SUPPLEMENT ANALYSIS
for the
FINAL ENVIRONMENTAL ASSESSMENT
for
NECO (FORMERLY HAXTUN) WIND ENERGY PROJECT
LOGAN AND PHILLIPS COUNTIES, COLORADO

U. S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Golden Field Office
and
U.S. Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region

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DOE/EA-1812/SA-1

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ACRONYMS AND ABBREVIATIONS

CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CRED – Community Renewable Energy Deployment (grant)
DOE – U.S. Department of Energy
EA – Environmental Assessment
FONSI – Finding of No Significant Impact
NEPA – National Environmental Policy Act
SA – Supplement Analysis
Western – Western Area Power Administration

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1. BACKGROUND (SEE SECTION 1.2 OF DOE/EA-1812)

This Supplement Analysis (SA) has been prepared to address changes in the design and operating parameters of the NECO (formerly Haxtun) Wind Farm Project ("original proposed project") in Logan and Phillips Counties, Colorado. In January 2012, the DOE published the Final Environmental Assessment ("DOE/EA-1812") for the original proposed project and published a Finding of No Significant Impact (FONSI) on January 4, 2012. DOE/EA-1812 was conducted to analyze and disclose potential environmental and socioeconomic impacts that would result from the construction and operation of the original proposed project, which received federal funding through a Community Renewable Energy Deployment (CRED) Program grant to Phillips County, Colorado.

Phillips County and NECO Wind, LLC continue to propose the construction of a wind energy project that would produce approximately 30 megawatts of electricity located just southwest of the town of Haxtun in Phillips and Logan counties in Northeastern Colorado. Phillips County, Colorado has an agreement with National Wind, LLC, d/b/a NECO Wind, LLC, for the design and permitting of the proposed project.[1] The proposed project would be located in Sections 29 and 32, Township 8 North, Range 47 West and Sections 5, 6, 7, 8, 17 and 18, Township 7 North, Range 47 West in Phillips County and Sections 1 ,2, 3, 10, 11,12, 13 and 14, Township 7 North, Range 48 West in Logan County, respectively.

After DOE/EA-1812 and the FONSI were issued, NECO Wind, LLC proposed to change or clarify the original proposed project in the following ways, which are described in more detail in Section 2 below:

- Requested an interconnection with Western Area Power Administration (Western) at the Haxtun Substation instead of the proposed interconnection with Highline Electric Association (also at the Haxtun Substation) analyzed in DOE/EA-1812. An interconnection with Western would entail a 2.76 acre expansion of the Haxtun Substation;

- Proposed 3.2 miles of dual underground 34.5 interconnection transmission lines (with co-located communication cables) to replace the 115 kV overhead transmission line analyzed in DOE/EA-1812. The underground lines would follow one of the overhead routes analyzed in DOE/EA-1812; and

- Proposed to drop the alternate project transformer substation locations analyzed in DOE/EA-1812 and site that facility in a location immediately adjacent to the Haxtun substation (as expanded).

- Proposed minor relocations of turbines T-15 and T-16 to avoid potential impacts to Western's Haxtun-Otis microwave beam path. The access road to T-16 would be move slightly to the north and extended 185 feet farther west. The access road to T-15 would remain essentially unchanged.

- Clarification that the scheduling of disruptive construction activities outside the primary migratory bird nesting season only refers to new ground disturbing activities.

[1] The majority of the funds required to construct the proposed project would come from private tax and equity investors identified with the assistance of the project developer, National Wind, LLC. NECO Wind LLC (or a similarly named entity organized under the laws of the State of Colorado as a Limited Liability Corporation) would construct, own, and operate the NECO Wind Project.

In compliance with National Environmental Policy Act (NEPA) (42 U.S. Code [USC]§§ 4321 et. seq.) and DOE's NEPA implementing regulations (10 Code of Federal Regulations [CFR] Section 1021.330) and procedures, this SA examines the potential environmental impacts of these changes to the design of the original proposed project ("modified proposed project").

2. DESCRIPTION OF THE MODIFIED PROPOSED PROJECT (SEE SECTION 1.3 OF DOE/EA-1812)

This section presents a description of the modified proposed project, as compared to the original proposed project described and analyzed in DOE/EA-1812 (Exhibits 1 and 2). The proposed changes listed in Section 1 above are described in more detail below.

2.1 Western Interconnection and Expansion of the Haxtun Substation

The proposed project analyzed in DOE/EA-1812 involved an interconnection with Highline Electric facilities within the Haxtun Substation. In January of 2013, NECO Wind, LLC chose to request an interconnection to Western rather than to Highline Electric Association (Highline) facilities. The point of interconnection for both requests is the existing Haxtun substation, which is directly adjacent to the northeast corner of the project area. By interconnecting with Western instead of Highline, the modified proposed project is able to eliminate certain transmission wheeling costs and thereby sell power at a more competitive rate.

Western has determined that accommodating this request would require the footprint of the Haxtun substation be expanded by approximately 300 x 400 feet (2.76 acres). Western has not yet designed the substation expansion so its precise footprint is unknown. However, for purposes of the impact analysis contained in this SA, a disturbance envelope has been defined around the existing substation that is large enough to accommodate a 300 x 400 foot expansion of any configuration (Exhibit **3**). The Haxtun substation expansion is expected to include installation of a four breaker sectionalizing ring bus, revenue meter, and communication equipment.

2.2 Proposed Underground Interconnection Electric Transmission Cables and Accompanying Communication Cables

DOE/EA-1812 analyzed an approximately 3.2 mile overhead 115kV radial electric transmission line with co-located communication cables that would connect the original proposed project to the electrical grid at the Haxtun Substation. Alternative routes for the overhead lines were analyzed, as well as two alternate transformer substation locations within the wind farm footprint. NECO Wind, LLC proposes to eliminate the overhead transmission line and substitute dual circuit underground 34.5 kV electric transmission cables routed along one of the overhead corridors evaluated in DOE/EA-1812. Communication cables for the proposed project's supervisory control and data acquisition (SCADA) system would be co-located with the underground transmission cables. This change is proposed to: (1) reduce impediments to farming activities associated with above-ground transmission line structures; (2) address new Phillips County criteria for transmission line routing; and (3) respond to requests received from individual landowners.

The underground transmission cables would be twin three-phase conductors in a trefoil configuration, placed in parallel trenches 5 feet apart at a depth of 4 feet. Communication cables would be co-located with the transmission cables. A wheel trencher or trenching plow would likely be used to install these cables. A trenching plow would affect minimal area but could only be used if the transmission line route

is free of shallow bedrock and excessively rocky soils. A wheel trencher would disturb more area than a plow, typically excavating a 24-inch wide trench and temporarily side-casting spoil material onto a linear stockpile along one side of the trench. If a wheel trencher is used, 6 inches of topsoil would first be removed with a small bulldozer and stockpiled for re-spreading after the trenches have been backfilled. If rocky conditions or other constraints are encountered, a backhoe may also be used for trench excavation. Trenches would be backfilled with properly screened and compacted granular bedding and/or subsoil followed by topsoil to achieve pre-construction grades. Except for areas to be subsequently returned to row crop agriculture, restored underground cable routes would be re-vegetated with plant species consistent with pre-disturbance conditions.

With any of the described installation methods, the total temporary disturbance width would not exceed the 50 foot disturbance width analyzed in DOE/EA-1812 for overhead transmission line construction. Because NECO Wind, LLC holds leases on the properties to be traversed by the underground cables, a designated right-of-way easement need not be established around the interconnection transmission line corridor.

2.3 Proposed Relocation of Project Transformer Substation to a Location Adjacent to the Haxtun Substation

Because the proposed interconnection transmission cables would now be placed underground, these cables must remain at 34.5 kV until they reach a location adjacent to the point of interconnection. At that point voltage would be stepped up to 115 kV. Accordingly, NECO Wind, LLC proposes to eliminate the alternate project transformer substation locations analyzed in DOE/EA-1812 and site this facility in a location immediately adjacent to the expanded Haxtun Substation. In DOE/EA-1812, the project transformer substation was estimated to be 210 by 410 feet in size (1.98 acres), with an additional 0.5 acre being temporarily disturbed during construction. This equates to a total disturbance area 245 by 445 feet in size (2.50 acres). NECO Wind, LLC has not yet designed the transformer substation because that design depends on the design of the Haxtun Substation expansion. For purposes of the impact analysis contained in this SA, a disturbance envelope has been defined around the potential footprint of the expanded Haxtun Substation to accommodate an additional 245 by 445 foot disturbance area (see Exhibit 3).

2.4 Proposed Minor Relocations of Turbines T-15 and T-16

In 2013, NECO Wind, LLC became aware of Western's Haxtun-Otis microwave beam path, which passes through the Project area from northeast to southwest. Western requested a 300-foot turbine setback from the centerline of this microwave beam path to avoid potential interference. In response to this request, NECO Wind, LLC proposes to relocate Turbines T-15 and T-16 210 and 310 feet to the west and northwest, respectively, to comply with the requested setback. The original and revised locations of turbines T-15 and T-16 are depicted in Exhibits 1 and 2. The access road to T-16 would be moved slightly to the north and extended 185 feet farther west. This would result in an additional 2,960 square feet (0.07 acre) of cropland being converted to turbine access road. The access road to T-15 would remain essentially unchanged.

2.5 Clarification Regarding Scheduling of Construction Outside the Primary Breeding Bird Nesting Season

In its comments on DOE/EA-1812, the Colorado Field Office of the U.S. Fish and Wildlife Service (USFWS) stated:

> "As provided via email to Kurt Rautenstrauch, Jason Associates Corporation, on Dec. 7, 2010; in the FWS - Region 6 Recommendations for Wind Projects in Colorado, the overall recommended conservation approach is to complete all disruptive activities outside the primary migratory bird nesting season (early April to mid-July) to the greatest extent possible so as to avoid impacts to nesting raptors and other migratory birds."

In response to this comment, DOE/EA-1812 was amended to state: "National Wind will construct outside of the primary migratory bird nesting season (early April to mid-July)" and this commitment was carried forward into the FONSI. For clarification purposes, the scheduling commitment set forth in the FONSI only refers to ground disturbing construction activities that have the potential to cause a take of migratory birds or cause the destruction or degradation of migratory bird habitat (including clearing, cutting of vegetation, grubbing, etc.). Once ground has been disturbed and rendered unsuitable for nesting, the timing of subsequent infrastructure placement would not be subject to the construction schedule restriction.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE MODIFIED PROPOSED ACTION (SEE SECTION 3 OF DOE/EA-1812)

3.1 Considerations not Carried Forward for Further Analysis in the SA, study elements not affected by the Modified Proposed Action (See Section 3.2 of DOE/EA-1812)

Table 3.21 lists elements studied in DOE/EA-1812 that would not be affected by the modified proposed action and have not been included for further analysis in this SA.

Table 3.21 List of Study Areas Not Affected by the Modified Proposed Action

Study Areas	
Air Quality	Land Use
Water Resources	Paleontology
Environmental Justice	Socioeconomics
Intentional Destructive Acts	Cumulative Impacts

3.2 Considerations Carried Forward for Further Analysis (See Section 3.3 of DOE/EA-1812)

3.2.1 GEOLOGY & SOILS (SEE SECTION 3.3.1 OF DOE/EA-1812)

The modified proposed project would involve a 2.63 acre net increase in life-of-project soil disturbance. The Haxtun substation expansion would entail about 2.83 acres of life-of-project impact to soils but, as described below, 0.2 acre of life-of-project impacts would be deducted through the elimination of above-ground transmission line structures. The Haxtun substation expansion would involve the grading and graveling of 2.76 acres of farmland to accommodate additional electrical equipment needed to accommodate interconnection of the modified proposed project to the electrical grid. Soils in the affected area are mapped as Haxtun loamy sand, 0-3 percent slopes. This soil series does not present any unusual constraints for construction and is not classified as prime farmland. Both the original and modified locations for Turbines T-15 and T-16 are located within an area mapped as Iliff loam. This soil series

also does not present any unusual constraints for construction and is not classified as prime farmland. With these changes, the total life-of-project impact of the modified proposed project would be 16.53 acres, versus 13.90 acres for the original proposed project. This represents an 18.9 percent increase in the acreage affected by life-of-project impacts from the original proposed project. However, the increase in acreage affected by life-of-project impacts only represents 0.18 percent of the 9,271 acres within the project area, versus 0.15 percent with the original proposed project.

With regard to the underground transmission lines and project transformer substation, the modified proposed project would not increase the area of soil disturbance assessed in DOE/EA-1812 and would reduce the area of life-of-project impact for these project elements from 0.2 acre to zero. Soil disturbance from the underground interconnection transmission cables would occur within the same 50 foot disturbance corridor analyzed on DOE/EA-1812 but would consist of trenching and backfilling rather than the surface scarification and potential rutting associated with overhead transmission line construction. The overhead transmission line analyzed in DOE/EA-1812 would have entailed life-of-project soil impacts within a 10-foot radius around each transmission line structure, for a total of about 0.2 acre. These life-of-project impacts are eliminated by the use of underground lines.

As described in Section 2 above, the underground transmission cables would be dual three phase conductors in a trefoil configuration and placed in parallel trenches 5 feet apart at a depth of approximately 4 feet. Including space for temporary spoil piles next to each trench, the width of temporary disturbance would typically be less than 30 feet but has been assumed to be up to 50 feet. If sandstone bedrock is encountered during trenching activities, trenches may be excavated into the bedrock if the rock is sufficiently soft. The depth of the cables may be adjusted to shallower depths depending on soil management practices in the affected agricultural areas or the nature and depth to bedrock in areas where bedrock is present. Installed cable depth would conform to all applicable Federal and Colorado codes. Restored trench and temporary soil stockpile locations would be re-vegetated concurrently with re-vegetation of other disturbed areas.

Initial and life-of-project soil disturbance associated with the project transformer substation would remain unchanged at 2.50 and 1.98 acres, respectively. With the modified proposed project, the two alternate project transformer substation locations analyzed in DOE/EA-1812 would be dropped and the facility would instead be located immediately adjacent to the expanded Haxtun substation.

Prior to trenching operations, topsoil along the underground transmission cable route would be stripped and separated from subsoil and rock, all of which would each be segregated and stockpiled. Following installation of the electric transmission cables and the communication cable, trenches would be backfilled with a properly screened and compacted granular bedding and/or subsoil, followed by topsoil to achieve pre-construction grades. Vegetative cover would be restored to approximately pre-construction conditions. If supplemental cable bedding material, subsoil or topsoil is required for trench restoration, it would be obtained from excess material generated by turbine foundation excavation or imported from off-site sources. Any excess material generated during trench restoration would be utilized in other grading activities on the project.

3.2.1.1 Conclusions Regarding Geology and Soils

As a result of the modified proposed project, initial disturbance to geology and soils would increase from approximately 138.6 acres to approximately 141.2 acres, an increase of less than 2 percent. Most of this disturbance would be temporary and mitigated by restoring the affected landscape to pre-construction

agricultural uses. Life-of-project impacts would increase from about 13.9 acres to 16.53 acres[2], an increase of 18.9 percent. However, the life-of-project impacts to soils and geology to result from the modified proposed project would only total about 0.18 percent of the overall Project area. Impacts to soils and geology from the modified proposed project are not a substantial change from the impacts addressed in DOE/EA-1812 because most impacts would be temporary and life-of-project impacts represent a small percentage of the overall project area.

3.2.2 CULTURAL RESOURCES (SEE SECTION 3.3.2 OF DOE/EA-1812)

In 2010, an archaeological survey was performed along the entire proposed route of the underground electric transmission and communication cables. The survey corridor along this route was 60 meters (196.8 feet) wide, which is substantially wider than the approximately 50-foot-wide temporary disturbance corridor associated with underground transmission line installation. No archaeological sites were found along this corridor during the 2010 survey. However, the survey performed in 2010 did not cover all of the area that could be potentially disturbed by the expansion of the Haxtun substation expansion, the relocation of the project transformer substation and the relocation of Turbines T-15 and T-16. Accordingly, a supplemental archaeological survey was performed on July 17, 2013 cover 90 additional acres to encompass areas potentially affected by these facilities (Appendix A). Since the design of both the Haxtun Substation expansion and project transformer substation are not yet known, the supplemental survey encompassed a 15 acre area, which is substantially larger than would be needed for these facilities regardless of how they are designed. An additional 75 acres were surveyed around the locations of Turbines T-15 and T-16 and the new route for the extended T-16 access road to ensure all locations potentially affected by turbine relocation were covered. No archaeological sites were found in July 2013 within these expanded potential disturbance envelopes (see Appendix A).

3.2.2.1 Conclusions Regarding Cultural Resources

Since the modified proposed project would not affect any previously undocumented archaeological sites, the conclusions reached in DOE/EA-1812 regarding cultural resources remain valid for the modified proposed project.

3.2.3 BIOLOGICAL RESOURCES (SEE SECTION 3.3.3 OF DOE/EA-1812)

Biological resources include native vegetation, wetlands, streams and wildlife. No native plant communities have been documented within the areas affected by the original or modified proposed projects. Accordingly, the conclusions reached in DOE/EA-1812 regarding native plant communities remain unchanged. The modified proposed project entails the underground interconnection transmission line crossing two intermittent drainages and the North Branch of Frenchman Creek. Any impacts incurred by these resources would be temporary. Both intermittent drainages are very ephemeral and are consistently cropped from year-to-year. The temporary disturbance associated with trenching and restoration activities has negligible potential for affecting desirable vegetation, wildlife habitat or aquatic life. Construction through these ephemeral drainages would be timed to occur under dry conditions.

[2] Original 13.9 acres of impact plus 2.76 acres for Haxtun Substation expansion plus 0.07 acre for extended turbine T-16 access road minus 0.2 acres for transmission line structures that will now be eliminated.

Construction-related erosion and sedimentation control measures for this area would be described in the storm water pollution prevention plan (SWPPP) and would be designed to prevent the movement of sediment down-gradient from the crossing points. Since these two crossing locations are consistently cropped, restoration activities would be focused on returning the temporarily disturbed areas to farmable condition.

It is anticipated the crossing of the North Branch of Frenchman Creek (an ephemeral stream that lacks water much of the year) can be accomplished by trenching without causing substantial disturbance to trees or wetland plant communities that provide wildlife habitat. In accordance with U.S. Army Corps of Engineers permitting requirements, the trenched area would be restored to its original contours, 6-12 inches of re-claimed wetland topsoil would be re-spread and the disturbed area seeded to vegetation consistent with the areas immediately up and downstream.

A strip of upland just to the south of the above-described stream is enrolled in the US Department of Agriculture Conservation Reserve Program (CRP) and contains a double row of red cedars planted with CRP funds. The cable trench in this location would be routed to avoid tree removal if possible. If tree removal is unavoidable, it is anticipated no more than two to four trees would be removed. Any affected trees would either be replaced with new trees of the same species or the original trees would be removed with a tree spade and re-planted after the trenching operation is complete. If for any reason either of these techniques proves infeasible, directional drilling to avoid impacts would be a fallback alternative.

Substitution of underground transmission lines for overhead lines would result in a 0.2 acre net reduction in impacts to potential wildlife habitat because: (1) the underground lines would follow an overhead route already analyzed in DOE/EA-1812 ; (2) temporary disturbance would not exceed the 50 foot-wide disturbance corridor analyzed in DOE/EA-1812 ; (3) all disturbed areas would be restored to their pre-construction uses; and (4) above-ground transmission structures would be eliminated, reducing life-of-project impacts by 0.2 acre. Placing the transmission lines underground would also benefit avian species by eliminating a potential source of collision fatalities.

As described in Section 3.2.1 above, the modified proposed project would result in a 2.63 acre net increase in life-of-project impact to cultivated cropland. The area of most of the increased impacts would be on the edge of the town of Haxtun, immediately adjacent to the existing Haxtun substation and adjoining industrial land uses. The wildlife habitat value of the area affected by the substation expansion is limited due its being actively cropped and in immediate proximity to frequent disturbances associated with active human use.

Shifting the project transformer substation to a location next to the expanded Haxtun substation would not change the type or acreage of potential wildlife habitat affected. No change in the size of this facility is proposed and the project transformer substation location under the modified proposed project would be located on active cropland, as were both of the alternate locations analyzed in DOE/EA-1812 . Shifting the project transformer substation to a more urban location would reduce the potential for adverse impacts to wildlife. The area to be affected is already subject to frequent human disturbance in contrast to the alternate locations analyzed in DOE/EA-1812, which are in more remote rural settings.

In order to avoid impacts to migratory birds, all ground disturbing construction activities (e.g. initial grading and excavation for access roads, crane pads, turbine foundations, etc.) would occur outside primary migratory bird nesting period (April 1-July 15). Once initial ground disturbance has occurred, subsequent infrastructure installation not having the potential to impact migratory birds or habitat would not be subject to this schedule restriction. For example, once a turbine location has been excavated and graded, subsequent pouring of the concrete turbine foundation (which would be conducted entirely within

the footprint of the disturbed area - including equipment staging and laydown areas, etc.) would not be subject to schedule restrictions.

3.2.3.1 Conclusions Regarding Biological Resources

No native plant communities would be affected by the modified proposed project, which the exception of temporary impacts to wetland vegetation in the North Branch of Frenchman Creek. Temporary impacts to this and other ephemeral drainages would be mitigated through restoration to pre-construction topographic and vegetation conditions. Use of underground interconnection transmission lines would reduce life-of-project impacts associated with transmission line structures by 0.2 acre and would benefit avian species by eliminating a source of potential collisions. The Haxtun Substation expansion would result in an additional 2.76 acres of life-of-project impacts to cropland. The affected area has limited wildlife habitat value due to its being actively cropped and its proximity to human activities in the town of Haxtun. The modified proposed project would not change the life-of-project impacts associated with the project transformer substation but siting it at a more urban location would reduce the potential for adverse impacts to wildlife. The revised locations of Turbines T-15 and T-16 and T-16 access road would not result in any changes in biological impacts, as the new turbine locations are in active croplands like the original turbine locations were. Construction schedule restrictions applicable to ground disturbing activities would prevent destruction of migratory bird nests or disruption of nesting activities.

3.2.4 LOCAL AND REGIONAL AVIATION (SEE SECTION 3.2.5 OF DOE/EA-1812)

The project proposer submitted completed copies of FAA Form 7460-1 for the 23 potential turbine locations analyzed in DOE/EA-1812. The FAA has issued no hazard determinations for all 23 of these locations, of which 21 remain proposed under the modified proposed action. The modified proposed project entails the relocation of turbines T-15 and T-16 to avoid interference with Western's Haxtun-Otis microwave beam path. A new FAA Form 7460-1 has been submitted to FAA for each of these revised locations. Given the minor nature of the turbine relocations, no hazard determinations are anticipated for Turbines T-15 and T-16 in their modified locations.

3.2.4.1 Conclusions Regarding Local and Regional Aviation

The FAA has issued no hazard determinations for 21 of the turbine locations proposed under the modified proposed action and no hazard determinations for the remaining two turbine locations are anticipated. Accordingly, the modified proposed action is not anticipated to result in any adverse impacts to local or regional aviation.

3.2.5 AESTHETICS AND VISUAL RESOURCES (SEE SECTION 3.3.5 OF DOE/EA-1812)

The modified proposed project would reduce impacts to aesthetics and visual resources as compared to the original proposed project analyzed in DOE/EA-1812. The substitution of underground electric transmission and communication cables for the originally proposed overhead transmission lines entirely eliminates potential impacts to aesthetics and visual resources associated with above-ground structures and overhead conductors. The expansion of the Haxtun substation would have minimal visual impact, as the substation already exists and is located in an industrial area. Similarly, siting the project transformer substation next to the expanded Haxtun substation would have minimal visual impact for the same reasons. Relocation of the project transformer substation also eliminates the potential for visual impacts at the locations considered in DOE/EA-1812 for the original proposed project. Construction-related visual impacts, such as movement of equipment and materials during construction, are anticipated to be minor and would be temporary.

3.2.5.1 Conclusions Regarding Aesthetics and Visual Resources

The modified proposed project reduces the potential for impacts to aesthetics and visual resources as compared to the original proposed project analyzed in DOE/EA-1812. The aesthetic and visual impacts of above-ground transmission line structures and overhead conductors are being eliminated entirely. The Haxtun substation expansion and the relocation of the project transformer substation would result in one substation complex, sited next to an existing substation in an industrial area of Haxtun. This change eliminates the need to site the project transformer substation in a more remote rural location, where the potential for adverse visual impacts would be higher. The relocations of Turbines T-15 and T-16 would not perceptibly change the visual effect of these turbines on nearby receptors or visitors to the area.

3.2.6 ROADS, RECREATION AND COMMUNICATION TOWER INTERFERENCE (SEE SECTION 3.3.6 OF DOE/EA-1812)

The modified proposed project would entail no changes to the potential for impacts to roads and recreation associated with the original proposed project and analyzed in DOE/EA-1812. Since DOE/EA-1812 was issued, NECO Wind, LLC became aware of Western's Haxtun-Otis microwave beam path, which passes through the project area. Western requested a 300 foot turbine setback from the centerline of this beam path, which the modified proposed action provides through the relocation of Turbines T-15 and T-16. With these relocations, the modified proposed action would not result in any impacts to the Haxtun-Otis microwave beam path.

3.2.6.1 Conclusions Regarding Roads, Recreation and Communication Tower Interference

The modified proposed project would entail no changes to the potential for impacts to roads and recreation associated with the original proposed project and analyzed in DOE/EA-1812. Turbines T-15 and T-16 have been relocated as part of the modified proposed project to adhere to Western's requested 300 foot turbine setback from the Haxtun-Otis microwave beam path. Accordingly, the Haxtun-Otis microwave beam path would not be affected by the modified proposed project.

3.2.7 PUBLIC HEALTH AND SAFETY (SEE SECTION 3.3.7 OF DOE/EA-1812)

The modified proposed project would result in minor reductions in the potential for impacts to public health and safety, as compared to the original proposed project analyzed in DOE/EA-1812. The potential for public health and safety impacts related to truck traffic, fire and accidents remains essentially unchanged from the original proposed project. As with the original proposed project, the modified proposed project would be constructed on private land with no public access except as permitted by landowners. The facility would be constructed to current health and safety standards including warning signs, safety fences and locks to limit unauthorized access to elements of the facility. The use of underground rather than above-ground electric transmission and communication cables would eliminate the potential for physical interaction with transmission structures or energized electric cables. The expanded Haxtun Substation would have essentially the same public health and safety impacts as existing conditions. Fences, warning signs and locks would be similar to those currently used at the existing substation. Siting the project transformer substation next to the Haxtun Substation rather than one of the more remote locations analyzed in DOE/EA-1812 should result in improved security, as the facility would be more visible and accessible to O&M staff and first responders.

As stated in DOE/EA-1812 , at ground level beneath the centerline, a non-insulated 115 kV overhead transmission line would produce electric and magnetic fields (EMF) of 1.0 kV/meter and 30 milliGauss (mG), respectively. The proposed 34.5 kV underground transmission lines would not generate electrical

fields because underground lines are insulated. The magnetic field generated by dual circuit 34.5 kV lines in a trefoil configuration buried 4 feet underground would be about 27.5 mG at 1 meter above the centerline.[3] The State of Colorado has established a regulatory threshold for magnetic fields, finding "… levels of 150 mG (milliGauss) and below are deemed reasonable by rule and need not be mitigated to a lower level" (4CCR 723-3-3206 (e) (III)).

The conclusions reached in DOE/EA-1812 regarding EMF remain valid with the modified proposed project because the proposed underground interconnection transmission lines: (1) would not generate any electric fields; (2) would produce a weak magnetic field similar to that of the overhead line analyzed in DOE/EA-1812; and (3) the magnetic field to be generated by the underground lines would only be about 18.3 percent of the state's threshold for regulation. The Haxtun Substation expansion and the relocated project transformer substation would be designed to result in very weak electromagnetic field strengths outside the boundary fences for these facilities.

The relocations of Turbines T-15 and T-16 would not result in any change in public safety impacts from the project layout analyzed in DOE/EA-1812.

3.2.7.1 Conclusions Regarding Public Health and Safety

Potential impacts to public health and safety associated with the modified proposed project would be equal to or less than those described in DOE/EA-1812 for the original proposed project. The potential for fire, accidents or congestion from truck traffic remain essentially unchanged. The modified proposed project would reduce the potential for EMF exposure as compared to the modified proposed project. The relocations of Turbines T-15 and T-16 would not result in any change in public safety impacts from the project layout analyzed in DOE/EA-1812.

3.2.8 NOISE (SEE SECTION 3.3.8 OF DOE/EA-1812)

The modified proposed project would not result in any perceptible changes in construction noise. Approximately the same number and types of trucks and equipment would be working on the project site for about the same period as under the original proposed project. With regard to turbine noise, 18 of the 20 turbine locations analyzed for noise in DOE/EA-1812 remain unchanged. Turbines T-15 and T-16 are being relocated 210 and 310 to the west-northwest and northwest, respectively. The two closest residential noise receptors are R8 to the northeast (participating) and R11 to the northwest (non-participating). On Figure 3-6 of DOE/EA-1812, receptors R8 and R11 were labeled H and K, respectively. The modified locations of T-15 and T-16 would be 144 and 68 feet farther from R8 than under the original proposed project. Accordingly, the potential for noise impacts at R8 associated with the relocation of these turbines would be lower than indicated in DOE/EA-1812.

The modified locations of T-15 and T-16 would be 156 and 294 feet closer to R11 than under the original proposed project. However, R11 would still be more than 4,754 feet (0.90 mile) from the nearest of these modified turbine locations (i.e. T-15). The 35-39 dB(A) isoline depicted in Figure 3-6 of DOE/EA-1812 , which is based on the original proposed project, is about 1,600 feet from receptor R11. Turbine related noise levels within this isoline would be 11 to 15 dB(A) below Colorado's night-time residential noise standard of 50 dB(A). Since 1,600 feet is a substantially greater distance than either T-15 or T-16 is

[3] Quanta Technology. 2008. Glacier Hills Wind Farm EMF Studies – Final Report, pp. 8-9. http://wiwindinfo.net/impacts/psc-eis/Glacier%20Hills%20EMF%20Study.pdf

being moved (i.e. 156 and 294 feet, respectively), noise receptor R11 would still fall well outside this isoline.

3.2.8.1 Conclusions Regarding Noise

The modified proposed project would not result in any perceptible changes in construction noise than were addressed in the original EA. The proposed relocation of turbines T-15 and T-16 would reduce turbine noise levels at residential receptor R8 and would not change noise levels at R11 as compared to what was presented in the original EA.

3.2.9 SHADOW FLICKER (SEE SECTION 3.3.9 OF DOE/EA-1812)

The modified proposed project would not result in any perceptible changes in shadow flicker. As previously stated, 21 of the 23 turbine locations analyzed for shadow flicker in DOE/EA-1812 remain unchanged. Turbines T-15 and T-16 are being relocated 210 and 310 to the west-northwest and northwest, respectively. As with noise, the two closest residential shadow flicker receptors are R8 to the northeast (participating) and R11 to the northwest (non-participating). On Figure 3-7 of DOE/EA-1812, receptors R8 and R11 were labeled H and K, respectively. Receptors R8 and R11 are both more than 4,700 feet from the original location for turbine T-15. As indicated in DOE/EA-1812, it is generally accepted that shadow flicker effects are negligible beyond 10 rotor diameters (3,280 feet in the case of a GE 1.6-100 model turbine). Figure 3-7 in DOE/EA-1812 shows that shadow flicker effects from the original location of turbine T-15 would not extend far enough to affect either receptor. Shifting the location of T-15 210 feet to the west would not alter this. Receptor R11 lies about 2,685 feet northeast of the original location of turbine T-16 and would have been subject to between 10 and 29 hours of shadow flicker per year (see Figure 3-7 in DOE/EA-1812). Shifting the location of turbine T-16 310 feet to the northwest would not alter this (see Figure 3-7 in DOE/EA-1812).

3.2.9.1 Conclusions Regarding Shadow Flicker

The modified proposed project would not result in any perceptible changes in shadow flicker from that associated within the original proposed project.

3.3 Irreversible and Irretrievable Commitments of Resources (See Section 3.4 of DOE/EA-1812)

Anticipated changes to the irreversible and irretrievable commitments of resources for the modified proposed project are not substantially different from those of the original proposed project analyzed in DOE/EA-1812. The commitments set forth in Table 3-10 of DOE/EA-1812 remain unchanged, though impacts to land use, soils and visual impacts are changed slightly. The modified proposed project would result in a 2.63 acre net increase in cropland acreage converted to wind farm infrastructure for the life of the project. The total life-of-project impacts to land use and soils for the modified proposed project would be 16.53 acres, versus 13.90 acres with the original proposed project. This change is not a substantial change from the impacts addressed in the EA, given the acreage affected by the modified proposed project represents 0.18 percent of the 9,271 acre Project area, versus 0.15 percent with the original proposed project. Visual impacts would be slightly reduced through the elimination of the overhead interconnection transmission line. The proposed revisions to the locations of turbines T-15 and T-16 are minor and would not perceptibly change the visual impacts of these two turbines that were analyzed in DOE/EA-1812.

3.3.1 CONCLUSION REGARDING IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The modified proposed project impacts to the irreversible and irretrievable commitments of resources would not result in appreciable changes from DOE/EA-1812.

3.4 Unavoidable Adverse Impacts (See Section 3.5 of DOE/EA-1812)

Construction and operation of the modified proposed project would cause essentially the same unavoidable emissions of some air pollutants and noise as discussed in DOE/EA-1812. The need for construction materials, such as steel and concrete would be similarly unavoidable, and would represent a small fraction of available materials. Construction traffic with the modified proposed project would not be substantially different from that of the original proposed project analyzed in DOE/EA-1812. Measures proposed to mitigate the adverse impacts are unchanged.

3.4.1 CONCLUSION REGARDING UNAVOIDABLE ADVERSE IMPACTS

The potential impacts of the modified proposed project on the unavoidable adverse impacts would not be appreciably different to described in DOE/EA-1812.

3.5 The Relationship Between Local Short-term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity (See Section 3.6 of DOE/EA-1812)

The relationship between local short-term uses of the environment associated with the modified proposed project and maintenance and enhancement of long-term productivity are unchanged from that of the original proposed project analyzed in DOE/EA-1812. If the modified proposed project reaches the end of its useful life and is decommissioned, the long term productivity of the affected area for other uses would be the same as with the original proposed project.

3.5.1 CONCLUSION REGARDING THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between local short-term uses of the environment associated with the modified proposed project and maintenance and enhancement of long-term productivity are unchanged from that of the original proposed project analyzed in DOE/EA-1812.

4. CONCLUSIONS AND DETERMINATION

The potential impacts and environmental risks of the modified proposed project were evaluated and presented above and were found to be similar to those identified in DOE/EA-1812. Based on these comparisons above, the following conclusions can be drawn:

- Environmental impacts associated with NECO Wind, LLC's modified proposed project have been evaluated as compared to the proposed project presented in DOE/EA-1812.

- The potential environmental impacts from the modified proposed project are within the range of environmental impacts presented in DOE/EA-1812 for the original proposed action and No Action Alternative.

Determination:

DOE has determined the modified proposed project would not constitute a substantial change in actions previously analyzed and would not present any new circumstances or information relevant to the environmental concerns and bearing on the previously analyzed actions or impacts, within the meaning of 40 CFR 1502.9(c) and 10 CFR 1021.314. Accordingly, DOE has determined a Supplemental EA is not required.