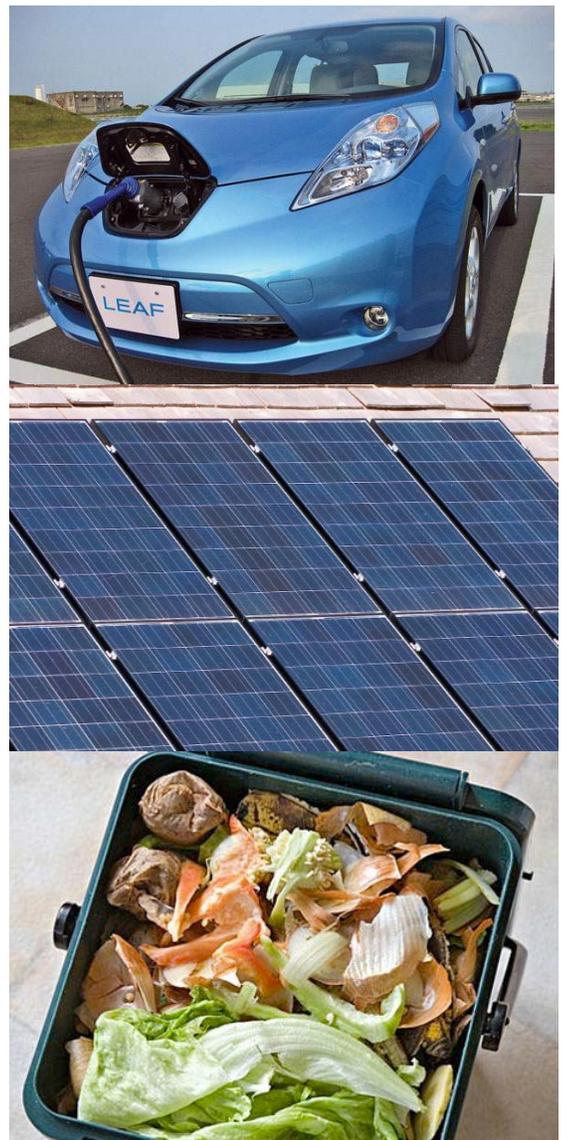


TOWN OF CORTE MADERA

COMMUNITY GREENHOUSE GAS EMISSIONS INVENTORY FOR YEAR 2015

December 2017

Prepared by the
Marin Climate & Energy Partnership



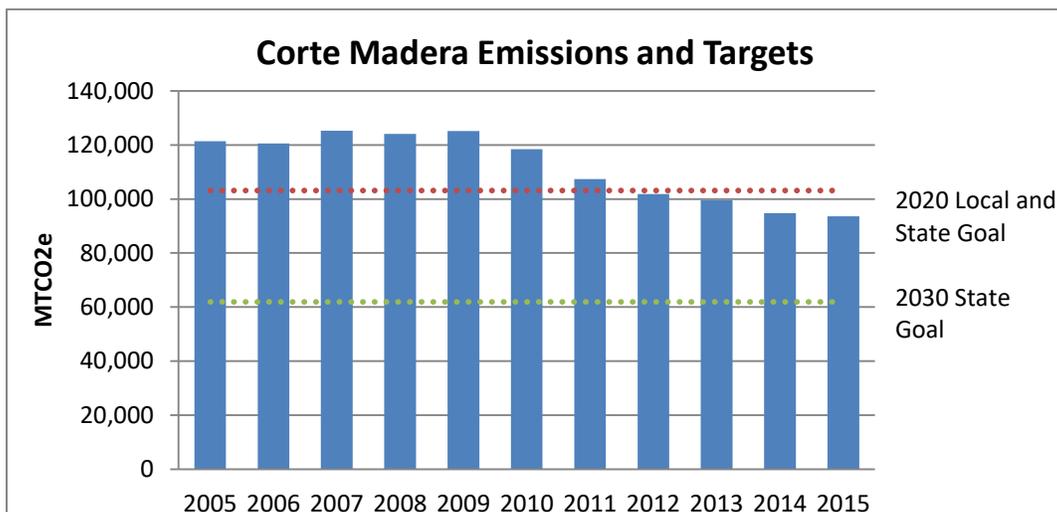
The Takeaway

Corte Madera's greenhouse gas emissions dropped 23% between 2005 and 2015, meaning the Town has met local and statewide reduction goals for 2020. The largest reductions were due to decreases in commercial electricity and natural gas use and emissions. Although Corte Madera has met its target to reduce emissions 15% by 2020, the State has enacted a longer-term goal to reduce emissions another 40% by 2030.

Introduction

Corte Madera publishes annual community greenhouse gas (GHG) emissions estimates through the Marin Climate & Energy Partnership (MCEP). Annual inventories help the Town to more closely monitor its progress in meeting its local goal to reduce community emissions 15% below baseline (2005) emissions by 2020.

This report reviews emissions generated from the community from 2005 through 2015 (the most recent year data is available). The inventory shows that the Town has achieved this target, with 2015 emissions 23% below 2005 baseline emissions. Emissions dropped from about 121,350 metric tons carbon dioxide equivalent (MTCO₂e) in 2005 to 93,560 MTCO₂e in 2015. The emissions trend and targets are shown below.



Recognizing the need for a collaborative approach to greenhouse gas reductions, Town and county leaders launched the Marin Climate and Energy Partnership (MCEP) in 2007. The Town of Corte Madera is a member of MCEP and works with representatives from the County of Marin and all of the other

Marin cities and towns to address and streamline the implementation of a variety of greenhouse gas reduction measures. Funding for this inventory was provided by the Marin County Energy Watch Partnership which administers public goods charges collected by PG&E. The annual inventories will be available on the MCEP website at marinclimate.org and will be used to update the [Marin Sustainability Tracker](#).

Emissions Reductions by Sector

This annual assessment tracks emissions in seven sectors.

- The **Residential** and **Commercial** sectors represent emissions generated from the use of electricity, natural gas and propane in Corte Madera homes and commercial and governmental buildings and facilities.
- The **Transportation** sector includes tailpipe emissions from passenger vehicle trips originating and ending in Corte Madera, as well as a share of medium and heavy-duty vehicles and busses travelling on Marin County roads.
- The **Off-Road** sector represents emissions from off-road vehicles and equipment used for construction and lawn and garden maintenance.
- The **Water** and **Wastewater** sectors represent emissions from energy used to pump, convey and treat water and wastewater, as well as fugitive greenhouse gasses that are created during the wastewater treatment process.
- The **Waste** sector includes fugitive methane emissions that are generated over time as organic material decomposes in the landfill.

Table 1 shows how emissions in these sectors have changed since 2005. The greatest reductions have occurred in the Commercial sector (-21,393 MTCO₂e), which accounts for 77% of total reductions. There have also been significant declines in other sectors. The likely reasons for the largest emissions decreases are described in further detail in the remainder of this report.

Table 1: Corte Madera Greenhouse Gas Emissions by Sector, 2005-2015

Year	Residential	Commercial	Transportation	Waste	Water	Wastewater	Off-Road	Total	% Change from 2005
2005	17,470	32,896	66,877	2,559	408	372	763	121,345	
2006	17,173	30,639	68,692	2,551	384	364	745	120,548	-1%
2007	18,661	34,189	68,541	2,315	445	413	727	125,292	3%
2008	18,823	32,312	69,386	1,979	469	417	709	124,095	2%
2009	18,040	31,207	72,702	1,729	406	391	691	125,166	3%

2010	16,365	27,697	71,363	1,699	272	354	674	118,423	-2%
2011	16,286	16,509	71,624	1,653	225	341	668	107,306	-12%
2012	15,547	13,351	70,003	1,703	229	360	657	101,850	-16%
2013	15,129	12,794	68,716	1,706	239	360	640	99,586	-18%
2014	12,472	11,689	67,677	1,717	190	346	630	94,723	-22%
2015	12,800	11,504	66,342	1,781	170	333	628	93,558	-23%
Change from 2005	-4,670	-21,393	-535	-777	-238	-39	-135	-27,787	
% Change from 2005	-27%	-65%	-1%	-30%	-58%	-11%	-18%	-23%	

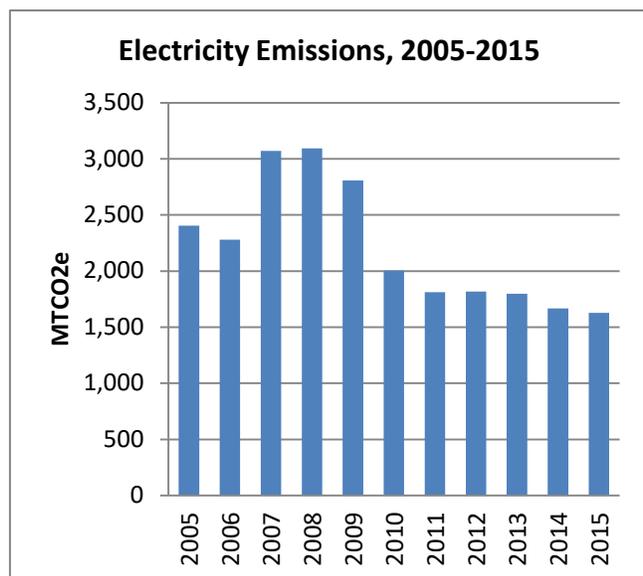
Major Emissions Sources

The following sections provide a year-by-year analysis of the changes in GHG emissions from the Town's largest sources: electricity, natural gas, transportation, waste, and water use. Whenever possible, each section discussion includes the change in emissions from previous years and the likely influence of state and local programs or policies and external factors on reducing emissions.

Electricity Use and GHG Emissions

Electricity use in homes and businesses in Corte Madera was relatively flat between 2014 and 2015, but has dropped 27% since 2005, from about 83.5 million kWh in 2005 to 60.9 million kWh in 2015, primarily due to the closure of the WinCup manufacturing plant. The Residential sector, which uses 34% of all electricity in Corte Madera, has reduced its electricity use 13% since 2005. Electricity use decreased 33% in the Commercial sector over the same period. Electricity reductions in the Residential sector have most likely occurred due to improved energy efficiency, conservation, and solar installation. Countywide, distributed (i.e., rooftop, ground-mount and carport) solar systems have been growing at about 20% annually. Distributed solar currently generates about 4% of the County's electricity needs.

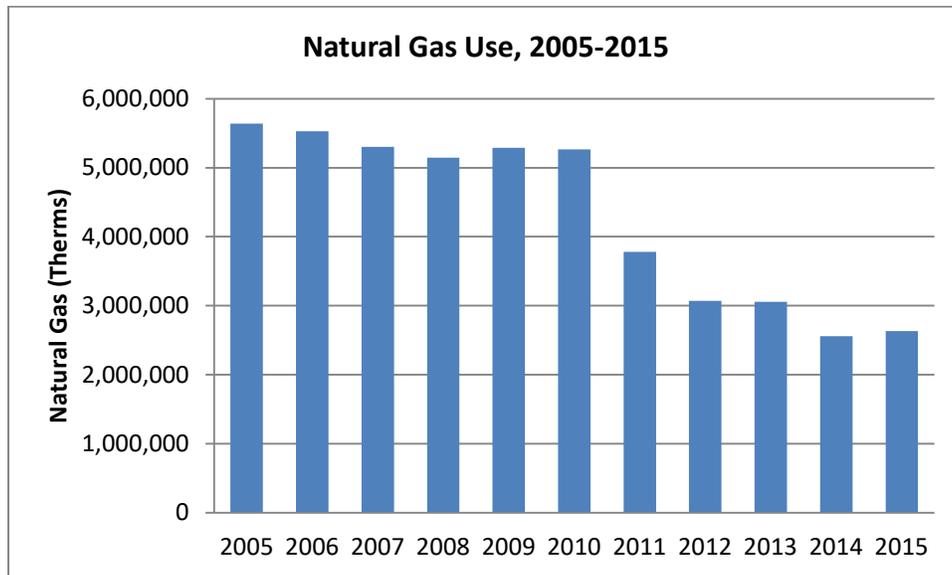
Electricity-related greenhouse gas emissions in the Residential and Commercial sectors decreased 2% between 2014 and 2015. Emissions dropped an impressive 50% since 2005. This is due in part to the lower carbon intensity of electricity. PG&E electricity has been steadily increasing the amount of renewable energy in its power mix, and its electricity was 17% less carbon intensive in 2015 than it was in 2005. MCE, which began providing electricity to Corte Madera customers in 2012, has historically provided electricity that is less carbon intensive than PG&E electricity. In 2015, MCE electricity was 18% less carbon intensive



than PG&E. MCE carries about 77% of the electricity load in Corte Madera. In 2015, about 0.6% of MCE electricity purchased by Corte Madera customers was Deep Green.

Natural Gas Use and GHG Emissions

Natural gas is used in residential and commercial buildings to provide space and water heating and power appliances. Emissions from natural gas consumption increased 3% between 2014 and 2015, most likely due to colder outdoor temperatures. Natural gas consumption declined 53% since 2005, primarily due to the closing of the WinCup plant. Reduction in energy use may also be attributed to energy efficiency programs and rebates, local green building ordinances, and State building codes. California’s goal is to require all new residential buildings to be net zero electricity use by 2020 and all new commercial buildings to be zero net energy by 2030.



Transportation and GHG Emissions

Transportation activities accounted for approximately 71% of the Corte Madera’s emissions in 2015. Vehicle miles travelled have increased approximately 4% since 2005, while transportation emissions have decreased nearly 1% due to more fuel-efficient and alternatively fueled cars. Marin County continues to be a leader in zero emission vehicles (ZEVs) – second only to Santa Clara County – with an estimated 18 ZEVs per thousand residents. ZEVs include battery electric cars, plug-in hybrid electric cars, hydrogen fuel cell cars, and zero-emission motorcycles.

Nearly half of vehicle miles travelled by passenger car trips either originating or ending in Corte Madera are attributed to people who neither work nor live in Corte Madera, as shown in Table 2. Presumably, many of these drivers are visiting the regional shopping centers located in the City. Encouraging electric

vehicle use is one way to help reduce these emissions. In addition, one-third of vehicle miles travelled by passenger cars are attributed to commuters who work in Corte Madera but live outside the city. Programs to encourage workers to carpool and take public transit can also be an effective strategy to reduce transportation emissions in Corte Madera.

Table 2: Passenger Vehicle Trips, 2015

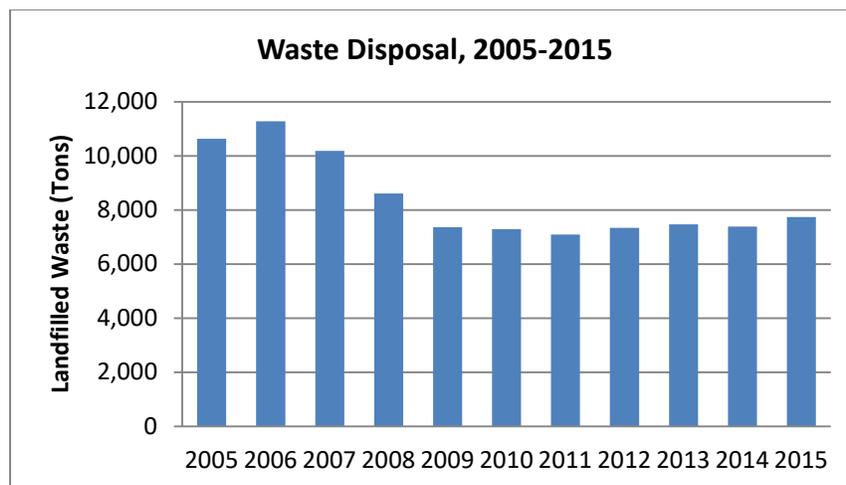
Population Segment		% of Passenger Vehicle VMT
Live in area	Works in area	1%
Live in area	Works out of area	14%
Live in area	Works from home/other	5%
Live out of area	Works in area	33%
Live out of area	Works out of area	27%
Live out of area	Works from home/other	20%

Source: Metropolitan Transportation Commission

Waste Disposal and GHG Emissions

Waste generated by the community hit a low in 2011 but has since increased as shown in the chart below (based on county-wide data). Emissions from waste disposal were 30% below 2005 levels in 2015.

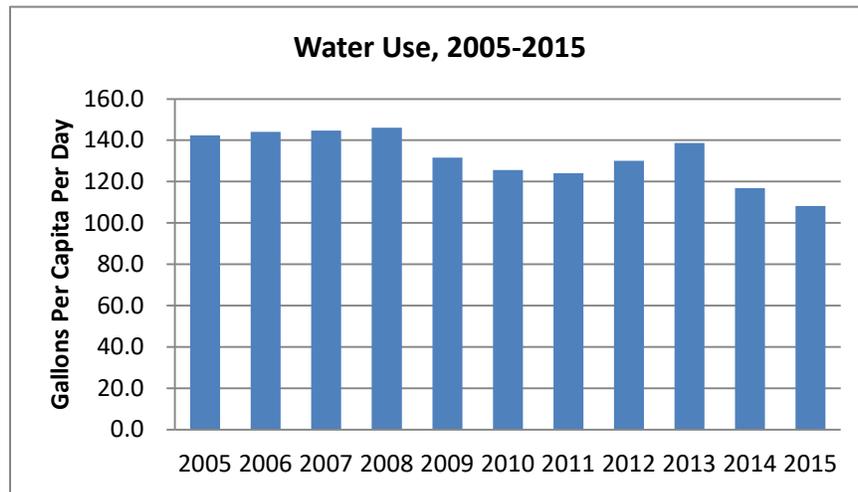
The decrease in emissions from waste disposal is a result of the community’s and County’s goals to move toward Zero Waste by 2025. Ongoing waste diversion programs include a residential food waste composting program and mandatory food waste recycling service for large commercial producers.



Source: CalRecycle

Water Use and GHG Emissions

Water use declined nearly 7% between 2014 and 2015, and 21% since 2005 (based on district-wide data). Emissions, which are based on an estimate of energy used to pump, treat and convey water to users in Corte Madera, dropped 58% between 2005 and 2015 due to the lower carbon intensity of electricity. The Marin Municipal Water District began purchasing MCE Light Green electricity in 2010 and switched to MCE Deep Green electricity in July 2017.



Source: Marin Municipal Water District

The Marin Municipal Water District (MMWD) provides rebates and programs to reduce water use. Rebates are available to replace fixtures with high-efficiency toilets and clothes washers, and to purchase pool covers, hot water recirculating systems, organic mulch, laundry-to-landscape system components, and rain barrels. MMWD also provides rebates for irrigation improvements for commercial and multi-family customers. MMWD provides free high-efficiency shower heads and faucet aerators, and free home, business, and landscape water use evaluations.

Outreach and Coordination

In addition to the programs and actions described above, the Town pursued a range of outreach activities and participated in several multi-agency efforts, including:

- Utilized the Town's newsletter, social media, and press to promote sustainability efforts.
- Supported and promoted local green festivals, lectures, workshops and activities.
- Participated in and supported the Marin Climate and Energy Partnership.
- Partnered with Resilient Neighborhoods to enroll Corte Madera households in a program to learn about sustainability and take actions to reduce household greenhouse gas emissions.

Summary and Next Steps

Corte Madera has made significant progress in reducing GHG emissions since 2005 and has met its 2020 reduction target. However, the Town will need to continue to implement policies and programs that further reduce emissions to achieve statewide targets to reduce emissions another 34% by 2030.