

Attendance: 39 attendees, 15 webinar/telephone participants

I. Welcome and Introductions by Robert Smith, APS

Bob Smith opened the meeting at 11 am PT. He welcomed the participants to the fourth regional stakeholder meeting for the TransWest and Gateway South projects being co-developed by the lead entities, Arizona Public Service (APS), National Grid, PacifiCorp and the Wyoming Infrastructure Authority (WIA). Bob noted that there has been significant progress on the work being done on the conceptual study. Bob reviewed the Standards of Conduct for the meeting as developed by the Northern Tier Transmission Group.

Participants in the room introduced themselves and a roll call was done on the phone. (See attendance document)

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Bob noted that significant new information would be shared and that he was very pleased with the progress being made. He reviewed the agenda and the speakers who would cover each area: David Smith, Peter Krzykos, and Craig Quist.

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Bob then introduced David Smith from National Grid, and turned the meeting over to him.

II. David Smith, National Grid

David welcomed the group. He indicated that this meeting being held in Las Vegas was the fourth stakeholder meeting. He stated that there were several different purposes to the stakeholder meeting process: the main purpose being to provide information to those participating and to receive input from stakeholders to help shape the projects based on concerns or additional opportunities that hadn't been considered. Public comments also determine what next steps will be taken by the partners. David noted that the four partners working on the project are committed to an open dialogue with all stakeholders in their work in developing these projects. He thanked the attendees for participating.

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David then went through the four groups partnering the project. He stated that the partners started out independently, but saw that the two projects are aligned with each other and they decided to develop them in a partnership last year. The partners are four leading entities in transmission and electric utility operation. The first is APS, the largest electric utility serving customers in Arizona. David stated that Arizona is the fastest growing state – its load growth is four times the average growth in the US. He noted that APS started working on the TransWest Express project two years ago. PacifiCorp is one of the largest transmission owners in the West. They operate in several states, including Utah, Wyoming, Idaho, Oregon and Washington. They serve Salt Lake City, which is the focus of the Gateway South project.

David provided information on National Grid, a gas and electric utility, and an international energy delivery company with significant experience building transmission projects in different

parts of the world over the last 20 years. They are based in the United Kingdom. He discussed the regions served by the company and he noted that he represented the business development group and they are looking at development opportunities in the west. He recognized the last partner, WIA. The WIA was formed three or four years ago. David identified Wyoming as a state that has significant natural resources for energy production. Currently, very little of that energy is exported via transmission lines, most of it is transported by rail and pipeline. WIA's goal is to bolster the development of transmission infrastructure in order to develop in-state generation for export. The WIA's mission is to diversify and expand the state's economy through generation and transmission development.

[Slides 5-8]

David discussed the co-development agreement the four parties reached in August 2007, which established a partnership in order to collaborate on the projects. The agreement provides a governance structure to co-develop the two projects to work on permitting and engineering functions and to allow the partners some time to develop a more complex arrangement that would be needed to move the projects forward. As TransWest Express was forming, it attracted the attention of several other utilities in Arizona and California. David indicated that a decision was made a year ago to proceed with the project development among these four partners with the understanding that they would open the TransWest project to other utilities to participate. What this timeframe allows the partners to do is to develop the projects at the same time and take advantage of the synergies for both the WECC process and stakeholder outreach, which are being undertaken jointly. David noted although the process was being handled jointly, the records are being kept separate for the WECC rating process and the permitting process so that they can remain independent if one project moves ahead of the other project.

[Slide 9]

David indicated that within the governance structure there are working groups to address the specific areas. The engineering work group has representatives from the four partners and has been tasked to work on the regional planning process, evaluation of the project taking a look at a number of the alternatives, and then the process of selecting what alternatives to use to move forward. David noted that Black & Veatch has been retained to assist in that work. The conceptual report is being developed; it will be published in the near future. David stated that comments on that report would be appreciated. David said the report would include progress made to date, both technical and economic.

[Slide 10]

David asked if there were anything clarifying questions. He then introduced Peter Krzykos from APS and turned the presentation over to him.

III. Peter Krzykos, APS

Peter addressed the evaluation approach and the report results. He indicated that Craig would explain the final report results. Peter stated that the planning study defined objectives and used several screening methods to determine the preferred functions: one on the transmission side, the second one on the ROWs, and the third one focused on the loads and resources. Peter added that the engineering group needed to determine a range of solutions and the technical and financial parameters. Criteria used included WECC and NERC criteria for the screening

process. Peter stated that the partners used five to ten different solutions in the screening process and a high level cost analysis.

Peter addressed the planning process. He noted that the WECC Regional Planning Project Review process was initiated in 2007. This review process provides an opportunity for the sponsors to describe the project, coordinate with other proposed projects and for interested parties to make themselves known before the next step is taken. Phase I of the WECC Rating Process is the next step, which involves more technical analysis to determine the rating the system, or defining the capacity of lines. Phase II of the Rating Process involves testing the system and measuring the impact by lines identified by other utilities. Peter noted that it's necessary to make sure all the parties are satisfied and there isn't any negative impact on other utilities. The final Phase III is the construction phase where progress is monitored against a plan established as part of the 2nd phase.

[Slide 11]

Peter then discussed the project variables that were under review. He noted that the partners studied the combined export transfer capacity of 4500, 6000 or 7500 MW. The largest single transmission contingency in the Western Interconnect is 3,000 MW. He added that because of the WECC reliability criteria, the environmental impact of the 765 kV line is significant compared to the 500 kV line. Single and double circuits were evaluated and ROW usage. The transmission interconnection end-points also have to be considered.

[Slide 12]

Peter noted that a preliminary assessment to illustrate the ROW footprint is required. The starting point is at Dave Johnston in Wyoming and the origination of TransWest Express is between Dave Johnston and Wyodak. Peter added that from Aeolus the line goes straight south down to the Flaming Gorge area and then down into Salt Lake City hub and further south to Sigurd. That will be the northern portion of the project. The Dave Johnston area would be a single corridor route. The resources are located in Wyoming. The southern portion of the map starts at Sigurd down to Red Butte and ultimately going to the Nevada area Marketplace at Crystal and on to Las Vegas. The line goes south of Las Vegas and down into the Flagstaff area in the eastern side of the metropolitan area.

Peter asked if they were any questions. Being none, he moved on to the next section.

[Slides 13-14]

Peter then discussed the study of loads and resources as related to transmission to determine what comes first. Peter emphasized that the resources for these studies are only developed for the study itself – the resources cited will not necessarily go on the line. He indicated that the partners decided to evaluate a 2015 high peak summer case to start the focus of the project. WECC requires developers have a base case study based on a ten-year period. Peter noted that the resources were developed from utility integrated resource plans. Renewable resource standards are also included, 15% in the case of Arizona, Peter noted, and the higher amount is being used to determine the impact wind farms and other renewable resources have on the performance of the system. Ultimately the utilities will decide within their regulatory process what resources actually get built through a stakeholder process.

[Slide 15]

Peter addressed how resources were selected for the two projects. The Dave Johnston area shows 3000 MW of coal and 200 MW of gas, with 1700 MW of wind. The natural gas is there to levelize the wind. Peter addressed the two projects individually, with Gateway (West and South Projects) including 6100 MW and TransWest Express having 3100 MW assigned to them. The coal is in the Dave Johnston area, wind at Aeolus, and gas at the Upper Green River.

[Slides 16 -17]

Peter then introduced Craig Quist from PacifiCorp and turned the presentation over to him.

IV. Craig Quist, PacifiCorp

Craig described both the Gateway South Project being developed by PacifiCorp and the TransWest Express project. Craig noted that through the engineering studies there was a significant amount of overlap in the evaluation study findings. The first thing determined was that it made sense to use DC lines to move the power due to the long distances. The second thing the engineering group confirmed, Craig added, was that it made sense to use AC circuits for intermediate points, as well as using double circuits. This type of technology is more economic for shorter distance delivery. Craig indicated that from PacifiCorp's standpoint, building double circuit lines with the companion project with Idaho Power makes sense. He noted that the group looked at 765 kV technology and determined that wasn't optimal. The double circuit 500 kV line makes a lot more sense because it gives a lot more flexibility and allows the partners to better utilize corridors and maximize the conductor selection.

[Slide 18]

Craig then reviewed the building blocks for the Gateway South configurations. He indicated the double circuit 500 kV line from Wyoming to the Salt Lake area was optimal. Between Aeolus and Mona there are about 400 miles and a switching station between the substations may be required. There is already a line between Mona and Sigurd, so PacifiCorp would need to only add some additional line to deliver 800 MW of power south of Mona. The 500 kV option will start at Mona and go to Red Butte and Crystal in the rating process.

[Slide 19]

Craig noted that the engineering group looked at twelve different options, including double circuit structures, a three-terminal DC line, etc, but since the technology is unproven it wouldn't be the most economic. The DC line will go from Wyoming and deliver 3000 MW and then it will have to be determined if another line will need to be built at Marketplace. Craig addressed the TransWest Express project configuration and noted that the partners looked at several termination locations, including Phoenix, Las Vegas and Salt Lake.

[Slide 20]

Craig discussed the high points of some of the alternatives that were evaluated. The alternatives include Gateway South at both 345 and 500 kV, TransWest at both HVDC to Phoenix, and to Las Vegas, as well as several other combinations. Some of the alternatives take power to Las Vegas directly. Both double circuit and single circuit combinations were used. Gateway South HVDC lines were evaluated at both Las Vegas and Phoenix with different amounts of MW delivered.

[Slide 21]

Craig turned to the capital costs. He indicated with the help of Black & Veatch, National Grid, PacifiCorp, and APS, capital cost estimates were compiled. The construction costs come in at under \$1 million a mile for 345 kV single circuit, about \$1.4 million for 500 kV single circuit, \$2.6 million for double circuit 500 kV and \$1.24 million for bi-pole 500 kV HVDC. ROW, development costs, and taxes are added, plus contingency, to get a complete cost. In the end, Craig noted, the costs increased to \$1.53 million a mile for 345 kV single circuit, \$2.6 million for 500 kV single circuit, \$3.48 million for double circuit 500 kV and \$1.96 million for bi-pole 500 kV HVDC.

[Slide 22]

Craig moved on to the different cost estimates at different capacity levels for the alternative scenarios. The capacity on Gateway South to Mona is based on 3,000 MW for all cases, with load at Mona assumed to be 1,500 MW. Craig indicated that the Gateway South 500 kV line project cost came in at \$2.89 billion. Reference case 5 to deliver 3,000 MW to Mona and then 1,500 MW down from Mona to Crystal would be just under \$6 billion.

[Slide 23]

Craig moved on to the costs per MW for the different configurations used as the basis to determine what option is the most reasonable. The very first option with 345 kV line into Crystal from Utah delivering 800 MW shows the costs are \$1.41 million/MW. Craig indicated that by increasing it to 1,500 MW the price per MW drops to \$1.34 million/MW, so building 500 kV line becomes more reasonable, and allows for more capacity. The engineering group evaluated all the options for both AC and DC technology. The group also looked at costs in delivered energy terms or \$/MWh. This analysis will be issued in the report, and portions of it will be available on the NTTG website when it's published and questions can be addressed at that time.

[Slide 24]

Craig asked if there were any questions.

Mel Giberson (Fernald Power Corp): Do you have the termination charges in here for all the converters?

Craig. Yes.

Mel Giberson (Fernald Power Corp): So you have so many dollars for the first mile and then added so many dollars for the other miles?

Craig: Yes. Peter do you remember how much we assumed?

Peter: We used \$375 million for each converter.

Craig: So we have that at each end and then what we did for the DC was took that and added to that the costs for paying the conductor.

Peter: And that would include all the charges for the reactors, filters and the converters. We included Static VAR compensators in the design FOR the converter stations in Wyoming

Mel Giberson (Fernald Power Corp): In the previous table showing the costs, do the line costs include the converter stations?

Peter: No, just the line costs. Everything was included in the total project costs, but in the line costs the individual pieces aren't known. Craig has a more detailed analysis – costs per mile for the transmission where the converter is included.

Craig: And of course that would have adding a third terminal on a DC line that will have a big impact on what the decision will be to build.

Craig turned the meeting back to David.

V. David Smith, National Grid

David thanked Craig. He then discussed the next steps for the project. The schedule for the projects includes Gateway South to Crystal in service in 2012, and the Gateway South to Mona project date is 2013. The TransWest Express project in-service date is 2015. David added that as they progress in the construction for TransWest it may move closer to the Gateway South project in-service date. David indicated that common activities are taking place in the start of the projects for development and permitting. He noted that co-development of the projects provides savings during the development phase, but probably not as much savings is possible in the construction phase because each project is very large on its own.

[Slide 25]

David then discussed the findings from the technical report. The costs are generally flat for the various alternatives— in the 2 cents/kWh range. The 4500 MW and 7500 MW cases increase the cost on a \$/MW basis. The 500 kV solution for the southern portion of Gateway South is more economic on a marginal basis, as Craig indicated earlier. David noted that the WECC planning process and permitting is expected to be in the \$10-\$30 million range. The partners will utilize a shared corridor. He added that the report also identifies how the projects receive improved rating benefits as the HVDV lines receive a higher rating. At this point it is expected there will be improved performance on both the HVDC and AC lines.

[Slide 26]

David reviewed the two reference cases. The TransWest Express project is 3000 MW and will run about 900 miles from Wyoming to Nevada to terminate at Marketplace. The line voltage is 500 KV. This project will serve the Las Vegas, Phoenix and southern California markets.

[Slides 27 -28]

David discussed the complementary projects to Gateway South and TransWest Express that are in the WECC planning process. Currently the partners are reviewing the engineering solutions together. Several public meetings have been held in order to move forward. A common Study Group will be formed as part of the WECC Rating process for both projects.

[Slide 29]

David went through the complementary projects to the Gateway South and TransWest Express projects. The projects take on a regional expansion planning flavor. There are a number of projects for the Wasatch Front and a series of Eastern Wyoming projects that would provide service into Denver and beyond. He added a number of circuits are complementary to the two projects. Some of these lines will provide additional capacity into the Los Angeles and Phoenix markets.

[Slide 30]

David provided a status update on the co-development agreement. Four stakeholder meetings have been held as part of the WECC planning project review process. A draft report will be

issued in February 2008 for review. A corridor analysis has been completed for permitting, and an ROW application was filed in November 2007. The BLM will be the lead agency and the partners will be working with them on all the details.

[Slide 31]

David asked for any clarifying questions before moving on to the stakeholder forum.

[Slide 32]

The group broke for lunch and questions were asked following lunch.

Questions and Answers/Stakeholder Forum

This discussion was started after lunch as part of the stakeholder process with David Smith opening the floor for discussion.

Edison Elizah (PacifiCorp Merchant): Based on what we saw, the joint development expires in March 2008. What does that mean regarding the future of the projects?

David: We are now in discussion as to how to move forward with the agreement. We have always contemplated a second phase for the TransWest project and additional interested parties. There are ongoing discussions. Both projects are planning to move forward through the WECC and permitting process.

Edison Elizah (PacifiCorp Merchant): As a follow-up question, when we talk about how both projects will continue, can I get a sense from Gateway South participants as to which project we are talking about – is it the 345 or is it the 500, and what is the terminus point? I know it is initiating from Aeolus to Mona double circuit and then from Mona south – what happens if this joint development doesn't go forward after March 2008, which project will go forward for submittal?

Craig: The plan we are going to move forward in the WECC rating process is Case 2: the double circuit 500 kV from Aeolus to Mona, and then south to Crystal, a single-circuit 500 kV line. There will be some other system enhancements done to the 345 and to the south end down at Harry Allen. That line south of Mona will also be compensated. That's the project we are moving ahead with in the WECC rating process.

Edison Elizah (PacifiCorp Merchant): So is it fair to say that the PacifiCorp transmission before it was announced had changed from 345 to 500 from Mona to Crystal?

Craig: We just believe at this stage that it makes sense based on economics. We are projecting enough transmission service requests to justify the expanded capacity at this time.

Edison Elizah (PacifiCorp Merchant): I saw there is no project identified either for TransWest or Gateway South that is considered a parallel project. Is the parallel project not something that has a direct implication to this given the Sierra Nevada part of WestConnect regional planning is putting a line from White Pine County out toward Crystal-Marketplace area? LS Power has also announced as part of the Gateway West association with Idaho Power – I consider that a parallel project. It is also my understanding that Xcel and Public Service of New Mexico have announced a transmission project from the Rockies down to Albuquerque and down to the Phoenix area.

Craig: Yes, that's the High Plains Express project. The base cases that we are putting together have been compiled under the Northern Tier Transmission Group. They have elected to put in those projects that are currently in the WECC Rating process. They do include the transmission line south of the Ely Energy Center and the transmission from the Ely Center north to Midpoint, they also include the Mid C project that goes up into the Montana area. Also included are three projects from Wyoming: one line goes from Wyodak to Dave Johnston, Dave Johnston down to Miracle Mile and a 230 project that I believe LS Power has that goes from the Dave Johnston area south down to Colorado. There are many transmission projects being talked about, but a lot of those are just on paper. They haven't even entered Phase I or the Regional Planning Project Review process as yet.

Edison Elizah (PacifiCorp Merchant): If I understand you correctly, you will include these projects in your base case if they have been reported as entering Phase I planning?

Craig: If they are in Phase II of the regional planning process. The other question you might have been asking is "Is the system south of Mona dependent on what is happening in Nevada south of Ely and so forth?"

Edison Elizah (PacifiCorp Merchant): Yes, that would be a natural follow-up question.

Craig: We have done some sensitivity analysis with various configurations in and around the Ely Energy Center and the rating that we are seeking south of Mona will be independent of what is happening with Nevada Power or LS power north of the Ely Energy Center. If they do come in it will do nothing but enhance the performance of our project.

Edison Elizah (PacifiCorp Merchant): This question is to Bob and Peter in respect to TransWest. Do we really need a new transmission line from Marketplace to Phoenix since you want to move that power from that area back to the Phoenix area, given that we have so much of the EOR (east of river) delivery transmission?

Peter: Going to Marketplace creates numerous opportunities for people to get access to the line and that's why we have selected the Marketplace area to terminate the line. With APS, most likely we would back-schedule on the EOR delivery to the Phoenix area our portion of the power.

Edison Elizah (PacifiCorp Merchant): And you may not be needing that 500 kV line you are showing on the map?

Peter: That's correct.

David: In our WECC filing if we take a look at Slide 3, there is a description of the project we submitted for the WECC process and we do not have the 500 kV AC line from Marketplace to Phoenix. We did include it as one of the alternatives used to determine price. But we did not include Marketplace into the Phoenix area as part of the TransWest project.

Bill Hosie (Transcanada): I would like to make a request of the project team here to at least include in the Regional Planning Project Review report the TransCanada's two projects. We have been developing for two years a 500 kV DC line from Wyodak into the Power River Basin then into central Idaho, and then south to the Marketplace area. We have been developing the project for two years and we don't want to be competitive, we just want it to be noted and included in the regional planning discussion. Similarly we are developing an HVDC project that is 500 kV that runs through the Colstrip area in Montana and runs over to the Townsend area and then straight south to Idaho, and then into eastern Nevada and down to the Marketplace area.

Again we have been developing these projects and the terminal points have been identified. We would like them included in the regional planning report.

David: We will take that request to the group for consideration. I would like to clarify that the projects that we have planned to go into the report up to this point have been projects that are from subregional or WECC planning groups. We realize projects have been going on for several years and we will take it under consideration.

John Tompkins (SBP-RTS): Will the presentation today be available electronically or are there anymore paper copies available?

David: We are posting this information on the PacifiCorp and APS OASIS websites, as well as the WECC website. There may be additional hard copies still available.

Holly Wold (Whirlwind LLC): My question is related to financing the project. Where are you in respect to securing financing for the projects and what timeframe do you expect to do it in?

David: We plan to secure financing of the project through contributions from entities and utilities through the desert southwest that have obligations to serve and have that as a rate base extension of their transmission expansion plans. That's how we plan to secure financing. The timeframe is in the next year or so. Although the level of commitment is the next five years and we will be coordinating all that financing through utility mechanisms.

David closed the meeting and thanked the participants for attending on behalf of PacifiCorp, APS, National Grid and the WIA. He indicated the partners would be available after the meeting for questions and invited participants to contact the engineering group by email or phone.

[Slide 33]