



DATE: October 30, 2019
TO: Council Sustainability Committee
FROM: Director of Public Works
SUBJECT: Greenhouse Gas Emission Reduction Goals

RECOMMENDATION

That the Committee reviews and comments on this report and makes a recommendation to Council to adopt a General Plan Amendment setting new greenhouse gas (GHG) emission reduction targets.

SUMMARY

Hayward currently has goals for reducing GHG emissions with specific targets for 2020, 2040, and 2050. This report provides recommendations for establishing GHG reduction goals for 2025 and 2030 and a carbon neutrality goal for 2045. This report also presents some of the actions that will be necessary to achieve the new goals.

BACKGROUND

Hayward's original Climate Action Plan (CAP), adopted in 2009, included the following goals for reducing GHG emissions in both the community and municipal operations:

- 6% below 2005 levels by 2013
- 12.5% below 2005 levels by 2020
- 82.5% below 2005 levels by 2050

The above goals were established to mirror those identified in the California Global Warming Solutions Act of 2006 (AB 32), which set a statewide GHG emissions limit equivalent to the statewide GHG emissions level in 1990 to be achieved by 2020 and the Governor's Executive Order # S-03-05, which set a target of 80% reduction by 2050. The City's goals were adjusted due to the use of a different baseline year.

When the CAP was incorporated into the General Plan in 2014, the following goals for both the community and municipal operations were included:

- reduce emissions by 20% below 2005 baseline levels by 2020
- strive to reduce emissions by 61.7% by 2040

- strive to reduce emissions 82.5% by 2050

On July 16, 2018,¹ the Committee recommended that Council adopt an interim goal, which would be to reduce emissions by 40% below 2005 baseline levels by 2030.

On September 17, 2019,² staff presented to the Committee a framework for establishing new sustainability goals and priorities for 2025 and 2030. In light of California's goal³ of achieving economy-wide carbon neutrality by 2045, the Committee asked staff to consider incorporating the 2045 carbon neutrality goal and re-evaluate the 2030 goal.

City of Fremont – In February 2019, the City of Fremont City Council adopted a resolution to reduce GHG emissions by 55% below 2005 levels by 2030 and achieve municipal and community-scale carbon neutrality no later than 2045. Fremont has identified seven key strategies to meet their goals:

1. Clean & Renewable Power – Deploy and efficiently use clean, renewable, and locally-sourced electricity generated onsite or transmitted through the power grid.
2. Electrification & Fossil Fuel Phase-Out – Upgrade and replace carbon-intensive, fossil fuel-based infrastructure and combustion power throughout the transportation and building sectors with clean electric power.
3. Carbon Sequestration – Drawdown carbon dioxide and other GHG from the atmosphere through ecological and/or technological methods and capture and store in plants, soils, water systems, and other solid forms.
4. Mobility & Connectivity – Develop and enhance safe, multimodal, accessible, equitable, intelligent, and clean motorized and non-motorized travel options, transit modes, transportation infrastructure, and community connectivity.
5. Resource Conservation & Elimination of Waste – Conserve natural and manufactured resources by means of the responsible production, consumption, reuse, and recovery of products, packaging, and materials.
6. Restorative Ecology & Green Infrastructure – Restore, rehabilitate, and repurpose degraded, damaged, or destroyed ecosystems and habitats through active interventions. Incorporate green infrastructure and ecosystem services into community design.
7. Climate Adaptation & Resilience – Prepare for, limit, learn from, and adapt to the negative effects of climate change through proactive and holistic planning and response at infrastructural, cultural, and institutional levels.

DISCUSSION

¹ <https://hayward.legistar.com/View.ashx?M=F&ID=6359386&GUID=70A23070-7298-43DD-BFE8-C5F20A1838FA>

² <https://hayward.legistar.com/View.ashx?M=F&ID=7706750&GUID=857C8FDB-84A9-4D43-A0F6-F69031B25ABF>

³ In September 2018, Governor Brown signed Executive Order #B-55-18, committing California to economy-wide carbon neutrality by 2045.

Updated GHG Emission Inventory Data – On September 11, 2017,⁴ staff presented a report to the Committee showing that Hayward’s total emissions decreased 8.6% from 2005 to 2015. With assistance from the East Bay Energy Watch (EBEW), staff completed an update to Hayward’s GHG emission inventory with 2017 data. While a more complete report on the inventory will be presented to the Committee in January, below is a table with Hayward’s most recent data showing that the overall cumulative reduction achieved since 2005 is 8.3%.

As of the fall of 2018, most of Hayward’s households and businesses were subscribed to East Bay Community Energy’s (EBCE) Brilliant 100 product, which is 100% carbon free. As shown in the table below, the reduction in electricity-related emissions is likely to cause Hayward to meet its 2020 goal.

	2005	2010	2015	2017	Change from 2005 - 2017	With EBCE 2019*	Change from 2017 to 2019*
Residential Electricity	54,042	51,207	44,819	44,585	17.5%	11,146	75%
Residential Natural Gas	103,502	103,027	86,736	91,719	11.4%	91,719	0%
Commercial Electricity	131,848	114,097	97,034	97,919	25.7%	19,584	80%
Commercial Natural Gas	86,493	88,499	90,066	94,392	-9.1%	94,392	0%
Transportation	636,581	580,238	571,556	553,298	13.1%	553,298	0%
Public Transit (BART)	3,440	3,425	4,276	3,994	-16.1%	3,994	0%
Off Road Vehicles	24,345	37,265	68,251	67,348	-176.6%	67,348	0%
Solid Waste Disposal	50,924	38,338	38,148	47,555	6.6%	47,555	0%
Totals	1,091,175	1,016,096	1,000,886	1,000,810	8.3%	889,036	19%

*This is based on predicted reductions.

⁴ <https://hayward.legistar.com/LegislationDetail.aspx?ID=3147688&GUID=7F58FC6D-AE46-4ADF-A305-AC4A4264C0D7&Options=&Search=>

GHG Targets Throughout Alameda County – Most cities in Alameda County have adopted 2030 targets of at least 40% below baseline and some have adopted or are considering 2045 carbon neutrality goals. The following table shows the goals adopted by each city as well as the status of their climate action plans.

	Baseline Year	2020 Target	2030 Target	2045 Target	2050 Target	2030-2050 CAP Update Status
Alameda	2005	25%	40%		80%	In progress
Albany	2004	25%	60% ⁵	100%	100%	In progress
Berkeley	2000	33%			80%	Original CAP covers post 2020
Dublin	2010	15%	40%		80%	In progress
Emeryville	2004	25%	40%	100%		Updated 2016
Fremont	2005	25%	55%	100%		In progress
Hayward	2005	20%	50% ⁶	100%	83% ⁷	Updated 2014 (with adoption of 2040 General Plan)
Livermore	2008	15%	60%			Planned
Newark	2005	15%				
Oakland	2005	36%	56%			In progress
Piedmont	2005	15%	40%			Updated 2017
Pleasanton	2005	15%	40%			Planned
San Leandro	2005	25%	40%			In progress
Union City	2005	20%				Planned

Global Leadership – Several large cities around the world have adopted carbon neutrality goals and have formed the Carbon Neutral Cities Alliance. The Alliance defines carbon neutrality goal as one that seeks to cut emissions by 80 to 100% by 2050 or sooner and refers to the minimum goal as “80x50”. In a report⁸ from the Alliance titled *Framework for Long-Term Deep Carbon Reduction Planning*, they offer the following reflection on the practice of adopting ambitious goals.

Leading-edge cities have taken the step of committing to an 80x50 or similar goal without being sure how they will achieve it. They’ve made such commitments on the basis that achieving the goal is imperative; however, many other cities require evidence the goal is feasible before it is set. The difficulty, of course, is that there remain a great many uncertainties about what a successful path to 80x50 looks like, and many of the factors that have to be managed are not in most cities’ direct control. Committing to 80x50 is an act of leadership and a commitment to manage toward a goal that probably may not be

⁵ This is a 2035 target.

⁶ Committee approved 40% by 2030 in July 2018, but staff is now proposing a new goal of 50%.

⁷ By proposing carbon neutrality by 2045, this would supersede the previously approved 2050 target.

⁸ <https://carbonneutralcities.org/wp-content/uploads/2018/04/CNCA-Framework-for-Long-Term-Deep-Carbon-Reduction-Planning.pdf>

achieved with a fixed plan, but instead will require iterative experimentation, measurement, and course correction.

Recommendation – Staff is recommending the following new GHG emission reduction goals. These goals are ambitious and will be difficult to meet. A discussion of how these goals could be met is included below.

- 27% below 2005 levels by 2025
- 50% below 2005 levels by 2030
- 100% below 2005 levels by 2045⁹

How the GHG Reduction Goals Could be Met – Staff has prepared possible scenarios that would enable Hayward to achieve the new goals.

Electricity – To meet the proposed 2025 and 2030 goals, staff is assuming by 2030 all of EBCE’s electricity products are 100% carbon-free and that no more than 5% of residential customers and 10% of commercial customers opt-out.

Natural Gas – Hayward has seen a slow decline in residential natural gas emissions, but nonresidential natural gas use has been increasing. In order to meet the 2025 goal, if nonresidential natural gas use remains constant, 15% of residential homes (approximately 7,500 dwelling units) would need to be retrofitted to all-electric. For 2030, nonresidential natural gas use would need to decrease significantly and an additional 25% of residential homes (approximately 12,500) would need to be retrofitted to all-electric.

Transportation – Hayward has seen a small decline in transportation emissions from 2005 to 2015. However, this reduction in emissions should be credited to increased vehicle efficiency as the vehicle miles traveled (VMT) have increased since 2010 as the economy recovered from the Great Recession. Meeting the 2025 and 2030 goals will rely on the City drastically reducing transportation related emissions, which accounted for 62% of Hayward’s total emissions in 2017. Assuming the continuation of increased vehicle efficiency and that passenger vehicles and light trucks remain the prominent mode of transportation, 10.5% (around 14,250 vehicles) of the gasoline fleet would need to be replaced with electric vehicles (EVs) by 2025 and a little over one-quarter (an additional 21,250 vehicles) by 2030.

Staff recognizes that reductions in vehicle-related emissions will be difficult. As reported by the Mercury News on October 9, 2019 (see Attachment II), California is projected to fail to meet its emissions targets – partially because “Californians aren’t ready to give up their trucks and SUVs.” While EV ownership is increasing, more incentives will need to be made available statewide. In addition, staff can promote existing local programs such as the Air

⁹ Carbon neutrality can be defined as achieving net zero GHG emissions caused by fossil fuel use within the City. Technological and societal constraints may prevent the reduction of emissions to absolute zero by 2045. Therefore, in order to achieve carbon neutrality, every ton of CO₂e still emitted will be balanced with an equivalent amount of CO₂e removal. CO₂e removal may come from a combination of carbon-sequestering natural systems and land management practices, as well as from carbon capture technology as it becomes available. This approach is similar to that being taken by the Cities of Fremont and Albany.

District’s Clean Cars for All¹⁰ program, which offers significant rebates to lower income households that replace older cars with EVs.

Taking into account the above potential actions, the following table shows how Hayward could achieve the 2025 and 2030 targets:

	2005	2017	Change from 2005 - 2017	2019*	2025	2030
Residential Electricity	54,042	44,585	17.5%	75%	75%	95%
Residential Natural Gas	103,502	91,719	11.4%	0%	15%	40%
Commercial Electricity	131,848	97,919	25.7%	80%	80%	90%
Commercial Natural Gas	86,493	94,392	-9.1%	0%	0%	20%
Transportation	636,581	553,298	13.1%	0%	18%	46%
Public Transit (BART)	3,440	3,994	-16.1%	0%	5%	10%
Off Road Vehicles	24,345	67,348	-176.6%	0%	0%	0%
Solid Waste Disposal	50,924	47,555	6.6%	0%	25%	60%
Totals	1,091,175	1,000,810	8.3%	19%**	27%**	50%**

*This is based on predicted reductions due to enrolling residents in EBCE Brilliant 100.

**This is a predicted percentage change compared to 2005 GHG emissions.

ECONOMIC IMPACT

Meeting the ambitious GHG reduction goals outlined above will require significant investment throughout the community and has the potential to create new local jobs, however some necessary improvements are not currently cost-effective.

A 2016 study conducted by TRC for the City of Palo Alto estimates that retrofitting a single-family home to an all-electric package will cost the customer \$6,891 over 30 years (\$5,012 in up-front costs and \$1,880 in higher energy costs).¹¹

There are currently no electrification rebates available to Hayward customers. BayREN and PG&E are both working to make rebates available in 2020. EBCE has made building electrification a priority and will likely offer existing building electrification rebates in the future, however how soon and to what extent is unclear.

Sacramento Municipal Utility District offers up to \$8,300 in rebates¹² for residents who switch cooktops, space heaters, and water heaters from gas to electric. SMUD’s rebates are seen as a first test to learn how effective electrification rebates are working.

FISCAL IMPACT

The reductions in GHG emissions necessary to achieve the new goals will require significant leadership and coordination by the City, which will not be possible with existing staff

¹⁰ <http://www.baaqmd.gov/funding-and-incentives/residents/clean-cars-for-all>

¹¹ <https://www.cityofpaloalto.org/civicax/filebank/documents/55069>

¹² <https://www.smud.org/en/Rebates-and-Savings-Tips>

resources. As new programs are developed to meet the City's sustainability goals, staff will identify specific resources needed.

STRATEGIC INITIATIVES

This agenda item does not relate to one of Council's three Strategic Initiatives.

SUSTAINABILITY FEATURES

Meeting GHG reduction goals is the primary objective of the City's Climate Action Plan. Meeting the goals will require reducing emissions in every sector and will entail improving energy efficiency in buildings, decarbonizing buildings, increasing the use of renewable energy, and reducing vehicle-related emissions. All these actions will result in cleaner air for Hayward residents and for the region.

PUBLIC CONTACT

No public contact has been made regarding this agenda item.

NEXT STEPS

Upon a recommendation from the Committee, staff will present the proposed General Plan Amendment to the Planning Commission on November 14, 2019 and then to Council on December 3, 2019. Staff will continue to work with the Committee to establish a range of other sustainability-related goals to be presented to Council in 2020. Once those goals are established, the next step may be to revisit the City's CAP and the implementation programs in the General Plan.

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