



2023 NORTH TAHOE PUBLIC UTILITY DISTRICT

Greenhouse Gas Emissions Inventory Baseline Report



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Credits & Acknowledgements

North Tahoe Public Utility District

Justin Broglio, APR, Government & Community Affairs Manager

Brad Johnson, P.E., General Manager

Sierra Business Council

David Jaeger, Climate & Energy Project Manager

Kaeleigh Reynolds, Climate & Energy Project Manager

Sherry Hao, Climate & Energy Program Director

Jill Sanford, Communications Director

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Abbreviations

AB	Assembly Bill	TTUSD	Tahoe Truckee Unified School District
ABAU	Legislatively Adjusted Business As Usual	VFD	Variable Frequency Drive
ACF	Advanced Clean Fleets	VMT	Vehicle Miles Traveled
BAU	Business As Usual	WEN	Water Energy Nexus
CARB	California Air Resources Board	ZEV	Zero Emission Vehicles
CTR	Commute Trip Reduction		
DOE	Department of Energy		
EMS	Energy Management Systems		
EPA	Environmental Protection Agency		
EO	Executive Order		
EV	Electric Vehicle		
GHG	Greenhouse Gas		
HVAC	Heating, Ventilation, and Air Conditioning		
LA BAU	Legislative Adjusted Business As Usual		
MT CO ₂ e	Metric tons of carbon dioxide equivalent		
NTPUD	North Tahoe Public Utility District		
ROI	Return On Investment		
RPS	Renewable Portfolio Standard		
SB	Senate Bill		
SNWA	Sierra Nevada Water Agency		
STPUD	South Tahoe Public Utility District		
SWRCB	State Water Resources Control Board		
TCPUD	Tahoe City Public Utility District		
TCR	The Climate Registry		
TDPUD	Truckee Donner Public Utility District		



EXECUTIVE SUMMARY

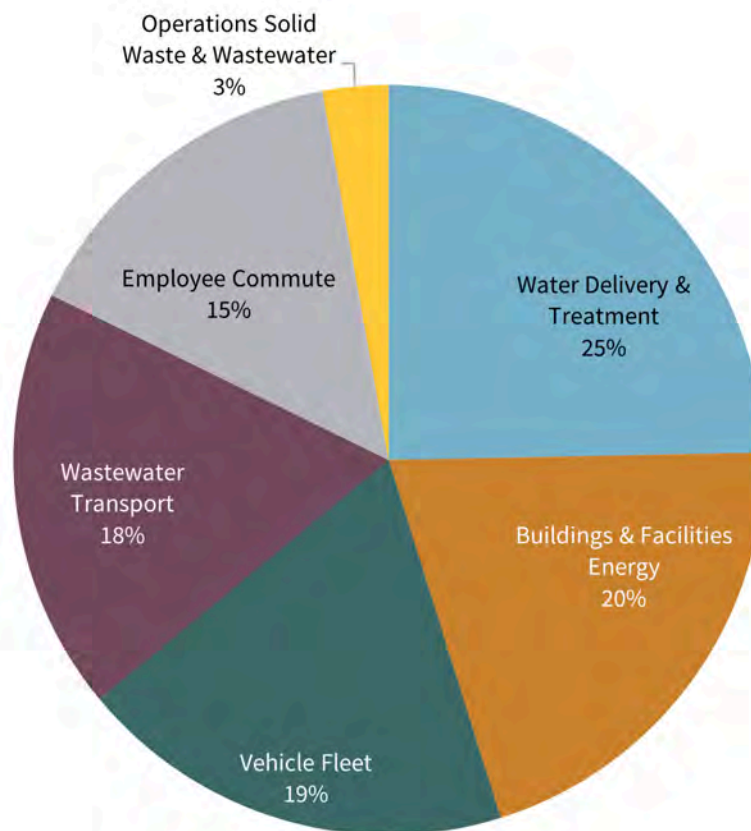
**NORTH TAHOE PUBLIC UTILITY DISTRICT
2023 Greenhouse Gas Emissions Inventory Baseline Report**

NTPUD Greenhouse Gas Emissions

Inventory Baseline Report Executive Summary

This greenhouse gas (GHG) emissions inventory baseline report estimates the emissions resulting from all North Tahoe Public Utility District (NTPUD) activities and operations in 2023 following the Local Government Operations Protocol. This report accounts for GHG emissions from NTPUD facilities, parks, water and sewer utility operations, vehicle usage, and more. The goal of this report is to, as accurately as possible, provide a snapshot of NTPUD's share of GHG emissions in 2023 to gauge areas of improvement, inform emissions reduction policy, and compare with other California water utilities through The Climate Registry's Water-Energy Nexus Registry. In 2023, NTPUD government operations generated a total of 1,025 MT CO₂e (Figure ES.1.).

Figure ES.1: 2023 NTPUD Operations GHG Emissions

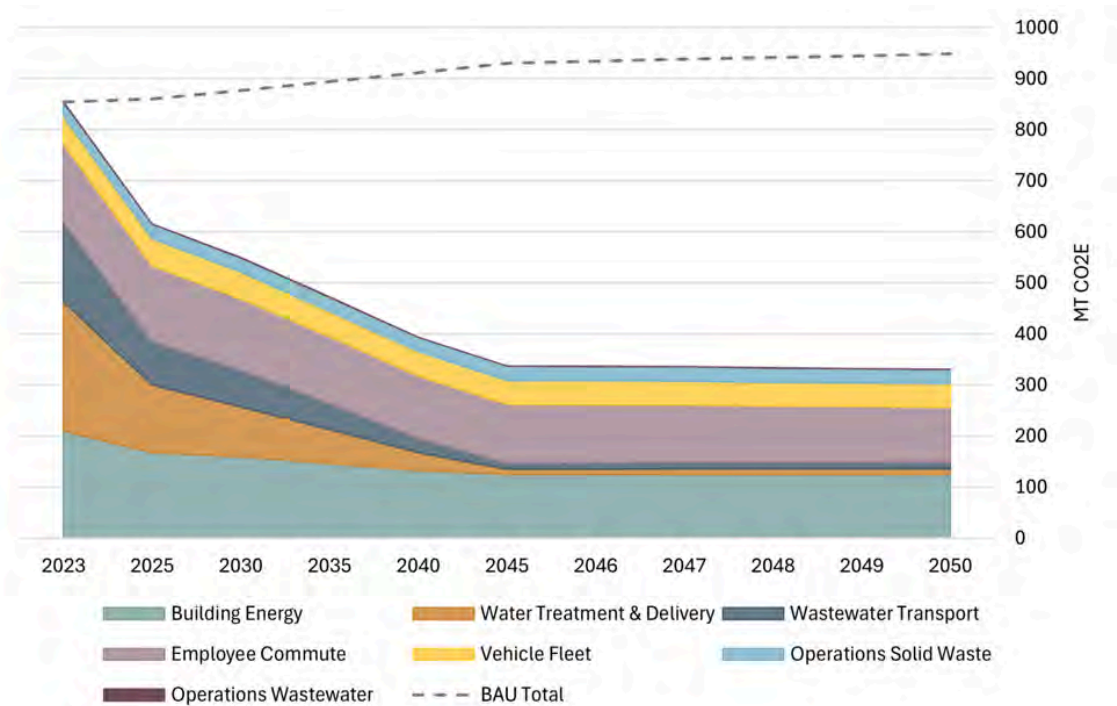


The largest emissions-generating sector was due to potable water delivery and treatment, which accounted for 25% of total emissions. NTPUD's buildings/facilities and vehicle fleet each contributed the next highest emissions, at 20% and 19% of total government operation emissions, respectively. These three categories account for 64% of all NTPUD-produced emissions. Across all sectors, electricity

makes up the largest source of emissions for NTPUD, contributing approximately 50% of emissions across Water Treatment and Delivery, Building and Facilities, and Wastewater Transportation.

This report includes two forecasts: a business-as-usual (BAU) scenario and a legislative-adjusted business-as-usual (ABAU) scenario, based on scaling factors provided by NTPUD. The ABAU scenario is the BAU forecast adjusted for known regulatory requirements that NTPUD will comply with or is known to be impacted by. The forecast provides projected emissions in five-year increments from 2025 to 2050.

Figure ES.2: NTPUD Legislative-Adjusted Business-As-Usual Forecast of Greenhouse Gas Emissions



Future emissions will be influenced by statewide legislative mandates, including requirements that increase the share of cleaner-fuel vehicles, reduce the carbon intensity of electricity provided by utilities, and promote water conservation. Some of these mandates will require direct action by NTPUD (e.g., compliance with California Air Resources Board's (CARB) Advanced Clean Fleet (ACF) Rulemaking and Making Conservation a California Way of Life), while others will occur independent of NTPUD action.

This report also includes optional strategies and measures to mitigate GHG emissions resulting from internal operations (Appendix A). In addition to GHG mitigation, many of the actions proposed in Appendix A would result in multiple co-benefits, including financial savings, indoor air quality improvements, and producing community partnerships that support NTPUD's commitment to

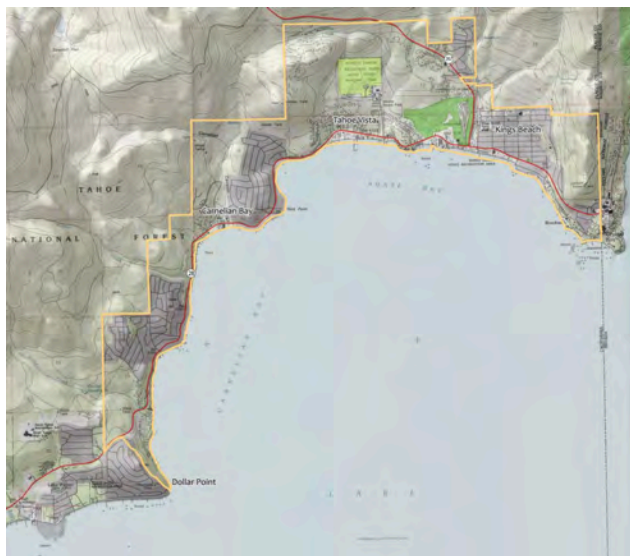
sustainably, and responsibly serving the Tahoe region. These strategies are organized into five focus areas: Energy, Vehicle Fleet, Employee Commute, Solid Waste, Water Conservation, and Collaboration.



Chapter 1: Introduction

The North Tahoe Public Utility District (NTPUD) provides water and wastewater transportation to over 5,000 customers, and recreation services to Kings Beach, Tahoe Vista, Carnelian Bay, Cedar Flat, and Agate Bay. The District's boundaries span from the Nevada state line in Crystal Bay to Dollar Hill.

NTPUD maintains several public beaches and owns and operates the North Tahoe Regional Park, the Tahoe Vista Recreation Area, and the North Tahoe Event Center in downtown Kings Beach. Emissions due to water delivery, wastewater transportation, and general operations of parks and recreation facilities are addressed in this report, along with utility operations related to staff, like employee commute emissions.



“The District is committed to serving our community and embraces the vital role that we play in helping to maintain and steward the natural beauty and resources of Lake Tahoe for our customers and future generations.”¹

¹ [NTPUD 2021 Annual Report](#)

Funding

This report was fully funded by a California Tahoe Conservancy (CTC) grant, which was awarded to TCPUD who hired Sierra Business Council to develop two inventories for NTPUD and TCPUD respectively. The scope and primary goals of this grant were simply to develop a baseline GHG inventory for both utilities, show understanding of utility district operational carbon footprints to help inform future decision making, and identify opportunities to reduce the measured emissions and allow both NTPUD and TCPUD to track progress over time toward carbon reduction goals.

Purpose

Recent changes in Earth's climate over the past century can primarily be attributed to human activities, such as the burning of fossil fuels for energy and transportation, which have resulted in higher average surface temperatures on our planet². This warming is caused by the GHGs released into the atmosphere, including carbon dioxide and methane, which, since the industrial revolution, has resulted in a heat trapping 'greenhouse' effect that has increased the global average surface temperature by 2.32 °F above the 20th century average as of 2024³. This is important because surface temperatures control many environmental and ecological processes that are critical to life on Earth. In the Lake Tahoe Basin, warming temperatures are causing climate hazards like more severe droughts and storms, less yearly snowfall, more intense wildfires, and impacts on water quality critical to Lake Tahoe ecosystems, residents, and visitors⁴. Local utilities can play a significant role to mitigate these impacts and influence customer behavior through district-wide programming. NTPUD has the ability to lead by example, both through customer education and implementation of GHG emission reduction programs and behaviors.

NTPUD has already displayed a commitment to sustainability and emergency preparedness that may be expanded on. This includes a 2023 project that replaced 11,000 feet of water pipe and added 18 new fire hydrants to increase wildfire resilience⁵, the installation of Smart Water Meters to improve leak detection and customer water use tracking⁶, engagement and capital funding through the Tahoe Water for Fire Suppression Partnership⁷, and offering financial incentives for customers who install water conservation appliances⁸, to name a few.

Legislative Context

Since 2005, the State of California has responded to growing concerns over the effects of climate change by addressing emissions in the public and private sectors through legislative action. Though

² [NASA: Climate Change](#)

³ [NOAA. Climate change: global temperature. 2025.](#)

⁴ [TRPA. Climate Resilience. 2025.](#)

⁵ [NTPUD. Completes Two-Year Water Pipeline and Community Wildfire Protection Project](#)

⁶ [NTPUD. Smart Water Meters](#)

⁷ [NTPUD. Tahoe Water for Fire Suppression Partnership Funding](#)

⁸ [NTPUD. Water Rebates.](#)

not all specific to California water districts, the legislation listed below directly influences fuel, clean energy, and transportation policy that have an impact on NTPUD emissions from energy use, vehicle efficiency, etc. California mandates and guidance on measuring and reducing GHG emissions include:

- Establishing renewable portfolio standards (Senate Bill (SB) 1078, 2002)⁹
- Executive order on California global warming impacts and targets (EO S-3-05, 2005)¹⁰
- The California Global Warming Solutions Act (Assembly Bill (AB) 32, 2006)¹¹ and its successor bill (SB 32, 2016)¹²
- Executive order for low carbon fuel standards (EO S-1-07, 2007)¹³
- The Sustainable Communities and Climate Protection Act (SB 375, 2008)¹⁴
- California Water Conservation Act of 2009 (SB X7-7)¹⁵
- Establishing mandatory commercial recycling (AB 341, 2012)¹⁶
- Executive order on Advanced Clean Cars (B-12-016, 2012)¹⁷ and successor order (N-79-20, 2022)¹⁸
- Charge Ahead California Initiative (SB 1275, 2014)¹⁹
- The California Clean Energy and Pollution Reduction Act (SB 350, 2015)²⁰
- Local government requirements for climate adaptation and resilience strategies (SB 379, 2015)²¹
- Climate Equity and Transparency Act (AB 197, 2016)²²
- The California Short-Lived Climate Pollutant Reduction Strategy (SB 1383, 2016)²³
- Community Air Protection Program (AB 617, 2017)²⁴
- Cap-and-Trade Extension to 2030 (AB 398, 2017)²⁵
- The CARB 2017²⁶ and 2022²⁷ Climate Change Scoping Plan
- The 100% Clean Energy Act of 2018 (SB 100, 2018)²⁸

⁹ [California SB 1079. 2002.](#)

¹⁰ [California Executive Order S-03-05. 2005.](#)

¹¹ [California AB 32. 2006.](#)

¹² [California SB 32. 2016.](#)

¹³ [California Executive Order EO S-1-07. 2007.](#)

¹⁴ [California SB 375. 2008.](#)

¹⁵ [California SB X7-7. 2009.](#)

¹⁶ [California AB 341. 2012.](#)

¹⁷ [California Executive Order B-12-016. 2012.](#)

¹⁸ [California Executive Order N-79-20. 2015.](#)

¹⁹ [California SB 1275. 2014.](#)

²⁰ [California SB 350. 2015.](#)

²¹ [California SB 379. 2016.](#)

²² [California AB 197. 2016.](#)

²³ [California SB 1383. 2016.](#)

²⁴ [California AB 617. 2017.](#)

²⁵ [California AB 398. 2017.](#)

²⁶ [California's 2017 Climate Change Scoping Plan. CARB. 2017.](#)

²⁷ [California's 2022 Climate Change Scoping Plan. CARB. 2022.](#)

²⁸ [California SB 100. 2018.](#)

- Making Conservation a California Way of Life (AB 1668, SB 606, 2018)²⁹
- Executive order to achieve carbon neutrality (EO B-55-18, 2018)³⁰, and
- The California Climate Crisis Act (AB 1279, 2022)³¹
- Climate Corporate Data Accountability Act (SB 253, 2023)³²
- Climate Related Financial Risk Disclosure (SB 261, 2023)³³
- Cap-and-Trade Extension to 2045 (AB 1207, 2025)³⁴

All of the above legislation provides guidance and protocols for local governments to participate in the State's GHG reduction efforts.

In response, many communities in the United States are addressing emissions at the local level, including through utility districts. As many of the major sources of GHG emissions can be directly or indirectly controlled through local policies and actions, local utility districts like NTPUD have an opportunity to play a key role in reducing GHG emissions within their jurisdictions. Through proactive measures related to water conservation, vehicle fleet, facility energy efficiency, waste diversion, and more, utility districts can contribute to emissions reductions in their communities. Inventorying GHG emissions is the first step in this process.

Inventory Methodology

This inventory was developed per the Local Government Operations Protocol using ClearPath, the online GHG emissions inventory tool offered by the ICLEI USA - Local Governments for Sustainability (ICLEI), and internal calculations. Conducting inventories over time through the same established protocols allows for accurate and consistent emissions accounting.

GHG emissions are reported in terms of metric tons of carbon dioxide equivalent, or MT CO₂e. The carbon dioxide equivalent of each GHG is calculated using its Global Warming Potential (GWP). Converting emissions from all gases to CO₂e allows for the consideration of GHGs in comparable terms. Emissions are calculated by applying emissions factors, which quantify the amount of a given pollutant emitted per unit of activity, and the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report 100-year GWPs, released in 2023.

²⁹ [California AB 1668, SB 606, 2018.](#)

³⁰ [California Executive Order B-55-18, 2018.](#)

³¹ [California AB 1279, 2022.](#)

³² [California SB 253, 2023.](#)

³³ [California SB 261, 2023.](#)

³⁴ [California AB 1207, 2025.](#)

Table 1. IPCC Sixth Assessment Global Warming Potential Values

Common Name	Chemical Formula	GWP Values (100-Year) - IPCC Sixth Assessment Report
Carbon Dioxide	CO ₂	1
Methane	CH ₄	29.8
Nitrous Oxide	N ₂ O	273

Source data, emission factors, and factor sets used for each emission sector can be found in Appendices C and D.

The Climate Registry

The Climate Registry (TCR) is a nonprofit organization, established in 2007, that supports organizations in measuring, verifying, disclosing, and reducing carbon emissions. TCR, in collaboration with CalePA, provides resources specifically to California water and wastewater agencies to measure, track, and mitigate water-related GHG emissions through its Water-Energy Nexus (WEN) Registry. Through this effort, TCR developed the WEN Registry Protocol, an emissions reporting protocol specific to the water sector that contains guidance for WEN Registry participants. Along with TCR Local Government Operations Protocols, this protocol was incorporated into the NTPUD operations inventory, where applicable, to supplement data analysis performed in ClearPath. Since NTPUD is a member of TCR, the data presented in this report was incorporated into the WEN Registry to better compare GHG emissions with similar organizations and agencies in California, as well as track emissions reduction efforts. Cameron-Cole completed WEN Registry verification for NTPUD’s 2023 GHG Emission Inventory. Documentation can be found in Appendix F.

How to Read This Report

This report provides an overview of GHG emissions, a GHG emissions forecast through 2050, and a list of voluntary strategies and measures aimed at mitigating GHG emissions resulting from internal operations in Appendix A. This report is designed to provide NTPUD with the existing status of operational emissions, divided into different sectors, and provide high level strategies and actionable measures to address those emissions. It is suggested to review the GHG emissions inventory and the forecast first to better understand how measures could reduce emissions across categories. The measures detailed in Appendix A should be considered as a menu of potential actions NTPUD could take when financially and operationally feasible. As a result, none of these measures should be considered requirements to be pursued immediately, especially those that are likely to occur over decades, and are kept high-level as technologies, priorities, and costs inevitably change over time. Having the measures listed as an Appendix is intended to reflect this rationale.



Chapter 2: Greenhouse Gas Emissions Inventory

North Tahoe Public Utility District Climate Action Background

This GHG Inventory is the first to be conducted for NTPUD, making it the baseline for future inventories. Regular GHG monitoring is an important tool in tracking progress on climate action implementation. This effort utilizes 2023 data.

The NTPUD Operations inventory estimates the emissions from all NTPUD activities and operations, including water delivery and wastewater transportation for NTPUD customers, employee commute, vehicle fleet, administrative and parks building and facility energy use, and employee contributions to solid waste and wastewater.

In 2023, NTPUD operations generated a total of 1,025MT CO₂e. The largest emissions-generating sector was water pumping and treatment, which contributed 253 MT CO₂e and accounted for 25% of NTPUD's operational emissions. Table 2.1 and Figure 2.1 summarize all NTPUD operations emissions data for 2023. All government operations source data were provided by NTPUD staff.

NTPUD Total Emissions in 2023:
**1,025 metric tons of carbon
dioxide equivalent (MT CO₂e)**

Which is the equivalent of:

239 gasoline-powered vehicles
driven for one year

2,610,224 miles driven by an
average gasoline-powered
vehicle

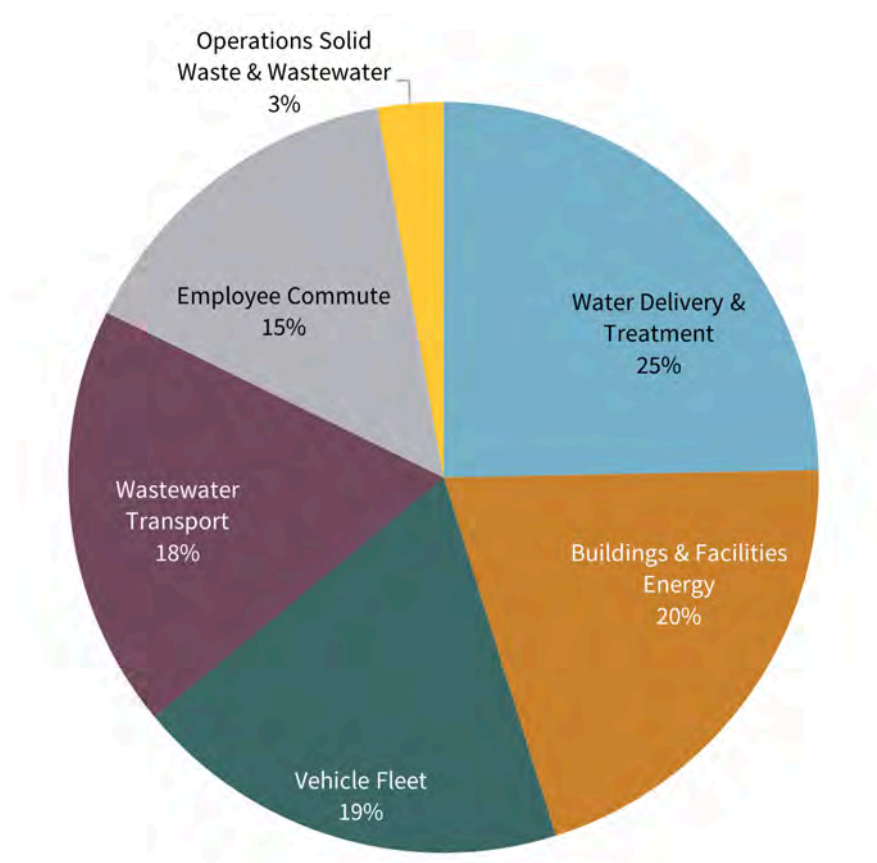
214 homes' electricity for one
year³⁵

³⁵ [EPA Greenhouse Gas Equivalencies Calculator](#)

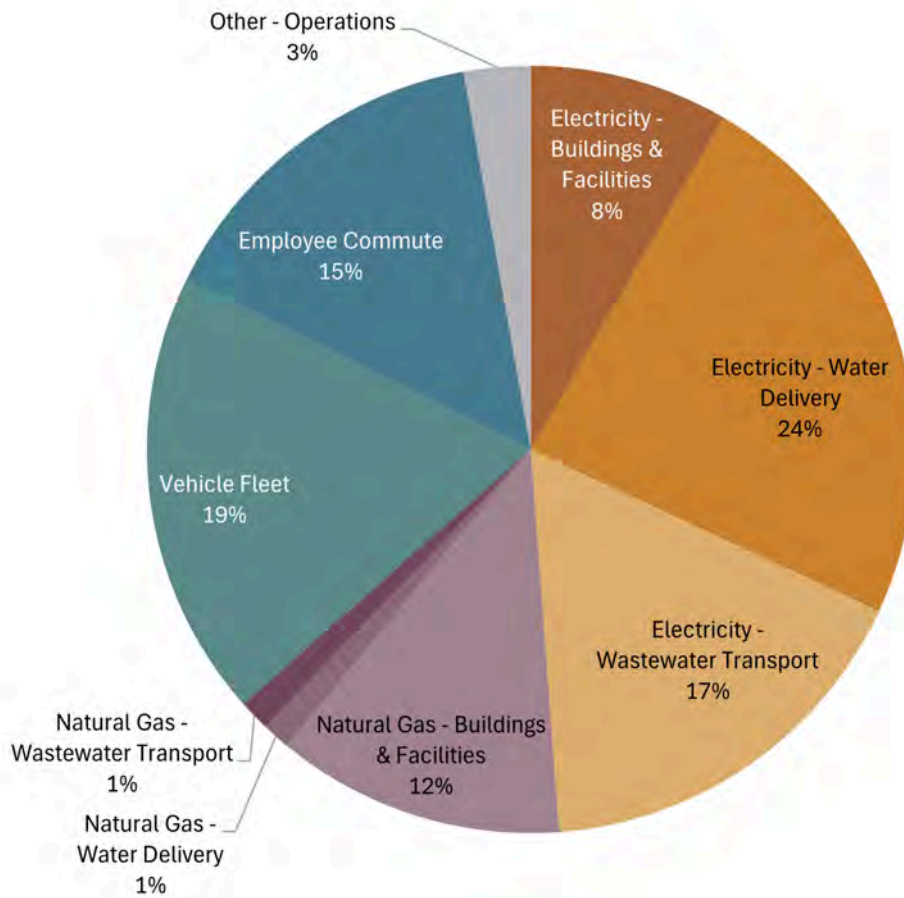
Table 2.1. NTPUD 2023 Operations GHG Emissions

Source	Total Emissions (MT CO ₂ e)	% of Total
Water Delivery & Treatment	253	25%
Buildings & Facilities	210	20%
Vehicle Fleet	193	19%
Wastewater Transport	187	18%
Employee Commute	155	15%
Operations Solid Waste & Wastewater	29	3%
Total	1,025	100%

Figure 2.1. NTPUD 2023 Operations GHG Emissions



In Figure 2.2, the energy fuel types have been broken down to demonstrate that 49% of total emissions are due to electricity usage and 14% due to natural gas usage. Together, energy usage makes up 63% of total emissions from NTPUD operations.

Figure 2.2. NTPUD 2023 Emissions, Energy Fuel Breakdown

Government operations' emissions are commonly reported by scope. Scope classifications are used primarily to categorize emissions and avoid double-counting. Scope definitions are as follows:

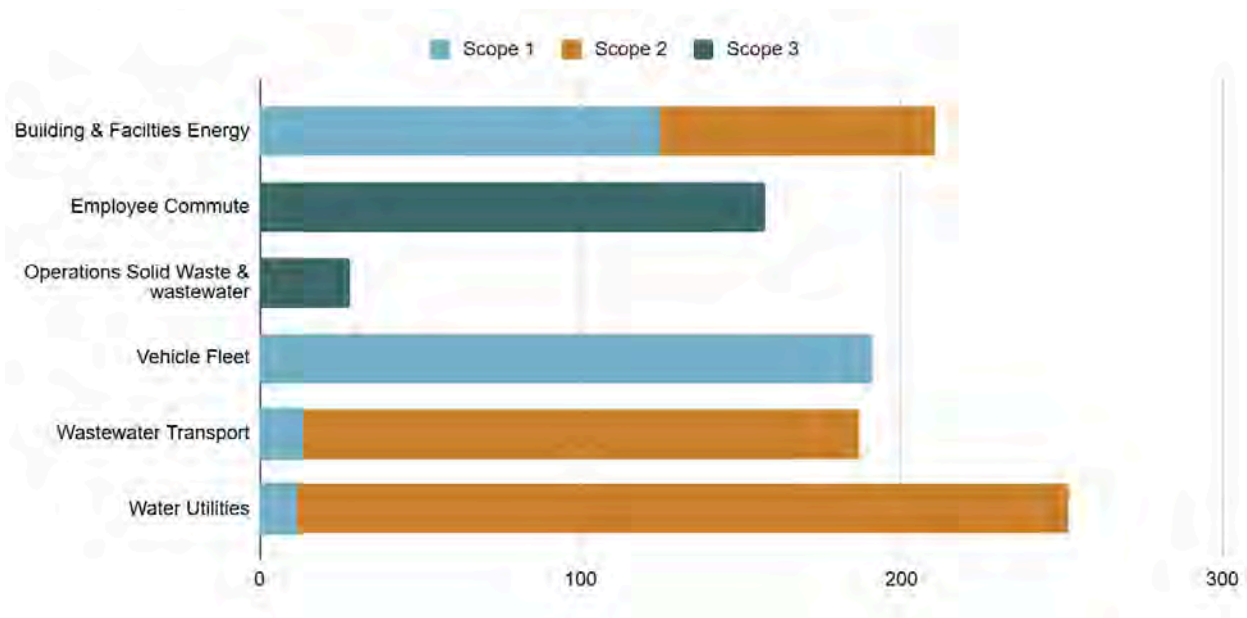
- Scope 1 includes direct emissions from sources within the geographic boundary.
- Scope 2 consists of indirect emissions caused by activities within the geographic boundary, but from emissions that occur outside the geographic boundary (e.g., electricity).
- Scope 3 includes all other indirect emissions, such as emissions resulting from transport-related activities in vehicles not owned or controlled by the reporting entity (e.g., employee commuting and business travel), outsourced activities, waste disposal, etc.

Table 2.2 details the emissions sources and categories by scope. The TCR Local Government Operations Protocol requires that Scope 1 and Scope 2 emissions be quantified. The reporting of Scope 3 emissions is optional; they are included in this report where appropriate and relevant.

Table 2.2. Emissions by Scope

Scope	Sector	Source or Activity
1	Buildings & Facilities	Natural Gas
	Vehicle Fleet	On-Road Vehicles
	Vehicle Fleet	Off-Road Vehicles & Equipment
2	Buildings & Facilities	Grid electricity
	Water & Wastewater Transport	Grid electricity
3	Operations Solid Waste & Wastewater	Landfilled Solid Waste & Wastewater Treatment
	Employee Commute	On-Road Vehicles

Figure 2.3. NTPUD 2023 Operations Emissions by Scope



Water Delivery & Treatment Emissions

Energy use from waste delivery and treatment is primarily due to water pump stations and the water treatment plant owned and operated by NTPUD for community water use. To avoid double-counting, the energy used for water delivery is not included in the total for buildings and facilities. Water delivery and treatment accounted for 253 MT CO₂e in 2023. Electricity usage makes up 95% of this sector’s emissions, as identified in Table 2.3. The water treatment plant accounts for 69% of all emissions in this sector. Electricity is provided by Liberty Utilities, and Southwest Gas supplies natural gas. Energy usage data was supplied by NTPUD staff. Emissions from natural gas are considered Scope 1; emissions from electricity are considered Scope 2.

Table 2.3. Water Delivery and Treatment Operations

Energy Type	Total Usage	GHG Emissions (MT CO ₂ e)	% of Total
Grid Electricity	929,012 kWh	241	95%
Natural Gas	2,200 therms	1	5%
Total		253	100%

Buildings & Facilities Emissions

In the buildings and facilities sector, emissions result from grid electricity use by Liberty Utilities and natural gas use by Southwest Gas. NTPUD staff provided usage data for all NTPUD buildings and facilities.

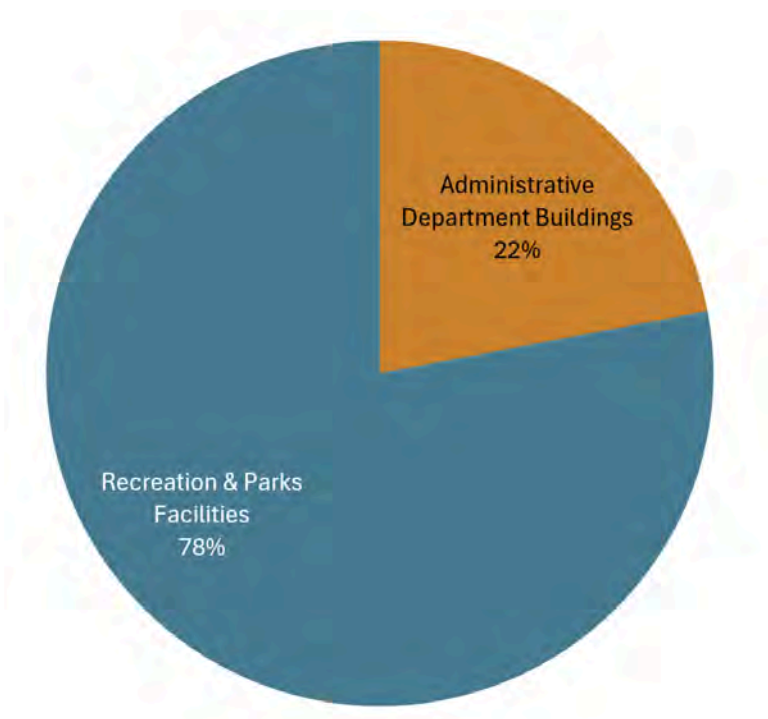
Grid electricity accounted for approximately 41% of emissions from buildings and facilities, as identified in Table 2.4. Natural gas accounted for 59%. NTPUD staff confirmed that no alternative energy sources, like propane or wood, are utilized by NTPUD buildings. Buildings and facilities were the second-largest contributing sector to overall NTPUD Operations, accounting for 20% of total government emissions in 2023 and producing 210 MT CO₂e. Emissions from natural gas are classified as Scope 1 emissions, while grid electricity emissions are considered Scope 2.

Table 2.4. Buildings & Facilities Activity & Emissions Data by Energy Source

Energy Type	Total Usage	GHG Emissions (MT CO ₂ e)	% of Total
Natural Gas	23,400 therms	124	59%
Grid Electricity	331,677 kWh	86	41%
Total		210	100%

The majority of building energy emissions come from the 875 National Ave location, contributing 30%, and 8318 N Lake Blvd, NTEC, contributing 55%, to this sector's emissions. The three facilities at the 875 National Ave address are under the Administrative Department, while the rest are associated with the Recreation and Parks Department. Figure 2.4 below shows the breakdown of emissions by departmental facilities.

Figure 2.4. Building & Facility Emissions by Department



Vehicle Fleet Emissions

The NTPUD fleet includes 44 on-road vehicles: 36 that use gasoline and eight that use diesel. Gasoline vehicles accounted for approximately 82% of the fleet, while diesel vehicles accounted for approximately 18%. Vehicle fleet emissions accounted for 19% of overall NTPUD Operations emissions in 2023. The NTPUD fleet includes 28 off-road vehicles, but only nine were active in 2023. Off-road vehicles include any that are not street legal, such as forklifts, tractors, excavators, and loaders, among others. Of the nine off-road vehicles used in 2023, seven were diesel-powered, and two ran on gasoline. Off-road vehicles were utilized for a total of 1656.5 hours in 2023, as recorded in Table 2.5. The fleet vehicle miles traveled (VMT) was a combined 143,100 miles in 2023. Data for this sector was provided by NTPUD staff. Vehicle fleet emissions are categorized as Scope 1 emissions.

Table 2.5. Vehicle Fleet Source & Activity Data for 2023

Fuel Type	Total Usage (gal)	GHG Emissions (MT CO ₂ e)	% of Total
Gasoline - On-Road	15,477	136	71%
Diesel - On-Road	3,898	40	20%
Diesel - Off-Road	1,353	16	8%
Gasoline - Off Road	66	1	<1%
Total	21,031	193	100%

Wastewater Transport Emissions

Energy use from wastewater transportation is primarily due to the pumping of wastewater. To avoid double-counting, the energy used for wastewater transportation is not included in the total for buildings and facilities. Wastewater transport accounted for 187 MT CO₂e in 2023. NTPUD does not provide wastewater treatment; emissions related to wastewater treatment are attributed to the Tahoe-Truckee Sanitation Agency. Electricity accounts for 93% of emissions due to sewer utilities, as identified in Table 2.6. The Lake Dollar Hill Lift Station contributes 63% of emissions to the wastewater transport sector. Electricity is provided by Liberty Utilities, and Southwest Gas supplies natural gas. Usage data was supplied by NTPUD staff. Emissions from natural gas are considered Scope 1; emissions from electricity are considered Scope 2.

Table 2.6. Wastewater Transport Operations

Energy Type	Total Usage	GHG Emissions (MT CO ₂ e)	% of Total
Grid Electricity	669,942 kWh	173	93%
Natural Gas	2,519 therms	14	7%
Total		187	100%

Employee Commute Emissions

A digital transportation survey was distributed to all NTPUD employees to compile the employee commute dataset. The survey included questions regarding mileage to and from work, how many days per week were spent driving to work, vehicle type, and fuel type. The survey is located in Appendix E. In total, 34 out of 50 employees completed the survey. The responses were scaled to create an estimate for the total number of employees. Using the information gathered from the survey responses, total VMT per year by fuel and vehicle types were calculated using a scaling factor.

Commuting by NTPUD employees accounted for 15% of the NTPUD Operations' emissions in 2023. Gasoline vehicles were the only source of emissions within the employee commute sector, given that no employees stated they drove diesel vehicles (see Table 2.7). Emissions from electric vehicles are not captured here, as vehicle charging is captured in residential or commercial energy use; these sectors are not included in this inventory. Employee commute emissions can be attributed to Scope 3.

Table 2.7. Employee Commute Activity & Emissions Data

Fuel Type	Total VMT	GHG Emissions (MT CO ₂ e)
Gasoline	358,203	152
Electric	46,711	0
Total	404,914	152

Operations' Solid Waste & Wastewater Emissions

NTPUD emitted a total of 28 MT CO₂e due to solid waste in 2023, which accounted for 3% of total emissions from NTPUD Operations. NTPUD generated 135.4 tons of mixed solid waste in 2023, as identified in Table 2.8. This waste was collected from dumpsters at various facility locations and delivered to the Lockwood Landfill in Nevada. NTPUD recycled 5 tons of cardboard in a separate cardboard-only dumpster, which was collected and delivered to Cabin Creek Landfill in Placer County to be recycled. The 5 tons of recycled cardboard do not contribute to emissions in this sector. Solid waste data was provided by NTPUD staff, with regional waste characterization utilized for emission calculations (found in Appendix D). Emissions from solid waste are considered Scope 3.

Table 2.8. Government Facility Solid Waste Activity & Emissions Data

Landfill	Total Waste Generated (tons)	GHG Emissions (MT CO ₂ e)
Lockwood Landfill	135.4	28

The Tahoe-Truckee Sanitation Agency serves all NTPUD facilities for wastewater treatment. The Tahoe-Truckee Sanitation Agency utilizes nitrification/denitrification processes. NTPUD does not own or operate a wastewater treatment plant. Wastewater treatment emissions are calculated using the total number of employees at NTPUD in 2023 (50 employees plus 17 seasonal employees). Emissions generated from wastewater treatment outside of the jurisdiction are considered Scope 3.

Table 2.9. Government Facility Wastewater Emissions Data

Source	Total Emissions (MT CO ₂ e)
N ₂ O Emissions from Effluent Discharge	<1
N ₂ O Emissions from Wastewater Treatment	<1
Total	<1

Chapter 3: Emissions Forecast

GHG emissions forecasts provide estimates of future greenhouse gas emissions based on current trends and known operational growth, and consider regulatory actions mandated by the state of California or federal agencies expected to reduce future emissions. Forecast calculations were completed using ICLEI's ClearPath tool, with some additional calculations completed external to the tool.

This report includes two forecasts: a business-as-usual (BAU) scenario and a legislative-adjusted business-as-usual (ABAU) scenario, based on scaling factors provided by NTPUD. These scaling factors are listed below. The ABAU scenario is the BAU forecast adjusted for known regulatory requirements that the District will comply with or is known to be impacted by. These regulatory factors are listed below. The forecast provides projected emissions in five-year increments from 2025 to 2050.

Table 3.1: Business As Usual Scaling Factors

Emission Sector	Scaling Factor	Annual Percent Change
Building Energy	Water Production	0.5%
Water Delivery	Water Production	0.5%
Wastewater Transportation	Water Production	0.5%
Employee Commute	Water Production	0.5%
Vehicle Fleet	Water Production	0.5%
Solid Waste	None	0%
Employee Wastewater	None	0%

Water production is projected to increase by 0.5% annually at NTPUD. This value was used as a proxy for increased Wastewater Transportation, Vehicle Fleet VMT to assess pumps and other equipment, increased Employee Commute VMT due to a slight increase in labor demand, and was used to demonstrate an increase in energy used across all buildings operated by the District.

The California Water Board regulation, Making Water Conservation a California Way of Life³⁶, mandates water districts reduce water production by 10% between 2025 and 2030. This 10% reduction in water production was applied to NTPUD's ABAU forecast scenario for the Water Delivery and Wastewater Transport emission sectors between 2025 and 2030, with the 0.5% water production scaling factor applied to all other years.

Table 3.2: Legislatively Adjusted Business As Usual Carbon Intensity Factors

Emission Sector	Carbon Intensity Factor	Annual Percent Change
Building Energy	Renewable Portfolio Standard ³⁷	-2.5% ³⁸
Water Delivery	Renewable Portfolio Standard	-2.5%
Wastewater Transport	Renewable Portfolio Standard	-2.5%
Employee Commute	CAFE Standards ³⁹	-0.018%
Vehicle Fleet	CAFE Standards	-0.018%
Solid Waste	None	0%
Employee Wastewater	None	0%

It must be noted that the majority of forecasted emission reductions are due to Liberty Utilities' compliance with the Renewable Portfolio Standards (RPS), which mandates utility companies provide 100% renewable electricity by 2045. If Liberty Utilities does not meet the RPS mandate, NTPUD should expect higher emissions than predicted in Figure 3.1.

Additionally, the omission of NTPUD's compliance with CARB's Advanced Clean Fleet (ACF) rulemaking may reduce emissions from the Vehicle Fleet sector not captured in this forecast. The District does not currently have a detailed plan to convert its combustion-engine fleet to electric vehicles that could be modeled to forecast emission reductions accurately. To account for projected lower emissions from Employee Commute and Vehicle Fleet due to legislation, the national CAFE Standards were utilized to model how new vehicles are being manufactured to be more fuel efficient, and new vehicle purchases by the District or District employees will lead to reduced emissions in the transportation sector.

³⁶ [CA Water Board, Making Water Conservation a California Way of Life Regulation](#)

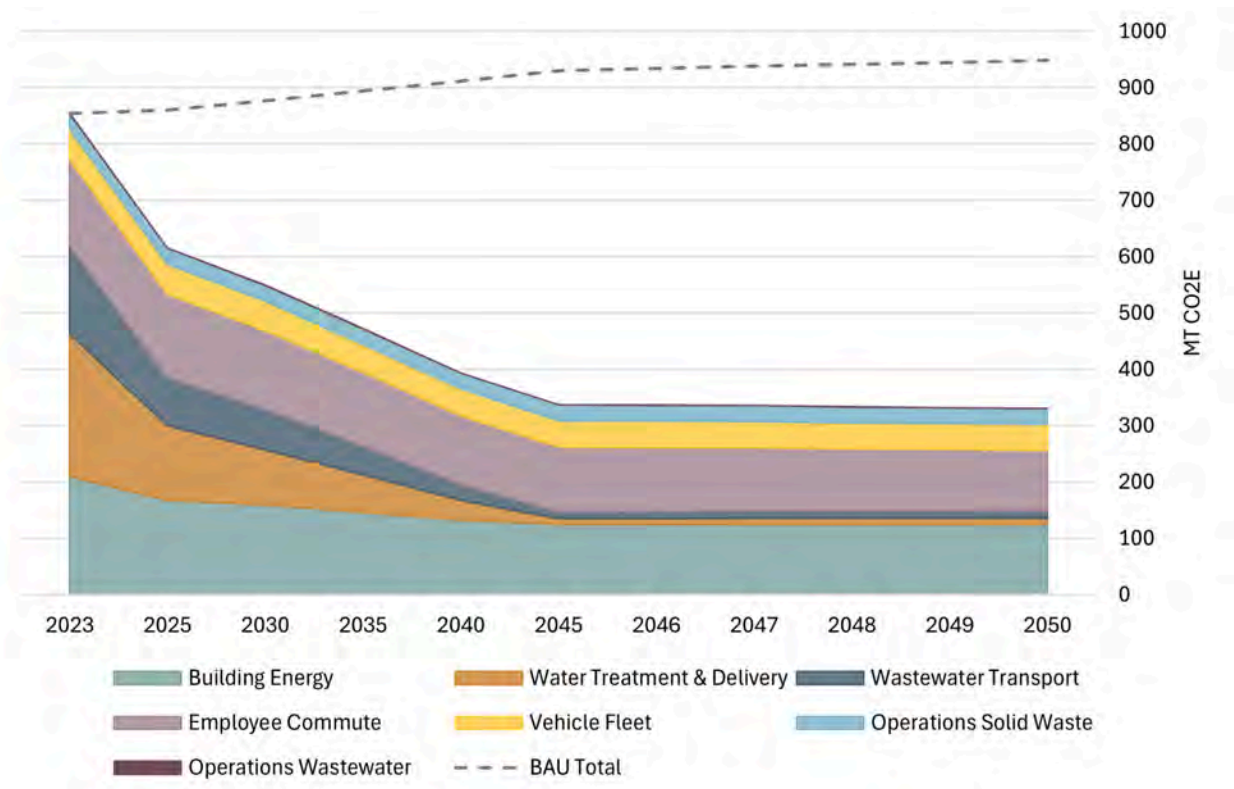
³⁷ [California's Renewable Portfolio Standard](#) requires 60% of the state's electricity to come from renewable sources by 2030, and 100% of the state's electricity to come from renewable sources by 2045. Only applied to electricity, natural gas emissions factors remain the same.

³⁸ The state's share of renewable energy must increase from roughly 43% in 2023 to 100% by 2045, representing an average required increase of approximately 2.6% per year.

³⁹ [Corporate Average Fuel Economy](#) per the US Department of Transportation. This forecast does not include vehicle emission reductions due to compliance with CARB's Advanced Clean Fleet Regulation. The Trump Administration has overturned the current CAFE Standards as of December 2025. The annual percent change shown here is from the Biden-era CAFE Standards and the new percent change will be lower when released.

Furthermore, additional water conservation regulations from the CA State Water Board are expected after 2030. This will mandate that NTPUD produce fewer gallons of water per year, thereby reducing energy consumption for water pumping and wastewater transportation. This will result in lower emissions across the Water Delivery and Wastewater Transport sectors, which are not captured in this forecast.

Figure 3.1: NTPUD Legislative-Adjusted Business-As-Usual Forecast of Greenhouse Gas Emissions

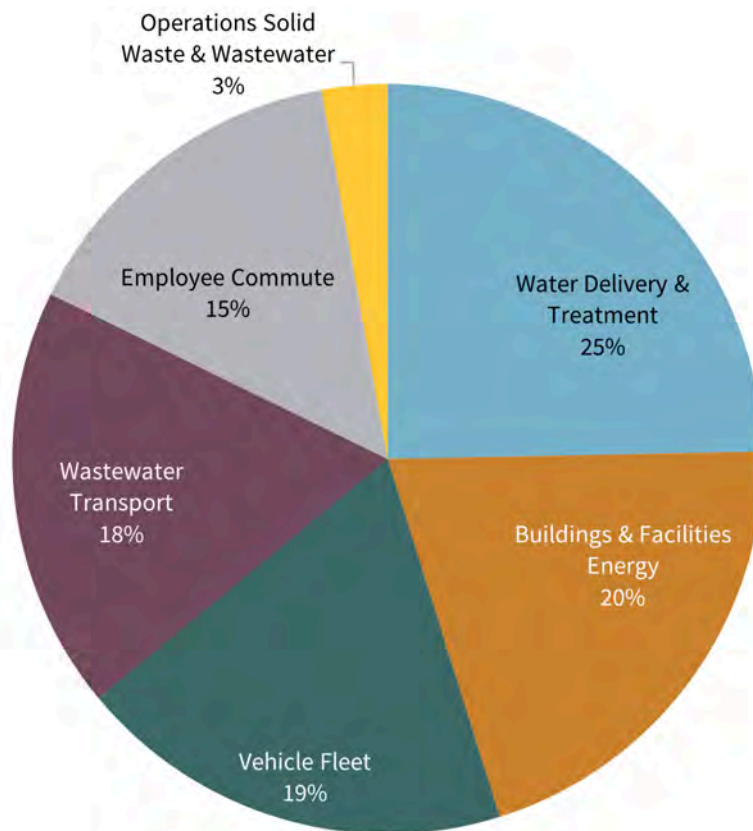


Emissions forecasts should be used only for informational purposes, and emission reduction measures should be implemented to guarantee emissions reductions by 2050.

Chapter 4: Conclusion

This report provides NTPUD with a comprehensive look at its GHG emissions status as of 2023, through an introduction of NTPUD's current climate action setting, an inventory of emissions by source, and a forecast of potential future emissions. In 2023, NTPUD emitted 1,025 MT CO₂e across district-wide operations. The highest emitting sector was Water Treatment and Delivery, accounting for approximately one-quarter of total emissions, as shown in Figure 4.1.

Figure 4.1: 2023 NTPUD Operations GHG Emissions



Across all sectors, electricity makes up the largest source of emissions for NTPUD, contributing approximately 50% of emissions across Water Treatment and Delivery, Building and Facilities, and Wastewater Transportation. Future emissions will be influenced by statewide legislative mandates, including requirements that increase the share of cleaner-fuel vehicles, reduce the carbon intensity of

electricity provided by utilities, and promote water conservation. Some of these mandates will require direct action by NTPUD (e.g., compliance with CARB's ACF rulemaking and Making Conservation a California Way of Life), while others will occur independent of District action.

Appendix A provides optional voluntary climate action measures that NTPUD can consider to seek a reduction in GHG emissions resulting from internal operations. The measures presented in this appendix should be viewed through an action-oriented lens to guide staff efforts and support the Board of Directors in making budget and capital investment decisions. As next steps, TCPUD can identify priority near-term actions, pursue feasibility studies where recommended, and establish an implementation and monitoring process to track progress toward emissions reduction goals.

It is recommended that NTPUD update the baseline GHG inventory presented in this report at least every five to ten years to reflect changes in district-wide emissions and track progress toward emissions reduction goals.



Appendix A: Optional GHG Reduction Strategies and Measures

This appendix presents the strategies and measures that NTPUD can implement to reduce GHG emissions generated from its operations. These district-specific initiatives are organized under six sectors and include details regarding potential GHG reduction impacts, timeline, and cost. These estimates are presented qualitatively, using the best available information and NTPUD feedback. The following definitions were used to determine the estimates identified in this appendix:

Table 4.1: Measure Impacts Key

GHG Reduction	Timeline	Cost Range
★	△	\$
Low 0-4% reduction	Short Term 1-5 Years	Little procurement required, low maintenance, some staff time
★ ★	△ △	\$ \$
Medium 5-9% reduction	Medium Term 5-20 Years	Procurement of some expensive equipment, moderate maintenance, staff time
★ ★ ★	△ △ △	\$ \$ \$
High 10%+ reduction	Long Term 20+ Years	Significant procurement, high maintenance costs, and more staff time required

Estimated percent GHG reduction is in relation to the total 1,025 MT CO₂e calculated in the GHG Inventory (Chapter 2). Timeline and cost projections are dependent on the scope, as well as material cost and funding availability, of the measure at time of implementation. For instance, installing an EV charger today would be quicker and cheaper if only implemented at one site, rather than at all public facing parking lots operated by NTPUD, and the cost of EV chargers may be lower or funding sources more generous years down the road. As a result, qualitative estimates were made based on other recent examples and NTPUD feedback, when available. Where applicable, considerations and resources are presented in addition to estimated GHG impacts, timeline, and cost.

This appendix includes 18 strategies and 43 measures that would reduce GHG emissions resulting from NTPUD operations. The strategies are organized into six focus areas: energy, vehicle fleet, employee commute, solid waste, water conservation, and collaboration. Each focus area presents strategies that

serve as the foundation for addressing GHG emissions reductions throughout NTPUD facilities and operations. Within each strategy are one or more specific climate action measures. Each measure includes a description of potential total GHG reduction impact, timeline, and cost. Measures are presented in no particular order, leaving prioritization of measures and implementation decision-making to NTPUD staff and Board of Directors. Where possible, it is noted that NTPUD has already taken action towards a measure and additional action would increase or continue progress toward emissions reduction.

While the initiatives included are primarily intended to reduce emissions, they also may provide co-benefits, such as financial savings, improved air quality, and water conservation. The strategies and measures proposed in this chapter were developed based on a combination of factors, including the results of the NTPUD GHG emissions inventory, feedback from NTPUD staff, and the best available climate action planning guidance. The following sections provide background information and context for each focus area and present the strategies and measures.



ENERGY

STRATEGY E-1: Water Pump Energy

STRATEGY E-2: Building Energy Efficiency

STRATEGY E-3: Building Resilience

STRATEGY E-4: Building Electrification

STRATEGY E-5: Use Energy Conscious Products

Energy

The energy used in NTPUD buildings and facilities and for water production and pumping and wastewater transportation is the largest contributor to its GHG output, making up 63% of total emissions in 2023. Although reductions from adopted State legislation will help to reduce building energy emissions over time, additional action taken by NTPUD will reduce GHG emissions. Lower energy consumption also has the co-benefits of protecting the District's general fund against rising energy rates, improved local air quality, and increased resilience.

Strategies and Measures

Due to its high energy use, the energy sector offers NTPUD significant opportunities to achieve emissions reductions. This section outlines strategies and measures NTPUD could implement to reduce energy-related GHG emissions. Due to cost constraints and the need for reliable energy for critical water infrastructure, many of the proposed measures may only be feasible on longer timelines when more robust funding support is available, and technological advances can deliver the 24/7 energy reliability required by a water district. Therefore, many of the following measures focus on accessible, short-term steps, surveys of the current status of energy use at NTPUD, and the development of frameworks for future energy efficiency projects.

Energy	Measure	GHG Reduction	Timeline	Cost
Strategy E-1. Water Pump Energy	E-1a. Evaluate Existing Pump Efficiency	Indirect	△	\$
	E-1b. Install Energy Efficient Pump Systems	* *	△ △ △	\$ \$
	E-2a. Complete Facility Audits	Indirect	△	\$
	E-2b. Pursue Existing Building Commissioning	*	△	\$ \$
	E-2c. Install Smart Thermostats	*	△	\$
	E-2d. Convert All Interior and Exterior Lighting to LED	* *	△	\$
Strategy E-2. Building Energy Efficiency	E-2e. Install Auto-Shut Offs for Lighting and Computers	*	△	\$
	E-2f. Adopt an Energy Management System	* *	△	\$ \$
	E-2g. Exceed Title 24 Building Energy Efficiency Standards	* * *	△ △ △	\$ \$
Strategy E-3. Building Resilience	E-3a. Install Battery Storage Systems at All Critical Facilities	* *	△ △	\$ \$ \$
	E-3b. Conduct Feasibility Study of	Indirect	△	\$

	Large Scale Battery Storage			
Strategy E-4: Building Electrification	E-4a. Electrification Feasibility Study	Indirect	△	\$
	E-4b. Electrify Facilities	* * *	△ △ △	\$ \$ \$
	E-4c. Consider Policies for All Retrofits and New Constructions to be All-Electric	Indirect	△ △	\$
Strategy E-5: Use Energy Conscious Products	E-5a. Purchase EnergyStar Certified Equipment	* *	△	\$
	E-5b. Purchase Environmentally Preferable Products	*	△	\$

Strategy E-1. Water Pump Energy

Water treatment and delivery and wastewater transportation make up 43% of NTPUD's emissions. While water treatment makes up a large portion of these emissions, more than half are due to pumping water and wastewater. These emissions are primarily from electricity used to power pumps.

E-1a. Evaluate Existing Pump Efficiency

NTPUD should continue to review pump efficiency on a monthly basis. As pumps come to the end of their useful life, review replacement options with an energy efficiency lens. Ensuring that these units are operating at the highest efficiency level will maximize cost savings and enhance operational resilience.

GHG Reduction	Timeline	Cost
Indirect	△	\$

E-1b. Install Energy Efficient Pump Systems

As pumps come to the end of their useful life as identified in the monthly pump efficiency review from Measure E-1a, installing pumps with increased efficiency and reducing pipe leaks can have significant emissions reductions. Installing variable frequency drives (VFD) can result in significantly more energy saving than more efficient pumps alone.

GHG Reduction	Timeline	Cost
**	△ △ △	\$ \$
Considerations - Pump retrofits will likely have cost savings due to reduced electricity demand. Pump efficiency projects can have a pay back period of one to eight years based on energy savings. Resources - US EPA. Strategies for Saving Energy at Public Water Systems - Energy Sector Management Assistance Program. A Primer on Energy Efficiency for Municipal Water and Wastewater Utilities		

Strategy E-2. Building Energy Efficiency

Due to the high proportion of emissions resulting from the operation of NTPUD's buildings and facilities, increasing the energy efficiency of these buildings would significantly reduce GHG emissions.

E-2a. Complete Facility Audits

NTPUD can complete ASHRAE level audits on high energy use facilities to determine where energy efficiency, weatherization, or other retrofits can be applied for maximum energy, building comfort and cost saving outcomes. NTPUD should determine which facilities should have ASHRAE Level 1, 2, or 3 audits conducted depending on energy use and emissions recorded in the GHG inventory.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Considerations - Though an audit alone doesn't result in any GHG emissions reductions, audits help identify next steps to be taken. Resources ASHRAE energy audits More information on different levels and potential pricing		

E-2b. Pursue Existing Building Commissioning

Conduct existing building commissioning, which will help NTPUD optimize building performance and fix operational deficiencies.

GHG Reduction	Timeline	Cost
*	△	\$ \$
Resources • ASHRAE Commissioning Resources		

E-2c. Install Smart Thermostats

While NTPUD already has smart thermostats installed across buildings and facilities, it's worth confirming that there aren't any missing opportunities for implementation and current thermostats are operating effectively across all locations. Ensure the thermostats are programmed to seasonally appropriate energy efficiency temperatures and to the most efficient ranges while buildings are not in use (e.g., overnight, weekends).

GHG Reduction	Timeline	Cost
*	△	\$
Resources • Efficiency Smart 6 Energy-Saving Tips for Your Commercial HVAC System		

E-2d. Convert All Interior and Exterior Lighting to LED

Convert all remaining interior and exterior non LED lighting to LEDs, and ensure replacement bulbs are LEDs with the correct light levels for the space.

GHG Reduction	Timeline	Cost
* *	△	\$
Considerations • GHG reduction potential could be lower depending on the amount of lighting that still requires LED retrofits. However, lighting retrofit projects often result in high ROI.		

E-2e. Install Auto-Shut Offs for Lighting and Computers

Audit sensor operation in offices, bathrooms, storage closets, pump houses, and other spaces to make sure they are working as intended. Install smart power strips to shut down monitors and computers when not in use (programmed for afterhours, overnight shut down).

GHG Reduction	Timeline	Cost
*	△	\$

E-2f. Adopt an Energy Management System

Acquire an Energy Management System (EMS) to monitor energy use across all facilities on one platform. These systems can support the identification of areas for energy efficiency improvement, reduce operational costs, and flag poorly performing facilities.

GHG Reduction	Timeline	Cost
**	△	\$ \$

E-2g. Exceed Title 24 Building Energy Efficiency Standards

Create an operating protocol for current and new buildings, when feasible considering financially reasonable ROI, to exceed the energy efficiency requirements of the building energy standards of Title 24. Title 24 Part 6 regulates energy uses including space heating and cooling, hot water heating, ventilation, and integrated lighting.

GHG Reduction	Timeline	Cost
***	△ △ △	\$ \$

Resources

- [The California Energy Commission's Building Energy Efficiency Standards page](#)

Strategy E-3. Building Resilience

Energy resilience is a critical piece of the electrification journey, which would support NTPUD to reduce its GHG emissions and become more prepared for power outages, emergencies, and bolster operations security and staff and customer safety. As a critical utility, it is necessary for NTPUD to implement resilience backstops prior to becoming fully electrified. Secondly, resilience improvements such as solar and battery storage will help NTPUD save on energy bills over the long term. There is often state funding available for these projects.

E-3a. Install Battery Storage Systems at All Critical Facilities

Survey critical or high priority NTPUD facilities that rely on backup generators and consider replacing them with battery backups. In addition, batteries may be paired with solar panels to provide clean

energy and service during extended power outages. By supplementing or replacing current diesel backup generators, battery storage will greatly reduce emissions during emergency backup occurrences.

GHG Reduction	Timeline	Cost
**	△ △	\$\$\$
Considerations - As a critical service provider, NTPUD must be able to provide clean drinking water and transport wastewater regardless of power outages. As NTPUD identifies facilities that could replace diesel generators with battery storage systems, consider length and wattage batteries can provide contingency plans for extended power outages. - Batteries can also be used to help reduce peak demand charges through load shifting, where batteries discharge stored energy during high-usage periods to prevent costly, short-term power spikes. Resources California American Water Completes Batter Backup System Installation Inland Empire Utilities Agency combines energy storage with renewables at wastewater treatment plant		

E-3b. Conduct Feasibility Study of Large Scale Battery Storage

Conduct a feasibility study for NTPUD to adopt battery storage, ideally paired with renewable energy, infrastructure to lower grid energy reliance and improve resilience. As renewable electricity becomes more available, establishing a mechanism to store the energy for times when power may not be available will become essential. The system would also be available to use for rate and GHG emissions arbitrage, allowing NTPUD to reduce GHG emissions and potentially save money over time. The true costs and savings associated with a storage system of this size would be further defined by the feasibility study.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Considerations - Though a feasibility study does not in itself reduce GHG emissions, implementation would have a significant impact on building energy use and costs. Resources California Energy Commission: Assessing the Value of Long-Duration Energy Storage in California		

Strategy E-4. Building Electrification

As California mandates a transition away from natural gas, NTPUD should begin to evaluate the electrification transition across buildings and facilities that utilize natural gas for space and water heating. The effectiveness of building electrification in reducing NTPUD's nearly 50% emissions from electricity will depend on NTPUD's electricity provider complying with California's Renewable Portfolio Standard (RPS). RPS requires electricity providers in California to provide customers with 100% carbon free electricity by 2045. Electrification for a critical utility like NTPUD will depend on the progression and application of electric alternatives when financially and operationally feasible to do so. As a result, it is expected that these measures will be pursued over medium to long term bases, depending on the rate of improvement and affordability of electric technologies.

E-4a. Conduct an Electrification Feasibility Study

NTPUD will survey operations to inventory all natural gas equipment across owned and operated facilities, and make cost-effective replacement schedules for each. This survey will result in a matrix, which outlines the various pieces of equipment and appliances (e.g. water heaters, HVAC) at each facility. This matrix may include the facility name, types and number of pieces of equipment, location of equipment, estimated age, and potential cost to replace it. An added benefit of this measure will be an up-to-date inventory of equipment, their condition, and expected replacement schedule, thereby increasing operational resiliency.

GHG Reduction	Timeline	Cost
Indirect	Δ	\$
Considerations Though a feasibility study alone doesn't result in any GHG emissions reductions, inventorying equipment using natural gas and planning for mandated transitions will support NTPUD complying with energy transition mandates in the future.		

E-4b. Electrify Facilities

Upon completion of the survey and replacement schedule matrix, NTPUD may consider implementing plans to replace gas-consuming equipment with electrically-powered equivalents in line with the established timeframes with proper consideration given to feasibility and utility service resilience issues. The survey matrix will be updated yearly to reflect the completion of any electrification retrofits. It is anticipated that most equipment would be replaced near the end of its useful life or in an order that replaces the oldest and most antiquated pieces of equipment first.

GHG Reduction	Timeline	Cost
* * *	Δ Δ Δ	\$ \$ \$
Considerations Replacement of existing equipment with electrically-powered equivalents will be dependent on equipment type and how critical it is to NTPUD’s water operations. It is expected that heavy duty equipment will be replaced on long timescales as technology and backup battery systems can support critical operations during extended power outages.		

E-4c. Consider Policies for All New Retrofits and Construction to be All-Electric

Adopt an operating policy requiring new construction and building retrofits to be all-electric, where feasible. Electrification ensures buildings can achieve carbon neutrality once electricity is carbon-free. Switching to electricity also helps avoid potential natural gas cost increases, which are expected to greatly outpace electricity increases⁴⁰. An added benefit of all-electric building design and construction is that battery storage or generators can power the whole building in an emergency or outage.

GHG Reduction	Timeline	Cost
Indirect	Δ Δ	\$
Considerations - Policy language should include caveats for critical service facilities that require individual consideration. - Backup battery storage would need to fully support all-electric operations in the event of an extended power outage.		

Strategy E-5: Use Energy Conscious Products

NTPUD has control of the products it chooses to purchase for staff and public use. By opting for products that prioritize sustainability, energy efficiency, and public health, NTPUD can reduce its operational GHG emissions impacts as well as those related to procurement and supply chains that were out of the scope of the 2024 GHG Inventory.

⁴⁰ [Utility Dive: Gas, electricity prices spiked year over year in November - EIA](#)

E-5a. Purchase ENERGY STAR Certified Equipment

Prioritize purchasing ENERGY STAR equipment when replacing existing appliances. Examples of ENERGY STAR appliances to consider include copiers, fax machines, computers, scanners, exit signs, heating and cooling products, refrigeration, cooking equipment, and windows. NTPUD can save money while reducing energy-related GHG emissions and air pollution.

GHG Reduction	Timeline	Cost
**	△	\$
Considerations - Costs may be higher depending on scale/number of appliances that require upgrading. Resources ENERGY STAR website		

E-5b. Purchase Environmentally Preferable Products

Purchase goods and services that are better for human health and the environment. Environmentally preferable products are high-quality, durable, less toxic, reusable, recyclable and use less materials, water and energy, thus minimizing the impact on California's climate. This can include replacing NTPUD-administered park maintenance equipment with electric versions, including electric leaf blowers, lawn mowers, and power tools.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - Most goods and services that are considered environmentally preferable will have little to no impact on GHG emissions resulting directly from NTPUD operations, but may have significant emissions reduction impact outside of the scope of this study (considered Scope 3). - Cost may be higher depending on scale. Resources CalRecycle: Environmentally Preferable Purchasing Town of Truckee Sustainable Purchasing Practices Policy		



VEHICLE FLEET

STRATEGY E-1: Fleet Idling Policies

STRATEGY F-2: Vehicle Fleet Fuel

STRATEGY F-3: Fleet ZEV Conversion

Vehicle Fleet

In 2023, the vehicle fleet, which includes both on-road cars and trucks and off-road equipment, accounted for approximately 19% of total GHG emissions, making it one of the larger operational sources of emissions under NTPUD control. State mandates, such as CARB's Advanced Clean Fleets regulations, will require NTPUD to transition to low-emission vehicles and equipment. NTPUD is currently up to date with these regulations, but there are still actions the District can consider to be better prepared for future expected operational changes. Because fleet vehicles are directly managed assets, this sector offers a clear and actionable pathway to reduce fuel consumption, transition to cleaner technologies, and lower overall carbon impact. Strategic investments in fleet efficiency, ZEVs, and operational improvements will play a key role in advancing NTPUD's climate goals.

Strategies and Measures

The Fleet sector offers great opportunities to achieve reduction measures due to NTPUD's direct control over vehicle purchasing, fuel use, and operational practices. The following strategies and measures highlight actions, on scales both small and large, that NTPUD could implement to reduce transportation-related GHG emissions.

Fleet	Measure	GHG Reduction	Timeline	Cost
Strategy F-1. Fleet Idling Policies	F-1a. Develop and Implement a No-Idling Policy for Fleet Vehicles	Indirect	△	\$
	F-1b. Track Compliance with No-dling Fleet Policy	Indirect	△ △	\$ \$
Strategy F-2. Vehicle Fleet Fuel	F-2a. Procure Cleaner-Fuel Vehicles	* * *	△ △	\$ \$
	F-2b. Alternative Fuels Pilot Project Expansion	*	△	\$
Strategy F-3. ZEV Fleet Conversion	F-3a. Develop a ZEV Fleet Conversion Plan	Indirect	△	\$
	F-3b. Implement the ZEV Fleet Conversion Plan	* * *	△ △ △	\$ \$ \$

Strategy F-1. Fleet Idling Policy

Through the development and adoption of a fleet idling policy, slight reductions of NTPUD emissions could be achieved in addition to cost savings on fuel with minimal changes to operations.

F-1a. Develop and Implement a No-Idling Policy for Fleet Vehicles

A Fleet Idling Policy typically mandates turning off engines when stopped to reduce emissions, fuel waste, and maintenance costs. Policies should include reasonable time limits for idling, for example vehicles should be turned off if idling for more than 3–5 minutes, with exceptions for safety, emergency vehicles, traffic conditions, or for weather conditions (e.g., de-icing and de-fogging windows). Adoption and implementation of the policy should include staff education on the benefits of reduced idling, including reduced wear and tear on vehicles, manufacturer requirements for vehicle “warm ups”, and fuel savings from reduced idle time.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Considerations - Though not directly reducing fleet emissions, creating policy language and educational material will increase long term emission savings. - The policy can be incentivized or encouraged until monitoring can be implemented. Resources - US Department of Energy - IdleBox: A Toolkit for Idle Reduction Education and Outreach		

F-1b. Track Compliance with No-Idling Fleet Policy

For increased compliance with the No-Idling Fleet Policy, NTPUD may consider procurement of vehicle monitoring devices or software to manage fleet vehicles.

GHG Reduction	Timeline	Cost
Indirect	△ △	\$ \$

Strategy F-2. Vehicle Fleet Fuel

NTPUD can explore alternative vehicle fuel sourcing that is compatible with the existing fleet to lower emissions without procuring new trucks, buses, or maintenance equipment.

F-2a. Procure Cleaner-Fuel Vehicles

This measure would require NTPUD to use cleaner-fuel vehicles in fleet operations when compared with existing vehicles powered by gasoline or diesel. Cleaner-fuel vehicles include electric vehicles (EVs), compressed natural gas and propane vehicles, and vehicles powered by biofuels such as composite diesel (blend of renewable diesel, biodiesel, and conventional fossil diesel), ethanol, and

renewable natural gas. Produce a Fleet Vehicle Inventory to record fuel type, age, and expected year of replacement to scale the procurement of cleaner-fuel vehicles to be economically viable.

GHG Reduction	Timeline	Cost
***	△△	\$\$
Considerations Consider fleet vehicles that currently cannot be transitioned to electric vehicles due to lacking existing market availability.		

F-2b. Conduct Alternatives Fuels Pilot Project

Emissions from diesel-powered fleet vehicles make up 28% of NTPUD's vehicle fleet emissions sector. Procurement of renewable diesel would allow existing diesel-powered vehicles to stay in rotation until the end of their useful life while reducing emissions. Regional entities are currently procuring renewable diesel and additional partnerships could be sought for cost-sharing and shared storage facilities for the fuel. This project would not require the procurement of any new vehicles or facilities.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - Studies show that renewable diesel produces ~70% less emissions than traditional diesel⁴¹ Resources Renewable diesel vs diesel GHG emissions from the US Department of Energy		

Strategy F-3. Fleet ZEV Conversion

The conversion of all fleet vehicles to electric alternatives would result in a significant reduction of NTPUD emissions and maintain compliance with California state mandates.

F-3a. Develop a Fleet ZEV Conversion Plan

Produce a Fleet Vehicle Inventory to record fuel type, age, and expected year of replacement to scale the procurement of cleaner-fuel vehicles to be economically viable. Determine what fleet vehicles can be converted to ZEVs, prioritizing passenger vehicles that are due for replacement. Identify what

⁴¹ [2024 Volume-weighted Average Carbon Intensity by Fuel Type for Liquid Fuel Types](#)

chargers/fueling stations would be required and where they should be located. Create a feasibility study for total fleet conversion, including identifying funding resources (incentives, grants), and use this study to advance the installation of EV chargers or ZEV fueling stations at NTPUD facilities where the vehicle fleet can utilize the infrastructure.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Considerations - Though not directly reducing fleet emissions, creating a feasibility study and Fleet Vehicle Inventory will start the process of conversion and can prepare NTPUD for when vehicles are due for replacement. - Costs to implement the fleet conversion would be high but could be spread over several years as vehicles reach the end of their useful life. Resources Zero Emission Fleet conversion plan for Tahoe Transportation District completed by Stantec consulting ZEV Transition Planning Template from Colorado Department of Transportation Fleet Academy		

F-3b. Implement the Fleet ZEV Conversion Plan

Based on the outcomes from Measure F-3a and requirements set forth by CARB's ACF rules and other potential state fleet mandates, implement actions to convert the NTPUD fleet to ZEVs.

GHG Reduction	Timeline	Cost
***	△ △ △	\$\$\$
Considerations - Technological advances in ZEV heavy duty vehicles and equipment will be required for implementation to be feasible. - Affordability and funding opportunities will need to be prioritized for ZEV conversion. Resources CARB's Advanced Clean Fleets Rules		



EMPLOYEE COMMUTE

STRATEGY EC-1: Sustainable Commuting

STRATEGY EC-2: EV Charging Infrastructure

Employee Commute

Employee commutes make up 15 percent of NTPUD's 2023 GHG emissions, which makes this sector a strong opportunity to achieve emissions reductions. Due to the lack of housing and high cost of living in Truckee or north Lake Tahoe, many NTPUD employees commute from the surrounding populated areas including Truckee, Reno, South Lake Tahoe, and more. Employees commuting five days a week with fossil fuel powered personal vehicles can have an outsized impact on the GHG emissions of NTPUD operations due to distances travelled, low carpooling or active transportation participation, and limited adoption of EVs. Though State legislation is working to hasten the adoption of low or zero carbon vehicles, additional reductions can be obtained by encouraging alternative forms of commuting for employees.

Strategies and Measures

Employee commute patterns can be difficult to control because it involves employee buy-in and motivation to change sometimes decades-long habits, the financial ability to acquire an EV, limited public transit options, or the construction of safe bike paths from areas of population outside of NTPUD's jurisdiction. Because of differing work schedules, it may be difficult to commit to a specific number of commute trip reductions. However, NTPUD still has the ability to provide incentives and education to support employee commute trip reduction.

Employee Commute	Measure	GHG Reduction	Timeline	Cost
Strategy EC-1. Sustainable Commuting	EC-1a. Implement Voluntary Commute Trip Reduction Program	* *	△	\$
	EC-1b. Provide End-of-Trip Bicycle Facilities	*	△	\$
Strategy EC-2. EV Charging Infrastructure	EC-2a. Conduct EV Charging Feasibility Study	Indirect	△	\$
	EC-2b. Install EV Chargers	* *	△ △	\$ \$

Strategy EC-1. Sustainable Commuting

By highlighting and promoting sustainable alternative commuting opportunities NTPUD can limit the amount of fossil fuel powered vehicle trips that occur on account of District operations, improving air quality and reducing emissions.

EC-1a. Implement Voluntary Commute Trip Reduction Program

This measure will implement a voluntary commute trip reduction (CTR) program for NTPUD employees. CTR programs seek to reduce the total vehicle miles travelled (VMT) of employee trips to

and from work by encouraging methods of travel other than in single occupancy gasoline powered vehicles. Some examples include carpooling, walking, taking transit, and biking. NTPUD could encourage alternative modes of commuting by providing incentives, educational materials, and organizational support to reduce total commute VMT.

GHG Reduction	Timeline	Cost
**	△	\$
Considerations - NTPUD and TCPUD have explored partnering with the Truckee North Tahoe Transportation Management Association for possible use of the commute program offered by the Enterprise rental car company, though it was considered unfeasible. This program, known as the North Tahoe Workforce Vanpool had low uptake from NTPUD staff due to general hours worked and difficulty conforming to a carpool schedule. - Costs and GHG reduction may vary depending on scale. Resources Commute Tahoe is a TRPA program to help employers encourage their employees to bike, walk, carpool, or take transit to and from work. TRPA works with the Transportation Management Associations (TMA's), local jurisdictions, and employers to implement the program and tracks progress through an employer portal. More Info on TRPA Transportation Sonoma County Employer Commute Toolkit - Includes information on benefits, strategies, and potential program designs listed by cost to implement. Town of Truckee Alternative Transportation Incentive Guidelines		

EC-1b. Provide End-of-Trip Bicycle Facilities

NTPUD already provides bike commuting infrastructure for staff use. NTPUD will determine if there are any additional bicycle facilities or maintenance needs that could be expanded or improved. In addition, NTPUD will determine the feasibility of installing e-bike charging stations. By providing and maintaining secure bike parking and related facilities, NTPUD employees will be encouraged to commute by bicycle or e-bike, if possible, reducing VMT and GHG emissions.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - Engage current employees that bike to work to see what kind of support or additional incentives they think would be helpful to expand bike commuting accessibility to other staff. Resources The League of American Bicyclists: Commuting PeopleForBikes E-Bike Guidance (YouTube)		

Strategy EC-2. EV Charging Infrastructure

By providing EV charging infrastructure, NTPUD will make switching to electric transportation more realistic for faculty and staff. The use of EVs will both reduce emissions from employee commuting and improve local air quality at school facilities.

EC-2a. Conduct EV Charging Feasibility Study

Develop a feasibility study to determine ideal locations, cost, and types of EV chargers that NTPUD could install to support faculty and staff EV adoption.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Considerations Future improvements to the NTPUD Base Area Master Plan and update could include this effort.		

EC-2b. Install EV Chargers

Install EV charging infrastructure at NTPUD sites accessible to staff. Develop a policy for NTPUD staff to use chargers for commute vehicle usage to increase staff's purchase and use of EVs for commuting.

GHG Reduction	Timeline	Cost
* *	△ △	\$ \$
Considerations - If chargers are free and accessible to employees, they will be more incentivised to purchase EVs - Upfront costs can be high, grants and incentive programs can bring costs down Resources - See Communities in Charge for EV funding support.		



SOLID WASTE

STRATEGY SW-1: Waste Reduction

STRATEGY SW-2: Waste Diversion

Solid Waste

In 2023, solid waste accounted for approximately 3% of total districtwide GHG emissions, making it one of the smaller operational sources of emissions under NTPUD control. Organic materials, including paper, cardboard, food, and yard waste, release GHGs, primarily methane and carbon dioxide, when they decompose in landfills. While its overall contribution to emissions is relatively limited compared to other sectors, the solid waste sector still presents meaningful opportunities for emissions reductions through improved waste diversion and material management practices. Because waste generation and disposal practices are influenced by District policies and operations, this sector provides a practical pathway to reduce landfill waste, increase recycling and composting, and promote waste reduction and diversion behaviors among staff and public users of NTPUD facilities.

Strategies and Measures

The Solid Waste sector offers opportunities to achieve reduction measures due to the district's direct influence over waste generation, disposal practices, and waste diversion programs. This section outlines strategies and measures NTPUD could implement to reduce waste-related GHG emissions.

Solid Waste	Measure	GHG Reduction	Timeline	Cost
Strategy SW-1. Waste Reduction	SW-1a. Perform a Solid Waste Audit	Indirect	△	\$
	SW-1b. Develop and Implement Net Zero Waste Policy	*	△	\$
Strategy SW-2. Waste Diversion	SW-2a. Green Waste Diversion from Park Maintenance	*	△ △	\$ \$
	SW-2b. Provide Waste Diversion Receptacles at Public Facilities	*	△ △	\$ \$

Strategy SW-1. Waste Reduction

The following measures include expanding and solidifying existing practices, as well as implementing new practices to understand NTPUD's solid waste generation, reduce landfilled waste, and mitigate emissions resulting from the resulting decomposition of organic materials.

SW-1a. Perform a Solid Waste Audit

Perform a third-party solid waste audit for on-site waste generated by NTPUD Operations. Based on the outcome of the waste characterization identified, determine measures for waste diversion via recycling and composting programs, as well as waste reduction policies via purchasing, sourcing, or other pathways.

GHG Reduction	Timeline	Cost
Indirect	△	\$
Resources • Waste Free Tahoe		

SW-1b. Develop and Implement a Net Zero Waste Policy

Maintain programs like reusable dishware for staff and on-site meetings, have recycling and compost available on site for employees, and encourage reusable food and drink containers. Consider incentives to increase uptake in these programs and ways to encourage behavioral change to divert waste from landfills. Identify procurement opportunities that result in less solid waste generation through reduced packaging, bulk orders, and limit ordering to necessary items.

GHG Reduction	Timeline	Cost
*	△	\$
Resources • CalRecycle Funding and Grants		

Strategy SW-2. Waste Diversion

This strategy is primarily focused on diverting unavoidable waste, such as green waste produced by the maintenance of NTPUD-administered parks, to other more useful and lower-emitting alternatives when compared with traditional landfills.

SW-2a. Green Waste Diversion from Park Maintenance

Develop a policy or program to divert landscaping waste from parks maintenance, like pine needles, from landfills.

GHG Reduction	Timeline	Cost
*	△ △	\$ \$
Considerations - This could include partnerships with TCPUD and other entities that maintain recreational areas to collect green waste in a shared location and share in transportation to green waste composting facilities. Resources Comparing Greenhouse Gases from Composting and Landfilling		

SW-2b. Provide Waste Diversion Receptacles at Public Facilities

For public facing trash receptacles at Parks owned and operated by NTPUD, provide recycling and composting options where feasible. This requires coordination with Truckee Tahoe Sierra Disposal (TTSD) to ensure diversion of collected solid waste at the final destination.

GHG Reduction	Timeline	Cost
*	△ △	\$ \$
Considerations - Include educational materials and clearly marked trash bins to ensure public engagement and as-designed participation. - Ensure bear-safe designed receptacles.		



WATER CONSERVATION

STRATEGY W-1: Water Conservation Education

STRATEGY W-2: Water Conservation Programs

STRATEGY W-3: Making Conservation a California
Way of Life

Water Conservation

In 2023, water and wastewater operations accounted for approximately 43% of total GHG emissions, together making up a large portion of operational sources responsible for GHG emissions under District control. That said, though most emissions are due to energy needs, water conservation can lower GHG emissions by both limiting the water used while also reducing the amount of potable water lost or turned into wastewater, indirectly improving energy efficiency. In addition, educating and incentivizing customers to reduce their individual water usage will also result in GHG reductions through decreasing demand, as well as support NTPUD compliance with ‘Making Water Conservation a California Way of Life’ regulations.

Strategies and Measures

As a water utility, water conservation offers NTPUD numerous opportunities to achieve emissions reductions and conservation through improved efficiency, infrastructure upgrades, and operational practices that reduce overall water loss and demand. This section outlines strategies and measures NTPUD could implement to reduce water-related GHG emissions.

Water	Measure	GHG Reduction	Timeline	Cost
Strategy WC-1.				
Water Conservation Education	WC-1a. Expand Customer Education and Engagement Programs	*	△	\$
Strategy WC-2. Water Conservation Programs	WC-2a. Implement and Expand Innovative Residential Water Use Efficiency Programs	*	△	\$
	WC-2b. Implement and Expand Innovative Commercial Water Use Efficiency Programs	*	△	\$
	WC-2c. Complete Use of Smart Water Meters Across All Customers	*	△	\$
	WC-2d. Repair and Replace Leaking Pipes	**	△ △ △	\$ \$ \$
Strategy WC-3.				
Making Conservation a California Way of Life	WC-3a. Comply With Legislative Requirements	***	△ △ △	\$ \$ \$

Strategy WC-1. Water Conservation Education

Those that value the Lake Tahoe region understand that water is a precious commodity integral to the quality of the natural and recreational setting that make it such a remarkable landscape. Educational resources provide opportunities for residents and visitors to appreciate their individual role as a steward of the land and understand the actions they can take to protect it. By highlighting these sentiments NTPUD can enlist the support of customers and visitors to pursue opportunities to improve water conservation.

WC-1a. Expand Customer Education and Engagement Programs

NTPUD already provides educational programs about the benefits of water conservation throughout its service area. Implementation of this measure will ensure that NTPUD continues to provide these services and expand the message to include the benefits of GHG reduction and resiliency achieved through water conservation.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - Potential opportunities for education include workshops, speaking engagements, free classes, informational ads, etc. - Partner with other local water districts to improve conservation educational resources across the region. - By teaching customers strategies to lower water use, they will make less wastewater for NTPUD to transport. Resources Southern Nevada Water Authority (SNWA) Free Classes		

Strategy WC-2. Water Conservation Programs

Water conservation programs include mandatory, voluntary, and incentive-based actions that NTPUD may pursue to conserve water, improve leak detection, and reduce waste. These programs can result in reduced customer usage, but will also support NTPUD operations in identifying leaks that may need to be repaired. On a larger scale, this would involve removing old, leaky pipes and replacing them with modern systems to reduce wastage and energy use.

WC-2a. Implement and Expand Innovative Residential Water Use Efficiency Programs

NTPUD currently provides residential water efficiency assistance, such as appliance and irrigation rebates, turf buyback programs, or free water use audits. The District should ensure that there is a

budget to market such programs, as well as consider expanding them to provide additional water savings to residents.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - By incentivizing residential customers to reduce water use, they will make less wastewater for NTPUD to transport. Resources South Tahoe Public Utility District (STPUD): Rebates and Services SNWA: Water Smart Landscape Rebate		

WC-2b. Implement and Expand Innovative Commercial Water Use Efficiency Programs

Focus on expanding commercial specific water use efficiency programs, targeting large water users. Water conservation may not be a high priority for local business employees, therefore commercial specific outreach and programming may result in significant water conservation outcomes.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations - By incentivizing commercial customers to reduce water use, they will make less wastewater for NTPUD to transport. Resources STPUD CNSRV Commercial Kitchen Defroster Rebate SoCal WaterSmart Commercial Rebates		

WC-2c. Complete Installation of Smart Water Meters for All Customers

NTPUD has installed Smart Water Meters at the majority of customer sites, though there are still unmetered accounts. Smart Water Meters will help NTPUD identify and stop leaks quickly, reducing water wastage and as a co-benefit will help customers lower bill costs.

GHG Reduction	Timeline	Cost
*	△	\$

WC-2d. Repair and Replace Leaking Pipes

By investing in technology such as Smart Meters, NTPUD is able to locate leaks in water conveyance infrastructure. Leak identification will help support NTPUD capital investment planning to prioritize pipe retrofits that are the most beneficial for water conservation, resulting in reduced GHG emissions from wasted energy.

GHG Reduction	Timeline	Cost
* *	△ △ △	\$ \$ \$
Considerations Improvement projects are a high cost but important for a critical public utility, consider pairing pipe replacement with other GHG reducing projects such as VFD pump retrofits.		

Strategy WC-3. Making Conservation a California Way of Life

In 2024, the California State Water Resources Control Board (SWRCB) unanimously adopted the Making Conservation a California Way of Life regulation, which went into effect on January 1, 2025. This regulation focuses on indoor water use, outdoor water use, and utility water loss, reducing water use and helping California adapt to the water supply impacts brought on by climate change. As a result, NTPUD will be looking for opportunities to improve water conservation by its customers and in its systems, which will in turn help the District to reduce GHG emissions resulting from water supply operations.

WC-3a. Comply with Legislative Requirements

NTPUD will continue to comply with long-term water conservation targets set by Making Conservation a California Way of Life (AB 1668, SB 606, 2018). By conserving water use in NTPUD service territory, emissions related to water delivery may be significantly reduced. NTPUD may seek grant funding to help finance the large-scale projects and operational overhauls necessary to comply with this legislation in the long-term. Potential projects may be prioritized by GHG reduction potential as a co-benefit.

GHG Reduction	Timeline	Cost
* * *	△ △ △	\$ \$ \$
Considerations - Utilize the Urban Water Management Plan or hire a consultant to better understand the current state of TCPUD water usage to help plan for conservation targets. Resources SWRCB Financial Assistance Funding - Grants and Loans SWRCB Drinking Water State Revolving Fund Bureau of Reclamation WaterSMART Programs		



COLLABORATION

STRATEGY C-1: Partner with Utilities

STRATEGY C-2: Partner with Local Public Agencies

STRATEGY C-3: Partner with Local Organizations

Collaboration

The collaboration sector offers opportunities to support emissions reductions through partnerships, community engagement, and coordinated efforts that extend beyond District operations. By working with local governments, other utilities, community organizations, and other stakeholders, NTPUD can help advance broader sustainability initiatives and amplify the impact of its climate actions.

Strategies and Measures

This section outlines strategies and measures NTPUD could implement to support community-wide GHG emissions reductions through collaboration. Collaboration measures are classified into three strategies, and each measure includes a description of potential total GHG reduction impact, timeline, and cost.

Collaboration	Measure	GHG Reduction	Timeline	Cost
Strategy C-1. Partner with Utilities	C-1a. Partner with Water Utilities to Support Shared Conservation Goals	*	△	\$
	C-1b. Partner with Liberty Utilities on Rebate Cross-Promotion	*	△	\$
	C-1c. Partner with TCPUD on Green Waste Diversion	*	△	\$
	C-1d. Partner with Southwest Gas on Thermal Energy Network Feasibility	Indirect	△ △ △	\$
Strategy C-2. Partner with Local Public Agencies	C-2a. Partner with TTUSD to assist with Low Flow Appliance Implementation	*	△	\$
	C-2b. Partner with Placer County on EV Infrastructure	Indirect	△ △	\$\$
Strategy C-3. Partner with Local Organizations	C-3a. Partner with Landscape Conservation Organizations	Indirect	△	\$

Strategy C-1. Partner with Utilities

Partnering with local water and energy utilities can be both useful in reducing NTPUD emissions as well as fostering a public-relations win for both parties. NTPUD customers may also benefit from cooperation between the utilities whose services they pay for as well as those that serve nearby regions through regional planning, cross-cutting educational opportunities, and incentive optimization.

C-1a. Partner with Water Utilities to Support Shared Conservation Goals

Create a working group with other local water and wastewater agencies, including TCPUD, South Tahoe Public Utility District, Truckee Donner Public Utility District, Incline Village General Improvement District, Round Hill General Improvement District, Alpine Springs County Water District, Olympic Valley Public Service District, TTSA, and any other regional partners that may benefit.

GHG Reduction	Timeline	Cost
*	Δ	\$
Considerations - GHG reduction could potentially be significant depending on the scale of conservation efforts, especially over the longer term. - Could help support the goals of the strategies outlined in the Water Conservation section.		

C-1b. Partner with Liberty Utilities on Rebate Cross-Promotion

Approach Liberty Utilities to partner on cross promoting rebate opportunities that increase access to water and energy-efficient products (e.g., dishwasher, washing machine, heat pump water heater, irrigation systems, etc.).

GHG Reduction	Timeline	Cost
*	Δ	\$
Considerations - Could help expand uptake of programs outlined in Strategy WC-2 - Water Conservation Programs. Resources Liberty Utilities Commercial Incentives - retrofits Liberty Utilities Commercial Incentives - new construction		

C-1c. Partner with TCPUD on Green Waste Diversion

With TCPUD, determine the feasibility of a centralized green waste collection site that is regularly picked up by TTSD and diverted from the landfill for composting. A potential partnership could result in cost sharing and reduced waste related VMT if composted locally.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations • Could help support the goals of Strategy SW-2 - Waste Diversion.		

C-1d. Partner with Southwest Gas on Thermal Energy Network Feasibility

Partner with Southwest Gas to determine feasibility of converting natural gas infrastructure owned by Southwest Gas to thermal energy networks, utilizing park properties as thermal energy sources and sinks.

GHG Reduction	Timeline	Cost
Indirect	△ △ △	\$
Considerations • This is a long term strategy that would benefit from regional partnership and pilot project funding dependent on outcomes of a feasibility study. • While the feasibility study cost would likely fall on entities external to NTPUD, NTPUD may take on labor costs to support the study. • Implementation of thermal energy networks would reduce emissions where natural gas is currently used. Resources • Citizen's Climate Lobby Tahoe Chapter is exploring thermal energy network feasibility in the Truckee Tahoe region. • Senate Bill 1221 passed in the California legislature in 2024. Additional voluntary zoning for gas utilities may pass in future legislation.		

Strategy C-2. Partner with Local Public Agencies

Partnering with local governments and non-utility public agencies, such as school districts, can support the creation of a network of public entities that also are looking to improve efficiency and reduce emissions through shared resources.

C-2a. Partner with Schools

NTPUD will create a partnership with Tahoe-Truckee Unified School District (TTUSD) to help reduce water usage at schools served by the District through water efficient equipment retrofits. This can be an opportunity to teach students and TTUSD faculty about water conservation, helping reduce usage across the region.

GHG Reduction	Timeline	Cost
*	△	\$
Considerations The scale of retrofits can be dependent on budget feasibility, from faucet aerators and other small upgrades to support with high efficiency dishwashers.		

C-2b. Partner with Placer County on EV Infrastructure

Partner with Placer County to help NTPUD align with Placer County's Electric Vehicle Readiness Guide and Placer County Transportation Planning Agency Zero Emission Vehicle Infrastructure Plan. Consider NTPUD operated parking lots that would be a good opportunity for public facing EV charging stations.

GHG Reduction	Timeline	Cost
Indirect	△ △	\$\$
Considerations - NTPUD emissions would be reduced if employees utilize chargers for commuting and EV infrastructure will help reduce vehicle emissions damaging to air quality generally in the Tahoe Basin. However, it should be considered that expanding EV chargers operated by NTPUD will impact electricity related emissions, and what can be done to mitigate those tradeoffs (e.g. using charging fees for other emissions reducing projects). - Could help support the goals outlined in Strategy EC-2 - EV Charging Infrastructure. Resources Placer County EV Readiness Guide Placer County Transportation Planning Agency Zero Emissions Vehicle Infrastructure Plan		

Strategy C-3. Partner with Local Organizations

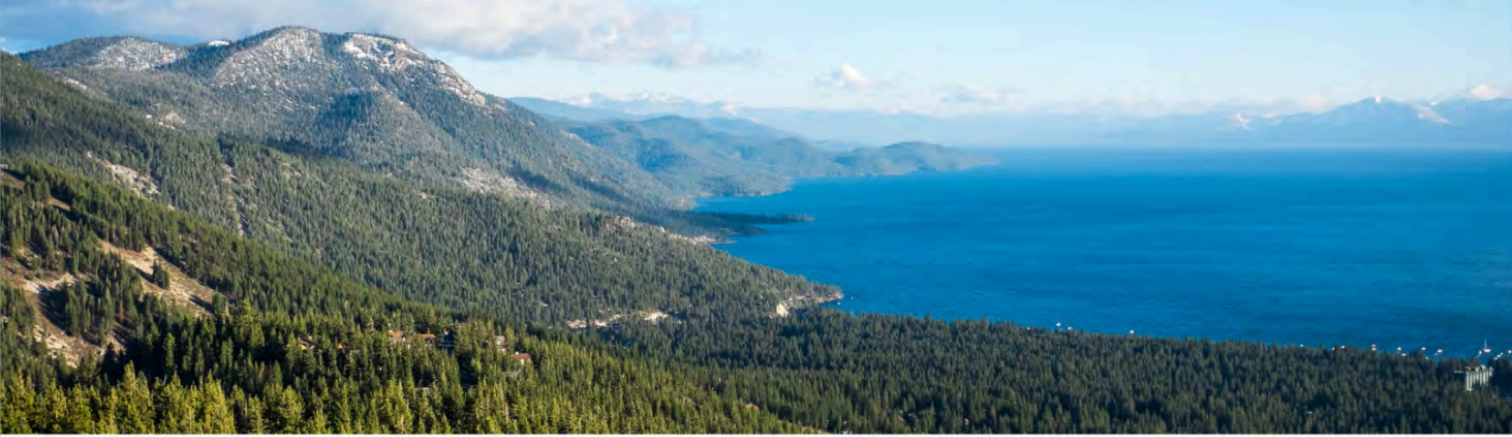
Partnering with local organizations will help NTPUD support emissions reduction efforts region-wide, resulting in co-benefits that include air quality, health, and land conservation efforts that will improve customer livelihoods and NTPUD recognition. In addition, these partnerships may help support NTPUD-led projects in the future through outreach and resource sharing.

C-3a. Partner with Landscape Conservation Organizations

Continue to support projects financially or with land use permissions for reforestation or meadow restoration work to increase natural land carbon sequestration and storage in the region. Potential

partners include California Tahoe Conservancy, Tahoe Regional Planning Agency, the League to Save Lake Tahoe, and California State Parks.

GHG Reduction	Timeline	Cost
Indirect	Δ	\$
Considerations Though these actions would not directly lower NTPUD’s operations emissions, it would help lower emissions region-wide.		



Appendix B: Emissions Reduction Measure Snapshot

The following Table A-2.1 provides a key explaining the symbols utilized to describe potential measure impacts outlined in Appendix A and summarized in Table A-2.2. Table A-2.2 outlines the measures developed for each of the five focus areas, along with associated estimates of GHG emissions reduction, timeline, and cost. The following measures should be taken by NTPUD to be voluntary recommendations, so as to help the District’s staff and Board identify and implement strategies and measures that make sense to pursue. Additional details regarding the strategies and measures are provided in Appendix A.

Table B.1: Measure Impacts Key

GHG Reduction	Timeline	Cost Range
★ Low 0-4% reduction	△ Short Term 1-5 Years	\$ Little procurement required, low maintenance, some staff time
★ ★ Medium 5-9% reduction	△ △ Medium Term 5-20 Years	\$ \$ Procurement of some expensive equipment, moderate maintenance, staff time
★ ★ ★ High 10%+ reduction	△ △ △ Long Term 20+ Years	\$ \$ \$ Significant procurement, high maintenance costs, and more staff time required

Table B.2: Emission Reduction Strategy and Measure Snapshot

Energy	Measure	GHG Reduction	Timeline	Cost
Strategy E-1. Water Pump Energy	E-1a. Evaluate Existing Pump Efficiency	Indirect	△	\$
	E-1b. Install Energy Efficient Pump Systems	**	△ △ △	\$ \$ \$
Strategy E-2. Building Energy Efficiency	E-2a. Complete Facility Audits	Indirect	△	\$
	E-2b. Pursue Existing Building Commissioning	*	△	\$ \$
	E-2c. Install Smart Thermostats	*	△	\$
	E-2d. Convert All Interior and Exterior Lighting to LED	**	△	\$
	E-2e. Install Auto-Shut Offs for Lighting and Computers	*	△	\$
	E-2f. Adopt an Energy Management System	**	△	\$ \$
	E-2g. Exceed Title 24 Building Envelope Energy Efficiency Standards	***	△ △ △	\$ \$
Strategy E-3: Building Resilience	E-3a. Install Battery Storage Systems at All Critical Facilities	**	△ △	\$ \$ \$
	E-3b. Conduct Feasibility Study of Large Scale Battery Storage	Indirect	△	\$
Strategy E-4. Building Electrification	E-4a. Conduct Electrification Feasibility Study	Indirect	△	\$
	E-4b. Electrify Facilities	***	△ △ △	\$ \$ \$
	E-4c. Consider Policies for All Retrofits and New Constructions to be All-Electric	Indirect	△ △	\$
Strategy E-5. Use Energy Conscious Products	E-5a. Purchase ENERGY STAR Certified Equipment	**	△	\$
	E-5b. Purchase Environmentally Preferable Products	*	△	\$

Vehicle Fleet	Measure	GHG Reduction	Timeline	Cost
Strategy F-1.	F-1a. Develop and Implement a No-Idling Policy for Fleet Vehicles	Indirect	△	\$

Fleet Idling Policies	F-1b. Track Compliance of No-Idling Fleet Policy	Indirect	△ △	\$
Strategy F-2. Vehicle Fleet Fuel	F-2a. Procure Cleaner-Fuel Vehicles	* * *	△ △	\$ \$
	F-2b. Conduct Alternative Fuels Pilot Project	*	△	\$ \$
Strategy F-3. Fleet ZEV Conversion	F-3a. Develop a ZEV Fleet Conversion Plan	Indirect	△	\$
	F-3b. Implement the ZEV Fleet Conversion Plan	* * *	△ △ △	\$ \$ \$
Employee Commute	Measure	GHG Reduction	Timeline	Cost
Strategy EC-1. Sustainable Commuting	EC-1a. Implement Voluntary Commute Trip Reduction Program	* *	△	\$
	EC-1b. Provide End-of-Trip Bicycle Facilities	*	△	\$
Strategy EC-2. EV Charging Infrastructure	EC-2a. Conduct EV Charging Feasibility Study	Indirect	△	\$
	EC-2b. Install EV Chargers	* *	△ △	\$ \$
Solid Waste	Measure	GHG Reduction	Timeline	Cost
Strategy SW-1. Waste Reduction	SW-1a. Perform a Solid Waste Audit	Indirect	△	\$
	SW-1b. Develop and Implement Net Zero Waste Policy	*	△	\$
Strategy SW-2. Waste Diversion	SW-2a. Green Waste Diversion from Park Maintenance	*	△ △	\$ \$
	SW-2b. Expand Organic Waste Diversion Programs	*	△ △	\$ \$
Water Conservation	Measure	GHG Reduction	Timeline	Cost
Strategy WC-1. Water Conservation Education	WC-1a. Expand Customer Education and Engagement Programs	*	△	\$

Strategy WC-2. Water Conservation Programs	WC-2a. Implement and Expand Innovative Residential Water Use Efficiency Programs	*	△	\$
	WC-2b. Implement and Expand Innovative Commercial Water Use Efficiency Programs	*	△	\$
	WC-2c. Complete Installation of Smart Water Meters for All Customers	*	△ △	\$\$
	WC-2d. Repair and Replace Leaking Pipes	* *	△ △ △	\$ \$ \$
Strategy WC-3. Making Conservation a California Way of Life	WC-3a. Comply with Legislative Requirements	* * *	△ △ △	\$ \$ \$
Collaboration	Measure	GHG Reduction	Timeline	Cost
Strategy C-1. Partner with Utilities	C-1a. Partner with Water Utilities to Support Shared Conservation Goals	*	△	\$
	C-1b. Partner with Liberty Utilities on Rebate Cross-Promotion	*	△	\$
	C-1c. Partner with TCPUD on Green Waste Diversion	*	△	\$
	C-1d. Partner with Southwest Gas on Thermal Energy Network Feasibility	Indirect	△ △ △	\$
Strategy C-2. Partner Local Public Agencies	C-2a. Partner with Schools	*	△	\$
	C-2b. Partner with Placer County on EV Infrastructure	Indirect	△ △	\$\$
Strategy C-3. Partner with Local Organizations	C-3a. Partner with Landscape Conservation Organizations	Indirect	△	\$

Appendix C. Greenhouse Gas Inventory Source Activity Data and Emissions by Facility

Table C.1: Water Delivery and Treatment Operations by Facility

Water Delivery Operations	Total Usage	GHG Emissions (MT CO ₂ e)
7000 North Lake Blvd NAWTP	673,727 kWh	175
1001 Canterbury Dr. Water Tank	75,000 kWh	19
5101 N Lake Carnelian Woods Well	67,612 kWh	18
6600 Donner Rd Well Pump	62,736 kWh	16
1192 Regency Way Kww 500 Pump	29,559 kWh	8
5101 N Lake Carnelian Wood #2	19,212 kWh	5
936 Country Club Dr. Flow Meter	459 kWh	<1
1060 Lake Vista Rd. Pedestal	411 kWh	<1
Beaver St Cust Pole	296 kWh	<1
5101 N Lake Carnelian Wood #2	1,200 therms	6
7000 North Lake Blvd NAWTP	1,000 therms	5
Total		253

Table C.2: Buildings & Facilities Activity & Emissions Data by Building

Building & Facilities	Total Usage	GHG Emissions (MT CO ₂ e)
875 National Ave	116,680 kWh	30
8318 N Lake Blvd, NTEC	108,400 kWh	28
875 National Ave Fleet Shop	34,135 kWh	9
875 National Ave Annex Building	26,158 kWh	7
NT Regional Park, UP Restrooms	12097 kWh	3
Unit Dog Shelter	6348 kWh	2
7010 N Lake Blvd, Restrooms	16687 kWh	4
Lower Bathroom NTRP	7758 kWh	2
NTRP, Watchman Trailer	2540 kWh	1
6965 N Lake Blvd	858 kWh	<1
6600 Donner Rd Amphitheater	16 kWh	<1

875 National Ave	6700 therms	36
8318 N Lake Blvd, NTEC	16700 therms	89
Total		210

Table C.3: Wastewater Transport Operations by Facility

Wastewater Transport Operations	Total Usage	GHG Emissions (MT CO ₂ e)
3630 N Lake Dollar Hill Lift Station Dms	461,520 kWh	119
7000 North Lake Blvd Nms	57,505 kWh	15
121 Secline St At Lake Sms	57,505 kWh	15
255 Onyx St Carnelian Sewer Main Cms	45,880 kWh	12
3630 N Lakedollar Hill Lift Station Dms	1,095 therms	6
7498 N Lake Blvd. Sta N1	9,366 kWh	2
5002 N Lake Blvd Sta C2	9,317 kWh	2
6061 N Lake Blvd Sta N3	9,226 kWh	2
4380 N Lake Sta D2	3,629 kWh	<1
Harbor Ave. Speedboat S1&2	3,406 kWh	<1
4240 N Lake Blvd Sta D3	3,171 kWh	<1
3998 N Lake Blvd Sta D4	3,142 kWh	<1
3730 N Lake Blvd D5	1,896 kWh	<1
6542 N Lake Blvd Sta N2	1,396 kWh	<1
0 N Lake Blvd Flow Station	1,118 kWh	<1
5440 N Lake Blvd Sta C1	861 kWh	<1
4600 N Lake Blvd Sta D1	523 kWh	<1
280 Observation Sewer Lift D7	413 kWh	<1
7809 Mashie Ave NTPUD	68 kWh	<1
255 Onyx St Carnelian Sewer Main Cms	985 therms	5
7000 North Lake Blvd Nms	200 therms	1
121 Secline St At Lake Sms	164 therms	<1
5002 N Lake Blvd Sta C2	75 therms	<1
Total		187

Appendix D. Greenhouse Gas Inventory

Emissions Factors & Factor Sets

Table D.1: Grid Electricity Emission Factors

Source	Value	Unit
Grid Electricity – Liberty	570	CO ₂ e lbs/MWh
	53.02	CO ₂ kg/MMBtu
Natural Gas	0.005	CH ₄ kg/MMBtu
	1 x 10 ⁻⁴	N ₂ O kg/MMBtu

Table D.2: Vehicle Fleet Emission Factors

Fuel/Vehicle Type	Value	Unit
	0.070268	CO ₂ MT/MMBtu
Gasoline - On-Road	2.6694 x10 ⁸	CH ₄ MT/vehicle mile
	4.615 x10 ⁻⁹	N ₂ O MT/vehicle mile
	0.073964	CO ₂ MT/MMBtu
Diesel - On-Road	9.5 x10 ⁻⁹	CH ₄ MT/vehicle mile
	4.31 x10 ⁻⁸	N ₂ O MT/vehicle mile
	0.073964	CO ₂ MT/MMBtu
Diesel - Off-Road	3.6221 x10 ⁻⁶	CH ₄ MT/vehicle mile
	1.8835 x10 ⁻⁶	N ₂ O MT/vehicle mile
	0.070268	CO ₂ MT/MMBtu
Gasoline - Off-Road	4.0016 x10 ⁻⁶	CH ₄ MT/vehicle mile
	1.7607 x10 ⁻⁶	N ₂ O MT/vehicle mile

Table D.3: Solid Waste Characterization Factor Set⁴²

Refuse Waste Characterization	Value
Percentage Newspaper	9.1
Percentage Office Paper	0.6
Percentage Corrugated Cardboard	5.3
Percentage Magazines/Third Class Mail	0.6
Percentage Food Scraps	11.6
Percentage Grass	1.1

⁴²NTPUD waste characterization utilized the 2021 California Waste Characterization Study by CalRecycle. No locally available characterization was available.

Percentage Leaves	1.1
Percentage Branches	3.8
Percentage Dimensional Lumber	10.6

Table D.4: Employee Commute Emissions Factors

Fuel Type	Value	Unit
Gasoline	0.07024	CO ₂ MT/MMBtu
	9.464 x10 ⁻⁹	CH ₄ MT/vehicle mile
	6.7240 x10 ⁻⁹	N ₂ O MT/vehicle mile
Electric	0.075833	MT/MMBtu
	3.9912 x10 ⁻⁶	MT/MMBtu
	5.3216 x10 ⁻⁷	MT/MMBtu

Table D.5: Solid Waste Emission Factors

Source	Value	Unit
Lockwood Landfill	0.0648	MT CH ₄ /wet short ton (Food Scraps)
	0.0228	MT CH ₄ /wet short ton (Grass)
	0.026	MT CH ₄ /wet short ton (Leaves)
	0.058	MT CH ₄ /wet short ton (Branches)
	0.0068000	MT CH ₄ /wet short ton (Dimensional Lumber)
	0.042	MT CH ₄ /wet short ton (Newspaper)
	0.1556	MT CH ₄ /wet short ton (Office Paper)
	0.1048	MT CH ₄ /wet short ton (Corrugated Cardboard)
	0.0476	MT CH ₄ /wet short ton (Magazines/Third Class Mail)

Table D.6: Wastewater Emission Factors

Emissions Type	Value	Unit
Wastewater Effluent per Capita	0.005	kg N ₂ O/kg N in effluent
Wastewater Treatment per Capita	7	g/person

Appendix E. Greenhouse Gas Inventory

Employee Commute Survey

NTPUD Employee Commute Survey

Please take this quick 2-minute survey to help us understand commuting by NTPUD employees. This information is part of data collection by Sierra Business Council (SBC) to develop a greenhouse gas inventory for NTPUD's government operations in 2023. This short survey will ask about your seasonal commute patterns so we can estimate emissions, including reductions due to reduced vehicle miles traveled (VMT) when employees commute by car versus other means like cycling, walking, etc., and variances from working from home. Please try to have your answers fit your 2023 commute patterns. Your participation is important and appreciated!

* 1. How many miles do you commute to work (ONE WAY)?

* 2. How many days per week do you commute to work on average?

* 3. The next four questions ask about seasonal modes of transportation. By asking for seasonal commute patterns, SBC can estimate emission reductions due to reduced vehicle miles traveled when NTPUD employees bike, walk, take public transportation, etc to work.

What is your primary mode of transportation to work in the SUMMER (June, July, August)?

- ☐ Car
- ☐ SUV
- ☐ Truck
- ☐ Public Transportation
- ☐ Active Transportation (biking, walking, etc.)
- ☐ Employer-Owned Vehicle
- ☐ Other (please specify)

* 4. What is your primary mode of transportation to work in the FALL (September, October, November)?

- ☐ Car
- ☐ SUV
- ☐ Truck
- ☐ Public Transportation
- ☐ Active Transportation (biking, walking, etc.)
- ☐ Employer-Owned Vehicle
- ☐ Other (please specify)

* 5. What is your primary mode of transportation to work in the WINTER (December, January, February)?

- ☐ Car
- ☐ SUV
- ☐ Truck
- ☐ Public Transportation
- ☐ Active Transportation (biking, walking, etc.)
- ☐ Employer-Owned Vehicle
- ☐ Other (please specify)

* 6. What is your primary mode of transportation to work in the SPRING (March, April, May)?

- ☐ Car
- ☐ SUV
- ☐ Truck
- ☐ Public Transportation
- ☐ Active Transportation (biking, walking, etc.)
- ☐ Employer-Owned Vehicle
- ☐ Other (please specify)

7. What is the make and model of the vehicle you primarily commute in?

* 8. What is the fuel type of the vehicle you drive to work?

- ☐ Gasoline
- ☐ Diesel
- ☐ Electric
- ☐ Ethanol
- ☐ I don't drive to work
- ☐ Other (please specify)

* 9. Do you carpool?

☐ Yes

☐ No

☐ Other (please specify)

* 10. If you answered yes to carpool, on average how many times per week do you carpool? If you answered no, please write "N/A".

11. Would you carpool, take public transportation, or alternate transportation to work if there was an incentive?

☐ Yes

☐ No

☐ Other (please specify)

12. If so, what incentive would be most interesting to you?

☐ Raffle for prizes

☐ PTO

☐ Gift card

☐ Other (please specify)

Appendix F. WEN Registry Verification Statement

The following documents show the valid verification of the NTPUD GHG Emissions Inventory for 2023, performed by Cameron-Cole, per The Climate Registry's Water-Energy Nexus Registry verification protocol.

By completing WEN Registry verification, NTPUD's 2023 Baseline GHG Emissions Inventory is publicly available through The Climate Registry Member Index.

WEN Registry Addendum to the Verification Statement



This WEN Registry Addendum to the Verification Statement should only be completed by a Verification Body when a WEN Participant has developed one or more of the performance metrics listed below. For the section which lists water-related and wastewater-related emissions totals, please fill in the blanks with "NR" for not reported if any of these sections were not used in the development of metrics. Please attach this addendum to the TCR Verification Statement and upload to CRIS as a single document.

This addendum to the verification statement documents that Cameron-Cole has conducted a third-party critical review of performance metrics submitted to The Climate Registry in conformance with The Climate Registry (TCR)'s General Verification Protocol and TCR's Water Energy Nexus Registry Protocol for the emissions report and metrics described below.

WEN Participant Name: North Tahoe Public Utility District (NTPUD)

Emissions Year: 01/01/2023 through 12/31/2023

Opinion of data validity:

☒ Valid

☐ Unable to confirm validity; summarize reason: _____

Cameron-Cole has conducted a third-party critical review of NTPUD's performance metrics. Based on Cameron-Cole's activities and findings, nothing has come to our attention that NTPUD's emissions and water-related data reports are not prepared in all material respects in accordance with the reporting criteria identified below.

GHG reporting criteria against which review was conducted:

☒ The Climate Registry's *General Reporting Protocol Version 3.0*, dated May 2019

☒ The Climate Registry's *Water-Energy Nexus Registry Protocol* dated June 2021

☐ Others (specify): _____

GHG verification protocols used to conduct the review:

☒ The Climate Registry's *General Verification Protocol Version 3.0*, dated March 2024

☐ The Climate Registry's *General Verification Protocol Updates and Clarifications* dated _____

☒ Others (specify): Verifying Water-Related Data Guidance (April 2020)

Total Water-System Anthropogenic Emissions Verified:

- Total Scope 1 Emissions: 153.105115 metric tons CO₂e;
- Total Location-Based Scope 2 Emissions: 247.618785 metric tons CO₂e;
- Total Market-Based Scope 2 Emissions: 282.724185 metric tons CO₂e;
- Total Scope 3 Emissions: N/R metric tons CO₂e.

Total Wastewater-System Anthropogenic Emissions Verified:

- Total Scope 1 Emissions: 172.397925 metric tons CO₂e;
- Total Location-Based Scope 2 Emissions: 188.911975 metric tons CO₂e;
- Total Market-Based Scope 2 Emissions: 215.711575 metric tons CO₂e;
- Total Scope 3 Emissions: N/R metric tons CO₂e.

Total Water-System Biogenic Emissions Verified:

- Biogenic Direct CO₂ Emissions (stationary and mobile combustion only): N/R metric tons CO₂
- Biogenic Indirect Location-Based CO₂ Emissions: N/R metric tons CO₂
- Biogenic Indirect Market-Based CO₂ Emissions: N/R metric tons CO₂
- Biogenic Upstream CO₂ Emissions: N/R metric tons CO₂

Total Wastewater-System Biogenic Emissions Verified:

- Biogenic Direct CO₂ Emissions (stationary and mobile combustion only): N/R metric tons CO₂
- Biogenic Indirect Location-Based CO₂ Emissions: N/R metric tons CO₂
- Biogenic Indirect Market-Based CO₂ Emissions: N/R metric tons CO₂
- Biogenic Upstream CO₂ Emissions: N/R metric tons CO₂

Comments: _____

Third-Party Reviewed Metrics:

Please complete the table below to indicate which of the following metrics have been third-party reviewed and meet the Water-Energy Nexus Registry protocol requirements:

WEN Metrics	<u>Anthropogenic Efficiency</u>	<u>Biogenic Efficiency</u>	<u>Anthropogenic Delivery</u>	<u>Biogenic Delivery</u>
System Average	LB: ☒ MB: ☒	LB: ☐ MB: ☐	LB: ☒ MB: ☒	LB: ☐ MB: ☐
Water Product	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐
Groundwater Basin Average	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐
Biosolid Product	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐
Biogas Product	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐	LB: ☐ MB: ☐
LB: Location-based accounting method MB: Market-based accounting method				

Comments: _____

Attestation:



Cory Tripp, Lead Verifier

03/05/2026
Date

☒ Digital Signature Acknowledgement*



Mallory Andrews, Independent Peer Reviewer
Acknowledgement*

03/05/2026

Date ☒ Digital Signature

Authorization:

I Bradley A. Johnson, P.E., NTPUD General Manager accept the findings in this Verification Statement and authorize the submission of this verification statement to The Climate Registry on behalf of North Tahoe Public Utility District.



Participant Representative Signature

04/06/2026
Date

☒ Digital Signature Acknowledgement*

*For digital signature: By checking the "Digital Signature Acknowledgement" box, I agree that this verification statement shall be deemed to be "in writing" and to have been "signed" for all purposes and that any electronic record will be deemed to be in "writing." I will not contest the legally binding nature, validity, or enforceability of this verification statement and any corresponding documents based on the fact that they were entered and executed electronically, and expressly waive any and all rights I may have to assert any such claim.

North Tahoe Public Utility District CY2023 Verification Report



Section 1: Overview

Date of Verification Report: 03.05.2026

Member Name: North Tahoe Public Utility District (NTPUD)

Emissions Year Report Verified: CY2023

Reporting Classification: ☒ Complete ☐ Self-Defined

If self-defined specify boundary: ; specify GHGs:

Member's Organizational Boundaries:

☐ Equity Share and Control (☐ Financial **and/or** ☐ Operational)

☒ Control Only: (☐ Financial **and/or** ☒ Operational)

☐ Equity Share Only

Geographic Scope of Emissions Report:

☒ Specify geographic boundary: California

Verification Body Name: Cameron-Cole

Verification Body Contact: Chris Lawless

Title: Vice President, Climate and Sustainability Services

Telephone: (510) 777-1858

E-mail: clawless@cameron-cole.com

Subcontractors: N/A

Verification Team Members:Lead Verifier: Cory TrippOther Verification Team Members: Giwon KimIndependent Peer Reviewer: Mallory Andrews**Type of Verification:** ☐ Batch ☒ Streamlined ☐ Full**Level of Assurance:** ☒ Limited ☐ Reasonable**GHG Reporting Protocols against which Verification was Conducted:**☒ The Climate Registry's *General Reporting Protocol Version 3.0*, dated May 2019☐ The Climate Registry's GRP Updates and Clarifications document dated _____☒ Others (specify): The Climate Registry's Water Energy Nexus Registry Protocol, v 2, dated June 2021**GHG Verification Protocols used to Conduct the Verification:**☒ The Climate Registry's *General Verification Protocol Version 3.0*, dated March 2024☐ The Climate Registry's GVP Updates and Clarifications document dated _____☐ Others (specify): _____**Total Entity-Wide Emissions Verified:**Total Scope 1 Emissions: 342.386324 mt CO₂e341.5075 CO₂ 0.018804 CH₄ 0.001359 N₂O 0.00 HFCs 0.00 PFCs 0.00 NF₃ 0.00 SF₆Direct Biogenic CO₂: 0.00 mt CO₂Total Location-based Scope 2 Emissions: 437.249014 mt CO₂e435.583393 CO₂ 0.026271 CH₄ 0.003504 N₂OIndirect Location-based Biogenic CO₂: 0.00 mt CO₂Total Market-based Scope 2 Emissions: 499.154 mt CO₂e499.154 CO₂ 0.00 CH₄ 0.00 N₂OIndirect Market-based Biogenic CO₂: 0.00 mt CO₂

Total Water-System Anthropogenic Emissions Verified:Total Scope 1 Emissions: 153.105115 mt CO₂eTotal Location-based Scope 2 Emissions: 247.618785 mt CO₂eTotal Market-based Scope 2 Emissions: 282.724185 mt CO₂e**Total Wastewater-System Anthropogenic Emissions Verified:**Total Scope 1 Emissions: 172.397925 mt CO₂eTotal Location-based Scope 2 Emissions: 188.911975 mt CO₂eTotal Market-based Scope 2 Emissions: 215.711575 mt CO₂e**Summary of Verification Findings:**☒ Verified☐ Unable to Verify (include reason, e.g., “due to data errors” or “due to non-compliance with TCR’s reporting requirements): _____

Comment:

Section 2: Verification Plan**Describe the verification plan, including the risk-assessment methodologies employed and the evidence-gathering procedures** (either in the space below or attached separately):

Cameron-Cole has attached a copy of the Verification Plan. Cameron-Cole’s risk assessment was based on the information provided by NTPUD including the CRIS report, back-up calculation spreadsheets, and information provided during the kick-off call between NTPUD and Cameron-Cole. This risk assessment informed the Verification Evidence Gathering Plan.

The Verification Evidence Gathering Plan included a ranking of emissions sources by contribution to total CO₂e emissions, and a ranking of emissions sources with the largest calculation uncertainty.

The Verification Evidence Gathering Plan included a qualitative narrative on the uncertainty risk assessment in the following areas:

- Data acquisition equipment;
- Data sampling and frequency;

- Data processing and tracking;
- Emissions calculations;
- Data reporting; and,
- Management policies or practices in developing emissions data reports.

The Verification Evidence Gathering Plan informed the Data Request, and the Data Request was then provided to NTPUD. The Verification Evidence Gathering Plan was not provided to NTPUD, in accordance with TCR's GVP.

Section 3: Identification of Emission Sources

List all facilities/emission sources/GHG identified through verification activities within the geographic and organizational boundaries of the emissions report.

Facility Name/Identifier	Facility Location	Emission Source	GHG	Included in Inventory?
On road fleet	Tahoe Vista, California	Mobile Combustion	CO2, CH4, N2O	☒ Yes ☐ No
Building & Facility Energy	Tahoe Vista, California	Stationary Combustion, Purchased electricity	CO2, CH4, N2O	☒ Yes ☐ No
Wastewater Transport	Tahoe Vista, California	Stationary Combustion, Purchased electricity	CO2, CH4, N2O	☒ Yes ☐ No
Water Utilities	Tahoe Vista, California	Stationary Combustion, Purchased electricity	CO2, CH4, N2O	☒ Yes ☐ No
Off road fleet	Tahoe Vista, California	Mobile Combustion	CO2, CH4, N2O	☒ Yes ☐ No
Fleet	Tahoe Vista, California	Fugitive	HFC	☒ Yes ☐ No

Section 4: Verification Activities Log and Evaluation of Compliance

Verification Activities Check List

Preparing for Verification	Date Achieved
1. Bid on a Verification Contract	11/13/2025

2. Submit Case-Specific COI Assessment Form to Registry	11/17/2025	
3. Negotiate Contract with Member	11/13/2025	
4. Notify The Registry of Planned Verification Activities	N/A	
5. Conduct Kick-off Meeting with Member	12/12/2025	
6. Develop Verification Plan	12/18/2025	
Verification Activities		
Assessing Conformance with the Registry's Requirements	Yes	No
7. Is the Member a legal entity under U.S., Canadian or Mexican law?	Y	
8. Is the Member a subsidiary of any other company, and if so, is the parent company also reporting to the Registry?		N
9. If the Member is submitting a transitional report, is the Member eligible to do so?		N/A
10. Are all emissions calculated using simplified estimation methodologies (SEMs) included in the inventory and documented as such?	Y	
11. If the answer to Question 10 is "yes," are the SEMs used appropriate, and are the results reasonable?	Y	
12. If the answer to Question 10 is "yes," do the emissions estimated using SEMs constitute 5% or less of the sum of an entity's Scope 1, Scope 2, and biogenic emissions from stationary and mobile combustion?	Y	
13. Have any mergers, acquisitions, or divestitures occurred during the current emissions year?		N
14. Have any activities been outsourced or insourced in the current year?		N
15. Has the Member provided all required emissions data?	Y	
16. Have you performed data triangulations where reasonable?	Y	
17. Are any discrepancies between your emissions estimates and the Member's material? If so, has the Member addressed those discrepancies and corrected the data in CRIS?		N

Verification Activities

Assessing Completeness of Emission Report

Date Achieved

18. Identify and list all facilities in the entity	12/18/2025
19. Identify and list all emission sources (of Scope 1 Mobile, Scope 1 Stationary, Scope 1 Process, Scope 1 Fugitive, Scope 2, Direct Biogenic CO ₂ Mobile, and Direct Biogenic CO ₂ Stationary Emissions)	12/18/2025
20. Identify and list all fuel types	12/18/2025
21. Rank all sources by magnitude on a CO ₂ -e basis	12/18/2025
22. Assess any changes in geographic and organizational boundaries	12/18/2025
	Yes No
23. [For Member's using the equity share approach] Does the emission report include all processes and facilities for which the Member holds an equity share? If not, why?	N/A
24. [For Member's using the financial control approach] Does the emission report include all processes and facilities under the financial control of the Member? If not, why?	N/A
25. [For Member's using the operational control approach] Does the emission report include all processes and facilities under the operational control of the Member? If not, why?	Y
26. Does the report include all facilities and sources of GHG emissions within the geographic boundaries of the Member?	Y
27. Does the report include all applicable types of GHGs from each facility and emission source within the geographic and organizational boundaries of the Member?	Y
28. [For Members reporting transitional inventories] Has the Member publicly defined, disclosed, and justified their transitional inventory boundary in CRIS?	N/A
29. If the Member excluded any miniscule sources, did they properly disclose the exclusions?	Y
30. Has the reporting entity included all of its scope 1, scope 2, and biogenic emissions for each facility?	Y
31. Have the scope 1 emissions been broken down by source type (stationary combustion, mobile combustion, fugitive, and process)?	Y
32. Have biogenic CO ₂ emissions been reported separately from the scope 1 emissions?	N
33. What type of records were used as the basis for calculating emissions, and were these records appropriate?	Y – invoices

Performing Risk Assessment Based on Review of Information Systems and Controls

Date Achieved

34. Evaluate procedures and systems for preparing emission report	02/06/2026	
35. Evaluate personnel and training - does the Member's management system define what is "qualified" and what constitutes "appropriate training"?	02/06/2026	
36. Assess if the uncertainty associated with methodologies and management systems is more than appropriate	02/06/2026	
	Yes	No
37. Are the calculation methodologies/procedures used to compute GHG emissions at the source level among those described in the General Reporting Protocol? If not, why?	Y	
38. If a non-GRP methodology has been used because the General Reporting Protocol does not provide any methodology for the particular source(s) in question, is the methodology that was used an industry standard for this source type(s)?	Y	
39. If alternative emission factors were used, did the Member establish a basis for concluding that they were more accurate than the default factors?	Y	
40. If the Member used a utility-developed (non-EPS/PUP) delivery metric for purchased electricity, did the Member upload the necessary supporting documentation?		N/A
41. Are appropriate methods used to manage and implement entity-wide GHG emissions reporting programs? If the Member has more than one facility, is the emissions data correctly monitored?	Y	
42. Is a qualified individual responsible for managing and reporting GHG emissions?	Y	
43. Is appropriate training provided to personnel assigned to GHG emissions reporting duties? If the Member relies on external staff to perform required activities, are the contractors' qualified to undertake such work?	Y	
44. Are appropriate documents created to support and/or substantiate activities related to GHG emissions reporting activities, and is such documentation retained appropriately? For example, is such documentation maintained through reporting plans or procedures, utility bills, etc.?	Y	
45. Are appropriate mechanisms used to measure and review the effectiveness of GHG emissions reporting programs? For example, are policies, procedures, and practices evaluated and updated at appropriate intervals?	Y	

46. Does the system account for the diversity of the sources that comprise each emission category? For example, are there multiple types of vehicles and other transportation devices that require different emission estimation methodologies?	Y
47. Do you know the diversity of GHGs emitted from each emission source category?	Y
48. When available, has the Member used the emission factors, GWPs and standardized estimation methods in the Registry's General Reporting Protocol to calculate emissions in each source category?	Y
a. Are the methodologies, data sources and emission factors documented and explained appropriately?	Y
49. Does the Member's GHG management system appropriately track emissions in all of the emission source categories?	Y
Developing an Evidence-Gathering Plan	Date Achieved
50. Develop evidence-gathering Procedures for Sources Based on Risk of Material Misstatement	12/18/2025
	Yes No
51. Was the overall Verification Plan and the types of facilities and their materiality considered when developing the facility visit list?	N/A
52. Were direct and indirect emissions considered separately?	Y
53. Based on the GVP Section 4.3.4, have you visited an appropriate number of facilities?	N/A
Verifying Emission Estimates Against Verification Criteria	Date Achieved
54. Confirm total fuel consumption	01/02/2026
55. Confirm vehicle miles traveled	01/02/2026
56. Confirm that appropriate emission factors are used. If not default factors, ensure the derivation and explanation of increased accuracy is properly documented	01/02/2026
57. Calculate Scope 1 (Mobile, Stationary, Process & Fugitive), Scope 2, and Direct Biogenic CO ₂ (Mobile and Stationary) based on sampling procedures	01/02/2026
58. Compare estimates from sample calculations to reported emissions	01/02/2026
59. Determine if there are any discrepancies between sample calculation and reported emissions	01/02/2026
60. Determine if any reporting errors have caused material misstatements	01/02/2026

	Yes	No
61. Are the reported electricity, steam, and district heating and cooling use consistent with utility bills?	Y	
62. Is the reported total stationary fuel use by fuel type consistent with the fuel use records?	Y	
63. Is the reported total consumption of fuels in motor vehicles consistent with available documentation and by vehicle type? If the entity calculates transportation emissions based on vehicle mileage, is the reported vehicle mileage consistent with vehicle mileage records?	Y	
64. Is the reported process and fugitive emissions consistent with activity data or maintenance records?	Y	
65. Are the emission factors used by the Member appropriate?	Y	
a. If Registry default factors are not used, do the alternative emission factors provide increased accuracy?	Y	
b. Is the derivation and explanation of increased accuracy properly documented and reasonable?	Y	
66. Does a sample of the Member's calculations agree with your re-calculated Scope 1 (mobile, stationary, process & fugitive), Scope 2, and Direct Biogenic CO ₂ (Mobile and Stationary) emissions estimates? Have you documented your process for determining the appropriate sampling plan?	Y	
67. Are all required GHG emissions included?	Y	
68. Are discrepancies between your emissions estimates and the Member's immaterial?	Y	
Completing the Verification Process	Date Achieved	
69. Prepare a Detailed Verification Report and submit to Member	By 02/28/2026	
70. Prepare a Verification Opinion and submit to Member	By 02/28/2026	
71. Conduct verification meeting with Member to discuss and finalize Verification Report and Opinion	By 02/28/2026	
72. Communicate verification findings to the Registry through CRIS	By 02/28/2026	
73. Retain relevant verification documents and records	By 02/28/2026	

Section 5: Findings

Sum of discrepancies may not add to total at entity level due to rounding

List all nonconformances discovered during the verification and their magnitude at the entity level:

Discrepancy	Magnitude as a Percent of Reported Direct Entity-Level Emissions	Current Disposition of the Discrepancy
The Exclusion of Miniscule Sources form has not been completed.	N/A	Closed – Form updated
The Indirect Emissions Disclosure form has not been completed.	N/A	Closed – Form updated

List all direct misstatements discovered during the verification and their magnitude at the entity level:

Discrepancy	Magnitude as a Percent of Reported Direct Entity-Level Emissions	Current Disposition of the Discrepancy
Diesel consumption from the Peterbilt dump truck is not currently included in the total gallons input used for the emissions calculation.	N/A	☒ Corrected ☐ Not Corrected
WEN Metrics - There was an error in the TCR system. TCR provided the final reported metrics, which were verified by Cameron-Cole. No issue remains.	N/A	☒ Corrected ☐ Not Corrected
Fugitive refrigerants in vehicles have not been reported.	0.21%	☐ Corrected ☒ Not Corrected
Rounding	0.03%	☐ Corrected ☒ Not Corrected

Net sum of all direct discrepancies at the entity level: 0.24%

List all location-based indirect misstatements discovered during the verification and their magnitude at the entity level:

Discrepancy	Magnitude as a Percent of Reported Location-based Indirect Entity-Level Emissions	Current Disposition of the Discrepancy
Location and Market Based Scope 2 emissions are switched. Currently, location-based emissions are being reported as market based and vice versa.	N/A	☒ Corrected ☐ Not Corrected

Net sum of all location-based indirect discrepancies at the entity level: 0.00%

List all market-based indirect misstatements discovered during the verification and their magnitude at the entity level

Discrepancy	Magnitude as a Percent of Reported Market-based Indirect Entity-Level Emissions	Current Disposition of the Discrepancy
Location and Market Based Scope 2 emissions are switched. Currently, location-based emissions are being reported as market based and vice versa.	N/A	☒ Corrected ☐ Not Corrected
Rounding	Less than 0.00%	☐ Corrected ☒ Not Corrected

Net sum of all market-based indirect discrepancies at the entity level: 0.00%

Section 6: Opinion

NTPUD is responsible for the preparation and fair presentation of the GHG statement in accordance with the TCR's General Reporting Protocol (GRP) Version 3.0, dated May 2019, and associated updates and clarifications. Cameron-Cole is responsible for expressing an opinion on the GHG statement. Cameron-Cole has conducted a streamlined verification of NTPUD's emission report to a reasonable level of assurance. Based on Cameron-Cole's verification activities and findings, nothing has come to our attention that NTPUD's emissions report is not prepared in all material respects in accordance with the reporting criteria.

Cameron-Cole, LLC

March 03, 2026



Cory Tripp

Lead Verifier

GHG Emissions Verifier



Mallory Andrews

Independent Reviewer

*Associate Director, Climate and Verification
Services*

Attachment A – Verification Opinion

Verification Opinion



Member Name: North Tahoe Public Utility District

Reporting Year: January 1, 2023 through December 31, 2023
Start Date *End Date*

Reporting Boundary: ☒ Complete ☐ Self-Defined
Specify boundary: _____

Consolidation Methodology: ☒ Control Only (specify: ☐ Financial ☒ Operational)
☐ Equity Share and Control (specify: ☐ Financial ☐ Operational)
☐ Equity Share Only

Verification Body: Cameron-Cole

Verification Opinion: ☒ Positive

☐ Negative; summarize reason: _____

☐ Unable to issue opinion;
summarize reason: _____

This verification opinion documents that Cameron-Cole has conducted verification activities in accordance with ISO 14064-3 to a limited level of assurance. Based upon the verification procedures conducted and the results of the verification, nothing has come to our attention that the organizational greenhouse gas emissions report is not materially correct and fairly stated in accordance with the criteria identified below.

GHG reporting criteria against which verification was conducted:

- ☒ The Climate Registry's General Reporting Protocol (GRP) Version: 3.0 Dated: May 2019
☐ The Climate Registry's GRP Updates and Clarifications document Dated: _____
☒ Other(s), specify: The Climate Registry's Water Energy Nexus Registry Protocol, v2, dated June 2021

GHG verification protocols used to conduct the verification:

- ☒ The Climate Registry's General Verification Protocol (GVP) Version: 3.0 Dated: March 2024
☐ The Climate Registry's GVP Updates and Clarifications document Dated: _____
☐ Other(s), specify: _____

Total Entity-Wide Scope 1 and 2 Emissions Verified (Control Criteria):

Total Scope 1 Emissions:	342.386324	metric tons CO₂e
---------------------------------	-------------------	------------------------------------

Metric tons of each GHG:

341.5075		CO ₂	0.018804		CH ₄	0.001359		N ₂ O
0.00	HFCs (CO ₂ e)		0.00	PFCs (CO ₂ e)		0.00	SF ₆	0.00 NF ₃

Biogenic Direct CO ₂ Emissions:	0.00	metric tons CO ₂
--	------	-----------------------------

Total Location-Based Scope 2 Emissions:	437.249014	metric tons CO₂e
--	-------------------	------------------------------------

Metric tons of each GHG:

435.583393	CO ₂	0.026271	CH ₄	0.003504	N ₂ O
------------	-----------------	----------	-----------------	----------	------------------

Biogenic Indirect Location-Based CO ₂ Emissions:	0.00	metric tons CO ₂
---	------	-----------------------------

Total Market-Based Scope 2 Emissions:	499.154	metric tons CO₂e
--	----------------	------------------------------------

Metric tons of each GHG:

499.154	CO ₂	0.00	CH ₄	0.00	N ₂ O
---------	-----------------	------	-----------------	------	------------------

Biogenic Indirect Market-Based CO ₂ Emissions:	0.00	metric tons CO ₂
---	------	-----------------------------

Total Entity-Wide Scope 1 and 2 Emissions Verified (Equity-Share Criteria):

Total Scope 1 Emissions: **metric tons CO₂e**

Metric tons of each GHG:

_____ CO ₂	_____ CH ₄	_____ N ₂ O
_____ HFCs (CO ₂ e)	_____ PFCs (CO ₂ e)	_____ SF ₆
_____ NF ₃		

Biogenic Direct CO₂ Emissions: metric tons CO₂

Total Location-Based Scope 2 Emissions:	metric tons CO₂e
--	------------------------------------

Metric tons of each GHG:

	CO ₂	CH ₄	N ₂ O
1. Fossil fuel combustion and industrial processes	19.0	0.5	1.9
2. Land use change and forestry	5.4	0.0	0.4
3. Industrial processes and product use	5.3	0.3	0.2
4. Aviation and shipping	0.9	0.0	0.0
5. Buildings	5.2	0.0	0.0
6. Land use, land-use change, and forestry	0.0	0.0	0.0
7. Fugitive emissions from the oil and gas sector	0.0	0.0	0.0
8. Fugitive emissions from coal seam gas and coalbed methane production	0.0	0.0	0.0
9. Fugitive emissions from other industrial processes	0.0	0.0	0.0
10. Fugitive emissions from landfills	0.0	0.0	0.0
11. Fugitive emissions from agriculture, forestry and other land use	0.0	0.0	0.0
12. Fugitive emissions from other sectors	0.0	0.0	0.0
13. Fugitive emissions from other sectors	0.0	0.0	0.0
14. Fugitive emissions from other sectors	0.0	0.0	0.0
15. Fugitive emissions from other sectors	0.0	0.0	0.0
16. Fugitive emissions from other sectors	0.0	0.0	0.0
17. Fugitive emissions from other sectors	0.0	0.0	0.0
18. Fugitive emissions from other sectors	0.0	0.0	0.0
19. Fugitive emissions from other sectors	0.0	0.0	0.0
20. Fugitive emissions from other sectors	0.0	0.0	0.0
21. Fugitive emissions from other sectors	0.0	0.0	0.0
22. Fugitive emissions from other sectors	0.0	0.0	0.0
23. Fugitive emissions from other sectors	0.0	0.0	0.0
24. Fugitive emissions from other sectors	0.0	0.0	0.0
25. Fugitive emissions from other sectors	0.0	0.0	0.0
26. Fugitive emissions from other sectors	0.0	0.0	0.0
27. Fugitive emissions from other sectors	0.0	0.0	0.0
28. Fugitive emissions from other sectors	0.0	0.0	0.0
29. Fugitive emissions from other sectors	0.0	0.0	0.0
30. Fugitive emissions from other sectors	0.0	0.0	0.0
31. Fugitive emissions from other sectors	0.0	0.0	0.0
32. Fugitive emissions from other sectors	0.0	0.0	0.0
33. Fugitive emissions from other sectors	0.0	0.0	0.0
34. Fugitive emissions from other sectors	0.0	0.0	0.0
35. Fugitive emissions from other sectors	0.0	0.0	0.0
36. Fugitive emissions from other sectors	0.0	0.0	0.0
37. Fugitive emissions from other sectors	0.0	0.0	0.0
38. Fugitive emissions from other sectors	0.0	0.0	0.0
39. Fugitive emissions from other sectors	0.0	0.0	0.0
40. Fugitive emissions from other sectors	0.0	0.0	0.0
41. Fugitive emissions from other sectors	0.0	0.0	0.0
42. Fugitive emissions from other sectors	0.0	0.0	0.0
43. Fugitive emissions from other sectors	0.0	0.0	0.0
44. Fugitive emissions from other sectors	0.0	0.0	0.0
45. Fugitive emissions from other sectors	0.0	0.0	0.0
46. Fugitive emissions from other sectors	0.0	0.0	0.0
47. Fugitive emissions from other sectors	0.0	0.0	0.0
48. Fugitive emissions from other sectors	0.0	0.0	0.0
49. Fugitive emissions from other sectors	0.0	0.0	0.0
50. Fugitive emissions from other sectors	0.0	0.0	0.0
51. Fugitive emissions from other sectors	0.0	0.0	0.0
52. Fugitive emissions from other sectors	0.0	0.0	0.0
53. Fugitive emissions from other sectors	0.0	0.0	0.0
54. Fugitive emissions from other sectors	0.0	0.0	0.0
55. Fugitive emissions from other sectors	0.0	0.0	0.0
56. Fugitive emissions from other sectors	0.0	0.0	0.0
57. Fugitive emissions from other sectors	0.0	0.0	0.0
58. Fugitive emissions from other sectors	0.0	0.0	0.0
59. Fugitive emissions from other sectors	0.0	0.0	0.0
60. Fugitive emissions from other sectors	0.0	0.0	0.0
61. Fugitive emissions from other sectors	0.0	0.0	0.0
62. Fugitive emissions from other sectors	0.0	0.0	0.0
63. Fugitive emissions from other sectors	0.0	0.0	0.0
64. Fugitive emissions from other sectors	0.0	0.0	0.0
65. Fugitive emissions from other sectors	0.0	0.0	0.0
66. Fugitive emissions from other sectors	0.0	0.0	0.0
67. Fugitive emissions from other sectors	0.0	0.0	0.0
68. Fugitive emissions from other sectors	0.0	0.0	0.0
69. Fugitive emissions from other sectors	0.0	0.0	0.0
70. Fugitive emissions from other sectors	0.0	0.0	0.0
71. Fugitive emissions from other sectors	0.0	0.0	0.0
72. Fugitive emissions from other sectors	0.0	0.0	0.0
73. Fugitive emissions from other sectors	0.0	0.0	0.0
74. Fugitive emissions from other sectors	0.0	0.0	0.0
75. Fugitive emissions from other sectors	0.0	0.0	0.0
76. Fugitive emissions from other sectors	0.0	0.0	0.0
77. Fugitive emissions from other sectors	0.0	0.0	0.0
78. Fugitive emissions from other sectors	0.0	0.0	0.0
79. Fugitive emissions from other sectors	0.0	0.0	0.0
80. Fugitive emissions from other sectors	0.0	0.0	0.0
81. Fugitive emissions from other sectors	0.0	0.0</	

Biogenic Indirect Location-Based CO₂ Emissions: _____ metric tons CO₂

Total Market-Based Scope 2 Emissions: metric tons CO_{2e}

Metric tons of each GHG:

_____ CO₂ _____ CH₄ _____ N₂O

Biogenic Indirect Market-Based CO₂ Emissions: _____ metric tons CO₂

Comments:

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Scope 3:

Scope 3 emissions were reported and verified to a level of assurance.

Metric tons of each GHG:

Total Emissions per Scope 3 Category:

Category 1: Purchased Goods and Services	metric tons CO ₂ e
Category 2: Capital Goods	metric tons CO ₂ e
Category 3: Fuel- and Energy-Related Activities	metric tons CO ₂ e
Category 4: Upstream Transportation and Distribution	metric tons CO ₂ e
Category 5: Waste Generated in Operations	metric tons CO ₂ e
Category 6: Business Travel	metric tons CO ₂ e
Category 7: Employee Commuting	metric tons CO ₂ e
Category 8: Upstream Leased Assets	metric tons CO ₂ e
Category 9: Downstream Transportation and Distribution	metric tons CO ₂ e
Category 10: Processing of Sold Products	metric tons CO ₂ e
Category 11: Use of Sold Products	metric tons CO ₂ e
Category 12: End-of-Life Treatment of Sold Products	metric tons CO ₂ e
Category 13: Downstream Leased Assets	metric tons CO ₂ e
Category 14: Franchises	metric tons CO ₂ e
Category 15: Investments	metric tons CO ₂ e

[illegible]

Applied Offsets:

If offsets were applied to the Member's GHG inventory, this section must be completed. Offsets must be reported here and not subtracted from the emissions totals on Page 2. Net emissions may be optionally reported below.

- ☐ **The following amount of carbon offsets have been retired by the Member and meet The Climate Registry's accounting requirements:**

Total carbon offsets applied to the inventory: _____ metric tons CO₂e

Offset provider(s):

Total offsets applied to each Scope:

If offsets were not applied to a certain Scope, write "0" or leave it blank. To calculate net emissions for Scope 2 and indirect biogenic emissions, subtract the total offsets applied from the higher of either location- or market-based emissions. Negative net emissions must not be reported.

	<u>Offsets Applied</u>	<u>Net Emissions</u>
Scope 1:	_____ metric tons CO ₂ e	_____ metric tons CO ₂ e
Scope 2:	_____ metric tons CO ₂ e	_____ metric tons CO ₂ e
Biogenic Direct:	_____ metric tons CO ₂ e	_____ metric tons CO ₂ e
Biogenic Indirect:	_____ metric tons CO ₂ e	_____ metric tons CO ₂ e
Scope 3:	_____ metric tons CO ₂ e	_____ metric tons CO ₂ e

Comments:

Attestation:

Cory Tripp

03/05/2026

Lead Verifier (Print Name)

Date

☒ Digital Signature Acknowledgement*

Mallory Andrews

03/05/2026

Independent Reviewer (Print Name)

Date

☒ Digital Signature Acknowledgement***Authorization:**

Preparation of the organizational greenhouse gas emissions report is the responsibility of the Member representative. On behalf of the member organization, I accept the findings in this Verification Opinion and authorize the submission of this verification opinion to The Climate Registry.

Bradley A. Johnson, P.E.

04/06/2026

Member Representative (Print Name)

Date



Digitally signed by Bradley A.
Johnson
Date: 2026.04.06 13:15:22 -07'00'

☒ Digital Signature Acknowledgement*

*For digital signature: By checking the "Digital Signature Acknowledgement" box, I agree that this verification statement shall be deemed to be "in writing" and to have been "signed" for all purposes and that any electronic record will be deemed to be in "writing." I will not contest the legally binding nature, validity, or enforceability of this verification statement and any corresponding documents based on the fact that they were entered and executed electronically, and expressly waive any and all rights I may have to assert any such claim.

Attachment B – Verification Plan

North Tahoe Public Utility District

Verification Plan

CY2023 The Climate Registry Greenhouse Gas Emissions Inventory
Verification

Date: 12.18.2025 (updated 03.05.2026)

Table of Contents

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1.0 Introduction

Cameron-Cole, LLC (Cameron-Cole) has been retained by North Tahoe Public Utility District (NTPUD) to perform a verification of its Greenhouse Gas (GHG) Inventory for calendar years (CY) 2023, which was prepared using The Climate Registry's (TCR) General Reporting Protocol Version 3.0 dated May 2019 with associated updates and clarifications (collectively referred to as the GRP). Cameron-Cole will conduct the verification of NTPUD's GHG Inventory using TCR's General Verification Protocol (GVP) Version 3.0 dated March 2024 with associated updates and clarifications (collectively referred to as the GVP). This verification will be conducted between December 2025 and February 2026.

This Verification Plan includes information on the following:

- Level of assurance
- Verification objectives
- Verification criteria
- Verification scope
- Materiality
- Identification of the verification team and their roles on the team
- Verification activities and schedule. [NOTE: THIS MAY BE INCREASED OR DECREASED THROUGHOUT THE PLANNING PROCESS AS NECESSARY.]

For CY2023, NTPUD reported metric tons (MT) 342.39 of carbon dioxide equivalent (CO₂e) of Scope 1 direct emissions, 437.25 MT CO₂e of Scope 2 location-based emissions, and 499.15 MT CO₂e of Scope 2 market-based emissions.

Lead Verifiers: Cory Tripp

Verification Team: Giwon Kim

Independent Reviewer: Mallory Andrews

Client Contact: Justin Broglio, Public Information Officer

This Verification Plan was developed in accordance with the requirements of ISO14064-3:2019 and ISO/IEC 17029(E). This document has been created using information derived via a systematic, interactive,

and where necessary, iterative process. The plan will be revised and updated as necessary during the verification process.

2.0 Level of Assurance

The level of assurance is used to determine the depth of detail that a verifier designs into the Verification Plan to determine if there are material omissions, errors, or misstatements. Two levels of assurance are generally recognized – reasonable and limited. Reasonable assurance statements generate the highest level of confidence and provide reasonable assurance that an emissions report is materially correct. Limited assurance statements provide less confidence and involve less detailed examination of GHG data and supporting documentation. Limited assurance statements assert that there is no evidence that an emissions report is not materially correct.

NTPUD and Cameron-Cole have agreed that the verification of the GHG Inventory for CY2023 will result in a limited assurance.

3.0 Verification Objectives

The primary objectives of the verification are to:

- Verify whether NTPUD's CY2023 GHG Inventory meets the generally accepted GHG accounting principles of accuracy, completeness, transparency, relevance and consistency.
- Determine if NTPUD has reported all emissions in conformance with the guidelines provided in the TCR GRP.
- Determine whether or not NTPUD's CY2023 GHG Inventory meet/exceed the 95% threshold for accuracy required by TCR.

4.0 Verification Criteria

The verification process will maintain the principles of completeness, consistency, accuracy, comparability, and transparency. Cameron-Cole will conduct verification activities to assess accuracy and conformance with the stated objectives and GRP. Where GRP does not provide guidance on methodologies, or where NTPUD has a justification for using alternatives, NTPUD will reference these

sources. In these cases, Cameron-Cole will use professional judgment to assess the accuracy and completeness of the GHG assertion.

Cameron-Cole will verify NTPUD's GHG emission report using the (most current versions of the) following standards:

- The Climate Registry's General Reporting Protocol (GRP) and its associated updates and clarifications
- The Climate Registry's General Verification Protocol (GVP) and its associated updates and clarifications
- ISO 14064-3:2019(E) (Specifications with Guidance for the Validation and Verification of Greenhouse Gas Assertions)

5.0 Verification Scope

A description of NTPUD's GHG Emissions Inventory that is included in the scope of verification activities is as follows:

- **Geographical:** California
- **Chemical:** carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O)
- **Organizational Boundary:** Reporting under operational control
- **Operational Boundary:** The following sources/emissions were identified in NTPUD's organizational boundary:
 - Scope 1
 - Direct Emissions from stationary combustion sources: natural gas
 - Direct Emissions from mobile combustion sources: on-road vehicles, off-road vehicles and equipment
 - Scope 2
 - Indirect Emissions from purchased electricity (building and facilities, water and wastewater transport)

The verification includes the review of the reporter's WEN (Water-Energy Nexus) metrics.

6.0 Materiality

The concept of materiality is used to determine if erroneous, omitted, or misstated GHG emissions information will lead to significant misrepresentations of emissions. A material misstatement is the aggregate of errors and omissions with program requirements, and/or misrepresentations that could influence the decisions of intended users.

The Climate Registry sets the materiality threshold at 5% (for both understatements and overstatements) of a member's direct and indirect emissions. NTPUD and Cameron-Cole have agreed on a materiality threshold of 5% assessed separately for direct and indirect emissions.

7.0 Discrepancies

Cameron-Cole's verification activities include understanding any issues with [NTPUD'S] GHG Inventory processes, calculations, data, and documentation—particularly those that result in a material discrepancy. Cameron-Cole will provide NTPUD with information on discrepancies found during the verification. Cameron-Cole will make every effort to provide this information in a timely manner (mostly likely in batches as the review progresses), so that NTPUD has sufficient time to rectify the discrepancies, if appropriate. NTPUD will then resubmit information to Cameron-Cole, preferably in batches, to allow Cameron-Cole ample time to re-verify the information.

If NTPUD and Cameron-Cole cannot agree on a discrepancy, a determination will be made as to its material impact on NTPUD's GHG Inventory. If the discrepancy is not considered material, Cameron-Cole will notify [NTPUD], and allow [NTPUD] to rectify the discrepancy. If [NTPUD] does not rectify the non-material discrepancy, the Verification Statement will be qualified per ISO 14064-3:2019. Cameron-Cole will also note this in the Verification Report. If the discrepancy is material, a compromise will be reached between NTPUD and Cameron-Cole with regard to how the discrepancy is presented in Cameron-Cole's Verification Report, and Cameron-Cole will notify [NTPUD] whether the discrepancy will impact Cameron-Cole's ability to provide limited assurance.

8.0 Preliminary Findings

No preliminary findings at this time.

9.0 Verification Activities

Per ISO 14064-3 6.1.1 and 6.1.2, in evaluating the risk of material discrepancies related to the GHG assertion, Cameron-Cole shall consider:

- Views of the intended user(s);
- Relevance and relative contribution of the various GHG emissions from all GHG sources, sinks and reservoirs;
- Adequacy of the GHG information system and controls;
- Complexity of organization;
- Monitoring process applicable to the organization; and
- Relevant evidence from previous verifications, as applicable. Review results of previous verifications.

Review results of previous verifications

Per ISO/IEC 17029(E) 11.3.2, if previous verifications have been conducted, Cameron-Cole will conduct a review of the results of those activities and identify any changes to the GHG inventory since the last verification, and the reason(s) for such changes. Cameron-Cole will determine whether any changes from prior periods that make the periods incomparable have been disclosed appropriately by NTPUD.

Verify emissions sources

Cameron-Cole will conduct a detailed desktop review of NTPUD's source list to verify that all facilities, emissions sources, and fuels for the entity have been identified. All sources will be ranked by magnitude.

Determine areas of high risk and uncertainty

Based on initial discussions, and on information gathered and evaluated in previous tasks, Cameron-Cole will then determine which areas (facilities, sources, and resultant emissions estimates) have the highest risk of material error or misstatement. We will focus our efforts in these areas.

The following are types of potential errors, omissions and misrepresentations that will be included in our assessment:

- The inherent risk of a material discrepancy occurring;
- The risk that the controls of the organization will prevent/ not prevent or detect a material discrepancy; and
- The risk that the verifier will not detect any material discrepancy that has not been corrected by the controls of the organization.

Verification Evidence-Gathering Plan and Data Request

Since it is generally inefficient to assess all GHG information collected by an organization, a risk-based approach will be employed in developing an evidence-gathering plan. The evidence-gathering plan shall be based on the results of the verifier's risk assessment. It shall be designed to lower the verification risk to an acceptable level. The evidence-gathering plan will identify the sources that will be subject to evaluation.

Cameron-Cole will submit a Data Request to NTPUD. The Data Request will request information including, but not limited to, the following:

- A description of inventory management systems, including methods used to gather, transcribe (if applicable), QA/QC and aggregate activity data;
- Fuel and utility bills;
- Results of instrument maintenance and calibration; and
- Copies of leases or rental agreements.

Per ISO 14064-3:2019(E), the evidence-gathering Plan "shall be based on the results of the verifier's risk assessment. It shall be designed to lower the verification risk to an acceptable level. The evidence-gathering plan shall specify the type and extent of evidence-gathering activities. "The verifier will "evaluate any changes in risks and materiality threshold that may have occurred over the course of the verification. If the verifier determines there is insufficient or inappropriate evidence, the verifier shall develop additional evidence-gathering activities."

Per ISO 14064-3:2019(E), in cases where errors, omissions or misstatements are identified in the GHG data and information, the validation and verification team shall require that these are corrected by the client, and increase the sampling. Where non-material errors, omissions or misstatements cannot be corrected, the V/VB shall modify the validation or verification opinion. Where opinions cannot be qualified, e.g., materiality or other program requirements are not met, the V/VB shall issue an adverse opinion.

Evaluate methodologies and management systems

Cameron-Cole will review the methodologies and management systems used by NTPUD to determine whether they are in conformance with the GRP. We will review the data collection, transcription, conversions (if applicable), assumptions (if applicable), QA/QC and recordkeeping processes to ensure they are robust.

Cameron-Cole's management system review will consider the following:

- Selection and management of the GHG data and information;
- Processes for collecting, processing, consolidating and reporting GHG data and information;
- Systems and processes that ensure the accuracy of the GHG data and information;
-
- Design and maintenance of the GHG information system;
- Systems and processes that support the GHG information system; and
- Results of previous assessments, if available and appropriate.

Desktop Review

First, Cameron-Cole will conduct activities as described in the GRP to verify the accuracy and completeness of activity data (i.e., verifying fuel and electricity usage). Then, using the results of previous tasks, Cameron-Cole will select calculations to verify. Cameron-Cole will determine whether the evidence collected is sufficient and appropriate to reach a conclusion. If it is determined that there is insufficient or inappropriate evidence, Cameron-Cole will develop additional evidence-gathering activities.

Site Visits

No site visits will be performed for this year's verification.

Recalculation

Cameron-Cole will recalculate emissions estimates for selected sources using underlying activity data (provided by NTPUD). Material and immaterial errors and misstatements will be identified, and NTPUD's overall emissions estimates will be compared to our overall emissions estimates to determine if the materiality threshold (of 95% accuracy) has been achieved. Material and non-material misstatements will be communicated to NTPUD.

Verification Report, Verification Opinion & Exit Meeting

Per ISO., input in to the assessment of the GHG assertion shall include: contract requirements related to scope, criteria, objectives, level of assurance and materiality as well as any validation or verification criteria-specific requirements; GHG assertion; output from the strategic analysis and assessment of risks; output from the assessment of GHG information system and controls; output from the assessment of GHG data and information; and output from the assessment against the verification criteria.

The output from the assessment of the GHG assertion shall confirm that: evidence gathered is sufficient to validate or verify the GHG assertion in line with the scope, criteria, objectives, materiality, and level of assurance as agreed in the contract; the verification process, as carried out, has delivered the level of assurance as agreed; sampling and its results support or not a conclusion that there are no material discrepancies in the GHG assertion; and, the GHG assertion is free from material discrepancy based on the evidence and findings from the verification process and the agreed scope, objective, criteria, materiality, and level of assurance. If the evidence and findings are not sufficient to reach this conclusion then; one of the following types of opinion may be formed—"adverse," "modified," or a disclaimer of opinion.

Cameron-Cole will prepare a Verification Report and Verification Opinion for NTPUD. The Verification Report will document the verification process, inventory recalculations, and summarize the verification findings. Per ISO 14064-3:2019 6.3.2.3, in cases where errors, omissions, or misstatements cannot be corrected, Cameron-Cole will modify the verification opinion (see previous statement under Verification Evidence-Gathering Plan and Data Request). If a matter comes to Cameron-Cole's attention that causes the verifier to believe in the existence of intentional misstatement or noncompliance by the NTPUD with

laws and regulations, the Cameron-Cole shall communicate the matter to the appropriate parties as soon as practicable.

Per ISO 14064:2019 Clause 8, the verification team shall submit to the V/VB¹ evidence and findings to substantiate and supports its recommendations related to the GHG assertion (the proposed V/V statement). The evidence and findings shall link to the agreed Verification Plan and Verification Evidence-Gathering Plan and be sufficient for the reviewer to carry out an effective review. All documents will be subjected to an evaluation and quality assurance check by the reviewer. Per ISO/IEC 17029(E) 9.6, in concluding (refer also to ISO 14064-3:2019 Clause 8) the reviewer shall take into account the evidence resulting from the following:

- Whether the risk assessment, Verification Plan, Verification Evidence-Gathering Plan, and verification process and its stated conclusions and opinions are consistent with the agreement related to level of assurance, materiality, criteria, objectives, and scope;
- Appropriateness of team competencies;
- Findings from the strategic analysis and the assessment of risks;
- Whether the design of the verification process and its stated conclusions and opinions are consistent with the requirements in the contract;
- Changes to the Verification Plan or the Verification Evidence-Gathering Plan;
- Significant decisions made during the verification;
- Whether sufficient and appropriate evidence was collected to support the opinion;
- The conclusion reached on GHG data and information; and
- The recommendation related to the GHG statement.

Per ISO/IEC 17029(E) 9.6, the independent reviewer shall determine whether the Verification Opinion is consistent with findings from the verification activities, and that its stated conclusions and opinions are consistent with finding from the verification and that nothing material has been omitted.

¹ In Cameron-Cole's case, the Independent Peer Reviewer ("the Reviewer") will receive the information from the verification team.

Per ISO/IEC 17029(E) 9.6, the independent reviewer shall determine whether the Verification Opinion meets the requirements set out in the verification criteria. Where there is no Verification Opinion requirement(s) set out in the verification criteria, the Verification Opinion shall meet ISO 14064-3 Clause 9.3.

The general conclusion from the Verification Report will be used to create the Verification Opinion, which will then be reviewed and signed by Cameron-Cole's independent reviewer and the team leader/lead verifier. The Verification Opinion shall conform with ISO 14064-3, Clause 9.3; (except in cases where regulated requirements overrule this) be consistent with the outcome of the V/VB review²; contain a verification conclusion that reflects material discrepancies that remain after the conclusion of the verification; and be issued to the responsible party.

Originals of these documents will be provided to NTPUD, and an exit meeting will be held with NTPUD to discuss the Verification Report and Verification Opinion. Cameron-Cole shall ensure that all material discrepancies are reported to the client including explaining their potential impact on the Verification Opinion. If no material errors or misstatements are found, NTPUD will then sign the Verification Opinion. If material misstatements are found, it is understood that NTPUD can revise its information and resubmit it for review by Cameron-Cole (on an additional time-and-materials basis) until the minimum quality standard is met. NTPUD can provide a copy of Cameron-Cole's Verification Opinion to all interested parties and directly quote the Verification Conclusion from the Verification Opinion.

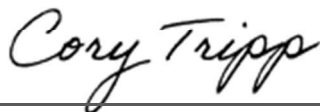
10.0 Schedule

The verification schedule is as follows:

- Kick-off meeting—by December 12, 2025
- Submit Verification Plan to NTPUD—by December 18, 2025
- Complete Verification Evidence-Gathering Plan—by December 18, 2025
- Submit Data Request to NTPUD—by December 18, 2025
- Receive all requested information from NTPUD—by January 9, 2026
- Submit Verification Report to NTPUD—by March 05, 2026

^{1 2} In the case of Cameron-Cole, this will be consistent with the Independent Peer Review.

- Exit meeting—by March 31, 2026
- Submit Verification Opinion—by March 05, 2026



Cory Tripp

12.18.2025 (updated 03.05.2026)

Lead Verifier
Cameron-Cole, LLC

DCN 536 Version 19.0

Version Date: 07.10.23

Approved by: Head of Verification Services