

## Executive Summary

### Introduction

The Nevada Division of Environmental Protection is pleased to present the 2020 report, *Nevada Statewide Greenhouse Gas Inventory and Projections, 1990 to 2040*. This report has been prepared pursuant to Nevada Revised Statutes (NRS) 445B.380<sup>1</sup> as amended by Senate Bill (SB) 254, which was approved by the Nevada Legislature during the 2019 Legislative Session and signed by Governor Sisolak on June 3, 2019.

As required by NRS 445B.380, this report contains an updated inventory of greenhouse gas (GHG) emissions in Nevada and a statement of policies to help inform the development of future policy initiatives designed to reduce GHG emissions statewide. The GHG inventory is based on data from 2017, the most recent year for which comprehensive data is available. Pursuant to SB 254, this report includes an updated inventory and projection of GHG emissions for the largest emitting sectors (transportation and electricity generation); the industry sector was also included, given the potential for rising emissions from Ozone Depleting Substance (ODS) substitutes. It should be noted that 2015 marked the first year that GHG emissions from the transportation sector overtook electricity generation as the largest source of emissions in Nevada. The “statement of policies” included in this report repeats the statement of policies included in the 2019 report; and identifies, and provides a reference to, those policies and policy analyses included and considered in the *2020 State Climate Strategy*<sup>2</sup>. Further development and review of policies will be pursued as part of the overall Nevada Climate Initiative.

Importantly, SB 254 established emissions reduction goals for all GHG emitting sectors of the state’s economy. Past policy was solely focused on reducing GHG emissions from the electricity generation sector via the statutorily required Renewable Portfolio Standard (RPS). Nevada led the nation as one of the first states to establish an RPS in 1997 and increased the RPS most recently during the 2019 Legislative Session with SB 358 that requires 50% of electricity sold in Nevada to originate from renewable energy sources by 2030<sup>3</sup>. While the express purpose of Nevada’s RPS is the expansion of renewable energy *use* statewide in Nevada, the secondary benefit has been a significant reduction in GHG pollution from the electricity generation sector through the expanded *production* of renewable electricity in Nevada. Renewable electricity *use* and *production* in Nevada are not synonymous.

Building upon the RPS, SB 254 broadened Nevada’s climate ambition by setting forth economy-wide GHG reduction goals of 28% below 2005 levels by 2025, 45% below 2005 levels by 2030, and zero or near-zero by 2050. These economy-wide GHG emissions reduction goals generally correspond to similar

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<sup>1</sup> The Department of Conservation and Natural Resources’ greenhouse gas emissions inventory responsibility was established by SB 422 of the 2007 Legislative Session.

<sup>2</sup> State of Nevada Climate Initiative: Our Strategy. Nevada Department of Conservation and Natural Resources. [accessed 2020 Dec 23]. <https://climateaction.nv.gov/our-strategy/>

<sup>3</sup> Not all the electricity sold in Nevada is produced in Nevada, and not all the electricity produced in Nevada is sold in the state (see Section 4).

reductions required pursuant to Nevada joining the U.S. Climate Alliance in March of 2019.<sup>4</sup> Further, the goals embodied in SB 254 and via the U.S. Climate Alliance are both reflected as priorities under Executive Order (EO) 2019-22, issued by Governor Sisolak in November 2019. One of the core directives required under EO 2019-22 directs the executive branch to build upon the Statement of Policies included in this report by evaluating, identifying, and analyzing the most effective climate policies and regulatory initiatives for Nevada in a comprehensive State Climate Strategy. The State Climate Strategy serves as a framework for policymakers to evaluate the alignment of various climate policies and programs with timelines and benchmarks to achieve GHG reduction goals.

## **Assumptions and Key Findings**

Under SB 254 and EO 2019-22, Nevada has set forth aggressive, but necessary, benchmarks for reducing GHG emissions and mitigating climate impacts throughout Nevada. Based on the policies considered in this report<sup>5</sup>, excluding any impact from the COVID-19 pandemic, and based on the best available data, Nevada is anticipated to reduce economy-wide GHG emissions by 24% below 2005 levels in 2025 (4% short of the SB 254 goal of 28%) and by 27% below 2005 levels in 2030 (18% short of the SB 254 goal of 45%). These projections assume the following:

- Projections in this report do not account for the impact of the COVID-19 pandemic, as tools and datasets used for the preparation of this report predate 2020 (see Section 1.3);
- Recently increased RPS requirements are fully met (see Section 4.2 and Section 4.4);
- Tier 3 federal passenger car and light-duty truck fuel economy standards are not rolled back (see Section 3.4);
- Planned coal-fired electric generating unit retirements (see Section 4.2);
- Anticipated natural gas-fired electric generating unit retirements (see Section 4.2);
- Existing emissions standards for the oil and natural gas industry, including exploration, production, and delivery, remain in effect (see Section 5.4); and
- Increase in emissions from ODS substitutes are curbed by a larger use of substitutes with lower Global Warming Potential, as driven by innovation and federal regulation and policies (see Section 5.1.1 and Section 5.4).

Through 2040, this report projects that emissions from the transportation sector will continue to be the largest emitting sector and that GHG emissions from the industrial sector will be the most rapidly increasing source of emissions under current policy parameters. As such, managing GHG emissions from these two sectors should be a priority for policymakers in both the near- and long-term.

Other key findings from the report include:

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<sup>4</sup> Nevada Governor Steve Sisolak Joins U.S. Climate Alliance. US Climate Alliance; 2019 Mar 12. [accessed 2019 Nov 14]. <https://www.usclimatealliance.org/publications/2019/3/12/nevada-governor-steve-sisolak-joins-us-climate-alliance>

<sup>5</sup> Policies considered in this report, and used in developing emission projections, do not always match with the policies in effect at the time of the publication of the report (see 2.2 Emissions Projections, 2018-2040 for more information).

- In 2017, Nevada contributed 0.68% of the U.S.’s total gross GHG emissions, despite having 0.91% of the population;
- As of 2015, the transportation sector accounts for the greatest percentage of GHG emissions, increasing to 36% of gross GHG emissions in Nevada in 2017;
- Based on the policies considered in this report, and using pre-COVID datasets, transportation sector emissions are projected to peak in 2020, and then follow a very gradual downward trend through 2040. This downward trend is not sufficient to meet the SB 254 targets in either 2025 or 2030;
- GHG emissions from the electricity generation sector are expected to continue to decrease through 2040, with the conditional retirement of the North Valmy Generating Station in Nevada and the increased RPS established by SB 358 (2019). Additional reductions are expected from the conversion of TS Power (a coal-fired power plant owned and operated by Nevada Gold Mines LLC) from a strictly coal-fired facility to a dual fueled, coal- and natural gas-fired facility; and
- Industrial process sub-sector emissions are expected to continue to increase, as the use of ODS substitutes continue to increase — the magnitude of this increase, however, is uncertain.

## **Summary of Changes from 2019 Report**

Key changes from the previous 2019 report include:

- Updated analysis of the transportation and electricity generation sectors;
- Additional analysis of the industrial sector, including GHG contributions from ODS substitutes using two alternative data sets;
- Discussion of COVID-19 impact on GHG emissions;
- Summary of the *2020 State Climate Strategy*;
- Updated to 2019 version of EPA State Inventory Tool (SIT);
- Revised Statement of Policies to adopt by reference the policy assessments from the *2020 State Climate Strategy*; and
- This 2020 report further validates Nevada’s GHG reduction trajectory established in the 2019 report.

## **Conclusions**

Going forward, Nevada’s pathway to reducing GHG emissions and mitigating the impacts of climate change statewide can be achieved through a variety of budget and policy mechanisms informed by input from this report, the *2020 State Climate Strategy*, and other relevant input from state agencies, stakeholder groups, university and scientific experts, and the general public.

Heading into the 2022-23 biennium and the 2021 Legislative Session, policymakers will need to make important policy and budget decisions necessary for Nevada to meet the SB 254 GHG reduction goals in 2025 and 2030, and beyond. In undertaking this challenge, it should be noted that most policies, such as those for the transportation sector, will require multiple years from policy creation to market/consumer adoption before significant GHG reductions will be realized. Therefore, it is critical that policymakers adopt a strategic near- and long-term approach across all emissions sectors and technologies to effectively meet our 2025 and 2030 goals.

## Summary Figures and Tables

A high-level summary of Nevada GHG inventory and projections by sector contained in this report is provided in Figure ES-1, Table ES-1, and Figure ES-2 below.

Figure ES-1 illustrates Nevada's net GHG emissions broken down by each of the seven individual sectors included in the report (transportation, electricity generation, industry, residential and commercial, waste, agriculture, and land use, land use change, and forestry) from 2005 through 2017 and projected emissions from each of these sectors from 2018 through 2030. Note that this report includes updated projections only for the transportation, electricity generation, industry, and residential and commercial sectors<sup>6</sup>. As is standard practice with GHG inventories, net GHG emissions for each year are measured in units of millions of metric tons of carbon dioxide equivalents (abbreviated as "MMTCO<sub>2e</sub>") on the vertical axis of the graph. Net GHG emissions in 2005 are the benchmark against which Nevada's reduction goals of 28% by 2025 and 45% by 2030 are measured. Reductions in GHG emissions from 2005 through 2017 come primarily from the electricity generation sector with some reductions from the transportation sector. Future projections indicate that current policies will achieve reductions in the electricity generation sector primarily due to the recently increased RPS and, unless more aggressive policies are adopted at the state and federal level, only slight decreases in the transportation sector. Note that projections do not include any impact on emissions from the COVID-19 pandemic.

Table ES-1 directly compares 2025 and 2030 GHG emissions projections against the SB 254 reduction goals on both a net GHG and percentage basis, and highlights the total amount of additional reductions needed beyond current projections to meet the reduction goals.

Figure ES-2 illustrates the relative contribution of gross GHG emissions from each sector for select years (the 2005 benchmark year, 2017 most recent inventory, 2025, and 2030).

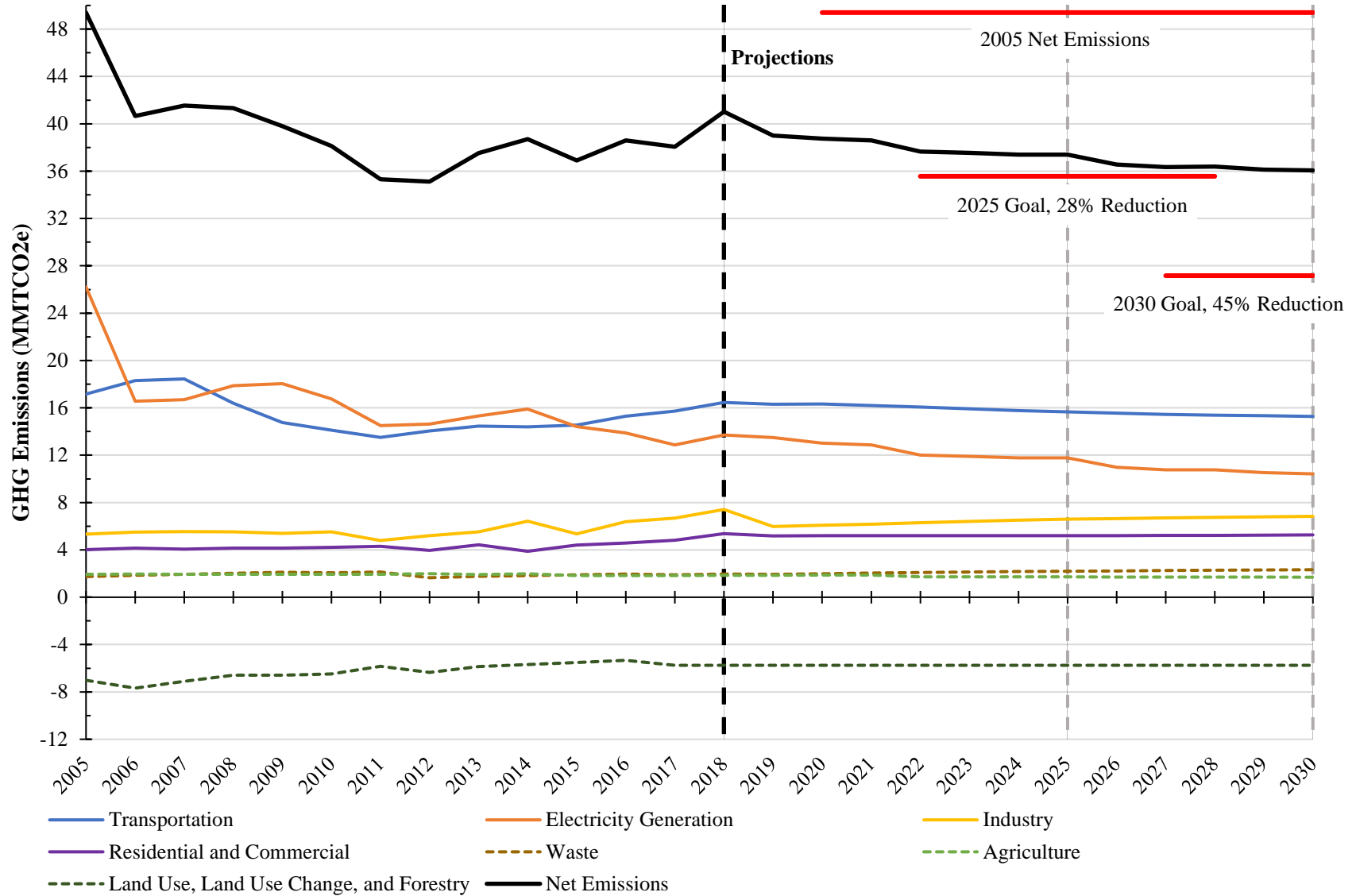
Reported total emissions from the transportation, industry, and residential and commercial sectors increased by 1 MMTCO<sub>2e</sub> between 2016 and 2017 but were offset by a similar decrease in emissions from the electricity generation sector.

Although emissions from the transportation sector show a net decrease over the projection period, it remains the leading sector of GHG emissions in Nevada starting in 2015. The electricity generation sector's contribution is predicted to continue to decrease from 30% in 2017, to 27% in 2025, down to 25% by 2030; contributions from industry are expected to remain stable, around 16%, but a large uncertainty is associated with the sector projections, due to the uncertainty in the federal regulatory framework and lack of state and local data on the use of ODS substitutes.

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<sup>6</sup> NRS 445B.380 requires updates to the transportation and electricity generation sectors only. While not required by NRS 445B.380, an analysis of the sources and amounts of GHG emissions from industry is included in this report because of the significance of ozone depleting substance (ODS) substitute emissions identified in NDEP's 2019 report. Further, updated emissions for the residential and commercial sector are included because they are estimated with the same tools that NDEP uses for the transportation and electricity generation sectors.

**Figure ES-1: Nevada Historical and Projected Net GHG Emissions and Sinks by Sector, 2005-2030, with Projections Beginning in 2018 and Comparisons to Nevada’s Emission Reduction Goals for 2025 and 2030**



**Table ES-1: Nevada Net GHG Emissions Comparison with Nevada’s Emission Reduction Goals (MMTCO<sub>2</sub>e and Percent)**

	2005	2025	2030
Net Emissions	49.397	37.387	36.063
Projected Emissions Reduction	-	12.010	13.334
<b>Projected Percent Reduction</b>	-	<b>24%</b>	<b>27%</b>
SB 254 Emissions Goals	-	35.566	27.168
SB 254 Emissions Reductions	-	13.831	22.229
SB 254 Percent Reduction	-	28%	45%
SB 254 Percent Deficit	-	4%	18%
<b>Estimated Additional Emissions Reductions Required</b>	-	<b>1.821</b>	<b>8.895</b>

**Figure ES-2: Relative Contributions of Nevada’s Gross GHG Emissions by Sector, 2005, 2017, 2025, and 2030**

