This is a preliminary summary of the Social Cost of Greenhouse Gas and Climate Change Technical Report in process for the subject project. This summary is intended to provide the State with initial greenhouse gas calculations for inclusion in federal grant applications. The information contained within will be further refined for the final draft technical report.

Maine Department of Transportation (MaineDOT) is evaluating alternatives for a marshalling port facility in Maine to support the development of floating offshore wind (OSW). The proposed Offshore Wind Port (OSWP) would help meet the clean energy demands of the region, reduce harmful emissions and the State's dependence on fossil fuels, and support the advancement of numerous climate goals, plans, initiatives, and agreements established by state, federal and international agencies. The proposed project is expected to have a net beneficial climate effect because it will facilitate the efficient deployment of floating OSW wind turbine generators (WTGs) in the Gulf of Maine (GOM).

Project Description

The proposed project consists of the development of infrastructure to support a single port approach for the construction, deployment, and operation of the OSW industry in Maine. The proposed location of the OSW port is in Searsport, Maine, using either Mack Point, Sears Island, or a combination of both areas (i.e., Hybrid).

Collectively defined as the port of Searsport, both locations are accessible by marine vessels via Penobscot Bay and a maintained federal navigation channel. The available area at Sears Island is zoned as Transportation/Marine Development, owned by MaineDOT, and consists of approximately 330 acres of undeveloped land and approximately 9,000 feet of water frontage. The site at Mack Point includes approximately 85 acres for potential port development, 2,060 feet of water frontage, and is currently operated as a liquid and dry bulk cargo terminal by Sprague Energy. Mack Point serves as the southern terminus for the Montreal, Maine, and Atlantic Railway (CMQR).

To accomplish the proposed single port approach for OSW in Maine, the proposed Offshore Wind Port would need to accommodate multiple functions: (1) marshalling (synonymous with staging), (2) production and fabrication (floating WTG hulls, or foundations), (3) operations and maintenance, and (4) port of call for service operation vessels (SOV).

Purpose and Need

The purpose of the proposed action is to construct a marshalling port facility in Maine that supports the development of the floating offshore wind industry at a commercial scale.

The State of Maine does not have a marshalling port facility with sufficient space to support the construction, operation, and maintenance of offshore wind turbines.

The State of Maine needs a port to serve the future offshore wind industry in Maine to reduce dependency on fossil fuels and help to reduce the effects of climate change. There are no existing ports or plans to construct a port(s) that meets the needs of floating offshore wind energy development on the U.S. east coast. Floating offshore wind energy is a powerful renewable energy source and critical component of the State's clean energy plan to improve energy security, grow a renewable energy economy, and contribute to net zero targets to mitigate climate change.

Climate Goals and Commitments

The proposed project is being developed in alignment with several state, federal, and international climate change, renewable energy, and offshore wind goals and commitments (Table 1).

Table 1. Summary of State, Federal, and International Climate Goals and Commitments

Name	Agency	Description
Maine Offshore Wind Initiative (2019)	State of Maine GEO, Governor's Office of Policy Innovation and the Future, and Department of Economic and Community Development	Explore thoughtful development of floating offshore wind energy in the Gulf of Maine, while ensuring balance with the state's maritime industries and environment. The *Maine Offshore Wind Roadmap* is one result of this initiative (Maine GEO, 2023).
Offshore Wind Energy in the Gulf of Maine Legislative Document No. 1895 (2023)	State of Maine Governor's Office, Maine Legislature	The legislature passed initiatives into law to responsibly develop offshore wind in the Gulf of Maine and encourage new deepwater port construction while maintaining strong standards to ensure good-paying jobs for Maine workers and protections for wildlife, incentivizing the avoidance of important fishing grounds, and fostering broad stakeholder engagement and inclusive community benefits. LD 1895 sets a procurement schedule for a goal of 3 gigawatts (GW) of installed offshore wind power in the Gulf of Maine by 2040 to meet Governor Mills' proposed goal of 100% renewable energy by 2040. (State of Maine, 2023)
Maine Climate Council (2019) & Maine Climate Action Plan (2020)	State of Maine Governor's Office	The Maine Climate Council was formed of scientists, industry leaders, bipartisan local and state officials, and engaged citizens with the mission to develop a four-year plan to put Maine on a trajectory to reduce emissions. *Maine Won't Wait* is Maine's four-year climate plan containing actionable strategies and goals to reduce carbon emissions, produce energy from renewable sources and protect natural resources, communities, and people from the effects of climate change (Maine Climate Council, 2020).
Greenhouse gas emissions reductions	Maine Legislature	This state law codifies Maine's goals to reduce emission levels and reach carbon neutrality by 2045. This law also requires monitoring, reporting, and compliance by state agencies. (M.R.S. Title 38 §576-A.)

Name	Agency	Description
Renewable resources	Maine Legislature	This state law establishes policy to encourage the generation of electricity from renewable and efficient sources and to diversify electricity production to ensure an adequate and reliable supply of electricity for Maine residents and to encourage the use of renewable, efficient, and indigenous resources. The law sets industry-wide goals for consumption of electricity from renewable resources. (M.R.S. 35-A §3210.)
Gulf of Maine Intergovernmental Renewable Energy Task Force	U.S. Bureau of Ocean Energy Management (BOEM)	The Task Force is composed of Tribal, Federal, state, and local government officials. It is tasked with facilitating the coordination of renewable energy planning activities on the Outer Continental Shelf in the Gulf of Maine. It serves as a forum to discuss potential issues and concerns, as well as exchange data and information about ocean resources and uses
Floating Offshore Wind Shot	U.S. Departments of Energy (DOE), Interior (DOI), Commerce (DOC), and Transportation (DOT)	Part of DOE's "Energy Earthshots Initiative" to tackle key remaining technical challenges to reaching U.S. climate goals while creating jobs and economic opportunities for U.S. communities. DOE summarized its role in the nationwide effort to deploy 30 GW of offshore wind energy by 2030 and set the nation on a pathway to 110 GW or more by 2050. Floating Offshore Wind Shot goals are: reducing the cost of floating offshore wind energy in deep waters far from shore to $45/MWh (megawatt hours) by 2035; support the development of a domestic supply chain to facilitate deployment of 15 GW of floating offshore wind by 2035; and to inform just, sustainable, and timely development of floating offshore wind energy in deep waters. (DOE, 2024)
Biden-Harris Administration	White House	In support of the rapid deployment of offshore wind and job creation, the Administration announced the advancement of ambitious wind energy projects to create good-paying, union jobs; investment in American infrastructure to strengthen the domestic supply chain and deploy offshore wind energy; and supported critical research and development and data-sharing. Through this action, the Administration established a goal of 30 GW of offshore wind energy by 2030. (The White House, 2021)
The Paris Agreement	UN Climate Change Conference	A legally binding international treaty on climate change to which the U.S. is a party. The overarching goal is to hold the increase in the global average temperature to below 2° Celsius (C) above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Methodology

This report is developed based on interim guidance released by the Council on Environmental Quality (CEQ) in *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* (88 FR 1196) (Interim Guidance). In accordance with the Interim Guidance, GHG emissions expected to be generated by the proposed project are estimated and converted to the more accessible metric of dollars by using the most recent Social Cost of Greenhouse Gases (SC-GHG) calculations issued by the U.S. Environmental Protection Agency (EPA) (2023).

To estimate GHG emissions, a list of actions anticipated to be necessary during port construction, hull fabrication, assembly of floating WTGs, ocean transport, and offshore operation and maintenance stages (O&M) of the proposed project was developed based on similar types of projects and

coordination with Maine Port Authority (MPA). At this stage in project development, specific details of vehicles and vessels to be used are not available; instead, in accordance with the "rule of reason" described in the Interim Guidance, a list of typical equipment types and an approximate schedule were used. Coordination with MPA ensured several assumptions were reasonable.

EPA's GHG Emission Factors Hub was used to determine GHG emissions generated for the No-Build and Build Alternatives. The GHG Emissions Factors Hub provides typical emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) generated according to the vehicle or vessel category and fuel type.

These emissions factors and predicted annual fuel usage were used to calculate annual emissions of CO_2, CH_4, and N_2O throughout the various stages of the project. Predicted annual fuel usage was calculated by multiplying estimated hours of use by typical fuel consumption by hour data from specifications of representative vehicles and vessels where available and a collection of construction industry data sheets accessible on-line. For concrete and steel fabrication, CO_2 emissions were obtained from typical industry statistics; however, these sources do not include CH_4 or N_2O emission data (Choisnet et al, 2016).

EPA's SC-GHG estimates (2023) determine the monetary value (in 2020 dollars) of the net harm to society from the emissions generated through 2080 by the proposed project, using three different discount rates. Emissions estimates over the life of the project (2030-2080) for the No Build and Build Alternatives were converted to 2020 dollars using the highest (2.5%) and lowest (1.5%) discount rates to generate a range.

Discounting is the process of converting a value received in a future time period to an equivalent value received immediately. Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that occur in the future. Future costs and benefits are generally considered less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are considered much less significant than present effects, whereas a low discount rate means that they are closer to equally significant. Discounting is used by decisionmakers to fully understand the costs and benefits of policies that have future impacts. (Rennert, 2022)

GHG reductions associated with the anticipated renewable energy generated by future wind farms are not included in this calculation. However, since the proposed project is a purpose-built port to support offshore wind development in the Gulf of Maine (GOM), GHG emissions associated with construction and operation of the port are understood to be a relatively minor cost relative to the net benefits of the renewable energy that will be generated with the support of the proposed project.

Assumptions

The following assumptions and exclusions were built into GHG calculations. Where there remain uncertainties, a conservative worst-case assumption is adopted.

- Electricity demand will be equal in both scenarios. Electricity generated by floating OSW projects will replace an equivalent amount of fossil fuel energy.
- Floating OSW will occur in the Gulf of Maine (GOM) with or without the proposed project.
- GHG emissions associated with the fabrication of floating WTG hulls is included in the Build and No Build Alternative analysis because this is directly related to the operations of the proposed OSW port.
- Mining of raw materials (e.g., gravel, sand, iron ore, etc.) for the fabrication of floating WTG hulls is not accounted for, however, because these activities are expected to happen elsewhere with or without the proposed project.
- Similarly, GHG emissions associated with the WTG component fabrication are not accounted for because these activities are expected to happen elsewhere with or without the proposed project.
- Each floating OSW WTG will generate 20 megawatts (MW).
- The service life of a floating OSW WTG is 25 years.
- To meet GOM State's OSW goal of generating 13 GW of OSW energy in the GOM (3 MW in ME and 10 GW in MA), 650 floating OSW WTGs will be required.
- Several manufacturers are developing electric-powered vehicles for port operations (e.g., mobile cranes). For the purposes of analysis, diesel models are used.
- Representative equipment, vehicle, and vessel types are listed in Attachment A.

Build Alternative

- The proposed OSW port will be in Searsport.
- Analysis will use a "worst-case" or "maximum case" assumption where there are meaningful differences between the Mack Point and Sears Island locations. The result is a Build vs No Build Alternative comparison. For example:
    - Vessel transit time and distance between the proposed port and the WEA are negligible between Mack Point and Sears Island.
    - Mack Point includes dredge, but Sears Island does not. This GHG analysis includes the potential dredge activities at Mack Point.
    - Sears Island includes more clearing and grubbing than Mack Point and is therefore used as the basis for potential GHG emissions associated with the Build Alternative.
    - The result is a conservative, all-inclusive analysis of the proposed OSW port project regardless of site selection. Final GHG emissions would therefore be less than those included in this analysis.
- Disposal of dredged material is not considered in this report due to the high level of uncertainty regarding quantity, sediment type, and other factors. Disposal options such as beneficial reuse may be explored as mitigation opportunities as the project progresses.
- Employees commuting to work at the proposed OSW port will not be considered a source of new GHG emissions attributable to the project because it is assumed that future potential

workers would commute to other jobs if not at the proposed port. Further, port-related commute traffic represents a negligible share of overall traffic emissions.

- Floating OSW WTG components will be brought to Searsport from other ports in Western Europe. Fene, Spain was selected as a representative port resulting in an estimated 2,500 nautical mile (nm) travel distance.
- Operation of the OSW port will begin in 2030 and service the construction, assembly, and deployment of the Maine Research Array (MERA) project.
- The MERA project will take 1 year to construct and deploy from the proposed OSW port.
- Commercial-scale offshore wind energy generation will begin in 2035.
- The OSW port's service life is 50 years (2080).
- At a production rate of 1 floating OSW WTG every 2 weeks and assuming continuous production, construction of 650 floating OSW WTGs to meet GOM renewable energy goals will be completed in 2053.
- O&M activities will be based out of the OSWP until 2080.
- Other port uses will be explored after 2053. Other future potential port uses are not included in GHG calculations.

No Build Alternative

- Floating OSW WTGs will be built at existing ports in Europe (Fene, Spain selected as representative port) and towed 2,500 nm to the GOM WEA.
- WTG production will proceed at the same pace (1 floating OSW WTG every 2 weeks and continuous production) as in the Build Alternative.
- Commercial-scale energy generation will begin by 2035.
- Floating OSW WTG installation support and O&M activities and vessels will use existing port facilities at Searsport.

Potential Climate Effects and Social Cost of GHG

Build Alternative (Maximum Case)

Social Cost of GHG

The Build Alternative consists of constructing a single, purpose-built port in Searsport for construction, deployment, and operation of floating OSW WTGs. The maximum case Build Alternative conservatively includes GHG emissions and climate effects associated with clearing and grubbing 100 acres on Sears Island and 32 acres of dredge at Mack Point. Floating WTG hulls would be built at the proposed port, WTG components brought to the port from Europe would be integrated with the hulls, and the assembled WTGs towed to the wind energy area (WEA) in the GOM. In the Build Alternative scenario, GHG emissions are generated by construction of the port, fabrication of floating hulls at the port,

transport of WTG components to the port, integration of WTG components, transport of completed WTGs to the WEA (115 nm), and ongoing O&M requiring vessel traffic between the proposed port and the WEA. The duration of project activities is summarized in Table 2.

Table 2. Assumed project activity durations, basis for GHG emission calculations.

Project Stage	Duration (Years)	End Year
Project Design	4	2026
Port Construction	3	2029
Maine Research Array (MERA)	1	2031
Commercial Scale floating OSW WTG Fabrication, Integration, Installation, and O&M	23	2053
O&M	27	2080

Yearly SC-GHG costs for the Build Alternative are detailed in Attachment B and Table 3 (page 9) provides summary calculations. In the Build Alternative, estimated GHG emissions total 21,469,241.78 tons of CO_2, 9,193.20 tons of CH_4, and 247.26 tons of N_2O. Total SC-GHG estimates for the years 2030-2080 range from about $4.1 billion to $9.9 billion in 2020 dollars.

No-Build Alternative

Social Cost of GHG

The No-Build Alternative consists of purchasing assembled WTGs from existing ports in Europe and towing them to the GOM for installation. Fene, Spain was selected as the representative European port for GHG emission calculations, approximately 2,500 nm from the GOM. Installation, operation, and maintenance activities would be based out of Searsport, as in the Build Option. Because this scenario uses existing port infrastructure, there would be no new GHG emissions associated with construction of a port.

A minimum towing distance of approximately 2,500 nm would be required to transport each completed WTG from Europe to GOM. Installation, operation, and maintenance vessels would have an estimated travel distance of 115 nm from the port to the wind installation.

Yearly SC-GHG costs for the No-Build Alternative are detailed in Attachment B and Table 3 (page 9) provides summary calculations. In the No-Build Alternative, estimated GHG emissions total 111,668,016.5 tons of CO_2, 65,823.60 tons of CH_4, and 1,748.79 tons of N_2O. Total SC-GHG estimates for the years 2030-2080 range from $20.6 billion to $50.2 billion in 2020 dollars.

Build and No Build SC-GHG Comparison

Construction and deployment of floating OSW WTGs in the GOM will result in new GHG emissions. However, the long-term benefits associated with floating OSW energy production, a non-GHG emitting energy source, are considered a net climate benefit because it will serve future energy demands, which are not waning, and replace existing fossil fuel energy sources. Maine is committed to aggressive renewable energy goals which are dependent on floating OSW energy production. Floating OSW WTGs are assumed to be installed in the GOM with or without the proposed OSW port.

As a result of this analysis, the following high-level observations were made:

- SC-GHGs are about 5x higher in the No-Build Alternative than in the Build Alternative. See Table 5 for a summary comparison.
- Construction of the port is a minor contributor to the total emissions when compared to the fabrication, assembly, and installation of floating OSW WTGs in the GOM, a direct effect of the port construction.
- Fabrication of floating WTG hulls and the transport of assembled floating WTGs from the port to the WEA is the source of the majority of GHG emissions.
- The No-Build Alternative has considerably higher GHG emissions due to the long ocean transport distances (2500 nm).
- Transport of floating WTGs from existing ports in Europe (No-Build Alternative) does not appear to be practical at face value.
    - Traversing 2500 nm with three tugs at 5 knots is 500 hours (or about 21 days). This transit distance has not been previously tested by the industry (up to 750 nm is considered reasonable).
    - To keep up with assumed floating WTG production rates (1 WTG every 2 weeks) multiple teams of tugs would be necessary.
    - To transport 28 floating WTGs per year would take 583 workdays.
- Floating OSW installation and O&M activities generate approximately the same emissions in both alternatives

Table 3. Summary Comparison of Build and No-Build Alternatives SC-GHG by Project Stage.

Project Stage	Years	Build						No Build					
		Carbon Dioxide (CO_2)		Methane (MH_4)		Nitrous Oxide (N_2O)		Carbon Dioxide (CO_2)		Methane (MH_4)		Nitrous Oxide (N_2O)	
		SC-CO_2 Discount Rate[1]		SC- MH_4 Discount Rate[1]		SC- N_2O Discount Rate[1]		SC-CO_2 Discount Rate[1]		SC- MH_4 Discount Rate[1]		SC- N_2O Discount Rate[1]	
		2.50%	1.50%	2.50%	1.50%	2.50%	1.50%	2.50%	1.50%	2.50%	1.50%	2.50%	1.50%
Design	2024-2026												
Construction	2027-2029	$564,653.84	$1,532,725.20	$712.09	$1,198.54	$16,013.86	$37,551.89						
Fabrication, Installation, O&M (includes MERA)	2030-2053	$3,370,740,208.42	$8,286,130,561.59	$21,633,586.23	$33,079,397.03	$11,488,481.20	$24,785,088.99	$19,591,574,675.79	$48,147,968,454.86	$184,846,047.48	$282,641,534.93	$97,067,332.71	$209,409,693.55
O&M	2054-2080	$678,094,612.74	$1,495,131,552.38	$8,106,865.13	$11,737,226.02	$3,728,246.75	$7,416,642.84	$678,094,612.74	$1,495,131,552.38	$8,106,865.13	$11,737,226.02	$3,728,246.75	$7,416,642.84
Totals		$4,049,399,474.98	$9,782,794,839.17	$29,741,163.47	$44,817,821.61	$15,232,741.83	$32,239,283.76	$20,269,669,288.53	$49,643,100,007.23	$192,952,912.62	$294,378,760.96	$100,795,579.49	$216,826,336.39

[1] U.S. EPA, 2023

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ATTACHMENT A

Representative Equipment, Vehicle and Vessel List

Attachment A. Representative Equipment, Vehicle, and Vessel List			
Project Stage/Activity	**Purpose/Operation**	**Vehicle/Vessel Type**	**No.**
Port Construction	Clearing and Grading	Excavators	4
		Backhoe & Frontend (Wheel) Loader	4
		Bulldozer	4
		Grader	4
	Soil compaction	Ground Compactor	4
	Pile Driving	Pile Driver	2
	Materials delivery/export	Dump truck	4
		Concrete mixer	5
		TTST/flatbed	2
	Dredging	Bucket Dredger	2
	General Use	Generators	4
		Water Pumps	4
		Crane	1
Hull Construction (MERA)	On-site concrete hull manufacturing	Concrete batch plant	1
	Raw material delivery	Dump truck	4
	Prefabrication of steel plates off site	Blast furnace	1
	Delivery of sub assemblies	TTST/flatbed	2
	Assembly at site	Welders	10
Hull Construction (Commercial Production) relied on prior GHG emission calculation [1] ; therefore equipment, vehicle, and vessels not necessary for GHG calculation.			
WTG Assembly	On-site movement of WTG components	Self-propelled Modular Transporter (SPMT)	12
	On-site assembly of components	Crane (land based) (1,000 T)	1
	General Terminal Utility	Mobile Harbor Crane (150-200 T)	2
	WTG component delivery	Heavy Lift Cargo Vessel	4
	Floating the hulls	Semi-submersible Heavy Lift Vessel	1
	Vessel assists	Tugs	4
Ocean Transport	FOSW install support	DP Support Offshore Vessel	1
	FOSW install support	Crew Transport Vessel (CTV)	4
	FOSW install support	Tug (build)	3
	FOSW install support	Tug (no build)	9
	Wet storage/Daily Operations around port	Tug	3
	FOSW install support	Anchor Handling Tug	2
	Lay cable from OSW projects to shore	Cable Laying Self Propelled Vessel	1
Offshore O&M	FOSW support	DP Support Offshore Vessel	1
	FOSW support	Crew Transport Vessel (CTV)	1
	FOSW support	Tug	3
	FOSW support	Anchor Handling Tug	2
	WTG component delivery	Heavy Lift Cargo Vessel	1
	Maintenance of floating hulls at port	Semi-submersible Heavy Lift Vessel	1
	FOSW install support, O&M	Sikorsky S-92 (Helicopter)	1

[1] Choisnet et al, 2016

ATTACHMENT B

Social Cost of Greenhouse Gases Calculations

Attachment B

Social Cost of Greenhouse Gas (SC-GHG) - OSWP Build Scenario (Maximum Case)

(*All values in 2020 Dollars*)

Project Stage	Year	Carbon Dioxide (CO2)			Methane (CH4)			Nitrous Oxide (N2O)		
		Emissions Generated (Metric Tons)	SC-CO2 Discount Rate[1]		Emissions Generated (Metric Tons)	SC-CH4 Discount Rate[1]		Emissions Generated (Metric Tons)	SC-N2O Discount Rate[1]	
			2.50%	1.50%		2.50%	1.50%		2.50%	1.50%
Project Design	2024	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2025	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2026	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Port Construction	2027	3063	$ 416,568.00	$ 1,133,310.00	0.303	$ 522.37	$ 881.73	0.282	$ 11,806.78	$ 27,743.44
	2028	816.8	$ 113,535.20	$ 306,300.00	0.0808	$ 144.71	$ 242.08	0.0752	$ 3,219.76	$ 7,517.44
	2029	245.04	$ 34,550.64	$ 93,115.20	0.02424	$ 45.01	$ 74.73	0.02256	$ 987.32	$ 2,291.01
MERA	2030	87810.18697	$ 12,644,666.92	$ 33,719,111.80	0.01262352	$ 24.29	$ 40.00	0.00776832	$ 347.34	$ 801.20
WTG Fabrication, Installation, Operations and Maintenance	2031	814805.3267	$ 119,776,383.02	$ 316,959,272.09	328.1808851	$ 657,018.13	$ 1,073,151.49	8.81402144	$ 402,739.08	$ 923,066.02
	2032	810923.8931	$ 121,638,583.97	$ 319,504,013.88	325.7440595	$ 677,547.64	$ 1,098,083.22	8.74939424	$ 408,369.23	$ 930,200.60
	2033	810923.8931	$ 124,071,355.64	$ 322,747,709.45	325.7440595	$ 702,629.94	$ 1,130,657.63	8.74939424	$ 416,952.38	$ 944,112.13
	2034	810923.8931	$ 125,693,203.43	$ 326,802,328.92	325.7440595	$ 728,037.97	$ 1,163,557.78	8.74939424	$ 425,535.54	$ 958,014.92
	2035	814805.3267	$ 128,739,241.62	$ 332,440,573.29	328.1808851	$ 759,082.39	$ 1,205,408.39	8.81402144	$ 437,325.30	$ 979,105.57
	2036	810923.8931	$ 130,558,746.79	$ 334,100,643.96	325.7440595	$ 778,854.05	$ 1,229,358.08	8.74939424	$ 442,701.85	$ 985,829.25
	2037	810923.8931	$ 132,991,518.47	$ 338,155,263.42	325.7440595	$ 803,936.34	$ 1,262,258.23	8.74939424	$ 451,276.26	$ 999,740.78
	2038	810923.8931	$ 135,424,290.15	$ 342,209,882.89	325.7440595	$ 829,344.38	$ 1,294,832.64	8.74939424	$ 459,859.41	$ 1,013,643.57
	2039	814805.3267	$ 138,516,905.54	$ 347,107,069.17	328.1808851	$ 861,146.64	$ 1,337,665.29	8.81402144	$ 471,902.71	$ 1,035,145.12
	2040	810923.8931	$ 140,289,833.51	$ 349,508,197.93	325.7440595	$ 880,160.45	$ 1,360,632.94	8.74939424	$ 477,025.72	$ 1,041,457.90
	2041	810923.8931	$ 142,722,605.19	$ 353,562,817.39	325.7440595	$ 907,522.95	$ 1,395,813.29	8.74939424	$ 486,746.30	$ 1,057,005.57
	2042	810923.8931	$ 145,155,376.86	$ 357,617,436.86	325.7440595	$ 935,211.19	$ 1,431,319.40	8.74939424	$ 496,475.63	$ 1,072,553.24
	2043	814805.3267	$ 148,294,569.46	$ 363,403,175.71	328.1808851	$ 969,774.52	$ 1,477,470.34	8.81402144	$ 509,935.21	$ 1,096,129.33
	2044	810923.8931	$ 150,831,844.12	$ 365,726,675.79	325.7440595	$ 990,261.94	$ 1,501,680.11	8.74939424	$ 515,916.78	$ 1,103,639.84
	2045	810923.8931	$ 153,264,615.80	$ 369,781,295.25	325.7440595	$ 1,017,624.44	$ 1,536,860.47	8.74939424	$ 525,646.11	$ 1,119,187.51
	2046	810923.8931	$ 155,697,387.48	$ 374,646,838.61	325.7440595	$ 1,045,312.69	$ 1,572,366.58	8.74939424	$ 535,366.68	$ 1,134,735.19
	2047	814805.3267	$ 158,887,038.71	$ 380,514,087.57	328.1808851	$ 1,080,699.65	$ 1,619,572.67	8.81402144	$ 549,122.35	$ 1,158,770.58
	2048	810923.8931	$ 161,373,854.73	$ 382,756,077.54	325.7440595	$ 1,100,363.43	$ 1,642,727.29	8.74939424	$ 554,816.59	$ 1,165,821.78
	2049	810923.8931	$ 163,806,626.41	$ 386,810,697.01	325.7440595	$ 1,127,725.93	$ 1,677,907.65	8.74939424	$ 564,537.16	$ 1,181,369.46
	2050	810923.8931	$ 166,239,398.09	$ 390,865,316.47	325.7440595	$ 1,155,414.18	$ 1,713,413.75	8.74939424	$ 574,266.49	$ 1,196,908.38
	2051	814805.3267	$ 169,479,507.95	$ 396,810,194.10	328.1808851	$ 1,189,327.53	$ 1,760,034.09	8.81402144	$ 587,657.25	$ 1,220,556.87
	2052	810923.8931	$ 171,104,941.44	$ 398,163,631.51	325.7440595	$ 1,205,578.76	$ 1,780,517.03	8.74939424	$ 592,438.98	$ 1,226,297.60
	2053	810923.8931	$ 173,537,713.12	$ 402,218,250.98	325.7440595	$ 1,230,986.80	$ 1,814,068.67	8.74939424	$ 601,520.85	$ 1,240,996.58
	2054	100102.541	$ 21,722,251.40	$ 50,051,270.50	62.44600405	$ 240,791.79	$ 354,193.73	1.675736273	$ 116,947.96	$ 240,496.64
	2055	100102.541	$ 22,022,559.02	$ 50,551,783.21	62.44600405	$ 245,600.13	$ 360,563.23	1.675736273	$ 118,687.37	$ 243,310.20
	2056	100102.541	$ 22,222,764.10	$ 51,052,295.91	62.44600405	$ 250,470.92	$ 366,995.17	1.675736273	$ 120,428.46	$ 246,125.44
	2057	100102.541	$ 22,523,071.73	$ 51,452,706.07	62.44600405	$ 255,279.26	$ 373,427.10	1.675736273	$ 122,167.88	$ 248,939.00
	2058	100102.541	$ 22,823,379.35	$ 51,953,218.78	62.44600405	$ 260,087.61	$ 379,859.04	1.675736273	$ 123,908.97	$ 251,754.24
	2059	100102.541	$ 23,123,686.97	$ 52,353,628.94	62.44600405	$ 264,958.40	$ 386,290.98	1.675736273	$ 125,648.38	$ 254,567.80
	2060	100102.541	$ 23,423,994.59	$ 52,854,141.65	62.44600405	$ 269,766.74	$ 392,722.92	1.675736273	$ 127,389.47	$ 257,383.04
	2061	100102.541	$ 23,624,199.68	$ 53,254,551.81	62.44600405	$ 274,075.51	$ 398,717.74	1.675736273	$ 128,897.63	$ 259,881.56
	2062	100102.541	$ 23,924,507.30	$ 53,554,859.44	62.44600405	$ 278,384.29	$ 404,650.11	1.675736273	$ 130,405.80	$ 262,380.08
	2063	100102.541	$ 24,124,712.38	$ 53,955,269.60	62.44600405	$ 282,693.06	$ 410,644.92	1.675736273	$ 131,913.96	$ 264,876.93

Operations and Maintenance	2064	100102.541	$ 24,425,020.00	$ 54,355,679.76	62.44600405	$ 287,001.83	$ 416,577.29	1.675736273	$ 133,422.12	$ 267,375.45
	2065	100102.541	$ 24,625,225.09	$ 54,756,089.93	62.44600405	$ 291,373.05	$ 422,572.11	1.675736273	$ 134,930.28	$ 269,873.98
	2066	100102.541	$ 24,825,430.17	$ 55,056,397.55	62.44600405	$ 295,681.83	$ 428,504.48	1.675736273	$ 136,436.77	$ 272,372.50
	2067	100102.541	$ 25,125,737.79	$ 55,456,807.71	62.44600405	$ 299,990.60	$ 434,499.30	1.675736273	$ 137,944.93	$ 274,871.02
	2068	100102.541	$ 25,325,942.87	$ 55,857,217.88	62.44600405	$ 304,299.38	$ 440,431.67	1.675736273	$ 139,453.10	$ 277,369.54
	2069	100102.541	$ 25,626,250.50	$ 56,257,628.04	62.44600405	$ 308,608.15	$ 446,426.48	1.675736273	$ 140,961.26	$ 279,868.07
	2070	100102.541	$ 25,826,455.58	$ 56,557,935.67	62.44600405	$ 312,916.93	$ 452,358.85	1.675736273	$ 142,469.42	$ 282,366.59
	2071	100102.541	$ 26,126,763.20	$ 56,958,345.83	62.44600405	$ 317,537.93	$ 458,603.45	1.675736273	$ 144,133.43	$ 284,896.95
	2072	100102.541	$ 26,326,968.28	$ 57,358,755.99	62.44600405	$ 322,221.38	$ 464,848.05	1.675736273	$ 145,799.11	$ 287,427.31
	2073	100102.541	$ 26,627,275.91	$ 57,659,063.62	62.44600405	$ 326,842.39	$ 471,155.10	1.675736273	$ 147,463.12	$ 289,957.67
	2074	100102.541	$ 26,927,583.53	$ 58,059,473.78	62.44600405	$ 331,525.84	$ 477,399.70	1.675736273	$ 149,127.12	$ 292,488.04
	2075	100102.541	$ 27,127,788.61	$ 58,359,781.40	62.44600405	$ 336,146.84	$ 483,644.30	1.675736273	$ 150,791.13	$ 295,018.40
	2076	100102.541	$ 27,428,096.23	$ 58,760,191.57	62.44600405	$ 340,830.29	$ 489,888.90	1.675736273	$ 152,455.13	$ 297,548.76
	2077	100102.541	$ 27,628,301.32	$ 59,160,601.73	62.44600405	$ 345,451.29	$ 496,195.95	1.675736273	$ 154,119.14	$ 300,079.12
	2078	100102.541	$ 27,928,608.94	$ 59,460,909.35	62.44600405	$ 350,134.74	$ 502,440.55	1.675736273	$ 155,783.15	$ 302,607.81
	2079	100102.541	$ 28,228,916.56	$ 59,861,319.52	62.44600405	$ 354,755.75	$ 508,685.15	1.675736273	$ 157,448.83	$ 305,138.17
	2080	100102.541	$ 28,429,121.64	$ 60,161,627.14	62.44600405	$ 359,439.20	$ 514,929.75	1.675736273	$ 159,112.83	$ 307,668.53
	Totals	21469241.78	$ 4,049,399,474.98	$ 9,782,794,839.17	9193.20	$ 29,741,163.47	$ 44,817,821.61	247.26	$ 15,232,741.83	$ 32,239,283.76

[1] Table A.5.1, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances,* U.S. EPA, November 2023.

Grand totals	**Low end**	**$ 4,094,373,380.27**
	High end	**$ 9,859,851,944.55**

Attachment B
Social Coat of Greenhouse Gas (SC-GHG) - OSWP No-Build Scenario
(*All values in 2020 Dollars*)

Project Stage	Year	Carbon Dioxide (CO2)			Methane (CH4)			Nitrous Oxide (N2O)		
		Emissions Generated (Metric Tons)	SC-CO2 Discount Rates[1]		Emissions Generated (Metric Tons)	SC-CH4 Discount Rates[1]		Emissions Generated (Metric Tons)	SC-N20 Discount Rates[1]	
			2.50%	1.50%		2.50%	1.50%		2.50%	1.50%
Project Design	2024	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2025	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2026	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Port Construction	2027	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2028	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
	2029	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
MERA	2030	87810.18697	$ 12,644,666.92	$ 33,719,111.80	0.01262352	$ 24.29	$ 40.00	0.00776832	$ 347.34	$ 801.20
WTG Transport, Installation, Operations and Maintenance	2031	4736670.526	$ 696,290,567.37	$ 1,842,564,834.73	2790.390085	$ 5,586,360.95	$ 9,124,575.58	74.11442144	$ 3,386,510.26	$ 7,761,781.01
	2032	4732789.093	$ 709,918,364.00	$ 1,864,718,902.76	2787.95326	$ 5,798,942.78	$ 9,398,190.44	74.04979424	$ 3,456,200.10	$ 7,872,677.92
	2033	4732789.093	$ 724,116,731.27	$ 1,883,650,059.13	2787.95326	$ 6,013,615.18	$ 9,676,985.76	74.04979424	$ 3,528,842.94	$ 7,990,417.10
	2034	4732789.093	$ 733,582,309.46	$ 1,907,314,004.60	2787.95326	$ 6,231,075.54	$ 9,958,569.04	74.04979424	$ 3,601,485.79	$ 8,108,082.22
	2035	4736670.526	$ 748,393,943.16	$ 1,932,561,574.73	2790.390085	$ 6,454,172.27	$ 10,249,102.78	74.11442144	$ 3,677,335.25	$ 8,233,000.51
	2036	4732789.093	$ 761,979,044.02	$ 1,949,909,106.44	2787.95326	$ 6,665,996.24	$ 10,521,735.60	74.04979424	$ 3,746,771.49	$ 8,343,486.52
	2037	4732789.093	$ 776,177,411.30	$ 1,973,573,051.91	2787.95326	$ 6,880,668.64	$ 10,803,318.88	74.04979424	$ 3,819,340.29	$ 8,461,225.69
	2038	4732789.093	$ 790,375,778.58	$ 1,997,236,997.37	2787.95326	$ 7,098,129.00	$ 11,082,114.21	74.04979424	$ 3,891,983.14	$ 8,578,890.81
	2039	4736670.526	$ 805,233,989.47	$ 2,017,821,644.20	2790.390085	$ 7,321,983.58	$ 11,373,629.99	74.11442144	$ 3,968,086.12	$ 8,704,220.00
	2040	4732789.093	$ 818,772,513.14	$ 2,039,832,099.21	2787.95326	$ 7,533,049.71	$ 11,645,280.77	74.04979424	$ 4,037,268.83	$ 8,814,295.11
	2041	4732789.093	$ 832,970,880.42	$ 2,063,496,044.68	2787.95326	$ 7,767,237.78	$ 11,946,379.72	74.04979424	$ 4,119,538.15	$ 8,945,881.59
	2042	4732789.093	$ 847,169,247.70	$ 2,087,159,990.15	2787.95326	$ 8,004,213.81	$ 12,250,266.62	74.04979424	$ 4,201,881.52	$ 9,077,468.08
	2043	4736670.526	$ 862,074,035.79	$ 2,112,555,054.73	2790.390085	$ 8,245,602.70	$ 12,562,336.16	74.11442144	$ 4,287,889.85	$ 9,217,017.68
	2044	4732789.093	$ 880,298,771.35	$ 2,134,487,881.08	2787.95326	$ 8,475,377.91	$ 12,852,464.53	74.04979424	$ 4,366,420.17	$ 9,340,567.00
	2045	4732789.093	$ 894,497,138.63	$ 2,158,151,826.54	2787.95326	$ 8,709,565.98	$ 13,153,563.48	74.04979424	$ 4,448,763.54	$ 9,472,153.48
	2046	4732789.093	$ 908,695,505.91	$ 2,186,548,561.10	2787.95326	$ 8,946,542.01	$ 13,457,450.38	74.04979424	$ 4,531,032.86	$ 9,603,739.96
	2047	4736670.526	$ 923,650,752.63	$ 2,212,025,135.78	2790.390085	$ 9,188,754.55	$ 13,770,575.07	74.11442144	$ 4,617,402.57	$ 9,743,748.87
	2048	4732789.093	$ 941,825,029.57	$ 2,233,876,452.04	2787.95326	$ 9,417,706.11	$ 14,059,648.29	74.04979424	$ 4,695,645.55	$ 9,866,838.88
	2049	4732789.093	$ 956,023,396.85	$ 2,257,540,397.50	2787.95326	$ 9,651,894.19	$ 14,360,747.24	74.04979424	$ 4,777,914.87	$ 9,998,425.37
	2050	4732789.093	$ 970,221,764.13	$ 2,281,204,342.97	2787.95326	$ 9,888,870.21	$ 14,664,634.15	74.04979424	$ 4,860,258.24	$ 10,129,937.80
	2051	4736670.526	$ 985,227,469.47	$ 2,306,758,546.31	2790.390085	$ 10,112,373.67	$ 14,964,862.02	74.11442144	$ 4,941,430.82	$ 10,263,290.97
	2052	4732789.093	$ 998,618,498.69	$ 2,323,799,444.81	2787.95326	$ 10,318,215.01	$ 15,238,952.52	74.04979424	$ 5,014,059.67	$ 10,378,671.06
	2053	4732789.093	$ 1,012,816,865.97	$ 2,347,463,390.28	2787.95326	$ 10,535,675.37	$ 15,526,111.70	74.04979424	$ 5,090,923.35	$ 10,503,074.72
	2054	100102.541	$ 21,722,251.40	$ 50,051,270.50	62.44600405	$ 240,791.79	$ 354,193.73	1.675736273	$ 116,947.96	$ 240,496.64
	2055	100102.541	$ 22,022,559.02	$ 50,551,783.21	62.44600405	$ 245,600.13	$ 360,563.23	1.675736273	$ 118,687.37	$ 243,310.20
	2056	100102.541	$ 22,222,764.10	$ 51,052,295.91	62.44600405	$ 250,470.92	$ 366,995.17	1.675736273	$ 120,428.46	$ 246,125.44
	2057	100102.541	$ 22,523,071.73	$ 51,452,706.07	62.44600405	$ 255,279.26	$ 373,427.10	1.675736273	$ 122,167.88	$ 248,939.00
	2058	100102.541	$ 22,823,379.35	$ 51,953,218.78	62.44600405	$ 260,087.61	$ 379,859.04	1.675736273	$ 123,908.97	$ 251,754.24
	2059	100102.541	$ 23,123,686.97	$ 52,353,628.94	62.44600405	$ 264,958.40	$ 386,290.98	1.675736273	$ 125,648.38	$ 254,567.80
	2060	100102.541	$ 23,423,994.59	$ 52,854,141.65	62.44600405	$ 269,766.74	$ 392,722.92	1.675736273	$ 127,389.47	$ 257,383.04
	2061	100102.541	$ 23,624,199.68	$ 53,254,551.81	62.44600405	$ 274,075.51	$ 398,717.74	1.675736273	$ 128,897.63	$ 259,881.56
	2062	100102.541	$ 23,924,507.30	$ 53,554,859.44	62.44600405	$ 278,384.29	$ 404,650.11	1.675736273	$ 130,405.80	$ 262,380.08
	2063	100102.541	$ 24,124,712.38	$ 53,955,269.60	62.44600405	$ 282,693.06	$ 410,644.92	1.675736273	$ 131,913.96	$ 264,876.93
	2064	100102.541	$ 24,425,020.00	$ 54,355,679.76	62.44600405	$ 287,001.83	$ 416,577.29	1.675736273	$ 133,422.12	$ 267,375.45

Operations and Maintenance	2065	100102.541	$ 24,625,225.09	$ 54,756,089.93	62.44600405	$ 291,373.05	$ 422,572.11	1.675736273	$ 134,930.28	$ 269,873.98
	2066	100102.541	$ 24,825,430.17	$ 55,056,397.55	62.44600405	$ 295,681.83	$ 428,504.48	1.675736273	$ 136,436.77	$ 272,372.50
	2067	100102.541	$ 25,125,737.79	$ 55,456,807.71	62.44600405	$ 299,990.60	$ 434,499.30	1.675736273	$ 137,944.93	$ 274,871.02
	2068	100102.541	$ 25,325,942.87	$ 55,857,217.88	62.44600405	$ 304,299.38	$ 440,431.67	1.675736273	$ 139,453.10	$ 277,369.54
	2069	100102.541	$ 25,626,250.50	$ 56,257,628.04	62.44600405	$ 308,608.15	$ 446,426.48	1.675736273	$ 140,961.26	$ 279,868.07
	2070	100102.541	$ 25,826,455.58	$ 56,557,935.67	62.44600405	$ 312,916.93	$ 452,358.85	1.675736273	$ 142,469.42	$ 282,366.59
	2071	100102.541	$ 26,126,763.20	$ 56,958,345.83	62.44600405	$ 317,537.93	$ 458,603.45	1.675736273	$ 144,133.43	$ 284,896.95
	2072	100102.541	$ 26,326,968.28	$ 57,358,755.99	62.44600405	$ 322,221.38	$ 464,848.05	1.675736273	$ 145,799.11	$ 287,427.31
	2073	100102.541	$ 26,627,275.91	$ 57,659,063.62	62.44600405	$ 326,842.39	$ 471,155.10	1.675736273	$ 147,463.12	$ 289,957.67
	2074	100102.541	$ 26,927,583.53	$ 58,059,473.78	62.44600405	$ 331,525.84	$ 477,399.70	1.675736273	$ 149,127.12	$ 292,488.04
	2075	100102.541	$ 27,127,788.61	$ 58,359,781.40	62.44600405	$ 336,146.84	$ 483,644.30	1.675736273	$ 150,791.13	$ 295,018.40
	2076	100102.541	$ 27,428,096.23	$ 58,760,191.57	62.44600405	$ 340,830.29	$ 489,888.90	1.675736273	$ 152,455.13	$ 297,548.76
	2077	100102.541	$ 27,628,301.32	$ 59,160,601.73	62.44600405	$ 345,451.29	$ 496,195.95	1.675736273	$ 154,119.14	$ 300,079.12
	2078	100102.541	$ 27,928,608.94	$ 59,460,909.35	62.44600405	$ 350,134.74	$ 502,440.55	1.675736273	$ 155,783.15	$ 302,607.81
	2079	100102.541	$ 28,228,916.56	$ 59,861,319.52	62.44600405	$ 354,755.75	$ 508,685.15	1.675736273	$ 157,448.83	$ 305,138.17
	2080	100102.541	$ 28,429,121.64	$ 60,161,627.14	62.44600405	$ 359,439.20	$ 514,929.75	1.675736273	$ 159,112.83	$ 307,668.53
	Totals	111668016.5	$ 20,269,669,288.53	$ 49,643,100,007.23	65823.60	$ 192,952,912.62	$ 294,378,760.96	1748.79	$ 100,795,579.49	$ 216,826,336.39

[1] Table A.5.1, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances,* U.S. EPA, November 2023.

Grand totals	**Low end**	**$ 20,563,417,780.63**
	High end	**$ 50,154,305,104.58**

A.5. Annual Unrounded SC-CO_2, SC-CH_4, and SC-N_2O Values, 2020-2080

Table A.5.1: Unrounded SC-CO_2, SC-CH_4, and SC-N_2O Values, 2020-2080

	SC-GHG and Near-term Ramsey Discount Rate								
	SC-CO_2 *(2020 dollars per metric ton of CO_2)*			SC-CH_4 *(2020 dollars per metric ton of CH_4)*			SC-N_2O *(2020 dollars per metric ton of N_2O)*		
Emission	Near-term rate			Near-term rate			Near-term rate		
Year	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%
2020	117	193	337	1,257	1,648	2,305	35,232	54,139	87,284
2021	119	197	341	1,324	1,723	2,391	36,180	55,364	88,869
2022	122	200	346	1,390	1,799	2,478	37,128	56,590	90,454
2023	125	204	351	1,457	1,874	2,564	38,076	57,816	92,040
2024	128	208	356	1,524	1,950	2,650	39,024	59,041	93,625
2025	130	212	360	1,590	2,025	2,737	39,972	60,267	95,210
2026	133	215	365	1,657	2,101	2,823	40,920	61,492	96,796
2027	136	219	370	1,724	2,176	2,910	41,868	62,718	98,381
2028	139	223	375	1,791	2,252	2,996	42,816	63,944	99,966
2029	141	226	380	1,857	2,327	3,083	43,764	65,169	101,552
2030	144	230	384	1,924	2,403	3,169	44,712	66,395	103,137
2031	147	234	389	2,002	2,490	3,270	45,693	67,645	104,727
2032	150	237	394	2,080	2,578	3,371	46,674	68,895	106,316
2033	153	241	398	2,157	2,666	3,471	47,655	70,145	107,906
2034	155	245	403	2,235	2,754	3,572	48,636	71,394	109,495
2035	158	248	408	2,313	2,842	3,673	49,617	72,644	111,085
2036	161	252	412	2,391	2,929	3,774	50,598	73,894	112,674
2037	164	256	417	2,468	3,017	3,875	51,578	75,144	114,264
2038	167	259	422	2,546	3,105	3,975	52,559	76,394	115,853
2039	170	263	426	2,624	3,193	4,076	53,540	77,644	117,443
2040	173	267	431	2,702	3,280	4,177	54,521	78,894	119,032
2041	176	271	436	2,786	3,375	4,285	55,632	80,304	120,809
2042	179	275	441	2,871	3,471	4,394	56,744	81,714	122,586
2043	182	279	446	2,955	3,566	4,502	57,855	83,124	124,362
2044	186	283	451	3,040	3,661	4,610	58,966	84,535	126,139
2045	189	287	456	3,124	3,756	4,718	60,078	85,945	127,916
2046	192	291	462	3,209	3,851	4,827	61,189	87,355	129,693
2047	195	296	467	3,293	3,946	4,935	62,301	88,765	131,469
2048	199	300	472	3,378	4,041	5,043	63,412	90,176	133,246
2049	202	304	477	3,462	4,136	5,151	64,523	91,586	135,023
2050	205	308	482	3,547	4,231	5,260	65,635	92,996	136,799

Table A.5.1: Unrounded SC-CO_2, SC-CH_4, and SC-N_2O Values, 2020-2080 (continued…)

	SC-GHG and Near-term Ramsey Discount Rate								
	SC-CO_2 *(2020 dollars per metric ton of CO_2)*			SC-CH_4 *(2020 dollars per metric ton of CH_4)*			SC-N_2O *(2020 dollars per metric ton of N_2O)*		
Emission Year	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%
2051	208	312	487	3,624	4,320	5,363	66,673	94,319	138,479
2052	211	315	491	3,701	4,409	5,466	67,712	95,642	140,158
2053	214	319	496	3,779	4,497	5,569	68,750	96,965	141,838
2054	217	323	500	3,856	4,586	5,672	69,789	98,288	143,517
2055	220	326	505	3,933	4,675	5,774	70,827	99,612	145,196
2056	222	330	510	4,011	4,763	5,877	71,866	100,935	146,876
2057	225	334	514	4,088	4,852	5,980	72,904	102,258	148,555
2058	228	338	519	4,165	4,941	6,083	73,943	103,581	150,235
2059	231	341	523	4,243	5,029	6,186	74,981	104,904	151,914
2060	234	345	528	4,320	5,118	6,289	76,020	106,227	153,594
2061	236	348	532	4,389	5,199	6,385	76,920	107,385	155,085
2062	239	351	535	4,458	5,280	6,480	77,820	108,542	156,576
2063	241	354	539	4,527	5,361	6,576	78,720	109,700	158,066
2064	244	357	543	4,596	5,442	6,671	79,620	110,857	159,557
2065	246	360	547	4,666	5,523	6,767	80,520	112,015	161,048
2066	248	363	550	4,735	5,604	6,862	81,419	113,172	162,539
2067	251	366	554	4,804	5,685	6,958	82,319	114,330	164,030
2068	253	369	558	4,873	5,765	7,053	83,219	115,487	165,521
2069	256	372	562	4,942	5,846	7,149	84,119	116,645	167,012
2070	258	375	565	5,011	5,927	7,244	85,019	117,802	168,503
2071	261	378	569	5,085	6,013	7,344	86,012	119,027	170,013
2072	263	382	573	5,160	6,099	7,444	87,006	120,252	171,523
2073	266	385	576	5,234	6,184	7,545	87,999	121,477	173,033
2074	269	388	580	5,309	6,270	7,645	88,992	122,702	174,543
2075	271	391	583	5,383	6,355	7,745	89,985	123,926	176,053
2076	274	394	587	5,458	6,441	7,845	90,978	125,151	177,563
2077	276	398	591	5,532	6,527	7,946	91,971	126,376	179,073
2078	279	401	594	5,607	6,612	8,046	92,964	127,601	180,582
2079	282	404	598	5,681	6,698	8,146	93,958	128,826	182,092
2080	284	407	601	5,756	6,783	8,246	94,951	130,050	183,602