leave out our friends in the public power sector either. So let's move on.

Relevant engineering considerations, we are definitely looking at the - that's the first thing - now let me - is everybody - if you're seeing the slide bundle, that first statement there, is a fuel assessment. Obviously whether it's a wind turbine or, you know, solar project or biomass project, I mean any project that will require fuel. So that's the first thing we would look at.

Obviously, the second thing we mentioned was a commercial technology assessment and - anyway, the commercial technology assessment is, you know, is this technology commercially available? In the United States, and that, you know, basically one is that the facilities can be built, operated, and maintained with reasonable - you know, reasonable alacrity, i.e. you're not ordering parts from Germany for the footing your brand new Mercedes.

I mean Mercedes is - can look at, you know - is a commercially viable foreign technology because in any effect it provides a product, it provides a service. Obviously we know Mercedes is a quality project.

Project engineering, procurement, and construction will be looked at. And an EPC contract is usually the best overall approach, even though we're not involved in the construction financing as sort of approach means that we can look at it and say that you've used - you know, one contract can deal with a fair and open competition requirements.

We do look at that. I mean we're not - be providing federal funds that weren't competitively bid and also be - we need to be relatively certain that the funds were, you know - the project was at a reasonable price.

Next concern is transmission and interconnection, those studies need to be in place. And the last item, again, back to me pulling the (NEPA) card, is that (NEPA) also requires consideration of all of the above. Just because your project has met all state permitting requirements and maybe has met all of WPA's environmental requirements, doesn't necessarily meets all of Rural Utilities Service requirements.

So we have to - we have to make a finding. Now - but just be that as it may, if you have a project that involves Western Area and the - and RUS, we would hope to enter into a cooperative agreement up front. And so one agency would take the lead in creating the environmental determinations and the other would accept that.

Extremely important point is that - and I don't want to - I will briefly discuss the slide that we missed on (NEPA) and the site for the regulation that you'd have to become familiar with.

On the transmission and interconnection, which was the next slide, and basically this is something pretty straight forward. You know, the generator applies for the interconnection and they pay for the system improvements. The reason I wanted to include that is that if we were making a loan for a generating project we can also make a loan for the system improvements. And that would be, you know, a project purpose. But also keeping in mind that if you're doing a project development, you know, we've got to have interconnection studies in play and they have to be - you have to reasonably identify the transmission facilities in order for us to meet the (NEPA) process.

The last slide I have in sequence here is what I would call my hurdle slide. The biggest hurdle I see to renewable energy right now is low natural gas prices. And in fact, that most utilities on left to their own devices without renewable portfolio standards would meet - could easily meet their new load, new generating requirements with natural gas.

The second basic hurdle is right now we have a relatively low energy demand. And so there's not a lot of need for new energy supplies of the new electricity supplies. The third area with renewables, which is what I will call a project facilities that we're looking at or talking about right now must run.

And that means that, you know, they're essentially at the bottom of the generating stack. The utility has to take that energy first and then dispatches their other resources afterwards. This does - this creates issues in a number of areas and essentially is not how the utility is designed and won.

Two is that, you know, if we were using a - for the renewable energy projects to be feasible, that's the reason they must run. I mean all the energy that's available from that facility usually needs to be purchased in order to make things work.

Another area, moving on to the efficiencies it says, inadequate capitalization of developers. We've been seeing that as that - and the scale of projects that we've been looking at is that developers, you know, essentially just don't have the basic capitalization necessarily to carry a project through from beginning to end.

And this is even - this is important even if the project's renewable because not everybody wants wind turbines next to their 50,000 square mile estate. And

that - so there's concerns here that could actually slow things up and the project then could, you know, take much longer than originally anticipated and that - well, you have to deal with that and that takes money.

The next area, we talk about (unintelligible) again, bringing up the (NEPA) dragon one more time is that the (NEPA) process and timing is not understood by developers. And I would suggest as you are - if you had the paper presentation in front of you, you would add and risks are not understood by developers. So there's a concern I just mentioned before is that, you know, even if it is renewable there's still could be significant resistance to the project.

The next item is that the agency's authority is not - everybody figures the - the RUS furnishes, provides loans to furnish and improve electricity to persons in rural areas. And we're not an incentive program for renewable energy, for jobs, whatever even though it's an important aspect and important corollary to what we do.

It is not based in law and therefore we cannot, you know, do a project because it's a good thing to do. We have to do a project because it essentially meets that basic mandate to furnish and approve service to persons in rural areas.

And the last item is the government controls that we would have to put on a project in order to provide that, you know, percent relative - you know, essentially risk-free premium - risk premium-free loan is not necessarily understood.

Now that essentially concludes and if you move on to the next slide it will give you contact information. You basically - what you heard right now is a short version of - if you were to call me with a viable renewable energy

project or even just wanted to call and talk about renewable energy projects, this is what you would hear. Of course, in an interactive phone call I can answer your questions right away and directly.

Now I do want to emphasize that - and timing, I did mention (NEPA) several times and I want to be sure that we cover this, is that projects greater than 50 megawatts require environmental impact statement and that can take up to 18 months to three years in a timeline. For a wind project we use average capacity so essence if a capacity factor of 100-megawatt project is 50% then, you know, we would be looking at a 50 megawatt project there.

Environmental assessments and with scoping, we can talk nine to six months and environmental assessments three to six months. So anyway, that's the timeframe and I probably - even just taken back the time that was gained in our previous conversation but anyhow, Guy, I am done.

Guy Nelson: Okay, thanks, George. You have a lot of information but we're back at - back behind schedule a little bit.

George Shultz: I'm sorry, Guy.

Guy Nelson: This is still good. And before I introduce Theresa, Operator, would you mind checking - we got some feedback from the attendees that first of all, all of us need to speak louder and then also, maybe related to that Operator, apparently the audio version webinar is not coming through for some people.

Coordinator: There is a separate phone number that you need to call in for the audio portion so (unintelligible) not trying to access through the Live Meeting itself. There is a separate call in number.

Guy Nelson: Okay, all right. And that's in the invite that we sent out so call that number to hear the audio on it. Now let's turn to Theresa Williams who's the Senior Planning Advisor and Transmission Infrastructure Program liaison with Western Area Power. And as planning advisor she focuses on western strategic initiatives and new programs including the TIP program.

She participates in the development of western strategic business plans and manages the development and implementation of agency wide initiatives to make the long-term business commitments described in western strategic plan.

As TIP liaison she serves as a project manager for new construction and upgrades of the existing grid to help deliver renewables to the market. Her 30 years of experience in the federal government include serving as manager of several western offices, including corporate communications, power marketing, energy efficiency and renewable energy, and administration programs.

Also, Theresa has a bachelor's degree in economics from the University of Utah, who happens to be the second in addition to Colorado to make the Pac 10 into the PAC 12. Theresa, it's a pleasure to have you. Please tell us a little bit about the TIP program.

Theresa Williams: Thank you, Guy. And Operator, can you help me through my slides? For everybody, I'm looking at a blank screen so whatever you see is going to be a little more hopefully interesting than what I see.

It's my pleasure to share a few moments with you this afternoon to give you some information, pretty high flyover of Western Area Power Administration, our roles and transmission, and then our newer Transmission Infrastructure Program.

I'm moving to Slide 2. I think it's important to have just at least a small snapshot on what Western is, what our core mission is and has been for years and year, and what our traditional role in transmission will - has been, and then I'll describe the newer program.

In a nutshell, Western is one of four power marketing administrations and we're part of the Department of Energy. Our core mission is to market on a wholesale basis more than 10,000 megawatts of power from 56 stems or federal - hydro power plants as well as one coal-fired plant in New Mexico.

Our customers are 687 long-term firm customers. We call preference customers. And they basically consist of municipalities, generation, and transmission organizations, co-ops, tribes, public utility districts, irrigation districts, and other federal end-use kinds of customers.

Let's go to Slide 3. And terms of what the lay of the land looks like, our service areas shown on the map there, we cover all or some of 15 Western states. Our role in transmission has - the primary purpose has been to deliver the federal power to our customers so the transmission we have developed has been for the purpose of those federal power deliveries.

We develop, own, and operate transmission systems and that - facilitate that delivery over more than 17,000 miles in the service area you see depicted as well as in the 15 states.

A second role we have is a - or a policy is an open-access policy for transmission. While we're not federal energy regulatory jurisdictional we voluntarily adopted a - call it an open-access transmission tariff, which means that after we've reserved enough capacity for the delivery of our federal

hydropower commitments we can make available transmission above that needed for sale to others.

In terms of - then part three of our role is our role in transmission was expanded by passage of the American Recovery and Reinvestment Act in 2009.

Slide 4, it will give you a - we're transitioned now to the newer Transmission Infrastructure Program. The overview is - again, it was part of passage of the Recovery and Reinvest Act but it was - it amended the Hoover Power Plant Act, which made that authority a long-term authority for us as opposed to a sunset kind of authority that was applicable to many of the Recovery Act programs.

At the heart of it is it gives us the authority to borrow up to \$3.25 billion in - from the US Treasury and that's the cap on what we can borrow. And as we repay those funds we can borrow more up to the limit. It's not a grant or a loan guaranteed program for those that are familiar with those kinds of programs but it specifically authorizes us to use that \$3.25 billion to do a broad range of activities that you see in the first box - or third box targeted towards developing transmission to get renewables to market.

Slide 5, there's a couple - numerous conditions on the use of the authority but two must-haves is, one, transmission projects proposed for this authority need to have at least one endpoint or terminus in the 15 state area you saw on an earlier slide. And in addition, the projects need to have a nexus, a connection to delivering or facilitating renewable generation, constructed or expected to be constructed.

Slide 6, status, where are we at in the development, implementation of this new program? Back - now a couple years ago, in May of 2009 we published what I'd call the program rule or the rules of the road, that's available on our website but it lays out from a program basis as well as from a project, what are the principles and the criteria for a selection of projects by Western.

And I put a summary of those at the very end of this PowerPoint if you'd like to look at those at a future point. Generally speaking, the rules of the road, the transmission projects under TIP cannot impair the underlying system or our existing obligations to our customers. All the projects have to stand on their own, be repayable by the beneficiaries, and they also have to pay for any extra costs, including ancillary kinds of services or integrated costs associated most often with renewables.

We solicited interest, request and receive statements of interest back in the spring of 2009 for those that had project ideas. We're still working through those. Discussions are underway and are more active on a handful of those project proposals and there's one under contract that I'll describe to you.

Go to the - Slide 7. The project that's been selected so far is called the Montana Alberta Tie Limited Project. Western's role is essentially as a financier in this particular business and on this project, the MATL is what we call it, has 95% of the participation that you see on the project depicted on the slide. Western has 5%. It is under construction and expected to be commercially in operation late 2011 this year and it supports wind development.

Next slide, on Slide 8 there is a real conceptual map of some of the other project proposals that are under discussion but have not yet been, you know, finalized. I'll describe two of them to you, one is the Trans West Express

Project that reaches from Wyoming down into the Las Vegas, El Dorado Valley area in Nevada. And the other is called the Electrical District Five Palo Verde Project, which is down in - south of Phoenix area.

And so Slide 9, Trans West Express Project, many are probably familiar with that. Western's perspective on this project from a business model standpoint as we're looking at is a public-private partnership. The way it's being formed right now is a potential 50/50 participation. It is a HVDC, high voltage direct current, line designed to capture wind-rich areas in Wyoming and you get them down into market areas down in the southwest. Western is currently jointly leading the environmental work with the Bureau of Land Management.

And next slide is just a reference slide, Slide 10 on - you see the target area there for wind is what this project's designed to capture.

Slide 11, status on TWE is Western has entered into a non-binding agreement to potentially acquire up to 50% ownership and we've gone through a lot of the due diligence requirements and substantially have finished the negotiations in the project from a TIP standpoint - TIP financing standpoint is currently undergoing some of the internal reviews and approval processes to - that are required before we actually sign on the line.

Slide 12, Electrical District Palo Verde Hub Project, that's a project that's - I would call it customer partnership where Western is working with existing customers, power customers that I referred to earlier in the desert southwest region, to upgrade some existing lines as well as add new construction to create a system that will do two things, one, support some reliability and load needs for some of the utilities down in that area as well as right-size it for renewable development.

And Slide 13, there's a few facts on ED5 Palo Verde. It's 105 mile effort, about 91 million - the environmental work is underway, expected to be completed this summer. And we're targeting TIP funding availability in August of this year to achieve an in-service date of 2015.

And then Slide 14, there's a list of the benefits. A few of the unique things about this particular project, as I mentioned, the right-sizing concept, ability to, you know, add lines to and add capacity and minimize the project impact by using an existing corridor. And also you'll see Jeff Heins - a portion of his Western Renewable Energy Zone Project, this particular project lays over very nicely a couple of those solar zones anyway.

And on Slide 15, there's some contact information. Craig Knoell is the Transmission Infrastructure Program Manager, the person in charge of this program. You're welcome to contact him with any follow up or myself.

That's it, Guy.

Guy Nelson: Okay, thanks, Theresa. And we've got some questions now. And I'll take them in the order that they came in and the first for Jeff. The tools that you have, is it public and does it include proposed transmission lines?

Jeff Hein: The Western REZ tool, the generation transmission model, is available to the public. Anybody can download it. There are tutorials, both in video and walk through examples online. The map shows - it's a simplified graphic of existing transmission line paths across the West. So that shows existing transmission paths, it's not incremental additions.

Guy Nelson: Okay, thank you. And George, a couple of questions for you. Does the - can the USDA use financing support from REAP, R-E-A-P? And also can the loan program be extended to developments on tribal lands?

George Shultz: Well, the - we can combine our program with any other federal program that is - that allows it. My understanding with the REAP program is there might be some limits to that but, yes, we can do - you know, any RD, any other federal program.

In fact, even the TIP program here, there was - I was involved and we somehow - a business model came up that we could do something with that. And tribal lands, absolutely. We can finance projects anywhere in the United States and that we would be looking at, you know, the basic - the merits of the project and that doesn't matter whether it's on tribal lands or anywhere else so...

Guy Nelson: Okay, thank you. Theresa, I hope we're still friends after I ask this question but don't blame me. What's a good rule of thumb for cost per transmission line mile?

Theresa Williams: Well, at least a couple million.

Guy Nelson: Okay, and of course, it varies by voltage and terrain, right?

Theresa Williams: Yes, don't hold me to that number. I mean varies by terrain, you know, for sure, you know, land area, type of construction, voltage, and a long list of - and I'm not a transmission designer but - and Jeff may have - want to weigh in on that with his experience in actually the nuts and bolts of getting towers up and lines.

Jeff Hein: Yes, thanks, Theresa. That - if somebody can come up with a transmission line cost average on dollar per mile that everybody accepts, that person should be elected to some sort of global emperor.

Guy Nelson: Peace in the Middle East or something.

Jeff Hein: Yes, Theresa's right. I mean transmission line costs vary - are dependent upon so many different variables and factors that it's very difficult to get numbers assigned. There is an effort underway presently through the Western Electrical Coordinating Council to get some rough ballpark figures together for transmission line costs, average dollars per mile for various voltages and configuration.

If folks are interested in learning more about that you can go onto the WECC website or contact me and I can point you in the direction of these figures that are beginning to converge or solidify on kind of a rough, general estimate, you know, high level, feasibility type study transmission line cost estimates. But you could dedicate two or three webinars to transmission line costs.

Guy Nelson: Okay, thanks. Operator, can we extend - we're a little past the hour, can we extend just a little bit more?

Coordinator: That should be fine.

Guy Nelson: Okay, all right. We still have some questions coming in and George, a couple for you. Can financing support the use of grid storage projects? And also, could you explain how fuel is part of the engineering consideration for a clean energy project?

George Shultz: Grid storage, yes, we do grid storage and that wouldn't be a problem. I mean we have finance in a conventional grid storage project, you know, a pump storage where, you know, you use hydro - hydro technologies to pump water high and low. So we could do grid storage.

The fuel assessment is, you know - and we look at a fuel assessment, I mean a wind project, we got to look at a wind regime. And obviously the insulation there is, you know, the amount of insulation it actually hits the facility. The fuel assessment, it's a normal part of any power project whether it, you know, be coal, nuclear, gas. You have to (unintelligible) at or renewables, wind or solar.

So ultimately you have to determine where the primary energy is going to come from, what's actually going to drive the turbines, what's actually going to create, you know, the energy that creates - that will be used to create the electricity. So a fuel assessment is critical and we definitely need, you know, solid numbers, especially on renewables and - wind renewables because that's, you know, all dependent on when wind blows.

Guy Nelson: Okay, question to Theresa. The TIP program, does it have a sunset?

Theresa Williams: No, it doesn't. It's an ongoing program and it's authority really resides in the Hoover Power amendment to a new section to the Hoover Power Plant Act that was enacted through the - so the answer is no, it does not have a sunset.

Guy Nelson: Okay, thank you. Question to Jeff, the - does the REZ, the Western Renewable Energy Zone, is that tied to the WECC control area? Or are there other REZ zones being considered in other control areas?

Can you hear me all right?

Jeff Hein: All right, sorry about that. The Western REZ pertains only to the Western US and the Canadian provinces and it was modeled upon the Renewable Energy Zone Initiatives in Texas, which was a predecessor to the Western REZ. And there is now a similar effort underway in the East where they're identifying energy zones. So it's a - it is nationwide and it's been done in steps first starting Texas, then going to the West, and now occurring in the East.

Guy Nelson: Okay, thank you. Question to George, you said that a lack of energy demand is one of the hurdles to overcome. Can you discuss this in more detail?

George Shultz: Well, the detail - one of the things that, you know, before the, you know, essentially - especially before the recession, we were looking at significant requests for new generation facilities. And that in effect, the recession created a, you know - the recession reduced demand, now utilities themselves don't have a need for energy.

And so what you're - I see as renewable energy is competing against is it's competing against existing capacity whereas if we were in a growth mode as far as energy use was concerned, renewable energy would be - you know, the new renewable energy facilities being put in would compete against the new generating facilities that were being put in.

So given the fact that now we're displacing - renewables essentially displace existing facilities, there's, you know - it's not, you know - to say it's not being - it doesn't necessarily get the same attention it would be if it was replacing or facilitating new growth. So it's - I think, you know, once the demand for electricity increases the country and the utilities in general will need to emphasize all, you know, resources.

Renewables will move along better on that circumstance than they would be under a circumstance where there's no growth and that's essentially that discussion. If you care to call later we could probably wax philosophical on this for a bit longer, I just don't want to take a lot of time. Hope I answered your question.

Guy Nelson: Yes, you did. And you need time to ride your Harley anyway.

George Shultz: No, that's a...

Guy Nelson: Well, that pretty well handles the questions. I've got a couple other things if everybody could stay on. First of all, let me show you the upcoming webinars and these are being held the third Wednesday of every month starting at 3 pm Eastern. And we have three more coming up. You can see the dates and the topics. And you can go to the Wind Power in America site to get that information.

And we need to say thanks again for our speakers but here are the contacts for the Wind Power in America webinars and upcoming events. And I want to say thanks again to the National Renewable Energy Laboratory, the USDA Rural Utilities Services, US DOE's Wind Power in America, and Western Area Power Administration, and personally to Jeff Hein, George Shultz, and Theresa Williams.

Really appreciate your time and dedication here. And with that I wish you all a good day and may the wind be at your back. Thanks for attending.

Jeff Hein: Take care.

Theresa Williams: Bye-bye.

Coordinator: Thank you for everyone's participation. You may now disconnect.

END