

CRN Site-Specific Table

		LAND USE						HYDROLOGY						
		On-site and off-site land disturbance activities	On-site and off-site land use classification conversions resulting from land disturbance activities	On-site and off-site impacts to provisions of any affected local or regional land use or economic development plans	On-site and off-site disruption to land or water resource access	On-site and off-site disruption to existing land uses or private land access	Transmission line corridor maintenance activities during operations affecting land use	Anticipated hydrologic alterations resulting from station building or operation	Effects of anticipated hydrologic alterations to the quantity and availability of water within the region of interest	Effects of plant effluent discharge on water quality of receiving water bodies	Proposed actions to minimize hydrologic alteration effects	Impacts on other water uses and other water users related to changes in water supply reliability due to station building or operation	Impacts on other water uses and other water users related to changes in water quality due to station building or operation	Compliance with applicable water quality and water use standards and regulations
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		L-1	L-2	L-2	L-3	L-3	L-1	H-1	H-3	H-2	H-1	H-3	H-3	H-4
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities													
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions													
Climate	Increased temperatures ²													
Climate	Lengthened growing season ²													
Climate	Seasonal/annual changes in precipitation amount ²													
Climate	Changes in frequency & intensity of extreme precipitation events ²													
Climate	Changes in frequency & intensity of extreme weather events ^{2,3}													
Climate	Increased hurricane-associated storm intensity & rainfall rates ²													
Climate	Currently experiencing Increased winter storm frequency and intensity with northward shifted storm tracks; other trends in severe storms (tornados, hail, damaging thunderstorms) are uncertain													
Climate	Sea level rise of 1-4 ft by 2100 ²													
Climate	Declining ice volume/surface extent on land, lakes, and sea ^{2,4}													
Climate	Increasing ocean acidity & intensifying marine ecosystem impacts													
Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²													
Water Resources	Changes in drought intensity ²							X			X			
Water Resources	Changes in flood intensity ²							X			X			
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²													
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵													
Water Resources	Decreased surface water quality ⁶							X		X			X	
Water Resources	Changes in water supply & demand ²								X			X		
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages													
Water Resources	Increased flooding risk ⁷													
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices													
Water Resources	Institutional, scientific, economic & political barriers to implementing adaptive strategies													

CRN Site-Specific Table

		TERRESTRIAL AND WETLAND ECOLOGY										
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effect of facility and landscape maintenance on terrestrial habitats	Effect of drift from cooling towers, evaporation ponds, or other operating facilities on terrestrial species and habitats	Effect of station water features (including cooling ponds and evaporation ponds) on adjoining wetlands and other terrestrial habitats	Effect of using groundwater and/or surface water on terrestrial habitats	Effect of operational noise on terrestrial wildlife and their habitats	Effect of traffic induced by station operations on wildlife	Potential injury to birds and bats colliding with tall structures	Possible effects on terrestrial wildlife from electromagnetic radiation, electric transmission lines, and other electrical facilities	Coordination with other agencies regarding potential impacts to terrestrial biota	Susceptibility of terrestrial species to stressors from habitat and environmental changes	Presence of disease vectors, nuisance, invasive and introduced animal or plant species onsite or in the vicinity of proposed facility
		TW-1	TW-2	TW-3	TW-3	TW-1	TW-1	TW-4	TW-4	TW-5	TW-6	TW-7
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities											
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions											
Climate	Increased temperatures ²											
Climate	Lengthened growing season ²											
Climate	Seasonal/annual changes in precipitation amount ²											
Climate	Changes in frequency & intensity of extreme precipitation events ²	X		X								
Climate	Changes in frequency & intensity of extreme weather events ^{2,3}	X		X								
Climate	Increased hurricane-associated storm intensity & rainfall rates ²											
Climate	Currently experiencing Increased winter storm frequency and intensity with northward shifted storm tracks; other trends in severe storms (tornados, hail, damaging thunderstorms) are uncertain											
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Climate	Increasing ocean acidity & intensifying marine ecosystem impacts											
Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²										X	
Water Resources	Changes in drought intensity ²											
Water Resources	Changes in flood intensity ²											
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²				X							
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵											
Water Resources	Decreased surface water quality ⁶				X							
Water Resources	Changes in water supply & demand ²											
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages											
Water Resources	Increased flooding risk ⁷											
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices											
Water Resources	Institutional, scientific, economic & political barriers to implementing adaptive strategies											

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		AQUATIC ECOLOGY												
		Effects of plant consumptive water use on aquatic biota	Susceptibility of aquatic species at specific life-stages to plant cooling system entrainment, entrapment, and impingement	Susceptibility of aquatic species to aquatic stressors from habitat and water quality changes, including physical stresses related to cooling system and fish-return systems	Swimming speed of important aquatic species	Estimated susceptibility and natural survival rates for aquatic species with commercial subsistence or recreational value	Regional standing stocks of important aquatic species potentially affected by station <u>building</u> or <u>operation</u>	NPDES permit requirements	Effects on species and habitats affected by heated plume dynamics and scouring	Ability of important aquatic species to exhibit avoidance behavior to thermal discharge and cold shock at all affected life stages	Presence of disease-causing vectors and nuisance, invasive and introduced aquatic species onsite or in the vicinity of the proposed station	Biological effects to important aquatic species resulting from chemical and/or physical alterations to receiving water body	Adverse effects of transmission and pipeline corridor maintenance practices on aquatic biota	Coordination with other agencies regarding potential impacts to aquatic biota
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		AQ-1	AQ-1	AQ-2	AQ-2	AQ-2	AQ-2	AQ-5	AQ-2	AQ-2	AQ-3	AQ-4	AQ-1	AQ-5
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities													
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions													
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Climate	Increasing ocean acidity & intensifying marine ecosystem impacts													
Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²							X						
Water Resources	Changes in drought intensity ²													
Water Resources	Changes in flood intensity ²													
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²	X												
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵													
Water Resources	Decreased surface water quality ⁶			X		X						X		
Water Resources	Changes in water supply & demand ²													
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages													
Water Resources	Increased flooding risk ⁷													
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices									X				
Water Resources	Institutional, scientific, economic & political barriers to implementing adaptive strategies													

CRN Site-Specific Table

		SOCIOECONOMICS													
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Workforce impacts, including local vs. in-migrating geographic origin of workers and outage impacts	Expected residency patterns during operations	Combined impacts of site employment for sites with an operating station	Impacts of plant activities on local transportation infrastructure	Impacts of plant activities on local buildings and facilities	Impacts of plant activities to visual resources	Impact of plant activities on local housing resources	Impact of plant activities on public schools	Traffic-related impacts of the site operations workforce and deliveries	Impacts of plant activities to local recreation resources	Impacts of plant activities on first-responder agencies	Expected mitigation actions (traffic, schools, community services)	Employment, income and output impacts attributable to plant activities	Tax revenue impacts attributable to plant activities
		IS-1	IS-1	IS-1	IS-2	IS-1	IS-3	IS-1	IS-1	IS-2	IS-1	IS-1	IS-4	IS-5	IS-5
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities														
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions														
Climate	Increased temperatures ²														
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Climate	Seasonal/annual changes in precipitation amount ²														
Climate	Changes in frequency & intensity of extreme precipitation events ²														
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Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²														
Water Resources	Changes in drought intensity ²														
Water Resources	Changes in flood intensity ²														
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²														
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵														
Water Resources	Decreased surface water quality ⁶									X					
Water Resources	Changes in water supply & demand ²		X										X		
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages														
Water Resources	Increased flooding risk ⁷		X												
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices		X										X		
Water Resources	Institutional, scientific, economic & political barriers to implementing adaptive strategies												X		

CRN Site-Specific Table

		ENVIRONMENTAL JUSTICE			HISTORIC AND CULTURAL RESOURCES		METEOROLOGY	AIR QUALITY		NONRADIOLOGICAL HEALTH				
		Existence of communities exceptionally dependent on subsistence resources	Disproportionate human health impacts of the plant to EJ populations of interest	Effect of plant activities on established resource dependencies, cultural practices, or subsistence behaviors	Operations and maintenance activities affecting onsite historic properties	Operations and maintenance activities affecting offsite historic properties	Cooling system impacts, including plume lengths, additional hours of fogging and icing, salt deposition, increases in humidity and precipitation (including snowfall), potential local weather modification from cloud formation/shadowing, and interactions of plume with other pollutant sources	Sources and types of air emissions	Estimates of annual air emissions for criteria air pollutants, both from the operating plant and from transmission lines	Presence of etiological agents from operations systems and activities that may impact human health	Noise impacts associated with operations	Acute effects of electromagnetic fields (electric shock) associated with transmission lines	Occupational health risks	Potential health impacts related to nonradiological traffic-related accidents for operations and outage workers
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		EJ-1	EJ-2	EJ-3	H&CR-1	H&CR-1	M-1	AirQ-1	AirQ-1	NR-1	NR-2	NR-3	NR-4	NR-5
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities													
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions													
Climate	Increased temperatures ²						X							
Climate	Lengthened growing season ²													
Climate	Seasonal/annual changes in precipitation amount ²						X							
Climate	Changes in frequency & intensity of extreme precipitation events ²						X							
Climate	Changes in frequency & intensity of extreme weather events ^{2,3}				X	X	X	X	X					
Climate	Increased hurricane-associated storm intensity & rainfall rates ²				X	X		X	X					
Climate	Currently experiencing Increased winter storm frequency and intensity with northward shifted storm tracks; other trends in severe storms (tornados, hail, damaging thunderstorms) are uncertain													
Climate	Sea level rise of 1-4 ft by 2100 ²													
Climate	Declining ice volume/surface extent on land, lakes, and sea ^{2,4}													
Climate	Increasing ocean acidity & intensifying marine ecosystem impacts													
Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²						X							
Water Resources	Changes in drought intensity ²													
Water Resources	Changes in flood intensity ²				X	X								
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²													
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵													
Water Resources	Decreased surface water quality ⁶													
Water Resources	Changes in water supply & demand ²													
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages			X										
Water Resources	Increased flooding risk ⁷				X	X		X	X				X	
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices			X										
Water Resources	Institutional, scientific, economic & political barriers to implementing adaptive strategies			X										

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		RADIOLOGICAL IMPACTS					NONRADIOACTIVE WASTE IMPACTS	ACCIDENTS			
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		R-1 Environmental pathways by which humans can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	R-2 Environmental pathways by which non-human biota can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	R-3 Estimates of the maximum individual radiation dose and total collective radiation doses to the population living in the area of interest	R-3 Estimates of the annual occupation radiation dose to workers	R-4 Radiological impacts to biota other than humans	R-5 Radiological environmental monitoring program for the site	NRW-1 Environmental impacts resulting from the generation and disposal of nonradioactive waste and mixed waste	ACC-1 Estimates of dose consequences at the proposed exclusion area boundary (EAB) and the low-population zone (LPZ) from postulated design basis accidents (DBAs)	ACC-2 Mean estimates of site-specific severe accident risks, considering relevant environmental pathways including the air, ground, food, surface water, and ground water. Risk considerations include individual, population, economic, and contaminated land area risks.	ACC-3 Estimated cost, risk reduction, and value-impact ratios for the selected severe accident mitigation alternatives (SAMAs).
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities										
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions										
Climate	Increased temperatures ²							X	X	X	
Climate	Lengthened growing season ²										
Climate	Seasonal/annual changes in precipitation amount ²							X	X	X	
Climate	Changes in frequency & intensity of extreme precipitation events ²							X	X	X	
Climate	Changes in frequency & intensity of extreme weather events ^{2,3}							X	X	X	
Climate	Increased hurricane-associated storm intensity & rainfall rates ²							X	X	X	
Climate	Currently experiencing Increased winter storm frequency and intensity with northward shifted storm tracks; other trends in severe storms (tornados, hail, damaging thunderstorms) are uncertain										
Climate	Sea level rise of 1-4 ft by 2100 ²										
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Climate	Increasing ocean acidity & intensifying marine ecosystem impacts										
Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²							X	X	X	
Water Resources	Changes in drought intensity ²										
Water Resources	Changes in flood intensity ²								X	X	
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²										
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵										
Water Resources	Decreased surface water quality ⁶		X			X	X				
Water Resources	Changes in water supply & demand ²		X			X	X		X	X	
Water Resources	Reduced surface & groundwater supplies; increased likelihood of water shortages		X			X	X				
Water Resources	Increased flooding risk ⁷								X	X	
Water Resources	New risks, vulnerabilities, & opportunities may not be properly managed within existing practices										
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		TRANSPORTATION OF RAD MATERIALS (6.1.8)	BENEFIT-COST (10.1)	
USGCRP (2014)¹ Climate Change Considerations:		Radiological dose to the population in the region of interest due to transportation of radioactive materials	Estimated benefits of the proposed facility during operation, including net electrical generation, production of other commercial products, expected tax payments, regional productivity increases, and technical and nonmonetary benefits.	Operations costs
Linked Question				
Climate	Global climate is changing with global warming of past 50 years due primarily to human activities			
Climate	Global climate changes are projected over this century and beyond with the magnitude of changes after the next few decades dependent primarily on global emissions of heat-trapping gases and the sensitivity of the Earth's climate to these emissions			
Climate	Increased temperatures ²			
Climate	Lengthened growing season ²			
Climate	Seasonal/annual changes in precipitation amount ²			
Climate	Changes in frequency & intensity of extreme precipitation events ²			
Climate	Changes in frequency & intensity of extreme weather events ^{2,3}			
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Water Resources	Increase in very heavy precipitation events & changes in length of dry spells ²			
Water Resources	Changes in drought intensity ²			
Water Resources	Changes in flood intensity ²			
Water Resources	Changes in water demand, groundwater withdrawals & availability, aquifer recharge ²			
Water Resources	Compromised sustainability of coastal freshwater aquifers & wetlands ⁵			
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		LAND USE						HYDROLOGY						
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		L-1	L-2	L-2	L-3	L-3	L-1	H-1	H-3	H-2	H-1	H-3	H-3	H-4
Energy Supply and Use	Effect of extreme weather events on energy facilities & infrastructure													
Energy Supply and Use	Increased summer electricity use & peak loads; decreased winter heating demand; net increase in electricity demand													
Energy Supply and Use	Constraints on energy production due to changes in water availability													
Energy Supply and Use	Effect of sea-level rise, extreme storm surge events, and high tides on energy production, energy delivery systems, and infrastructure													
Energy Supply and Use	Changes in future energy mix													
Transportation	Effects on the reliability & capacity of transportation systems ⁸													
Transportation	Increased risk of major coastal impacts to transportation infrastructure due to sea-level rise & storm surge ⁹													
Transportation	Increased disruption of transportation networks and operations due to extreme weather events ¹⁰													
Transportation	Increased total costs to transportation systems & users													
Agriculture	Increasing climate disruptions to agricultural production ¹¹													
Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²													
Agriculture	Loss and degradation of agricultural soil & water assets		X											
Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes													
Agriculture	Need for increased innovation in agricultural production													
Agriculture	Effects on U.S. & global food security													
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²		X											
Forests	Reduced rate of forest CO ₂ uptake													
Forests	Influence of bioenergy on forest product markets													
Forests	Changing forest management policies & practices			X										

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		TERRESTRIAL AND WETLAND ECOLOGY										
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Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²											
Agriculture	Loss and degradation of agricultural soil & water assets											
Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes											
Agriculture	Need for increased innovation in agricultural production											
Agriculture	Effects on U.S. & global food security											
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²		X								X	X
Forests	Reduced rate of forest CO ₂ uptake											
Forests	Influence of bioenergy on forest product markets											
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Energy Supply and Use	Effect of extreme weather events on energy facilities & infrastructure														
Energy Supply and Use	Increased summer electricity use & peak loads; decreased winter heating demand; net increase in electricity demand			X										X	X
Energy Supply and Use	Constraints on energy production due to changes in water availability														
Energy Supply and Use	Effect of sea-level rise, extreme storm surge events, and high tides on energy production, energy delivery systems, and infrastructure														
Energy Supply and Use	Changes in future energy mix			X										X	X
Transportation	Effects on the reliability & capacity of transportation systems ⁸				X					X					
Transportation	Increased risk of major coastal impacts to transportation infrastructure due to sea-level rise & storm surge ⁹														
Transportation	Increased disruption of transportation networks and operations due to extreme weather events ¹⁰				X					X			X		
Transportation	Increased total costs to transportation systems & users														
Agriculture	Increasing climate disruptions to agricultural production ¹¹														
Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²														
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Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes														
Agriculture	Need for increased innovation in agricultural production														
Agriculture	Effects on U.S. & global food security														
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²														
Forests	Reduced rate of forest CO ₂ uptake														
Forests	Influence of bioenergy on forest product markets														
Forests	Changing forest management policies & practices														

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		ENVIRONMENTAL JUSTICE			HISTORIC AND CULTURAL RESOURCES		METEOROLOGY	AIR QUALITY		NONRADIOLOGICAL HEALTH				
		Existence of communities exceptionally dependent on subsistence resources	Disproportionate human health impacts of the plant to EJ populations of interest	Effect of plant activities on established resource dependencies, cultural practices, or subsistence behaviors	Operations and maintenance activities affecting onsite historic properties	Operations and maintenance activities affecting offsite historic properties	Cooling system impacts, including plume lengths, additional hours of fogging and icing, salt deposition, increases in humidity and precipitation (including snowfall), potential local weather modification from cloud formation/shadowing, and interactions of plume with other pollutant sources	Sources and types of air emissions	Estimates of annual air emissions for criteria air pollutants, both from the operating plant and from transmission lines	Presence of etiological agents from operations systems and activities that may impact human health	Noise impacts associated with operations	Acute effects of electromagnetic fields (electric shock) associated with transmission lines	Occupational health risks	Potential health impacts related to nonradiological traffic-related accidents for operations and outage workers
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		EJ-1	EJ-2	EJ-3	H&CR-1	H&CR-1	M-1	AirQ-1	AirQ-1	NR-1	NR-2	NR-3	NR-4	NR-5
Energy Supply and Use	Effect of extreme weather events on energy facilities & infrastructure							X	X			X		
Energy Supply and Use	Increased summer electricity use & peak loads; decreased winter heating demand; net increase in electricity demand													
Energy Supply and Use	Constraints on energy production due to changes in water availability													
Energy Supply and Use	Effect of sea-level rise, extreme storm surge events, and high tides on energy production, energy delivery systems, and infrastructure													
Energy Supply and Use	Changes in future energy mix													
Transportation	Effects on the reliability & capacity of transportation systems ⁸													X
Transportation	Increased risk of major coastal impacts to transportation infrastructure due to sea-level rise & storm surge ⁹													
Transportation	Increased disruption of transportation networks and operations due to extreme weather events ¹⁰							X	X					X
Transportation	Increased total costs to transportation systems & users			X										X
Agriculture	Increasing climate disruptions to agricultural production ¹¹													
Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²													
Agriculture	Loss and degradation of agricultural soil & water assets	X		X										
Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes													
Agriculture	Need for increased innovation in agricultural production													
Agriculture	Effects on U.S. & global food security													
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²													
Forests	Reduced rate of forest CO ₂ uptake													
Forests	Influence of bioenergy on forest product markets													
Forests	Changing forest management policies & practices	X		X										

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		RADIOLOGICAL IMPACTS					NONRADIOACTIVE WASTE IMPACTS	ACCIDENTS			
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Environmental pathways by which humans can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Environmental pathways by which non-human biota can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Estimates of the maximum individual radiation dose and total collective radiation doses to the population living in the area of interest	Estimates of the annual occupation radiation dose to workers	Radiological impacts to biota other than humans	Radiological environmental monitoring program for the site	Environmental impacts resulting from the generation and disposal of nonradioactive waste and mixed waste	Estimates of dose consequences at the proposed exclusion area boundary (EAB) and the low-population zone (LPZ) from postulated design basis accidents (DBAs)	Mean estimates of site-specific severe accident risks, considering relevant environmental pathways including the air, ground, food, surface water, and ground water. Risk considerations include individual, population, economic, and contaminated land area risks.	Estimated cost, risk reduction, and value-impact ratios for the selected severe accident mitigation alternatives (SAMAs).
		R-1	R-2	R-3	R-3	R-4	R-5	NRW-1	ACC-1	ACC-2	ACC-3
Energy Supply and Use	Effect of extreme weather events on energy facilities & infrastructure										
Energy Supply and Use	Increased summer electricity use & peak loads; decreased winter heating demand; net increase in electricity demand										
Energy Supply and Use	Constraints on energy production due to changes in water availability										
Energy Supply and Use	Effect of sea-level rise, extreme storm surge events, and high tides on energy production, energy delivery systems, and infrastructure										
Energy Supply and Use	Changes in future energy mix										
Transportation	Effects on the reliability & capacity of transportation systems ⁸									X	X
Transportation	Increased risk of major coastal impacts to transportation infrastructure due to sea-level rise & storm surge ⁹										
Transportation	Increased disruption of transportation networks and operations due to extreme weather events ¹⁰										
Transportation	Increased total costs to transportation systems & users										
Agriculture	Increasing climate disruptions to agricultural production ¹¹									X	X
Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²										
Agriculture	Loss and degradation of agricultural soil & water assets										
Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes									X	X
Agriculture	Need for increased innovation in agricultural production										
Agriculture	Effects on U.S. & global food security										
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²										
Forests	Reduced rate of forest CO ₂ uptake										
Forests	Influence of bioenergy on forest product markets										
Forests	Changing forest management policies & practices										

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		TRANSPORTATION OF RAD MATERIALS (6.1.8)	BENEFIT-COST (10.1)	
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Radiological dose to the population in the region of interest due to transportation of radioactive materials	Estimated benefits of the proposed facility during operation, including net electrical generation, production of other commercial products, expected tax payments, regional productivity increases, and technical and nonmonetary benefits.	Operations costs
		I-1	BC-1	BC-2
Energy Supply and Use	Effect of extreme weather events on energy facilities & infrastructure			
Energy Supply and Use	Increased summer electricity use & peak loads; decreased winter heating demand; net increase in electricity demand			
Energy Supply and Use	Constraints on energy production due to changes in water availability			
Energy Supply and Use	Effect of sea-level rise, extreme storm surge events, and high tides on energy production, energy delivery systems, and infrastructure			
Energy Supply and Use	Changes in future energy mix			
Transportation	Effects on the reliability & capacity of transportation systems ⁸			
Transportation	Increased risk of major coastal impacts to transportation infrastructure due to sea-level rise & storm surge ⁹			
Transportation	Increased disruption of transportation networks and operations due to extreme weather events ¹⁰	X		
Transportation	Increased total costs to transportation systems & users			
Agriculture	Increasing climate disruptions to agricultural production ¹¹			
Agriculture	Changes in crop & livestock production due to climate-induced stresses (weeds, diseases, insect pests, etc.) ²			
Agriculture	Loss and degradation of agricultural soil & water assets			
Agriculture	Negative impacts on crop & livestock productivity due to increased incidence of weather extremes			
Agriculture	Need for increased innovation in agricultural production			
Agriculture	Effects on U.S. & global food security			
Forests	Increased vulnerability to ecosystem changes & tree mortality ¹²			
Forests	Reduced rate of forest CO ₂ uptake			
Forests	Influence of bioenergy on forest product markets			
Forests	Changing forest management policies & practices			

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		LAND USE						HYDROLOGY						
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		On-site and off-site land disturbance activities	On-site and off-site land use classification conversions resulting from land disturbance activities	On-site and off-site impacts to provisions of any affected local or regional land use or economic development plans	On-site and off-site disruption to land or water resource access	On-site and off-site disruption to existing land uses or private land access	Transmission line corridor maintenance activities during operations affecting land use	Anticipated hydrologic alterations resulting from station building or operation	Effects of anticipated hydrologic alterations to the quantity and availability of water within the region of interest	Effects of plant effluent discharge on water quality of receiving water bodies	Proposed actions to minimize hydrologic alteration effects	Impacts on other water uses and other water users related to changes in water supply reliability due to station building or operation	Impacts on other water uses and other water users related to changes in water quality due to station building or operation	Compliance with applicable water quality and water use standards and regulations
		L-1	L-2	L-2	L-3	L-3	L-1	H-1	H-3	H-2	H-1	H-3	H-3	H-4
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows													
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)													
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³													
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴													
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵			X										
Human Health	Threats to human health and well-being ¹⁶													
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷													
Human Health	Public health actions, and action timing, to protect people from some climate change impacts													
Human Health	Influence of climate change adaptation strategies on human health			X										
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²													
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions													
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change			X										

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		TERRESTRIAL AND WETLAND ECOLOGY										
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effect of facility and landscape maintenance on terrestrial habitats	Effect of drift from cooling towers, evaporation ponds, or other operating facilities on terrestrial species and habitats	Effect of station water features (including cooling ponds and evaporation ponds) on adjoining wetlands and other terrestrial habitats	Effect of using groundwater and/or surface water on terrestrial habitats	Effect of operational noise on terrestrial wildlife and their habitats	Effect of traffic induced by station operations on wildlife	Potential injury to birds and bats colliding with tall structures	Possible effects on terrestrial wildlife from electromagnetic radiation, electric transmission lines, and other electrical facilities	Coordination with other agencies regarding potential impacts to terrestrial biota	Susceptibility of terrestrial species to stressors from habitat and environmental changes	Presence of disease vectors, nuisance, invasive and introduced animal or plant species onsite or in the vicinity of proposed facility
		TW-1	TW-2	TW-3	TW-3	TW-1	TW-1	TW-4	TW-4	TW-5	TW-6	TW-7
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows											
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)											
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³					X	X	X	X			X
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴		X			X	X	X	X		X	X
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵									X		
Human Health	Threats to human health and well-being ¹⁶											
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷											
Human Health	Public health actions, and action timing, to protect people from some climate change impacts											
Human Health	Influence of climate change adaptation strategies on human health											
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²											
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions											
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change											

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		AQUATIC ECOLOGY												
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effects of plant consumptive water use on aquatic biota	Susceptibility of aquatic species at specific life-stages to plant cooling system entrainment, entrapment, and impingement	Susceptibility of aquatic species to aquatic stressors from habitat and water quality changes, including physical stresses related to cooling system and fish-return systems	Swimming speed of important aquatic species	Estimated susceptibility and natural survival rates for aquatic species with commercial subsistence or recreational value	Regional standing stocks of important aquatic species potentially affected by station <u>building</u> or <u>operation</u>	NPDES permit requirements	Effects on species and habitats affected by heated plume dynamics and scouring	Ability of important aquatic species to exhibit avoidance behavior to thermal discharge and cold shock at all affected life stages	Presence of disease-causing vectors and nuisance, invasive and introduced aquatic species onsite or in the vicinity of the proposed station	Biological effects to important aquatic species resulting from chemical and/or physical alterations to receiving water body	Adverse effects of transmission and pipeline corridor maintenance practices on aquatic biota	Coordination with other agencies regarding potential impacts to aquatic biota
		AQ-1	AQ-1	AQ-2	AQ-2	AQ-2	AQ-2	AQ-5	AQ-2	AQ-2	AQ-3	AQ-4	AQ-1	AQ-5
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows													
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)													
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³	X	X	X		X	X			X	X	X		
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴	X	X	X		X	X			X	X	X		
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵			X										X
Human Health	Threats to human health and well-being ¹⁶													
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷													
Human Health	Public health actions, and action timing, to protect people from some climate change impacts													
Human Health	Influence of climate change adaptation strategies on human health													
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²													
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions													
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change													

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		SOCIOECONOMICS													
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Workforce impacts, including local vs. in-migrating geographic origin of workers and outage impacts	Expected residency patterns during operations	Combined impacts of site employment for sites with an operating station	Impacts of -plant activities on local transportation infrastructure	Impacts of plant activities on local buildings and facilities	Impacts of plant activities to visual resources	Impact of plant activities on local housing resources	Impact of plant activities on public schools	Traffic-related impacts of the site operations workforce and deliveries	Impacts of plant activities to local recreation resources	Impacts of plant activities on first-responder agencies	Expected mitigation actions (traffic, schools, community services)	Employment, income and output impacts attributable to plant activities	Tax revenue impacts attributable to plant activities
		IS-1	IS-1	IS-1	IS-2	IS-1	IS-3	IS-1	IS-1	IS-2	IS-1	IS-1	IS-4	IS-5	IS-5
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows														
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)														
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³														
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴														
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵														
Human Health	Threats to human health and well-being ¹⁶		X												
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷														
Human Health	Public health actions, and action timing, to protect people from some climate change impacts														
Human Health	Influence of climate change adaptation strategies on human health														
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²														
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions														
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change												X		

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		ENVIRONMENTAL JUSTICE			HISTORIC AND CULTURAL RESOURCES		METEOROLOGY	AIR QUALITY		NONRADIOLOGICAL HEALTH				
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Existence of communities exceptionally dependent on subsistence resources	Disproportionate human health impacts of the plant to EJ populations of interest	Effect of plant activities on established resource dependencies, cultural practices, or subsistence behaviors	Operations and maintenance activities affecting onsite historic properties	Operations and maintenance activities affecting offsite historic properties	Cooling system impacts, including plume lengths, additional hours of fogging and icing, salt deposition, increases in humidity and precipitation (including snowfall), potential local weather modification from cloud formation/shadowing, and interactions of plume with other pollutant sources	Sources and types of air emissions	Estimates of annual air emissions for criteria air pollutants, both from the operating plant and from transmission lines	Presence of etiological agents from operations systems and activities that may impact human health	Noise impacts associated with operations	Acute effects of electromagnetic fields (electric shock) associated with transmission lines	Occupational health risks	Potential health impacts related to nonradiological traffic-related accidents for operations and outage workers
		EJ-1	EJ-2	EJ-3	H&CR-1	H&CR-1	M-1	AirQ-1	AirQ-1	NR-1	NR-2	NR-3	NR-4	NR-5
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows													
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)													
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³													
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴													
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵													
Human Health	Threats to human health and well-being ¹⁶									X			X	
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷		X										X	
Human Health	Public health actions, and action timing, to protect people from some climate change impacts									X				
Human Health	Influence of climate change adaptation strategies on human health									X			X	
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²													
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions													
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change													

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		RADIOLOGICAL IMPACTS					NONRADIOACTIVE WASTE IMPACTS	ACCIDENTS			
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Environmental pathways by which humans can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Environmental pathways by which non-human biota can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Estimates of the maximum individual radiation dose and total collective radiation doses to the population living in the area of interest	Estimates of the annual occupation radiation dose to workers	Radiological impacts to biota other than humans	Radiological environmental monitoring program for the site	Environmental impacts resulting from the generation and disposal of nonradioactive waste and mixed waste	Estimates of dose consequences at the proposed exclusion area boundary (EAB) and the low-population zone (LPZ) from postulated design basis accidents (DBAs)	Mean estimates of site-specific severe accident risks, considering relevant environmental pathways including the air, ground, food, surface water, and ground water. Risk considerations include individual, population, economic, and contaminated land area risks.	Estimated cost, risk reduction, and value-impact ratios for the selected severe accident mitigation alternatives (SAMAs).
		R-1	R-2	R-3	R-3	R-4	R-5	NRW-1	ACC-1	ACC-2	ACC-3
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows										
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)										
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³						X			X	X
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴										
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵										
Human Health	Threats to human health and well-being ¹⁶										
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷										
Human Health	Public health actions, and action timing, to protect people from some climate change impacts										
Human Health	Influence of climate change adaptation strategies on human health										
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²										
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions										
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change										

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		TRANSPORTATION OF RAD MATERIALS (6.1.8)	BENEFIT-COST (10.1)	
USGCRP (2014)¹ Climate Change Considerations:		Radiological dose to the population in the region of interest due to transportation of radioactive materials	Estimated benefits of the proposed facility during operation, including net electrical generation, production of other commercial products, expected tax payments, regional productivity increases, and technical and nonmonetary benefits.	Operations costs
Linked Question				
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to improve water quality & regulate water flows	I-1	BC-1	BC-2
Ecosystems, Biodiversity, and Ecosystem Services	Reduced ecosystem ability to buffer impacts from extreme events (fires, floods, storms, etc.)			
Ecosystems, Biodiversity, and Ecosystem Services	Changing mix of plant and animal life ¹³			
Ecosystems, Biodiversity, and Ecosystem Services	Shifts in timing of critical biological events ¹⁴			
Ecosystems, Biodiversity, and Ecosystem Services	Changes in management goals and practices ¹⁵			
Human Health	Threats to human health and well-being ¹⁶			
Human Health	Amplification of existing health threats & impacts on vulnerable groups ¹⁷			
Human Health	Public health actions, and action timing, to protect people from some climate change impacts			
Human Health	Influence of climate change adaptation strategies on human health			
Energy, Water & Land Use	Effects on climate change vulnerability & regional adaptation & mitigation options from interaction of energy, water & land systems ²			
Energy, Water & Land Use	Dependence of energy systems on land & water supplies influencing development of these systems & options for reducing greenhouse gas emissions			
Energy, Water & Land Use	Use of joint resource management considerations in energy, water, & land use to identify & evaluate options for reducing climate change			

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		LAND USE						HYDROLOGY						
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		On-site and off-site land disturbance activities	On-site and off-site land use classification conversions resulting from land disturbance activities	On-site and off-site impacts to provisions of any affected local or regional land use or economic development plans	On-site and off-site disruption to land or water resource access	On-site and off-site disruption to existing land uses or private land access	Transmission line corridor maintenance activities during operations affecting land use	Anticipated hydrologic alterations resulting from station building or operation	Effects of anticipated hydrologic alterations to the quantity and availability of water within the region of interest	Effects of plant effluent discharge on water quality of receiving water bodies	Proposed actions to minimize hydrologic alteration effects	Impacts on other water uses and other water users related to changes in water supply reliability due to station building or operation	Impacts on other water uses and other water users related to changes in water quality due to station building or operation	Compliance with applicable water quality and water use standards and regulations
		L-1	L-2	L-2	L-3	L-3	L-1	H-1	H-3	H-2	H-1	H-3	H-3	H-4
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure													
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems													
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity													
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts			X										
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods													
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity													
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice													
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles													
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations			X										
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities	X												
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes													
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change			X										
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels													

		TERRESTRIAL AND WETLAND ECOLOGY										
USGCRP (2014) ¹ Climate Change Considerations:		Effect of facility and landscape maintenance on terrestrial habitats	Effect of drift from cooling towers, evaporation ponds, or other operating facilities on terrestrial species and habitats	Effect of station water features (including cooling ponds and evaporation ponds) on adjoining wetlands and other terrestrial habitats	Effect of using groundwater and/or surface water on terrestrial habitats	Effect of operational noise on terrestrial wildlife and their habitats	Effect of traffic induced by station operations on wildlife	Potential injury to birds and bats colliding with tall structures	Possible effects on terrestrial wildlife from electromagnetic radiation, electric transmission lines, and other electrical facilities	Coordination with other agencies regarding potential impacts to terrestrial biota	Susceptibility of terrestrial species to stressors from habitat and environmental changes	Presence of disease vectors, nuisance, invasive and introduced animal or plant species onsite or in the vicinity of proposed facility
Linked Question		TW-1	TW-2	TW-3	TW-3	TW-1	TW-1	TW-4	TW-4	TW-5	TW-6	TW-7
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure											
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems											
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity											
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts											
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods											
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity											
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice											
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles											
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations											
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities											
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes											
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change											
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels											

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		AQUATIC ECOLOGY												
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effects of plant consumptive water use on aquatic biota	Susceptibility of aquatic species at specific life-stages to plant cooling system entrainment, entrapment, and impingement	Susceptibility of aquatic species to aquatic stressors from habitat and water quality changes, including physical stresses related to cooling system and fish-return systems	Swimming speed of important aquatic species	Estimated susceptibility and natural survival rates for aquatic species with commercial subsistence or recreational value	Regional standing stocks of important aquatic species potentially affected by station <u>building</u> or <u>operation</u>	NPDES permit requirements	Effects on species and habitats affected by heated plume dynamics and scouring	Ability of important aquatic species to exhibit avoidance behavior to thermal discharge and cold shock at all affected life stages	Presence of disease-causing vectors and nuisance, invasive and introduced aquatic species onsite or in the vicinity of the proposed station	Biological effects to important aquatic species resulting from chemical and/or physical alterations to receiving water body	Adverse effects of transmission and pipeline corridor maintenance practices on aquatic biota	Coordination with other agencies regarding potential impacts to aquatic biota
		AQ-1	AQ-1	AQ-2	AQ-2	AQ-2	AQ-2	AQ-5	AQ-2	AQ-2	AQ-3	AQ-4	AQ-1	AQ-5
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure													
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems													
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity													
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts													
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods													
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity													
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice													
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles													
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations													
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities													
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes													
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change													
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels													

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		SOCIOECONOMICS													
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Workforce impacts, including local vs. in-migrating geographic origin of workers and outage impacts	Expected residency patterns during operations	Combined impacts of site employment for sites with an operating station	Impacts of -plant activities on local transportation infrastructure	Impacts of plant activities on local buildings and facilities	Impacts of plant activities to visual resources	Impact of plant activities on local housing resources	Impact of plant activities on public schools	Traffic-related impacts of the site operations workforce and deliveries	Impacts of plant activities to local recreation resources	Impacts of plant activities on first-responder agencies	Expected mitigation actions (traffic, schools, community services)	Employment, income and output impacts attributable to plant activities	Tax revenue impacts attributable to plant activities
		IS-1	IS-1	IS-1	IS-2	IS-1	IS-3	IS-1	IS-1	IS-2	IS-1	IS-1	IS-4	IS-5	IS-5
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure		X										X		
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems														
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity														
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts												X		
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods														
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity														
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice														
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles														
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations		X					X	X				X		
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities												X		
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes														
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change		X										X		
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels														

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		ENVIRONMENTAL JUSTICE			HISTORIC AND CULTURAL RESOURCES		METEOROLOGY	AIR QUALITY		NONRADIOLOGICAL HEALTH				
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Existence of communities exceptionally dependent on subsistence resources	Disproportionate human health impacts of the plant to EJ populations of interest	Effect of plant activities on established resource dependencies, cultural practices, or subsistence behaviors	Operations and maintenance activities affecting onsite historic properties	Operations and maintenance activities affecting offsite historic properties	Cooling system impacts, including plume lengths, additional hours of fogging and icing, salt deposition, increases in humidity and precipitation (including snowfall), potential local weather modification from cloud formation/shadowing, and interactions of plume with other pollutant sources	Sources and types of air emissions	Estimates of annual air emissions for criteria air pollutants, both from the operating plant and from transmission lines	Presence of etiological agents from operations systems and activities that may impact human health	Noise impacts associated with operations	Acute effects of electromagnetic fields (electric shock) associated with transmission lines	Occupational health risks	Potential health impacts related to nonradiological traffic-related accidents for operations and outage workers
		EJ-1	EJ-2	EJ-3	H&CR-1	H&CR-1	M-1	AirQ-1	AirQ-1	NR-1	NR-2	NR-3	NR-4	NR-5
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure			X										
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems			X										
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity			X										
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts													
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods	X			X	X								
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity			X	X	X				X				
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice													
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles													
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations	X		X	X	X								
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities													
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes													
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change			X						X				
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels													

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		RADIOLOGICAL IMPACTS						NONRADIOACTIVE WASTE IMPACTS	ACCIDENTS		
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Environmental pathways by which humans can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Environmental pathways by which non-human biota can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Estimates of the maximum individual radiation dose and total collective radiation doses to the population living in the area of interest	Estimates of the annual occupation radiation dose to workers	Radiological impacts to biota other than humans	Radiological environmental monitoring program for the site	Environmental impacts resulting from the generation and disposal of nonradioactive waste and mixed waste	Estimates of dose consequences at the proposed exclusion area boundary (EAB) and the low-population zone (LPZ) from postulated design basis accidents (DBAs)	Mean estimates of site-specific severe accident risks, considering relevant environmental pathways including the air, ground, food, surface water, and ground water. Risk considerations include individual, population, economic, and contaminated land area risks.	Estimated cost, risk reduction, and value-impact ratios for the selected severe accident mitigation alternatives (SAMAs).
		R-1	R-2	R-3	R-3	R-4	R-5	NRW-1	ACC-1	ACC-2	ACC-3
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure										
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems										
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity										
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts										
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods	X		X	X	X	X				
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity										
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice										
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles										
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations										
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities						X			X	X
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes						X				
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change							X			
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels										

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		TRANSPORTATION OF RAD MATERIALS (6.1.8)	BENEFIT-COST (10.1)	
USGCRP (2014)¹ Climate Change Considerations:		Radiological dose to the population in the region of interest due to transportation of radioactive materials	Estimated benefits of the proposed facility during operation, including net electrical generation, production of other commercial products, expected tax payments, regional productivity increases, and technical and nonmonetary benefits.	Operations costs
Linked Question				
Urban Systems, Infrastructure, and Vulnerability	Climate change impacts on urban water, energy supply, transportation, & other essential infrastructure	I-1	BC-1	BC-2
Urban Systems, Infrastructure, and Vulnerability	Linked disruptions in urban infrastructure systems			
Urban Systems, Infrastructure, and Vulnerability	Influence of social inequalities on urban resident & community climate vulnerability & adaptive capacity			
Urban Systems, Infrastructure, and Vulnerability	Cooperative government & private sector activity in urban adaptation efforts			
Indigenous Peoples, Land, and Resources	Native People's access to traditional foods			
Indigenous Peoples, Land, and Resources	Ability of Native communities to adapt to decreases in water quality & quantity			
Indigenous Peoples, Land, and Resources	Impact of declining Alaskan sea ice			
Indigenous Peoples, Land, and Resources	Impact of thawing permafrost on infrastructure & traditional Alaska Native lifestyles			
Indigenous Peoples, Land, and Resources	Relocation of tribal & indigenous communities due to climate impacts, especially in coastal locations			
Land Use and Land Cover Change	Effects of choices about land-use and land-cover patterns on ecosystems and human communities			
Land Use and Land Cover Change	Effects of changes in land-use and land-cover patterns on climate processes			
Land Use and Land Cover Change	Influence of land-use decisions made to adapt to the effects of climate change			
Land Use and Land Cover Change	Effect of land use & land management choices on atmospheric greenhouse gas levels			

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		LAND USE						HYDROLOGY						
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		On-site and off-site land disturbance activities	On-site and off-site land use classification conversions resulting from land disturbance activities	On-site and off-site impacts to provisions of any affected local or regional land use or economic development plans	On-site and off-site disruption to land or water resource access	On-site and off-site disruption to existing land uses or private land access	Transmission line corridor maintenance activities during operations affecting land use	Anticipated hydrologic alterations resulting from station building or operation	Effects of anticipated hydrologic alterations to the quantity and availability of water within the region of interest	Effects of plant effluent discharge on water quality of receiving water bodies	Proposed actions to minimize hydrologic alteration effects	Impacts on other water uses and other water users related to changes in water supply reliability due to station building or operation	Impacts on other water uses and other water users related to changes in water quality due to station building or operation	Compliance with applicable water quality and water use standards and regulations
		L-1	L-2	L-2	L-3	L-3	L-1	H-1	H-3	H-2	H-1	H-3	H-3	H-4
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸													
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹													
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰			X										
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹													
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles													
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change													

CRN Site-Specific Table

		TERRESTRIAL AND WETLAND ECOLOGY										
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effect of facility and landscape maintenance on terrestrial habitats	Effect of drift from cooling towers, evaporation ponds, or other operating facilities on terrestrial species and habitats	Effect of station water features (including cooling ponds and evaporation ponds) on adjoining wetlands and other terrestrial habitats	Effect of using groundwater and/or surface water on terrestrial habitats	Effect of operational noise on terrestrial wildlife and their habitats	Effect of traffic induced by station operations on wildlife	Potential injury to birds and bats colliding with tall structures	Possible effects on terrestrial wildlife from electromagnetic radiation, electric transmission lines, and other electrical facilities	Coordination with other agencies regarding potential impacts to terrestrial biota	Susceptibility of terrestrial species to stressors from habitat and environmental changes	Presence of disease vectors, nuisance, invasive and introduced animal or plant species onsite or in the vicinity of proposed facility
		TW-1	TW-2	TW-3	TW-3	TW-1	TW-1	TW-4	TW-4	TW-5	TW-6	TW-7
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸											
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹											
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰											
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹											
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles											
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change									X		

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		AQUATIC ECOLOGY												
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Effects of plant consumptive water use on aquatic biota	Susceptibility of aquatic species at specific life-stages to plant cooling system entrainment, entrapment, and impingement	Susceptibility of aquatic species to aquatic stressors from habitat and water quality changes, including physical stresses related to cooling system and fish-return systems	Swimming speed of important aquatic species	Estimated susceptibility and natural survival rates for aquatic species with commercial subsistence or recreational value	Regional standing stocks of important aquatic species potentially affected by station <u>building</u> or <u>operation</u>	NPDES permit requirements	Effects on species and habitats affected by heated plume dynamics and scouring	Ability of important aquatic species to exhibit avoidance behavior to thermal discharge and cold shock at all affected life stages	Presence of disease-causing vectors and nuisance, invasive and introduced aquatic species onsite or in the vicinity of the proposed station	Biological effects to important aquatic species resulting from chemical and/or physical alterations to receiving water body	Adverse effects of transmission and pipeline corridor maintenance practices on aquatic biota	Coordination with other agencies regarding potential impacts to aquatic biota
		AQ-1	AQ-1	AQ-2	AQ-2	AQ-2	AQ-2	AQ-5	AQ-2	AQ-2	AQ-3	AQ-4	AQ-1	AQ-5
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸													
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹													
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰													
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹													
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles													
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change	X		X										

CRN Site-Specific Table

		SOCIOECONOMICS													
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Workforce impacts, including local vs. in-migrating geographic origin of workers and outage impacts	Expected residency patterns during operations	Combined impacts of site employment for sites with an operating station	Impacts of -plant activities on local transportation infrastructure	Impacts of plant activities on local buildings and facilities	Impacts of plant activities to visual resources	Impact of plant activities on local housing resources	Impact of plant activities on public schools	Traffic-related impacts of the site operations workforce and deliveries	Impacts of plant activities to local recreation resources	Impacts of plant activities on first-responder agencies	Expected mitigation actions (traffic, schools, community services)	Employment, income and output impacts attributable to plant activities	Tax revenue impacts attributable to plant activities
		IS-1	IS-1	IS-1	IS-2	IS-1	IS-3	IS-1	IS-1	IS-2	IS-1	IS-1	IS-4	IS-5	IS-5
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸		X										X		X
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹												X		
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰				X			X	X	X	X	X	X		X
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹														
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles														
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change														

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		ENVIRONMENTAL JUSTICE			HISTORIC AND CULTURAL RESOURCES		METEOROLOGY	AIR QUALITY		NONRADIOLOGICAL HEALTH				
		Existence of communities exceptionally dependent on subsistence resources	Disproportionate human health impacts of the plant to EJ populations of interest	Effect of plant activities on established resource dependencies, cultural practices, or subsistence behaviors	Operations and maintenance activities affecting onsite historic properties	Operations and maintenance activities affecting offsite historic properties	Cooling system impacts, including plume lengths, additional hours of fogging and icing, salt deposition, increases in humidity and precipitation (including snowfall), potential local weather modification from cloud formation/shadowing, and interactions of plume with other pollutant sources	Sources and types of air emissions	Estimates of annual air emissions for criteria air pollutants, both from the operating plant and from transmission lines	Presence of etiological agents from operations systems and activities that may impact human health	Noise impacts associated with operations	Acute effects of electromagnetic fields (electric shock) associated with transmission lines	Occupational health risks	Potential health impacts related to nonradiological traffic-related accidents for operations and outage workers
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		EJ-1	EJ-2	EJ-3	H&CR-1	H&CR-1	M-1	AirQ-1	AirQ-1	NR-1	NR-2	NR-3	NR-4	NR-5
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸													
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹			X										
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰													
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹													
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles													
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change								X					

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		RADIOLOGICAL IMPACTS					NONRADIOACTIVE WASTE IMPACTS	ACCIDENTS			
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Environmental pathways by which humans can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Environmental pathways by which non-human biota can be exposed to radiation (including that from gaseous effluents, liquid effluents, and direct exposure) from an operating facility.	Estimates of the maximum individual radiation dose and total collective radiation doses to the population living in the area of interest	Estimates of the annual occupation radiation dose to workers	Radiological impacts to biota other than humans	Radiological environmental monitoring program for the site	Environmental impacts resulting from the generation and disposal of nonradioactive waste and mixed waste	Estimates of dose consequences at the proposed exclusion area boundary (EAB) and the low-population zone (LPZ) from postulated design basis accidents (DBAs)	Mean estimates of site-specific severe accident risks, considering relevant environmental pathways including the air, ground, food, surface water, and ground water. Risk considerations include individual, population, economic, and contaminated land area risks.	Estimated cost, risk reduction, and value-impact ratios for the selected severe accident mitigation alternatives (SAMAs).
		R-1	R-2	R-3	R-3	R-4	R-5	NRW-1	ACC-1	ACC-2	ACC-3
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸										
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹										
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰										
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹										
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles										
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change										

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		TRANSPORTATION OF RAD MATERIALS (6.1.8)	BENEFIT-COST (10.1)	
USGCRP (2014) ¹ Climate Change Considerations: Linked Question		Radiological dose to the population in the region of interest due to transportation of radioactive materials	Estimated benefits of the proposed facility during operation, including net electrical generation, production of other commercial products, expected tax payments, regional productivity increases, and technical and nonmonetary benefits.	Operations costs
		I-1	BC-1	BC-2
Rural Communities	Increased impacts of climate change on rural communities and rural economic activities ¹⁸			
Rural Communities	Unique vulnerabilities of rural communities to climate change impacts ¹⁹			
Rural Communities	Limited capacity of rural governments to respond to climate change impacts ²⁰			
Biogeochemical Cycles	Alterations in biogeochemical cycles ²¹			
Biogeochemical Cycles	Effect of natural land sinks on carbon, nitrogen, phosphorus, and other biogeochemical cycles			
Biogeochemical Cycles	Increased vulnerability of biodiversity, food security, human health, and water quality due to altered biogeochemical cycles and climate change			

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	LAND USE						HYDROLOGY						
<p>USGCRP (2014)¹ Climate Change Considerations: Linked Question</p>	<p>On-site and off-site land disturbance activities</p>	<p>On-site and off-site land use classification conversions resulting from land disturbance activities</p>	<p>On-site and off-site impacts to provisions of any affected local or regional land use or economic development plans</p>	<p>On-site and off-site disruption to land or water resource access</p>	<p>On-site and off-site disruption to existing land uses or private land access</p>	<p>Transmission line corridor maintenance activities during operations affecting land use</p>	<p>Anticipated hydrologic alterations resulting from station building or operation</p>	<p>Effects of anticipated hydrologic alterations to the quantity and availability of water within the region of interest</p>	<p>Effects of plant effluent discharge on water quality of receiving water bodies</p>	<p>Proposed actions to minimize hydrologic alteration effects</p>	<p>Impacts on other water uses and other water users related to changes in water supply reliability due to station building or operation</p>	<p>Impacts on other water uses and other water users related to changes in water quality due to station building or operation</p>	<p>Compliance with applicable water quality and water use standards and regulations</p>
	<p>L-1</p>	<p>L-2</p>	<p>L-2</p>	<p>L-3</p>	<p>L-3</p>	<p>L-1</p>	<p>H-1</p>	<p>H-3</p>	<p>H-2</p>	<p>H-1</p>	<p>H-3</p>	<p>H-3</p>	<p>H-4</p>

¹Entries are grouped by USGCRP sector and are derived from Key Messages in USGCRP (2014) *Climate Change Impacts in the United States: The Third National Climate Assessment*, Melillo, J.M. T.C. Richmond, and G.W. Yohe (eds.), US Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2

²SMEs should consult the regional section of GCRP (2014) and other appropriate sources for information on the extent and direction of the anticipated changes in the region of interest.

³Includes heat waves, cold waves, and regional droughts

⁴Includes projection of summertime Arctic Ocean sea ice essentially disappearing before mid-century

⁵Includes saltwater intrusion and other impacts related to sea level rise, storms and storm surges, and changes in surface and groundwater use patterns

⁶Includes changes due to increasing air and water temperatures, more intense precipitation and runoff, increasing droughts, and increased sediment and pollutant loadings

⁷Includes effects on human safety and health, property, infrastructure, economies, and ecology

⁸Includes impacts from sea level rise, storm surge, extreme weather events, higher temperatures, heat waves, precipitation changes, Arctic warming and other climatic conditions

⁹Includes temporary and permanent flooding of airports, ports and harbors, roads, rail lines, tunnels, and bridges

¹⁰Includes both transportation interruptions and infrastructure damage (e.g., pavement and track damage) due to extreme heat, strong hurricanes, coastal erosion, permafrost thaw, etc.

¹¹Includes increasingly negative impacts on crops and livestock due to responses to elevated CO2, increased temperatures, changes in solar radiation, etc.

¹²Includes effects of fire, insect infestations, drought, disease outbreaks, etc.

¹³Includes shifts in ranges of species; increased incidence of insect pests, disease pathogens, and invasive weed species; effects of hotter and dryer deserts and drylands; impacts of ocean acidification on coastal and near-shore ecosystems; impacts of Arctic summer sea ice loss; impacts of warming on fish, plant, and animal species; etc.

¹⁴Includes spring bud burst, migration, hibernation, emergence from overwintering, plankton blooms, etc.

¹⁵Includes whole system management and ecosystem-based adaptation strategies

¹⁶Includes impacts from increased extreme weather events, wildfire, decreased air quality, threats to mental health, illnesses transmitted by food, water, disease-carriers such as mosquitos and ticks and other etiological agents

¹⁷Includes children, the elderly, the poor, and some communities of color

¹⁸Rural economic activities include agriculture, forestry, recreation, etc. Impacts include shifts in locations of such activities.

¹⁹Vulnerabilities include geographic and demographic obstacles, such as physical isolation, limited economic diversity, higher poverty rates, aging population, etc.

²⁰Includes ability to adapt rural transportation, infrastructure, health, and emergency response systems

²¹Includes alterations due to increased atmospheric carbon dioxide and changes in nitrogen, phosphorous, and other elements available to ecosystems