

Table S-1. Summary Comparison of Alternatives and Potential Impacts

Resource	No Action	Proposed Action
Aesthetic Resources	No change in existing conditions; however, adverse impacts from degraded landscapes at coal refuse sites would remain.	<p>Power Plant Facilities:</p> <ul style="list-style-type: none"> Option A – Most adverse impacts during construction and operation would occur for the nearest residential properties (located within 1,500 ft (460 m) east of the plant site), including approximately 12 single-family homes, a 52-unit apartment complex, a nursing and rehabilitation center, and approximately 12 mobile homes. The 300-ft (91-m) tall exhaust stack and portions of the 150-ft (46-m) tall boiler building would be visible from various locations in Rainelle. Option B – The aesthetic impacts would be comparable to Option A. Although the site footprint would be larger, an earthen berm would be provided for noise mitigation and may limit the view of the power plant from adjacent properties. <p>Fuel Supply: Extraction of coal refuse would occur at sites in remote areas that were used historically for mining purposes. <i>With the exception of Anjean, all coal refuse sites have been reclaimed. Thus, use of fuel supply at Anjean would provide a beneficial impact at this location.</i> Reclamation of the sites following completion of extraction would ensure continuation of long-term aesthetic benefits. The optional sites for the fuel prep plants would be located in remote areas in the vicinities of the coal refuse sites.</p> <p>Limestone Supply: Option A or B would obtain limestone from commercial quarries near Lewisburg, approximately 20 mi (32 km) and 40 mi (64 km), respectively, from Rainelle. Both options may also obtain a higher quality limestone from a commercial quarry in Mill Point, approximately 60 mi (97 km) from Rainelle. Aesthetic impacts would be comparable to existing conditions, because extraction would occur within permitted areas of active commercial quarries.</p> <p>Water Supply: Water supply structures, including the effluent pipeline from the Rainelle Sewage Treatment Plant (RSTP) to the power plant site, generally would be located within existing utility right-of-ways (ROWs) and would not affect viewsheds permanently.</p> <p>Material Transportation: The transport of fuel from the prep plant sites to the power plant would occur on existing heavy haul roadways used for coal and lumber transport regionally. The transport of limestone from the quarries to the power plant would also occur on existing heavy haul roadways. In the worst case, trucks would make a total of 97 round trips (mainly on US 60 and WV 20 or CR 1, depending on source of fuel – see Figure S-1) to the site daily.</p> <p>Power Transmission: All three transmission options would include the development of a 100-ft (30-m) wide power transmission line ROW from the plant site approximately 4,000 ft (1,220 m) northwest to an existing American Electric Power (AEP) ROW, which would affect the viewshed along a 9.2-ac (3.7-ha) corridor.</p> <ul style="list-style-type: none"> Option A – Widening of the existing AEP ROW by approximately 50 ft (15 m) for 17 mi (27 km) to the Grassy Falls substation would affect the viewshed along a 103-ac (42-ha) corridor. Option B – Upgrading existing structures along the AEP ROW would not substantially alter the existing viewshed along the corridor after completion of construction. Option C – The development of a new 17-mi (27-km), 100-ft (30-m) wide ROW to the Grassy Falls substation would affect the viewshed along a 206-ac (83-ha) corridor.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Atmospheric Conditions	No impact; no change in existing conditions.	<p>Power Plant Facilities: Emissions would be identical regardless of the option selected for the plant site. Stationary emissions of priority pollutants would comply with National Ambient Air Quality Standards (NAAQS). Volatile organic compounds (VOCs) emissions would be below the prevention of significant deterioration (PSD) threshold, while NO_x, CO, SO_2, H_2SO_4, PM, and Be would be above the thresholds. For the pollutants that would exceed the PSD thresholds, a BACT analysis was performed. The Class II PSD increment consumption by power plant emissions for sulfur dioxide (SO_2), nitrogen oxides (NO_x), and particulate matter (<10 microns [PM_{10}]) would range between 25% and 75% depending upon the pollutant and associated averaging time. The highest increment consumption would occur for PM_{10} emissions (24-hr averaging time) in the immediate vicinity of the site. See Table 4-3-6, Class II Prevention of Significant Deterioration (PSD) Increment Consumption, for modelling results. Visibility analysis in Class I areas predicted a total of 6 days over a 3-yr period in which the 5% change in light extinction threshold could be exceeded. However, meteorological records suggest that these occurrences may be attributable to natural obscuring conditions (such as fog, clouds, and rain). The plant is expected to meet the Clean Air Mercury Rule limitations and is not expected to discharge objectionable odors. The plant would emit up to 0.87 million tons (0.79 million metric tons) annually of carbon dioxide ($[CO_2]$) a greenhouse gas. Although capture and geologic sequestration of CO_2 is not feasible for this project, potential plans to provide for the capture and use of waste heat from the power plant for potential commercial, industrial, and residential uses may offset the plant's CO_2 emissions in the range of 0.18 million tons per year (0.16 million metric tons) to 0.32 million tons per year (0.29 million metric tons).</p> <p>Fuel Supply: The extraction and processing of coal refuse would result in emissions of fugitive dust (total suspended particulates [TSP]) and PM_{10} that would be comparable for all coal refuse sites and prep plant locations. Emissions would be contained within site boundaries through the use of dust suppression activities in accordance with WV Rules 38 CSR 2. Most of the prep plant system would be enclosed and equipped with control devices such as fabric filters.</p> <p>Limestone Supply: Option A or B would obtain limestone from active commercial quarries. The increased production to supply the WGC plant would be accommodated within existing permits for these quarries. Depending upon the future demand for limestone and site-specific quarry operation plans, increases in PM_{10} and TSP air emissions could occur over existing conditions at the commercial quarry sites. It is expected that increased levels of these pollutants would generally be limited to the quarry sites, as the concentrations of these pollutants would rapidly dissipate with distance from the activity generating the emissions. The increase in production would be regulated under and bound by existing operating permits, which incorporate standard industry measures to prevent the degradation of atmospheric resources.</p> <p>Water Supply: Construction of the water supply facilities would cause short-term impacts from fugitive dust and vehicle emissions.</p> <p>Material Transport: Screening for mobile emissions sources based on guidelines established by U.S. Environmental Protection Agency (EPA) indicated that transportation activities would have <i>de minimis</i> impacts on air quality.</p> <p>Power Transmission: Operation of the power transmission lines would not affect air quality. Construction of the lines would result in short-term impacts from fugitive dust and vehicle emissions.</p> <ul style="list-style-type: none"> • Option A – Widening the existing AEP ROW would require ground-disturbing activities along a 103-ac (42-ha) corridor. • Option B – Upgrading existing structures along the AEP ROW would disturb the least land area of the options. • Option C – The development of a new ROW would require ground-disturbing activities along a 206-ac (83-ha) corridor.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
		<p>Power Plant Facilities: Impacts on surface waters during plant construction would be minimized through the implementation of an erosion and sedimentation (E/S) control plan required for a National Pollutant Discharge Elimination System (NPDES) General Construction Permit. Potential impacts during operation would be minimized through the implementation of a storm water management pollution prevention (SWMPP) plan and a groundwater protection (GWP) plan based on the WV Department of Transportation (WVDOT) and the WV Department of Environmental Protection (WVDEP) requirements.</p> <ul style="list-style-type: none"> • Option A would result in the least impact on surface waters. Post-development runoff was calculated as 55.7 ft³/s (vs. 67.1 ft³/s during pre-development). • Option B would result in slightly higher impact on surface waters. Post-development runoff was calculated as 57.6 ft³/s (vs. 67.1 ft³/s pre-development). <p>Fuel Supply: Temporary impacts of coal extraction on water resources, such as increased sedimentation resulting in a decrease in water quality, would be minimized through the implementation of planned E/S control features (via best management practices [BMPs]). Reclamation of the sites under agreements with WVDEP would provide long-term benefits to water quality. The impacts from discharge of storm water runoff from coal refuse piles at the prep plant sites would be minimized through the use of storm water retention ponds at the sites.</p> <ul style="list-style-type: none"> • Anjean – Although the three candidate sites for the prep plant at Anjean would have similar impacts, AN3 would be within the same sub-watershed as the existing Anjean treatment ponds. • Donegan – Although the two candidate sites for the prep plant at Donegan would have similar impacts, DN1 would be within the same sub-watershed as the existing Donegan treatment ponds. <p>Limestone Supply: Option A or B would obtain limestone from existing commercial quarries. Thus, potential impacts would be comparable to projected baseline conditions. The increase in production to supply the WGC plant would be regulated under the existing operating permits for these quarries, which incorporate measures to prevent the degradation of surface water resources.</p> <p>Water Supply: The diversion of up to 100% of the RSTP effluent (up to approximately 1.5 cfs) to the WGC plant for primary water supply would have a long-term beneficial impact on Meadow River water quality because of the elimination of a biological oxygen demand (BOD) source. WGC would derive the balance of 350 to 800 gpm (1,300 to 3,000 L/min) from groundwater and/or surface water sources. To avoid adverse impacts to aquatic habitats, WGC would monitor flows in the Meadow River and limit withdrawals to avoid reductions in flow levels below a state-recommended threshold (see below).</p> <ul style="list-style-type: none"> • Option A – As the tertiary source of process water supply, withdrawals from the Meadow River would occur only intermittently to make up a smaller proportion of the balance of process water required by the WGC plant during low aquifer conditions. The streamflow would be reduced by a maximum of approximately 1.6 to 2.0 cubic feet per second at the end of a 25-year period. • Option B – As the secondary source of process water supply, withdrawals from the Meadow River may reduce base flows to make up a larger proportion of the process water required by the WGC plant, but withdrawals would not be made when flows could fall below 60% of the annually or seasonally adjusted average flow (i.e., below the flow rate above which water quality and aquatic habitat impacts would not be expected), or another comparable withdrawal limitation measure determined in consultation with the state. Since publication of the Draft EIS, WVDNR has provided base flow thresholds to be maintained: 178 cfs April through September and 118 cfs October through March. The maximum water demand that the proposed power plant would require is approximately 2.7 cfs, which represents less than 1% of Meadow River's average annual flow. Furthermore, based on the thresholds, withdraw from the river would be limited to high flow conditions. Therefore, impacts to the river are expected to be minor. The streamflow would be reduced by a maximum of approximately 0.8 cubic feet per second at the end of a 25-year period. <p>Material Transportation: The use of a truck or wheel wash at the power plant and prep plant to clean fuel delivery trucks prior to exiting the site would minimize potential impacts on surface water quality from runoff of contaminants released in transportation corridors.</p> <p>Power Transmission: Operation of the power transmission lines would not affect surface water quality. Short-term impacts on water quality during construction of the transmission lines would be minimized through the implementation of a SWMPP plan and a GWP plan based on WVDOT and WVDEP requirements. Power poles would not be erected within surface waters.</p> <ul style="list-style-type: none"> • Option A – Widening the existing AEP ROW would require the clearing of a 103-ac (42-ha) corridor. • Option B – Upgrading existing structures along the AEP ROW would affect the least land area of the options.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Floodplains	No impact; no change in existing conditions.	<p>Power Plant Facilities: Displacement of the floodplain for Sewell Creek would not increase the 100-year flood elevations over the Federal Emergency Management Agency (FEMA) designated height of 1 ft (0.3 m) above existing conditions in the local upstream area.</p> <ul style="list-style-type: none"> • Option A would result in the least impact on the floodplain, requiring 16 ac (6.5 ha) to be filled. The greatest increase in water elevation for a 100-yr flood would be 0.48 ft (0.15 m). • Option B would result in slightly higher impact on the floodplain, requiring 20 acres to be filled. The greatest increase in water elevation for a 100-yr flood would be 0.67 ft (0.20 m). <p>Fuel Supply: No impacts on floodplains would occur at any of the coal refuse sites.</p> <ul style="list-style-type: none"> • Anjean – All 3 prep plant candidate sites appear to be outside of the 100-yr floodplain, but AN1 is situated in a topographic depression that could be subject to high water. Potential impacts would be avoided through effective site layout and design. • Donegan – Neither candidate prep plant site, DN1 or DN2, is within a floodplain. • Green Valley – Candidate prep plant site GV is not within the 100-yr floodplain, but it is situated near Hominy Creek and could be subject to high water. Potential impacts would be avoided through effective site layout and design. <p>Limestone Supply: The increase in production to supply the WGC plant for Option A or B would occur in permitted areas within active commercial quarries and would not affect floodplains.</p> <p>Water Supply: The construction of the water supply pipeline would not alter the floodplain, and its location underground would protect it from flood impacts.</p> <ul style="list-style-type: none"> • Option A – The use of a temporary intake structure on Meadow River would not affect flood flows. • Option B – The permanent intake structure and inlet pool on Meadow River would be designed to prevent an increase in the 100-yr flood elevations upstream by more than 1 foot (0.3 m). <p>Material Transportation: The transport of fuel and limestone by trucks would not affect the floodplain.</p> <p>Power Transmission: The construction of power transmission facilities would not affect 100-yr floodplains in the respective corridors for Option A, B, or C. Power poles may be situated near stream banks where required but would not obstruct flood flows.</p>

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
		<p>Power Plant Facilities: Impacts from ground-disturbing activities would be minimized through the implementation of an E/S control plan as specified for a NPDES General Construction Permit and based on WVDOE and WVDEP requirements. Areas of competent rock encountered at the plant site may necessitate blasting, which would require a permit from the WV Fire Marshall that would outline measures to avoid or minimize short-term impacts. Fuel and material storage areas would be situated on slabs that would be drained to a lined collection pond to minimize release of pollutants to groundwater. Ammonia storage and handling would be located on top of a diked concrete area and comprise of control devices and safety procedures to minimize the potential release of aqueous ammonia to soil or groundwater.</p> <ul style="list-style-type: none"> • Option A would require the least disturbance of land area for the plant footprint (17 ac [6.9 ha]). • Option B would require somewhat greater disturbance of land area for the plant footprint (20.3 ac [8.2 ha]). <p>Fuel Supply: Extraction of coal refuse at all sites would cause potential impacts from accelerated erosion and acid mine drainage (AMD) generation. However, the recovery and reclamation processes would be carefully managed to minimize impacts in accordance with a NPDES General Permit and a remediation plan approved by WVDEP. Ultimately, the long-term reductions in AMD afforded by the remediation of the coal refuse sites are expected to outweigh the short-term increases in AMD generation during extraction. Although an analysis of ash samples indicated that both fly ash and bottom ash contain metals, the Toxic Characteristic Leaching Procedure (TCLP) analysis indicated that the leaching of metals from the ash in significant concentrations would not be expected (<i>e.g., values for arsenic and mercury were less than 0.059 and 0.0078, respectively, for both fly ash and bottom ash; see Table 4.6-3 for TCLP results</i>). The prep plant would use a closed loop system requiring 100 gpm (380 L/min) of water, which would be supplied by new wells to be constructed on respective sites. Prep plant operations would be the same regardless of site selected.</p> <p>Limestone Supply: Option A or B would obtain limestone from existing commercial quarries. The increase in production to supply the WGC plant would be regulated under the existing operating permits for these quarries, which incorporate measures to prevent the degradation of groundwater resources.</p> <p>Water Supply: Groundwater pumping tests have indicated that withdrawals from groundwater wells could potentially draw down the local aquifer. Therefore, WGC would ensure that the power plant maintains an adequate supply of process water without adversely affecting the Rainelle water supply and local private wells. Draw down levels are expected to be less than the depth of the city well pumps, and therefore, would not adversely impact the local water supply. WGC would obtain permits and meet specific requirements prior to initiating additional groundwater withdrawals for supplemental process water in either Option A or B.</p> <ul style="list-style-type: none"> • Option A – As the secondary source of process water supply, withdrawals from groundwater wells would make up a larger proportion of the process water required by the WGC plant, which could potentially affect aquifer drawdown. The streamflow would be reduced by a maximum of approximately 1.6 to 2.0 cubic feet per second at the end of a 25-year period. • Option B – As the tertiary source of process water supply, withdrawals from groundwater wells would make up a smaller proportion of the process water required by the WGC plant, which would not be expected to affect aquifer drawdown. Since publication of the Draft EIS, WVNR has provided base flow thresholds to be maintained for the Meadow River. Additionally, the ongoing groundwater study referenced in the Draft EIS has now been added to the Final EIS (Appendix D2); however, general impact conclusions remain unchanged. The streamflow would be reduced by a maximum of approximately 0.8 cubic feet per second at the end of a 25-year period. <p>Material Transportation: The use of a truck or wheel wash at the power plant and prep plant sites to clean fuel delivery trucks prior to exiting the site would minimize potential impacts on groundwater from the infiltration of contaminants released in transportation corridors.</p> <p>Power Transmission: Operation of the power transmission lines would not affect geology, soils, or groundwater. Short-term impacts during construction of the transmission lines would be minimized through the implementation of a SWMPP plan and a GWP plan in accordance with WVDOE and WVDEP requirements.</p> <ul style="list-style-type: none"> • Option A – Widening the existing AEP ROW would require the clearing of a 103-ac (42-ha) corridor. • Option B – Upgrading existing structures along the AEP ROW would affect the least land area of the options. • Option C – The development of a new ROW would require the clearing of a 206-ac (83-ha) corridor. Up to 2.5 acres of soils classified as prime farmland soils or farmland could be impacted as a result of construction and/or routine maintenance along the corridor.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
		<p>Power Plant Facilities: The power plant site has lost most of its original ecological resource value as a result of prior land-disturbing activity. Extensive adjacent acreage of undisturbed upland areas offer higher quality habitat. The project is not expected to impact any protected species.</p> <ul style="list-style-type: none"> Option A would result in the clearing of approximately 15 ac (6 ha) of mostly re-growth vegetation and the loss of 0.26 ac (0.10 ha) of wetlands. (As the design phase finalizes, wetlands impacts as listed in this EIS may differ slightly from values listed in the final wetland permit due to refinements of the design. WGC is in the process of consulting with the USACE for the wetland permitting process to identify wetland impacts and methods for avoiding and minimizing impacts and developing suitable forms of wetland mitigation.) Option B would result in greater loss of vegetation and wetland acreage than Option A, including the filling of an oxbow on Sewell Creek and the potential enclosure of an unnamed tributary on the east side of the site. Fuel Supply: Coal refuse sites offer habitat of limited value. Recovery and reclamation processes would be carefully managed to minimize impacts in accordance with a remediation plan approved by WVDEP. Ultimately, the coal refuse sites would be reclaimed to an extent that would surpass existing conditions and improve the quality of existing habitat and wetland areas in the vicinity. Anjean – Of the candidate sites for a prep plant, AN1 has the greatest potential for involving a wetland; but impacts would be avoided through effective site planning and design. Donegan – Neither candidate prep plant site, DN1 or DN2, contains wetlands. Green Valley – Candidate prep plant site GV is located near an emergent wetland area that has been vegetated by an invasive plant species. Detailed site planning and design would avoid the emergent wetland area. <p>Limestone Supply: Options for obtaining limestone supply from commercial quarries would not affect biological resources.</p> <p>Water Supply: The construction of the water supply pipeline would have a temporary impact on a small emergent wetland (0.03 ac [120 m²]) along Sewell Creek that would be restored at the end of construction. To avoid potential adverse impacts on aquatic ecosystems, WGC would monitor flows in the Meadow River and limit withdrawals to avoid reductions in flow levels below a state-recommended threshold (see below). Therefore, adverse impacts to aquatic habitat are not expected to occur, so long as the threshold is maintained.</p> <ul style="list-style-type: none"> Option A – As the tertiary source of process water supply, withdrawals from the Meadow River would occur only intermittently to make up a smaller proportion of the balance of process water required by the WGC plant during low aquifer conditions. Option B – As the secondary source of process water supply, withdrawals from the Meadow River may reduce base flows to make up a larger proportion of the process water required by the WGC plant, but withdrawals would not be made when base flows could fall below 60% of the annual or seasonally adjusted average flow (i.e., below the flow rate above which water quality and aquatic habitat impacts would not be expected), or another comparable withdrawal limitation measure determined in consultation with the state. Since publication of the Draft EIS, WVDNR has provided base flow thresholds to be maintained: 178 cfs April through September and 118 cfs October through March. The maximum water demand that the proposed power plant would require is approximately 2.7 cfs, which represents less than 1% of Meadow River's average annual flow. Furthermore, based on the thresholds, withdraw from the river would be limited to high flow conditions. Therefore, impacts to aquatic resources are expected to be minor. <p>Material Transportation: The use of a truck or wheel wash at the power plant and prep plant sites to clean fuel delivery trucks prior to exiting the site would minimize potential impacts on aquatic ecosystems from runoff of contaminants released in transportation corridors.</p> <p>Power Transmission: The permanent loss of wildlife habitat in areas along the proposed power line corridor could displace some dependant species. However, displaced wildlife could continue to use the adjacent undisturbed areas or migrate to abundant comparable habitat nearby. The utility corridor may also create new habitat for edge-dependent species. Wetlands would be avoided during construction as practicable and wetland impacts would be temporary.</p> <ul style="list-style-type: none"> Option A – Widening the existing AEP ROW would require the clearing of a 103-ac (42-ha) corridor. Option B – Upgrading existing structures along the AEP ROW would affect the least land area of the options. Option C – The development of a new ROW would require the clearing of a 206-ac (83-ha) corridor and potentially affect approximately 5 ac (2 ha) of wetlands, although none would be lost.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
American tribal lands.	<p>Power Plant Facilities: The WV State Historic Preservation Office (WV SHPO) concurred with the conclusion of a Phase I survey that the proposed project would not have an effect on any potential archaeological resources at the plant site for Option A or B. An historic resources survey concluded that the undertaking would have no effect on National Register of Historic Places (NRHP)-eligible resources and would not alter the existing setting or character of the Rainelle Historic District. The WV SHPO stated that it would issue its findings about the potential for visual impacts on architectural resources after considering comments by the public and the Greenbrier County Historical Society on the Draft EIS. Since publication of the Draft EIS, the Greenbrier County Historical Society and the WV SHPO have sent comment letters on the Draft EIS (see Appendix B). The WV SHPO did not identify any specific concerns, but stated that they would complete their review upon receipt of public comments and the Phase I transmission survey, which was completed in October 2006 (see Appendix G). Due to refinements of the transmission corridor, additional Phase I surveys will be conducted and submitted to WV SHPO as an addendum to the October 2006 report; therefore, DOE and WGC will continue consultation with WV SHPO as required under the National Historic Preservation Act (NHPA) Section 106 review process with respect to public comments and ongoing refinements of the transmission line location (Segment C).</p> <p>Fuel Supply: All of the coal refuse sites have been extensively disturbed by previous mining operations, which would have destroyed any archaeological resources on the sites. None of the sites contain buildings or structures eligible for the NRHP.</p> <ul style="list-style-type: none"> • Anjean – All three candidate sites for a prep plant (AN1, AN2, and AN3) have been disturbed extensively by prior mining operations and subsequent reclamation efforts, which would have destroyed existing archaeological resources. There are no buildings or structures located on any of the sites. • Donegan – Candidate prep plant site DN1 would be situated on previously developed land occupied by a building used during prior mining operations that is not eligible for the NRHP. DN2 contains no structures and occupies agricultural property that would be evaluated in consultation with the WV SHPO for the potential to affect unrecorded archaeological resources prior to construction. • Green Valley – The GV candidate prep plant site is located on the edge of the disturbed coal refuse site and contains no structures. <p>Limestone Supply: The quarries that would supply limestone to WGC in Option A or B are ongoing commercial operations, and the increased production would not affect historic or archaeological resources.</p> <p>Water Supply: Most of the proposed pipeline corridor has served as a utility ROW for public service district (PSD) #2 or has otherwise been disturbed. In undisturbed segments, final adjustments in the pipeline alignment would be determined in consultation with the WV SHPO to avoid potential impacts on unrecorded archaeological resources.</p> <p>Material Transportation: The transport of fuel and limestone by trucks would occur on designated heavy haul routes and would not affect cultural resources.</p> <p>Power Transmission: The alignment common to all three options extending from the WGC plant site to the AEP ROW was determined not to contain any high-probability areas for archaeological resources.</p> <ul style="list-style-type: none"> • Option A – The area to be widened along the AEP ROW would be surveyed and evaluated in consultation with the WV SHPO, and final adjustments in the alignment would be made to avoid potential resources. • Option B – Upgrading existing structures along the AEP ROW would occur in previously disturbed areas. • Option C – The proposed new corridor would be surveyed and evaluated in consultation with the WV SHPO and final adjustments in the alignment would be made to avoid potential archaeological resources. 	<p>None of the project components associated with the Proposed Action would occur on, or otherwise affect, federally-recognized Native American tribal lands.</p>

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Socioeconomics	No change in existing conditions; however, the area would lose the potential for a needed stimulus to prevent further decline in the local economy and the working-aged population.	<p>Power Plant Facilities: Construction and operation of the power plant would increase local employment opportunities and provide economic stimulus to area businesses without displacing existing residents or businesses or adversely affecting current trends in population growth and the demand for housing. During construction, the project is expected to employ an average of 185 individuals per month over a 29-month period. During the demonstration phase and subsequent commercial operation, the proposed project would employ approximately 126 full-time personnel and result in an additional 114 jobs from indirect economic activity.</p> <ul style="list-style-type: none"> • Option A – Most adverse impacts on residential property values would affect the nearest residential properties (located within 1,500 ft (460 m) east of the plant site), including approximately 12 single-family homes, a U.S. Department of Agriculture (USDA) Rural Development property (a 52-unit apartment complex), a nursing and rehabilitation center, and approximately 12 mobile homes. • Option B – The power plant would affect the same residential properties as indicated for Option A; however, the site footprint would be larger and the eastern site boundary would be even closer to the properties. <p>Fuel Supply: The reclamation of degraded coal refuse sites and remediation of AMD impacts would provide potential beneficial socioeconomic impacts to the local communities, county, and state. All six candidate prep plant sites are located in remote areas and would not affect nearby residential property values.</p> <p>Limestone Supply: The increased demand on regional quarries under Option A or B would have potential beneficial impacts on these commercial enterprises that would ultimately extend to the regional economy.</p> <p>Water Supply: The water supply pipeline would follow an existing ROW and cross other open lands. Pipeline construction would have limited, short-term adverse impacts on adjacent properties.</p> <p>Material Transportation: The transport of fuel and limestone by trucks would occur on designated heavy haul routes. Residential properties along the routes may be affected by increased truck traffic and noise.</p> <p>Power Transmission: The alignment common to all three options extending from the WGC plant site to the AEP ROW would not displace residents or businesses or affect property values.</p> <ul style="list-style-type: none"> • Option A – The widening of the AEP ROW would not displace residents or businesses, and property owners would be compensated for granting an easement. • Option B – Upgrading structures along the AEP ROW would occur within an existing easement. • Option C – The proposed new power transmission corridor would not displace residents or businesses, and property owners would be compensated for granting an easement.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Environmental Justice	No change in existing conditions; however, the area would lose the potential for a needed stimulus to help reduce the high percentage of low-income residents.	<p>Power Plant Facilities: The overall impacts of the Proposed Action on local residents generally would be favorable, although adverse impacts would affect the residents nearest the site of Option A or B as described for Socioeconomics (i.e., increased traffic and associated emissions, long-term adverse impacts on property values). As defined by the President's Council on Environmental Quality (CEQ), a "minority population" area is an area where the percentage of defined minorities exceeds 50 percent of the population. The proportion of minorities in the region of influence for the power plant site does not exceed 50%, and it is not meaningfully greater than the proportion of minorities in the larger local jurisdictions, county, and state. Therefore, the proposed power plant would not have a disproportionately high and adverse impact on minority populations.</p> <p>Because the general population of western Greenbrier County represents a "low-income population" compared to the county and state, the adverse impacts of the power plant would affect low-income populations regardless of where it would be sited in the region. However, the proportion of low-income residents nearest the site of Option A or B does not exceed 50%, and it is not meaningfully greater than the proportion in the general population of western Greenbrier County. Moreover, construction and operation of the power plant would increase local employment opportunities and provide economic stimulus to help reduce the high percentage of low-income residents locally. Therefore, the proposed power plant would not have a disproportionately high and adverse impact on low-income populations.</p> <p>Fuel Supply: The extraction and processing of fuel at any of the coal refuse sites and candidate prep plant sites would not have a disproportionately high and adverse impact on minority populations or low-income populations.</p> <p>Limestone Supply: Option A or B would obtain limestone from quarries that are ongoing commercial operations and would not have a disproportionately high and adverse impact on minority populations or low-income populations.</p> <p>Water Supply: The construction and operation of water supply features would not have a disproportionately high and adverse impact on minority populations or low-income populations.</p> <p>Material Transportation: The transport of fuel and limestone by trucks would occur on designated heavy haul routes and would not have a disproportionately high and adverse impact on minority populations or low-income populations.</p> <p>Power Transmission: None of the optional alignments for power transmission would have a disproportionately high and adverse impact on minority populations or low-income populations.</p>

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Land Use	No impact; no change in existing conditions.	<p>Power Plant Facilities: Although the region of influence is not subject to a zoning ordinance or land use plan, the power plant would be located on disturbed land near areas used historically for industrial activities. Potential business opportunities arising from the proposed project could cause land uses surrounding the power plant to change. The three communities sponsoring the project envision the development of an industrial park (EcoPark) on adjoining vacant land that was previously designated for such use but has not been developed.</p> <ul style="list-style-type: none"> Option A – Most adverse impacts during construction and operation would occur for residential properties located within 1,500 ft (460 m) east of the plant site, including approximately 12 single-family homes, a 52-unit apartment complex, a nursing and rehabilitation center, and approximately 12 mobile homes. In addition, the Rainelle Elementary School and Rainelle Medical Center are located 2,000 ft (610 meters) north of the proposed power plant site, although no adverse impacts are anticipated for these facilities. Option B – The power plant would affect the same residential properties as indicated for Option A; however, the site footprint would be larger and the eastern site boundary would be even closer to the properties. <p>Fuel Supply: The reclamation of degraded coal refuse sites would render these sites potentially available for other uses beneficial to the local communities, county, and state. All six candidate prep plant sites are located in remote areas characterized by open lands. All sites would be subject to a property availability investigation and coordination with the property owners to ensure that impacts on land use would be avoided.</p> <p>Limestone Supply: Option A or B would obtain limestone from quarries that are ongoing, permitted commercial operations, and these existing land uses would not change.</p> <p>Water Supply: The water supply pipeline would follow an existing ROW and cross other open lands. Pipeline construction would have limited, short-term adverse impacts on adjacent land uses.</p> <p>Material Transportation: The transport of fuel and limestone by trucks would occur on designated heavy haul routes and would not alter adjacent land uses. The proposed truck storage area in Charmco is a vacant and disused former commercial property.</p> <p>Power Transmission: The alignment common to all three options extending from the WGC plant site to the AEP ROW crosses a 17-ac (7-ha) property west of WV 20 that is owned by Rainelle and reserved for recreational use. This property would be subject to a land exchange for comparable acreage along US 60 west of the AEP ROW.</p> <ul style="list-style-type: none"> Option A – The widening of the AEP ROW would affect a 103-ac (42-ha) corridor adjacent to an existing cleared power line ROW, and landowners would be compensated for granting an easement. Option B – Upgrading structures along the AEP ROW would occur within an existing easement. Option C – The development of a new ROW would require the clearing of a 206-ac (83-ha) corridor. The route would not traverse populated land areas and would not cross any parks, trails, or byways based on preliminary investigation. Landowners would be compensated for granting an easement.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Community Services and Utilities	No change in existing conditions that have resulted in the decline of the working-aged population and increased the demands on community services by an aging population.	<p>Power Plant Facilities: The proposed power plant (Option A or B) would not impose excessive demands on community services and utility systems during construction and operation, nor is the project expected to induce unsupportable development locally. Impacts would be avoided by ensuring that waste products are characterized and disposed of properly. Construction activities and anticipated injuries may increase the short-term demand on medical services.</p> <p>Fuel Supply: The reclamation of degraded coal refuse sites would render these sites potentially available for other uses beneficial to the local communities, county, and state. During the processing of coal refuse at candidate prep plants, spoils would be separated into disposable aggregates and marketable (pyrite-containing) byproducts. Impacts would be avoided by ensuring that waste products are characterized, handled, and disposed of properly in accordance with a remediation plan approved by WVDEP.</p> <p>Limestone Supply: Option A or B would obtain limestone from quarries that are ongoing, permitted commercial operations and would not affect the demand for community services or utilities.</p> <p>Water Supply: The maximum water demand by the WGC power plant would be approximately 1,200 gpm (4,500 L/min), to which the Rainelle Sewage Treatment (RSTP) would supply 100% of its effluent (the RSTP's monthly discharge ranges from approximately 400 to 600 gpm [1,500 to 2,300 L/min]). The RSTP would require modifications to its National Pollutant Discharge Elimination System (NPDES) permit. The balance would be obtained from a combination of groundwater and/or surface water sources. Depending upon aquifer recharge conditions, project-related groundwater withdrawals could adversely impact the Rainelle water supply as indicated by groundwater pumping tests. Therefore, WGC would ensure that the power plant maintains an adequate supply of process water without adversely affecting the Rainelle water supply and local private wells. Final design for the power plant would require a closer evaluation of the maximum water demands and sources. WGC would obtain permits and meet specific requirements prior to initiating additional groundwater withdrawals for supplemental process water in either Option A or B.</p> <ul style="list-style-type: none"> • Option A – As the secondary source of process water supply, withdrawals from groundwater wells would make up a larger proportion of the balance of process water required by the WGC plant. • Option B – As the tertiary source of process water supply, withdrawals from groundwater wells would make up a smaller proportion of the balance of process water required by the WGC plant. <p>Material Transportation: The transport of fuel and limestone by trucks would occur on designated heavy haul routes and would not affect demands on community services.</p> <p>Power Transmission: WGC would provide new 138 kV transmission infrastructure from the power plant site to the Grassy Falls Substation. A feasibility study by the Pennsylvania-Jersey-Maryland Interconnection (PJM) concluded that the direct connection of the WGC facility to the Allegheny Power System (APS) grid at Grassy Falls could be accommodated with network reinforcements.</p> <ul style="list-style-type: none"> • Option A would construct new power transmission infrastructure parallel to the AEP transmission lines in an expanded ROW. • Option B would upgrade the existing AEP transmission infrastructure to support the WGC load. • Option C would construct new power transmission infrastructure along a new ROW to Grassy Falls.

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Traffic and Transportation	No impact; no change in existing conditions.	<p>Power Plant Facilities: Existing roadway capacities are adequate to accommodate the additional traffic volumes during construction and operation of the proposed power plant (Option A or B) without causing adverse traffic delays at any of the intersections studied. See Material Transportation below for traffic related to fuel and limestone transport.</p> <p>Fuel Supply: Smaller county roads (CR 1 and CR 39/14) would be affected by traffic volumes generated during construction of the prep plants at respective optional sites. However, because the construction traffic volumes are expected to be fairly low, they are not expected to degrade intersection delays beyond level of service (LOS) "C" at any of the optional prep plant sites. For traffic related to fuel transport, see Material Transportation.</p> <p>Limestone Supply: Option A would include the pairing of the Boxley Quarry in Alta, a quarry near Lewisburg (20 mi [32 km] from Rainelle), with one in Mill Point (60 mi [97 km] from Rainelle). Option B would include Greystone quarry (approximately 40 mi [64 km] from Rainelle) and also Mill Point. For traffic related to limestone transport, see Material Transportation.</p> <p>Water Supply: Temporary traffic volumes generated by construction of water supply facilities would not cause adverse traffic delays.</p> <p>Material Transportation: The trucking of fuels, limestone, and other materials would occur on designated heavy haul routes and would not degrade intersection delays by more than LOS "C" at any of the intersections studied. However, slower-moving heavy-haul trucks would likely increase travel times on local roads, especially CR 1, CR 39/14, US 60, and WV 20 between the prep plant sites and the power plant site.</p> <ul style="list-style-type: none"> • Anjean/Joe Knob – The Anjean and Joe Knob coal refuse piles are approximately 18 mi (29 km) and 18.5 mi (30 km), respectively, from the power plant site. All three candidate prep plant sites are located along the same route. AN3 is the farthest distance (18 mi [29 km]) from the power plant site. AN1 and AN2 are both 14 mi (23 km) from the power plant site. • Donegan – The Donegan coal/refuse pile is approximately 28 mi (45 km) from the power plant site. Candidate prep plant sites DN1 and DN2 are 28 mi (45 km) and 21 mi (34 km), respectively, from the power plant site along the same route. • Green Valley – The GV coal refuse pile and candidate prep plant site are located 13 mi (21 km) from the power plant site. <p>Power Transmission: Temporary traffic volumes generated by construction of power transmission facilities would not cause adverse traffic delays for any of the three options. Operation of the power transmission lines would not affect local traffic.</p>

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Public Health and Safety	No impact; no change in existing conditions.	<p>Power Plant Facilities: Worker safety impacts during construction of the proposed power plant (either Option A or B) would result in an estimated 23 recordable incidents, 12 lost workdays, and 0.04 fatalities per year based on national statistics. Worker safety impacts during operation of the power plant (either Option A or B) would result in an estimated 2 recordable incidents, 0.03 lost workdays, and 0.02 fatalities per year.</p> <p>The highest incremental carcinogenic risk from plant emissions for a sensitive receptor population would be 0.0011 × 10⁻⁴ for an adult subsistence fisher compared to an EPA acceptable risk criterion of 1.0×10^{-4}. The highest incremental non-cancer health risk for a sensitive receptor population would be 0.02347 for a resident child compared to an EPA acceptable risk criterion of 1.0.</p> <p>A few residential properties to the east fall near the 600-ft radius, the worst-case release impact area for aqueous ammonia. In the unlikely event of a release, people within this radius may be exposed to ammonia concentrations that are immediately dangerous to life or health. No population receptors, beyond on-site workers, fall within the 300-ft radius, the 'more likely' release impact area.</p> <p>Incremental increases in PM₁₀ and particulate matter (<2.5 microns [PM_{2.5}]) concentrations would occur, but would not exceed the NAAQS.</p> <p>Fuel Supply: Worker safety impacts during operations at the coal refuse and prep plant sites would result in an estimated 2 recordable incidents, 2 lost workdays, and <0.001 fatalities per year based on national statistics.</p> <p>Limestone Supply: Option A or B would obtain limestone from commercial quarries that would not experience a change in worker safety conditions as a result of the Proposed Action.</p> <p>Water Supply: Worker safety impacts during construction of the proposed water supply facilities (Option A or B) would represent a small increment in the safety impacts indicated above for construction of the power plant.</p> <p>Material Transportation: Worker safety impacts during trucking operations for fuel and limestone would result in an estimated 3 recordable incidents and 1 lost workday per year based on national statistics.</p> <p>The anticipated annual accident rates for the transportation of fuel from coal refuse sites based on national statistics would be:</p> <ul style="list-style-type: none"> • Anjean (and Joe Knob) – 0.76 injuries and 0.04 fatalities. • Donegan – 4.20 injuries and 0.23 fatalities. • Green Valley – 0.89 injuries and 0.05 fatalities. <p>Power Transmission: Worker safety impacts during construction of the proposed power transmission facilities (Option A, B, or C) would represent a small increment in the safety impacts as indicated above for construction of the power plant.</p>

Table S-1. Summary Comparison of Alternatives and Potential Impacts (continued)

Resource	No Action	Proposed Action
Noise	No impact; no change in existing conditions.	<p>Power Plant Facilities: Most adverse impacts during plant construction (either Option A or B), including blasting noise and vibration, would occur for residential properties located within 1,500 ft (460 m) east of the plant site (see Aesthetic Resources). These impacts would be temporary and intermittent. Blasting, if required, would occur over a relatively short time period and be mitigated in accordance with a blasting plan required by the WV Fire Marshall. During operations, noise impacts from plant equipment lacking acoustic mitigation would exceed the impact criterion of a 60 dBA day-night equivalent sound level (L_{dn}) at all receptor sites modeled, including the residential properties located within 1,500 ft (460 m) east of the plant site (68.3 dBA L_{dn}). However, WGC is agreeing to incorporate noise attenuation and mitigation measures into the final design that would ensure operational noise levels would not exceed the impact criterion of 60 dBA L_{dn} at each identified receptor site. Acoustic mitigation requirements would range from 1.5 to 11.3 dBA L_{dn} depending upon receptor site location. WGC would voluntarily provide post-construction monitor noise levels to ensure minimal noise impacts to sensitive noise receptors. Steam blow-offs would occur that would result in a noise level of 125 dBA (95 dBA with mitigation), at the source; however, such events would be temporary and infrequent, occurring only during start-up and maintenance operations.</p> <p>Fuel Supply: Coal refuse sites and candidate prep plant sites are located in remote, sparsely populated areas where coal mining has occurred in recent times or is still occurring. Among the candidate prep plant sites, only DN2 is located in proximity to a residence (of the site owner) that could be affected by plant noise.</p> <p>Limestone Supply: Option A or B would obtain limestone from existing quarries that represent ongoing, regulated commercial operations that would not change appreciably from baseline conditions.</p> <p>Water Supply: Short-term, intermittent daytime noise impacts would occur during construction of water supply facilities.</p> <p>Material Transportation: Traffic-related noise during construction and operation is expected to fall below the impact criterion of a 10 dBA incremental increase above background conditions. The peak incremental increase in traffic noise in Rainelle caused by fuel transport from coal refuse sites would be 2.9 dBA during mid-day traffic at the WV State Police Barracks (WV 20 at Tom Raine Drive). The peak incremental increases in traffic noise associated with fuel transport from respective coal refuse sites would be:</p> <ul style="list-style-type: none"> • Anjean (and Joe Knob) – 6.3 dBA increase during PM peak traffic on CR 1 at Anjean (same for fuel transport from Donegan). • Donegan – 5.7 dBA increase during PM peak traffic on CR 39 at Donegan. • Green Valley – 1.7 dBA increase during PM peak traffic on WV 20 at Quinwood. <p>Power Transmission: Short-term, intermittent daytime noise impacts would occur during construction of power transmission infrastructure.</p>

Abbreviations: ac = acres; AEP = American Electric Power; AMD = acid mine drainage; APS = Allegheny Power System; BOD = biochemical oxygen demand; CEO = President's Council on Environmental Quality; CO = carbon monoxide; CO₂ = carbon dioxide; CR = county road; dBA = decibels (A scale); E/S = erosion and sedimentation; EIS = Environmental Impact Statement; EPA = U.S. Environmental Protection Agency; FEMIA = Federal Emergency Management Agency; ft = feet; ft³/s = cubic feet per second; gpm = gallons per minute; GWP = greenhouse protection; ha = hectares; km = kilometers; kV = kilovolt; L/min = liters per minute; L_{dn} = day-night equivalent sound level; LOS = level of service; m = meters; mi² = square meters; mi = miles; NAAQS = National Ambient Air Quality Standards; **NHPA = National Historic Preservation Act;** NO_x = nitrogen oxides; NPDES = National Pollutant Discharge Elimination System; NRHP = National Register of Historic Places; PJM = Pennsylvania-Jersey-Maryland Interconnection; PM₁₀ = particulate matter, <10 microns; PM_{2.5} = particulate matter, <2.5 microns; PSD = prevention of significant deterioration; PSD = public service district; ROW = right-of-way; RSTP = Rainelle Sewage Treatment Plant; SO₂ = sulfur dioxide; SWMP = storm water management pollution prevention; TCLP = Toxic Characteristic Leaching Procedure; TSP = total suspended particulates; USDA = U.S. Department of Agriculture; VOC = volatile organic compound; **WV SHPO = West Virginia State Historic Preservation Office;** WVDR = WV Division of Natural Resources; WVDEP = WV Department of Environmental Protection; WVDOT = WV Department of Transportation; yr = year.