

2015 Tribal Renewable Energy Webinar Series

Questions and Answers

"Best Practices in Developing a Tribal Strategic Energy Plan" Webinar

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Speakers

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And

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And

Jeff Fuller, Director of Client Services for The Energy Authority; jfuller@teainc.org

Attendees: 93

Q: What would Laverne Kyriss recommend when there is public opposition to the project?

A: Understand the opposition, acknowledge it. Complete agreement is not always possible. You should always expect opposition. The key is to understand what's being opposed. Is it a philosophical difference, is it a concern about the technology, etc. We always recommend conducting key stakeholder interviews at the beginning (or even before launching) a project. This included visiting with known folks who are opposed to your proposed project. It's a best practice to understand the issues, concerns and aspirations of a wide variety of people who are interested in and/or affected by your proposed project. Once you understand "where they are coming from and why," you might be able to address some of those concerns and issues. In a best case situation, you also might be able to craft your project to meet some of their aspirations--but you'll never know until you sit down and listen to them.

Q: For Laverne Kyriss: With your process of inform, consult, involve, collaborate, empower, what do you suggest when people don't have time to become "involved"?

A: Projects and processes should be conducted at levels that both meet the needs of the decision maker and the public. We recognize that people are very busy with their lives; we should aim to use a variety of tools and techniques that allow people to engage in ways that fit their needs. Conversely, we should never promise the public they will have more of an opportunity to impact the decision than the decision maker will support. In our training, we walk folks through an exercise to help identify the levels of participation the public desires and the level desired by a decision making body. We go through the thought process of reconciling those differences and talk about how we can strive to meet varying needs and desires for levels of engagement. One way to make information available to your publics is to maintain a rich online presence, including frequent updates to your website (with the history posted so late-comers can see what's happened in the past) supplemented with social media activities. (Get help from young folks if you're not savvy with all the new technologies now available.) You can post blogs and accept blog comments from your publics. You can use Twitter to keep everyone up-to-date and point them to your Website for more details. You can use Instagram for visual ideas and comments, YouTube for videos--both from the project and from folks engaged in your process, etc. The sky's the limit.



- Q: For Laverne Kyriss: What has been your experience with starting a public participation process at one level of participation and having that process morph into another level.
- A: Almost always, we engage with our public audience at different levels during a process. Based on the webinar content: Typically you would start out **informing** by gathering initial information as you scope out the problem you're considering. You might next **consult** with your communities on their key issues and concerns, even before you have developed alternatives. When you're developing alternatives, you could operate at "**consult, involve** or even **collaborate**". During the phase of evaluating alternatives, you might have a working group or advisory committee that is **collaborating** on the technical and policy evaluations. They might be **consulting** with their constituents as they work on the process. At the decision stage, you could be anywhere on the spectrum and announcing the decision is generally at the **inform** level.

Q Laverne Kyriss: For free information on Strategic Energy Planning send Laverne Kyriss an email at jlkyriss@gmail.com

Q: Jeff Fuller: Natural gas price trends will affect my project cost effectiveness and comparison to renewable technologies because it is a primary driver. How do you measure this volatility when factoring in long term cost effectiveness such as in using a levelized cost of energy or LCOE?

A: I recommend that you break the analysis of gas price variability into two separate analyses. The first analysis is modeling the financial viability of your project under a range of future trends in natural gas prices. The first step is to develop a base case forecast of natural gas prices for your financial analysis. The future NYMEX settlement price for natural gas (http://www.cmegroup.com/trading/energy/natural-gas/natural-gas_quotes_settlements_futures.html) and/or the most current forecast produced by the Energy Information Administration ([http://www.eia.gov/forecasts/aeo/pdf/0383\(2014\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2014).pdf)) are good starting points for a base-case scenario. You should then create low and high price scenarios around the base case. The EIA report includes forecasts from other sources that could be used to bracket future price scenarios. Another method is to simply assume that natural gas prices will trend 40 to 50 percent above/below your base case forecast to create high and low natural gas price scenarios.

The second analysis is a risk analysis to test cash flow impacts on a shorter-term basis (e.g., 3-5 years) due to gas price volatility. Most forecasters will tell you that over the long-term natural gas prices should revert to some equilibrium price based on the long-term marginal cost of new gas supply, which is captured by the base case, high and low case scenarios. This is the reason for limiting the risk analysis to a 3-5 year period.

The risk analysis should be a probability-based analysis of natural gas prices that consider both current and historical volatility in natural gas prices.

Q: Jeff Fuller: If state and federal regulation drive lower carbon producing energy, how does this fit into tribal planning?

A: The answer depends upon the goals and objectives of the individual tribe. If a tribe is building a new generating project for the purpose of consuming the output within the tribal community (being the off-taker), changes in state and/or federal regulations may have no effect on the tribe's planning efforts. However, if a tribe's goal for the project is to sell the output to a non-tribal entity under a long-term power purchase agreement or as a merchant facility, then the tribe needs to consider how prospective purchasers may be affected by changes in state and/or federal regulations. Depending upon the particular legislative/regulatory change, and the needs of potential purchasers, changes in legislation/regulation will influence the requirements of the purchasers, which, for example, could include an increased demand for renewable resources (in response to a state RPS



requirement), a need for a new base load generation to replace a retiring coal plant (in response to EPA's Clean Power Plan) or a need for storage to help integrate variable energy resources.

- Q Jeff Fuller: There are many studies going on about grid integration of renewables. Do you suggest that tribes work with utilities before the permitting process if they are integrating into the grid?
- A: I'm not sure that it needs to happen before beginning the permitting process, but yes, I recommend that tribes work with the balancing authority area (BAA) within which the generation will be interconnected to gain an understanding of the challenges and costs associated with integration early in the project feasibility process. In addition to understanding integration costs, there could be local transmission, or other, issues that are important to understand. With respect to integration costs, the important point to understand is that there is a cost associated with integration and it needs to be included in the financial analysis for the project. Also, each BAA has a different method for calculating and assessing integration costs, as shown in NREL's March 2013 report (<http://www.nrel.gov/docs/fy13osti/57583.pdf>). You may also be able to find information specific to the particular BAA through a simple web search. For example, here are links to studies developed by Idaho Power analyzing the costs of integrating solar and wind projects - <https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/solar/SolarIntegrationStudy.pdf>; <https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2013/windIntegrationStudy.pdf>. I suspect that other utilities will have produced similar studies, particularly the investor owned utilities.
- Q: Jeff Fuller: Are there consultants who look at market trends and renewables that tribes should utilize in the strategic planning process?
- A: Yes, a number exist (including TEA). Pace Global, Navigant, Leidos and Black & Veatch are a few national firms that immediately come to mind. My suggestion is to solicit recommendations regarding possible consultants from local utilities, power marketers and/or large energy consumers that are active participants in wholesale power markets in your region. Often times there are issues unique to a particular region that a large national firm may or may not understand, and conversely there may be a smaller regional company with really strong people that are in the best position to help a local market participant. Either way procurement of a consultant should include interviewing at least three viable firms before making the best choice for your tribal project.
- Q: For Jesse Cardenas: It seems like the first step of any project is finding viable financing but are you saying that creating a SEP is the first step to exploring financing ?
- A: Yes. Energy needs and a viable project often determine what funding is necessary. You also need a SEP to apply for grants. You need to show you have done due diligence on your vision, community buy-in, etc. Financing is critical, and QIN used seed dollars to weed out non-reliable options. The feasibility study takes money but it also directs your SEP, which needs to be thoroughly vetted. It takes 5 years to get our ducks in a row and then things happen quickly. Our tribal council business committee was well involved. In 1.5 years we will be operational (July of 2016).
- Q: Jesse Cardenas: What portion of your project funding came from USDA?
- A: About 60%.
Michael Cardwell: As mentioned in the presentation, funds were obtained from other sources as well. Developing partnerships – some with non-cash donations of time – is another resource that should not be overlooked.
- Q: Jesse Cardenas: Did you do a long term study of your slash biomass supply in Washington? Is there any risk your biomass fuel will become more expensive in the future?
- A: Yes, we used TSL consultants and the Washington universities to use the biomass calculator. They want to focus on reservation supply only and it was determined that 60,000 tons/year would be more than enough to supply for ten years.



Michael Cardwell: Statewide there are additional resources but we focused long term use on the tribal land.

Q: Jesse Cardenas or Michael Cardwell: How do EPA rules factor in for tribal lands?

A: Michael Cardwell: All Tribal Lands are Federal. Unless the Native Sovereign Nation has adopted their own environmental protection statues, then Federal rules apply. Generally Tribes adopt stricter standards as another means of protecting the Earth. The Quinault Indian Nation (QIN) is in the midst of writing our own standards and we are seeking "Treatment as a State" status (although we prefer the term Sovereign). For now we are authorized within the federal laws.

Q: Was there any opposition to the biomass project in the tribal community? Was budget and cost effectiveness shared with the community?

A: Michael Cardwell: The simple answer is yes there was some opposition. As with anything that proposes change people are fearful of the unknown. That is why doing public outreach and engagement is critical. If you can win the minds of the elders (voters) and youth (future voters) you are going to have success with your project. The only way to combat resistance to change is with education. My recommendation is to keep it simple; your audience will tell you their comfort level. I tend to be too technical.

Q: Michael Cardwell: With the master relocation plan to relocate buildings above sea level out of the tsunami zone, how is this being financed? (The site will be transitioned to a higher altitude?)

A: We have a 3 year Administration for Native Americans grant to do Master Planning. Other than that nothing has been paid for. We are exploring funding options with FEMA as a pre-disaster mitigation strategy. Also we have engaged Indian Health Service as new housing will be developed. HUD should be a partner, as building housing for low income families is within our mission. The Bureau of Indian Affairs (BIA) will have to be a partner as new roads and infrastructure will have to be laid out. I think Homeland Security is an option as we are creating a new Emergency Operations Center, as well as moving the fire station and police station. So that means Department of Justice could be engaged, as they oversee jails and courts. It should be noted we have been moving up hill for over 20 years. We have put a new water line through the project site and relocated our administrative complex and our primary health center up gradient. The school will be developing the new road this summer as well, which will be safer and less vulnerable.

The Quinault Indian Nation will be moving from sea level to approximately 100' above sea level. Studies have shown that a major tsunami will likely occur when our continental plates (just miles off-shore) shift and the earth moves. This type of natural disaster would send a wall of water approximately 70 feet high. One of our major concerns is that the earthquakes would initiate liquefaction of the soils that the main village is built upon, which would cause sinking, followed by a wall of water be it a tsunami or winter storm.

NOTE: Since I have returned home to work (August of 2012) there have been 2 tsunami's that have come ashore in this area. One delivered approximately four inches (4") and the other six inches (6") of water and originated out of Alaska earthquakes. There was a 5.4 magnitude earthquake off Vancouver Island in January 2, 2015. We are not concerned by random rogue waves, but rather the one generated when our area shakes. We would have minutes to evacuate, which is not enough time, so the strategy is to remove people from harm's way.

Q: Michael Cardwell: The biomass will replace what type of energy?

A: The bio-mass is a heating only project right now. So it will reduce our electrical costs on the existing grid and will augment the heating needs at our new buildings. Also within the design elements of our new housing will be passive solar and maybe roof top solar. Washington State is very progressive in this field so we will incorporate their best practices as we integrate passive solar into our community. All housing will be energy efficient as well, of course.



We recently replace outdoor lighting at our Admin Complex with LED's. We continue to find ways to reduce electricity costs. From a cost benefit analysis, the Quinault Indian Nation cannot compete with the existing low cost of hydroelectric power, so we will not be generating electricity. This is why we choose biomass to heat for QIN.

Q: Jesse Cardenas: The biomass essay contest was an excellent way to raise awareness among tribal youth. Who were the judges for the essay contest, and were the prizes distributed publically to raise further awareness?

A: The biomass essay contest and the biomass coloring contest were both judged by QIN grants and contracts staff as well as project manager Jesse Cardenas. Yes, the prizes were distributed publically during a QIN annual summer event, the Chief Taholah Days, to continue community awareness. Also the coloring contest entries were posted at QIN public locations and winning entries, including the essays, were published in the QIN Tribal newspaper "the Nugguam".

Michael Cardwell: The QIN is at the forefront on climate change. Even a minor rise in sea level regardless of any other event would flood our main village of Taholah. We are very aware that we are creating the world that the youth will live in, so that is why we have not only done outreach to engage, but to empower. The name of our project is Noskiako, which means water coming. With the king tides, ocean rising and recent winter storms we have to recognize that water is already here.

Q: Michael Cardwell: You utilized grants well for the biomass project. What was the tribal role in the grant writing?

A: In Indian country, you have to write grants for everything so managers and directors either apply for grants themselves or hire staff grant writers. I have written grants over the years (primarily on infrastructure improvements/replacements) and have managed grants my entire career (25+ years). Getting the money to do the studies that are required for other grants is critical. My best advice is to hire good people and put them to work. There is money out there, both public and private.

Q: Michael Cardwell: The biomass facility for the first two buildings is beautifully designed. Will it be loud since it is in the middle of the village?

A: No. It is basically a community sized wood stove insert. The delivery of pellets will be the noisiest when the trucks back up and beep. We were also very careful regarding meeting federal air standards for particulate emission, as we will be located across the street from the health clinic. One of the like project sites we visited was on a school campus. We are very confident that this will be an amenity and not an industrial eyesore / noxious neighbor. That is why we wanted a design that recognized the tribal community, going with a woven look. Quinault baskets are world renown.

Q: Jesse & Michael: You started in August of 2014? Will the tribe be planting the Nile Fiber? When will the plant be finished?

A: We started getting our ducks in a row long before that. I want to say 2010. As we presented in this webinar we did our homework and explored other energy options before settling on bio-mass. Cost was one of the determining factors as well as there is an ecological component in healing the forest from past management practices. We are cleaning up woody debris and turning something that was left behind into an economic resource. One of the selling points is that land that was taken out of production (growing trees) by the forest floor taken up with debris piles will now be put back into production. The good news is that the logging haul roads are still there; so that these slash piles are accessible to entrepreneurial individuals who want to deliver chips to our pellet plant.



The development of Nile Fiber as a secondary cash crop with a harvest cycle of twice a year appeals to land owners that grow trees that go to market every 40 years. There is all sort of ecological benefit of growing Nile Fiber. But since Washington State approved marijuana sales and production along with the recent President Obama declaration of marijuana on Tribal lands, we may be in competition for harvestable lands. 98% of the Quinault Indian Reservation is in tree production.

Q: Jesse & Michael: How many years of fuel supply do you have for the biomass facility?

A: The feasibility study stated we have a 10 year supply but we plan on growing a sustainable supply beyond that. Michael Cardwell: With so much of our reservation involved in tree production, we anticipate that trees will be turned into logs and sent to market long into the future. The logging operation is a messy business so the use of wood slash and waste left behind for pellet production insures a secure fuel source. With the supplemental fuel source of Nile Fiber, which we plan to grow sustainably, we can not only create a pellet that burns hotter, but has less ash residue.

Links to Helpful Resources

There are many resources available to help Tribes decide which renewable resource is best for them. These include:

- The DOE Office of Indian Energy offers [education and training](#) on project development and financing and renewable energy fundamentals and an [Energy Resource Library](#).
- Tribal-specific renewable energy curriculum developed by the DOE Office of Indian Energy can be accessed any time on the [National Training Education Resource website](#).
- Basic information on the [types of renewable energy](#), as well as [tools and resources](#) for assessing renewable energy potential, are available on the NREL website.
- [Energy 101](#) videos developed by the DOE Office of Energy Efficiency and Renewable Energy provide short, basic overviews of the various types of renewable energy.
- The DOE Office of Indian Energy and Tribal Energy Program offer up to 40 hours of in-depth [technical assistance](#) for federally recognized Indian Tribes, tribal energy resource development organizations, and other organized tribal groups and communities to advance tribal renewable energy and energy efficiency projects.
- The DOE offers information on renewable energy or energy efficiency from their Help Desk: http://apps1.eere.energy.gov/tribalenergy/request_information.cfm
- The DOE offers [approved ESPC contractors](#). Please see this link.
- The DSIRE website records all rebates and resource information by state: <http://www.dsireusa.org/>
- The Tribal Energy Program tribal projects by technology: http://apps1.eere.energy.gov/tribalenergy/projects_technology.cfm#Biomass

Answers are provided by the National Renewable Energy Laboratory and webinar guest speakers. If you have additional questions, email indianenergy@hq.doe.gov. The Tribal Renewable Energy Webinar Series is sponsored by the DOE Office of Indian Energy, Tribal Energy Program, and Western Area Power Administration.

