Meeting Questions and Answers:
Subject: Corridors, Reliability, and Transmission Line Siting #1
Start Time: Wednesday, August 18, 2010 12:00:00 PM

Q1 If a proponent of a transmission line comes to the BLM with a right of way (ROW) application specifying that they would like their transmission line to be a specific distance away from another high voltage existing transmission lines can the BLM, through the NEPA process analyze an alternative with a lesser minimum distance between the proposed and the existing transmission line?

A1 Yes, NEPA requires analysis of reasonable alternatives; however, the answer also depends on the definition of reasonable and the BLM must also consider the operational requirements of the transmission line. Alternatives should also resolve project issues or conflicts. For example, the BLM may want to consider an alternative with lines closer together that would minimize impacts in sage grouse habitat than lines further apart.

Q2 Edythe Seehafer Asked: Why is the separation distance additive? Wouldn't the regional minimum distance in your WY case also meet the absolute minimum requirement?

A2 The calculation for minimum separation distance is the sum of the absolute minimum, case minimum value, and regional minimum. The calculation of the regional minimum is 1,240 feet. While the formula is additive, individual values may in some cases (e.g., case minimum) may be negative. The methodology for determining AB-MIN, REG-MIN, and CASE-MIN have been developed such that, the values for each of the components are mutually exclusive, and mitigate the simultaneous outage of two parallel lines from different causes. Care has also been taken to ensure that values do not overlap. For example, the REG-MIN component originally derived for a typical 500 kV line was 1,500 feet. Then, it was recognized that 260 feet of AB-MIN distance is already accounted for in the 1,500 feet value, and therefore, the resultant REG-MIN is 1,500-260 = 1,240 feet. Therefore, the final reported separation distances for these three components have to be added to obtain the total separation distance.

Q3 kathy miller Asked: Who is responsible for enforcement of NERC standards?

A3 Within the Western Electricity Coordinating Council (WECC) boundary, WECC is responsible for auditing compliance with NERC standards.

Q4 Lucas Lucero Asked: Does the ICF study consider possible buried transmission lines and the associated line reliability and separation distance? e.g. should we (BLM) be considering and analyzing a buried transmission line option in our NEPA documents?

A4 No, the ICF study does not consider buried transmission lines because the ICF study focused on weather-related factors and these factors do not affect buried lines.

Although an emerging technology, buried transmission lines are presently 5 – 10 times more costly to build than conventional overhead lines. Overhead lines are much easier to maintain and repair than buried lines. Currently in the United States, the longest buried high voltage transmission line is less than 50 miles in length. Buried lines may be appropriate for short distances where critical are present and there is no other siting option.

Q5 Michael Hampton Asked: If the separation distance exceeds the height of the towers. What would e the vegetation clearly needs for the area between lines, i.e., for forest areas, would forest conversion to brush or young stands be necessary, between lines?

A5 – See response to A6

Q6 Michael Hampton Changes Question To: If the separation distance exceeds the height of the towers. What would be the vegetation clearing needs for the area between lines, i.e., for forested areas, would forest conversion to brush or young stands be necessary, between lines?

A6 NERC Reliability Standard FAC-003-1 – Transmission Vegetation Management Program is relevant to the question of vegetation. Vegetation clearing needs for individual transmission lines depend on the standards and on the individual project. Standards relating to vegetation around transmission lines related to worker safety as well as reliability.

The Forest Service, Bureau of Land Management, and the Edison Electric Institute signed an MOU on vegetation management that identifies 14.7 feet as the minimum separation distance between vegetation and conductors for 500 kV transmission lines. Visit the following web page for more information: **http://www.eei.org/ourissues/TheEnvironment/Land/Pages/VegManagement.aspx**

Q7 William Schurger Asked: In the ICF example, the calculated 1500' separation is all well and good, but if the maximum span length is longer than this, what recourse does the utility have with adhering to the WECC standard? That is, can does the utility need to provide a study that verifies that the mean time between failures (MTBF) would be greater than 30 years using the 1500' distance?

A7 The 1,500 feet distance is based on several assumptions including a typical 500-kV transmission line. If the maximum span length of a particular transmission line is greater than 1,500 feet, the calculated minimum separation distance in the ICF example could also be greater than 1,500 feet based on several factors detailed in the report. The 1,500 feet in ICF's example is not an absolute number; rather, 1,500 feet is based on the maximum span length in a typical 500-kV transmission line and is derived based on the causes for frequent outage of lines in Wyoming. The Transmission Owner of two circuits within the definition of the Common Corridor can use the WECC PCUR, or Performance Category Upgrade Request method to request that the outage of two circuits in a Common Corridor be re-categorized from Category C outage performance requirements to Category D outage performance requirements. The Category C performance requirements for two circuits in a Common Corridor are because of the WECC WRS1.1 Criterion.

Q8 Douglas Balfour Asked: Walt and Brian In Gateway West, segment 6, has WECC analyzed the separation at pinch point? Does Idaho Power proposed location meet that criteria?

A8 Segment 6 is an existing 345-kV line the Gateway West proponent is proposing to increase the voltage to 500 kV. No changes to the existing towers or conductors is planned. Segment 6 goes through an area where other transmission lines already exist. Gateway West is currently going through the WECC path rating process.

Q9 Lucas Lucero Asked: To what extent does ICFs study consider other authorized land uses either within or adjacent to the proposed transmission line? e.g. buried pipelines, nearby farming, nearby wind turbines, etc.

A9 ICF's study does not consider other authorized land uses. The BLM would consider these other land uses through the NEPA process.

Q10 Natalie Cooper Asked: Why does WECC consider a more stringent factor by considering two towers within a corridor; where NERC considers only double circuit on a single tower? It seems as though the agencies wouldn't be facing such conflict between land management goals vs. the separation distances for reliability.

A10 WECC's Reliability Subcommittee is currently evaluating WECC's common corridor criteria and whether to keep it as is, modify it, or remove it. The more stringent WECC criteria may also reflect longer transmission distances in the Western United States and a less 'robust' and redundant transmission system than elsewhere in the country.

Q11 John Reber Asked: What (if any) siting considerations are there for lines having significant mixes of renewable sources (wind, solar)? Other than geographic needs for connections, does this make siting requirements much more complex?

A11 Siting considerations for transmission lines transferring renewable energy are no different than siting considerations for transmission lines transferring traditional energy.

Meeting Questions and Answers:
Subject: Corridors, Reliability, and Transmission Line Siting #2
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Q12 Mark Chamberlain BLM NTC Asked: For a BLM Field Office that receives a proposal for a transmission line ROW, other than determining if the proposal fits BLMs Purpose and Need and it is in compliance with the Field Office's current RMP what else should the BLM staff do/consider/or ask regarding the transmission line?

Q12 BLM staff should identify siting opportunities and constraints from their resource themes/overlays. They should informally work with the applicant to determine if projects components are certain, flexible, or speculative. Applicant desired in-service dates, BLM staff workloads, and other factors affecting schedule should be noted.

Q13 Micah Lee Asked: for Walt -- If we issue 2 parallel ROWs on a case-by case basis, do we have a common corridor under WECC?

A13 It depends. WECC's definition of a common corridor is: Contiguous right-of-way or two parallel right-of-ways with centerline separation less than the longest span length of the two transmission circuits at the point of separation or 500 feet, which ever is greater, between the transmission circuits.

This separation requirement does not apply to the last five spans of the transmission circuits entering into a substation.

Q14 Francina Martinez Asked: How does WECC address protection of raptors?

A14 Protection of raptors is neither WECC's responsibility nor part of their authority. The BLM addresses potential impacts to raptors as part of the NEPA process and compliance with the Migratory Bird Treaty Act and potentially (depending on the species), the Endangered Species Act and Bald Eagle Protection Act. Raptor protection standards are included in the publication, "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006." This is a joint publication of the Avian Power Line Interaction Committee (www.aplic.org) and the California Energy Commission (www.energy.ca.gov). The BLM supports the use of this publication.

Q15 Greg Asked: Would you consider CASE-MIN to be greater (potentially on the order of miles) for "energy backbones" with so much capacity that there is inadequate redundancy in the grid to back them up?

A15 CASE-MIN relates to case-specific on-the-ground factors affecting transmission line siting/routing; it does not relate to whether the transmission line is an "energy backbone". See pages ES-2, 4-20, and 4-21 in the ICF report for further discussion of "energy backbones".

Q16 BLM CASO Asked: Where does WECC get their enforcement authority?

A16 WECC is the Western Interconnection regional entity for the North American Electric Reliability Corporation (NERC) and derives its authority from NERC and the Federal Energy Regulatory Commission.

Q17 TMG7Z4 Asked: Are there different separation criteria applied to lines using different transmission technologies.....AC vs. DC?

A17 WECC reliability criteria do not differentiate between AC and DC.

Q18 PacifiCorp/Rocky Mountain Power SLC Asked: Why add the three components together instead of use the maximum to get the minimum separation?

A18 ICF's analytical framework is designed to account for different factors affecting reliability and thus the minimum separation distance is the sum of three components: ABSOLUTE, CASE, and REGIONAL; however, individual values for these components may be positive or negative. Using the maximum of one value instead of the sum of all three values would result in a different and erroneous minimum separation distance. Each component mitigates outage due to different causes, and they are mutually exclusive. The process for derivation of the final value of each component considers the fact that one component's separation distance value could also be used for a portion of other components' separation distance values, and then derives values for each component that must be added together to obtain the final separation distance recommendation.

Q19 Ron Montagna Asked: With all the "non-environmental" criteria that need to be considered to construct a modern grid, is the FLPMA corridor philosophy now obsolete?

A19 No, FLPMA's corridor philosophy would appear to include sufficient flexibility to accommodate modern transmission lines.

Q20 BLM CASO Changes Question To: Where does NERC get their enforcement authority?

A20 NERC derives their enforcement authority from Section 215(c) of the Federal Power Act and the Federal Energy Regulatory Commission.

Q21 Ron Montagna Changes Question To: With all the "non-environmental" criteria that need to be considered to construct a modern grid, is the FLPMA corridor philosophy now obsolete?

A21 See response to Q20.

Q22 Greg Asked: How do path ratings, specifically de-ratings, factor into the discussion of impacts. For example, if a transmission line experiences an outage and the path is subsequently de-rated by WECC, then a possible outcome is the need to plan and construct additional lines. In such cases, the WECC criteria require the Transmission Owner to prevent an outage recurrence with a minimum 1 in 300 year MTBF probability versus the 1 in 30 year MTBF probability assumption used in the report. Please explain what justification would be appropriate in such cases, e.g. how would this affect the CASE-MIN and REG-MIN values? How would those values be determined?

A22 See Figures 3-4 and 3-6 in ICF's report for reference to de-ratings of transmission lines. The general concept and process of components-based determination of separation distances derived by ICF is universally valid. The criteria used to determine causes of frequent outages may differ based on the specific region, rules, and other factors.

Q23 Cecil Werven Asked: If the study on distance was specific to Wyoming then why would the 1500' minimum distance apply to other 500kV projects in other states as the standard minimum distance?

A23 ICF's study developed an analytic framework that can be applied to any state. In ICF's report, the framework is generally applied to southern and eastern Wyoming. The 1,500 feet minimum separation distance calculated for a typical 500-kV transmission line in southern and eastern Wyoming is not meant to imply that 1,500 feet would apply to other 500-kV transmission lines in other states. However, a general assumption included in the calculation for the Wyoming example is that a "typical" 500-kV transmission line has a maximum span length of 1,500 feet. One would need to perform a separate study in which the framework developed by ICF is applied to case and regional specific factors in other states to calculate the minimum separation distance.

Q24 PacifiCorp/Rocky Mountain Power SLC Changes Question To: How long should it take to get through NEPA and what efficiencies are expected if corridors are used?

A24 National Environmental Policy Act (NEPA process) time frames varies widely depending on the specific project and other factors. The anticipated benefits of using federal west-wide corridors (as opposed to siting transmission lines outside these corridors) for siting of new transmission lines are the expectation of fewer environmental constraints, using environmental analyses of previous projects in the corridor, and strong justification for not needing to consider other route alternatives if the project is in a designated corridor.

Q25 Cecil Werven Changes Question To: If the study on distance was specific to Wyoming then why would the 1500' minimum distance apply to other 500kV projects in other states as the industry standard minimum distance? Shouldn't each project have its own regional study to determine the safe distance for that project?

A25 The 1,500 feet minimum separation distance is specific to the application of ICF's analytical framework in Wyoming. A separate study should be performed for other regions. Application of this framework to specific projects in other states may lead to a different distance. See also response to Q24.

Q26 Greg Asked: The report calculates that 12,000 feet (~2.3 miles) of separation would be required to avoid 2 single line outages from a fast moving fire, but then concludes that mitigation would adequately eliminate this risk. What are the best data sources or methods for addressing the effectiveness of such mitigation?

A26 The speakers are not aware of the "best" data sources or methods for addressing the effectiveness of the referenced mitigation; however, in addition to sources cited in ICF's report, other sources to consider include the National Interagency Fire Center http://www.nifc.gov/.

Q27 Ron Montagna Asked: What is the potential for utilities to use more locally generated electricity & not depend on long distance transmission lines on lands in other states, & on non-Federal lands.

A27 Distributed electricity is one factor affecting the need for additional transmission lines. Other factors may include energy efficiency, conservation, demand-side management (DSM), business practices, regulations, and policies. A detailed Integrated Resource Planning (IRP) study will capture these issues to provide an optimal solution.

Q28 PacifiCorp/Rocky Mountain Power SLC Asked: Follow up to firebreak question. Shouldn't the proponent use its operating experience in determining appropriate separation, which could be miles?

A28 Operating experience and especially outage data should also be considered among other factors when calculating the appropriate separation distance.