

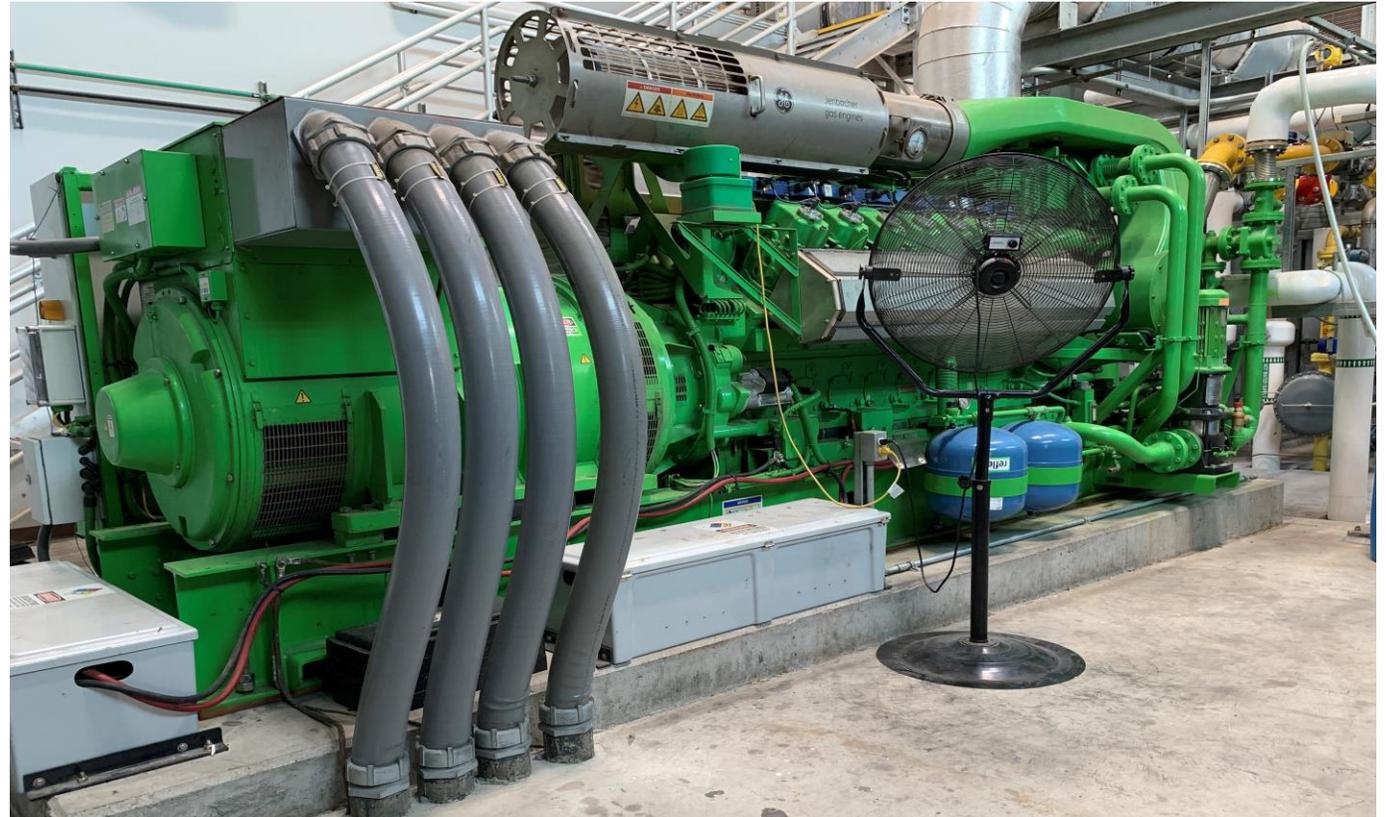
Council Sustainability Committee

Five-Year Performance of Cogeneration Engine at the Water Pollution Control Facility

September 14, 2020

Cogeneration Facility

- Commissioned in 2014
- Produces 8.9 mWhr/year
- Exports 1.1 mWhr/year
- Plant Demand 8.3 mWhr/year
- 97% of total plant demand satisfied by green power sources



Solar Phase 1 – One Megawatt

- Completed in 2010
- Produces 2.4 mWhr/year with 0.7 mWhr/year exported to grid.
- After Cogen Facility came online, solar exports increased to 2.0 mWhr/year.



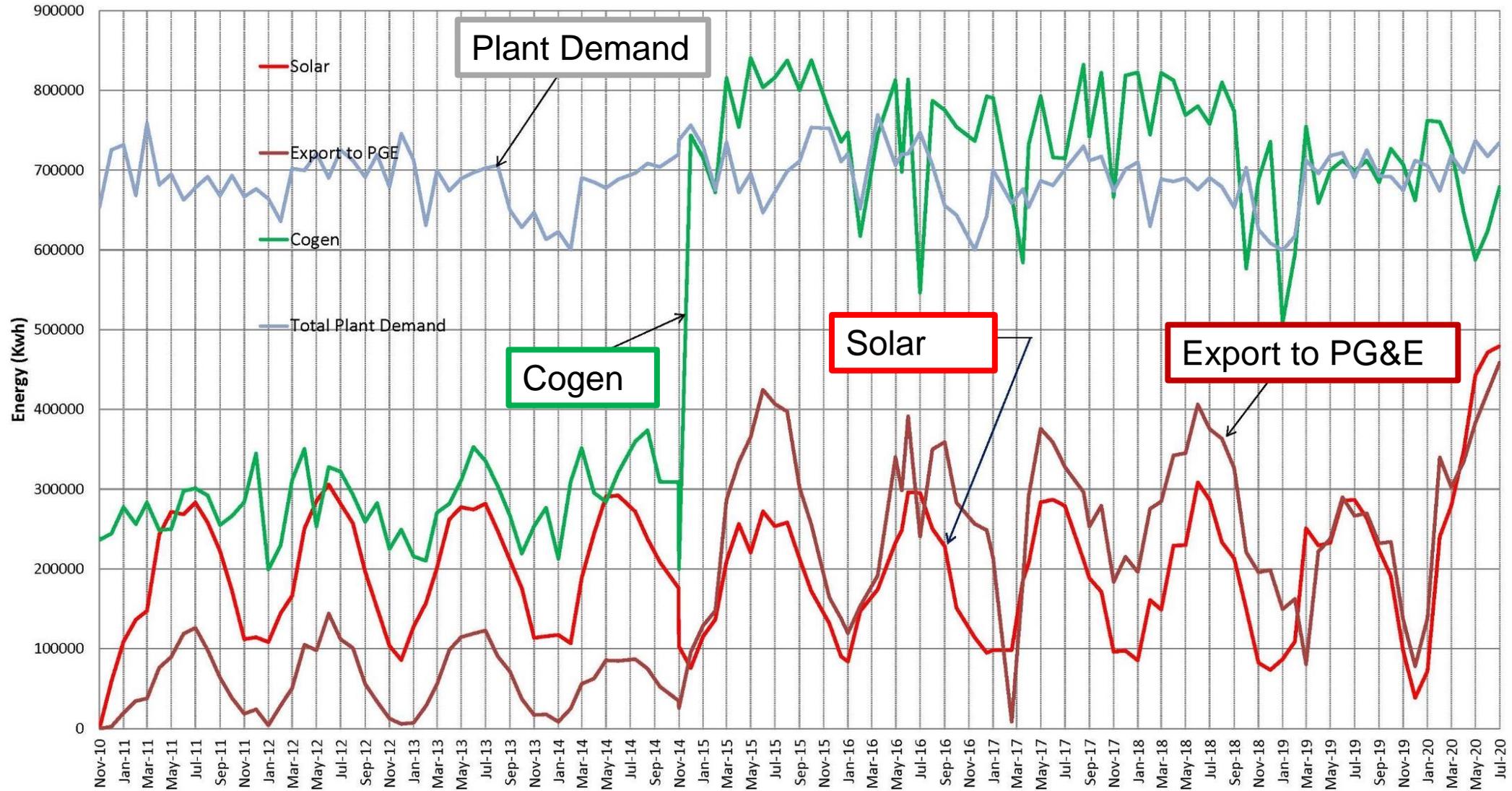
Solar Phase 2A – 600 kW

- Completed in February 2020
- Produces 1.4 mWhr/year all of which is available for use under RESBCT
- Total Solar Exports to Grid: 3.4 mWhr/year
- Total Exports to Grid including Solar & Cogen: 4.5 mWhr/year



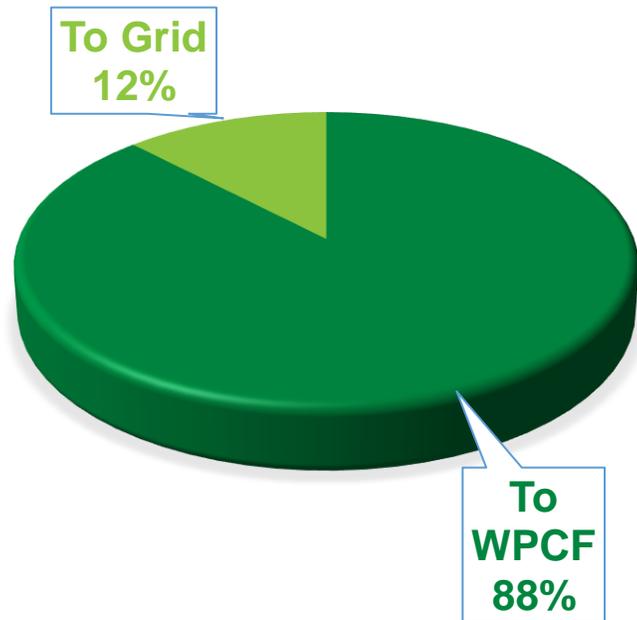
Plant Demand & Energy Sources

November 2010 through July 2020

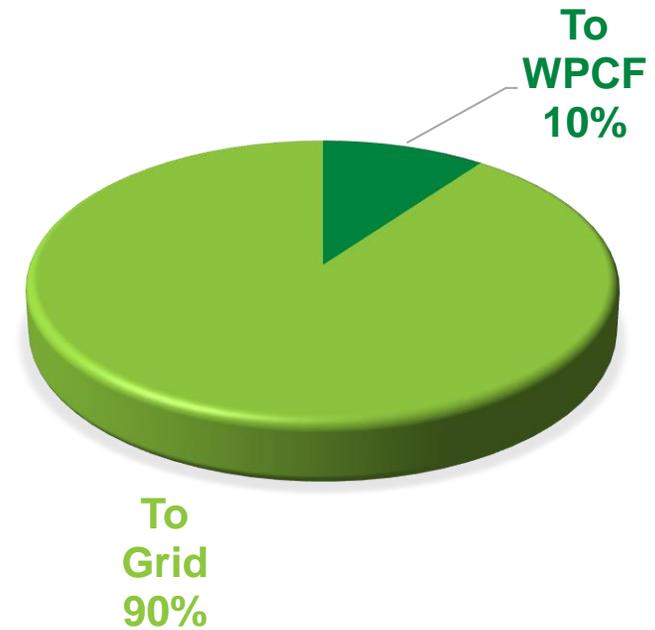


Annual Average Summary (2015 – 2019)

COGEN
(8,863,000 KWH)



SOLAR
(2,270,000) KWH)



EPA Green Power Partnership

Green Power Partnership Top 30 On-Site Generation List

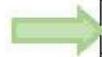
Released on January 27, 2020



The Top 30 On-site Generation list represents those partners generating and consuming the most green power on-site within the Green Power Partnership. The combined on-site green power consumption of these organizations amounts to more than 1.8 billion kilowatt-hours of green power annually, which is equivalent to the electricity use of more than 147,000 average

American homes each year.

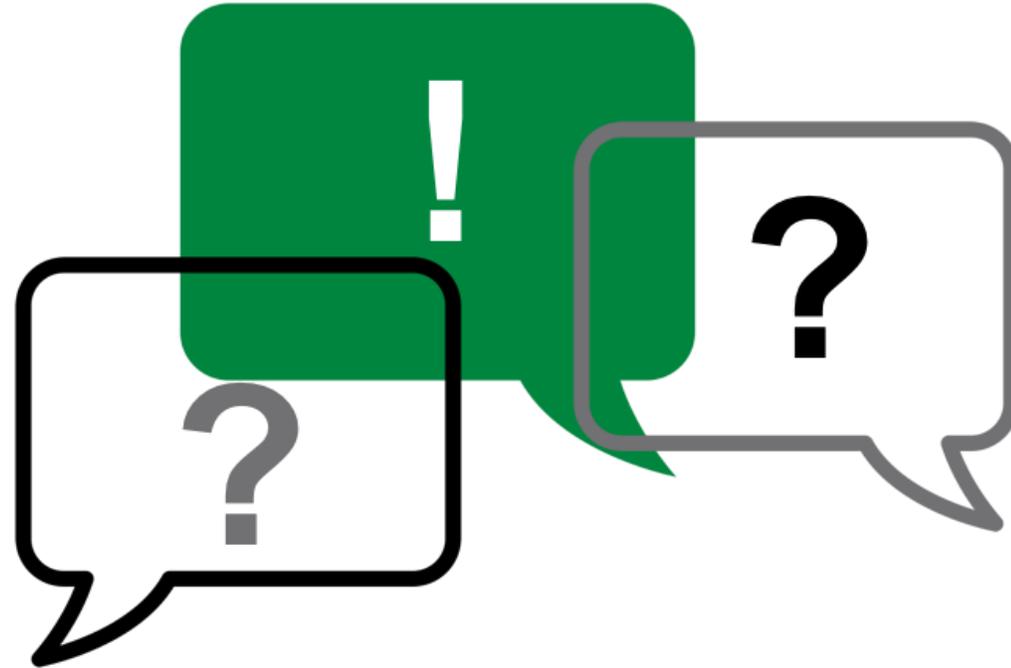
Partner Name	Annual On-site Green Power Usage (kWh)	On-site % of Total Electricity Use*	On-site Resources	Purchased Green Power (kWh)
1. Apple Inc.	532,750,885	29%	Biogas, Small-hydro, Solar	1,837,004,495
2. Procter & Gamble	208,441,010	7%	Biomass, Solar	794,183,870
3. Walmart Inc.	184,669,184	1%	Solar, Wind	1,037,330,534
4. State of California	88,899,994	7%	Solar	232,580,402
5. University of California	87,158,856	8%	Biogas, Solar	273,347,222
6. General Motors, LLC	75,215,623	2%	Biogas	429,726,581
25. Gwinnett County, GA / F. Wayne Hill Water Resources Center	12,693,297	20%	Biogas	12,693,297
26. Yolo County, CA	12,628,926	106%	Solar	12,628,926
27. Volkswagen Group of America Chattanooga Operations, LLC	11,629,620	10%	Solar	11,629,620
28. City of Hayward, CA	11,294,253	54%	Biogas, Solar	11,294,253
29. City of Portland, OR	11,064,486	9%	Biogas, Small-hydro	106,682,319
30. Albertson's Inc. / Select Locations	10,828,361	17%	Solar, Wind	10,828,361

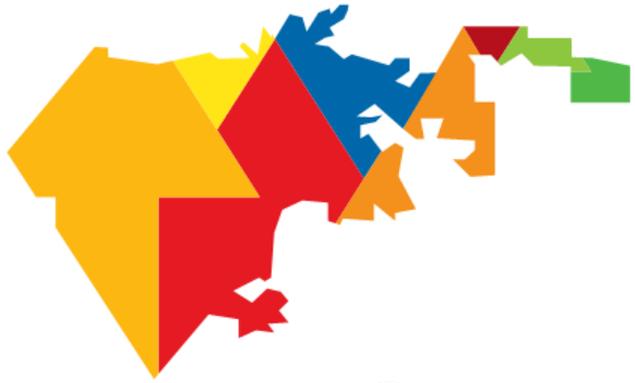


Fiscal Impact

Approximate Annual Costs/Savings	
2019 Spending on Electricity for Municipal Accounts (Includes \$346,000 savings in RES-BCT Credits)	\$2,059,000
Estimated 2019 Charges w/o Cogen or Solar	\$3,448,000
Estimated 2019 Savings	\$1,389,000

Discussion





Council Sustainability Committee

CY 2018

Greenhouse Gas Emission Inventory

September 14, 2020



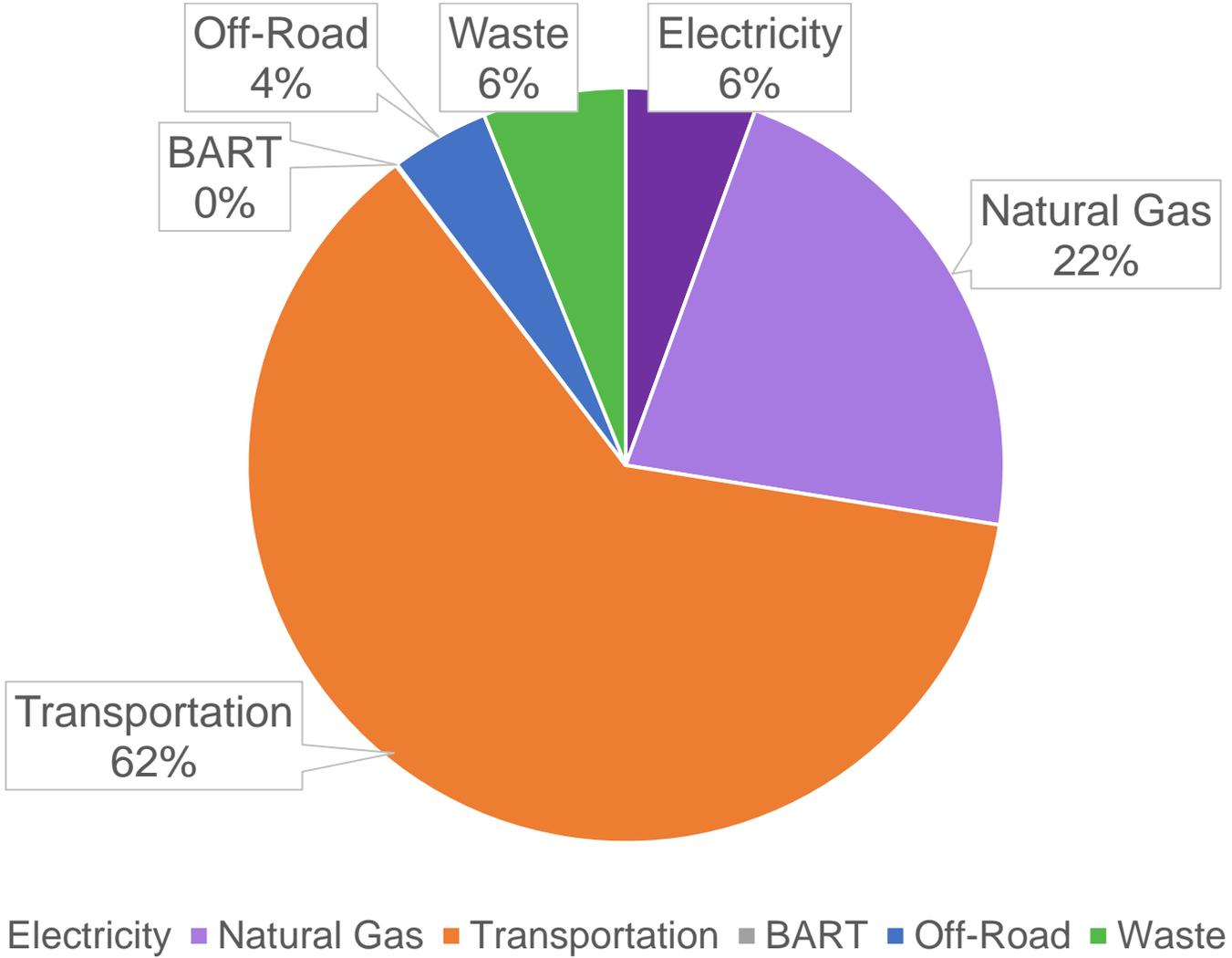
Hayward's GHG Emission Inventory Data

GHG Emissions by Sector (MTC02e)

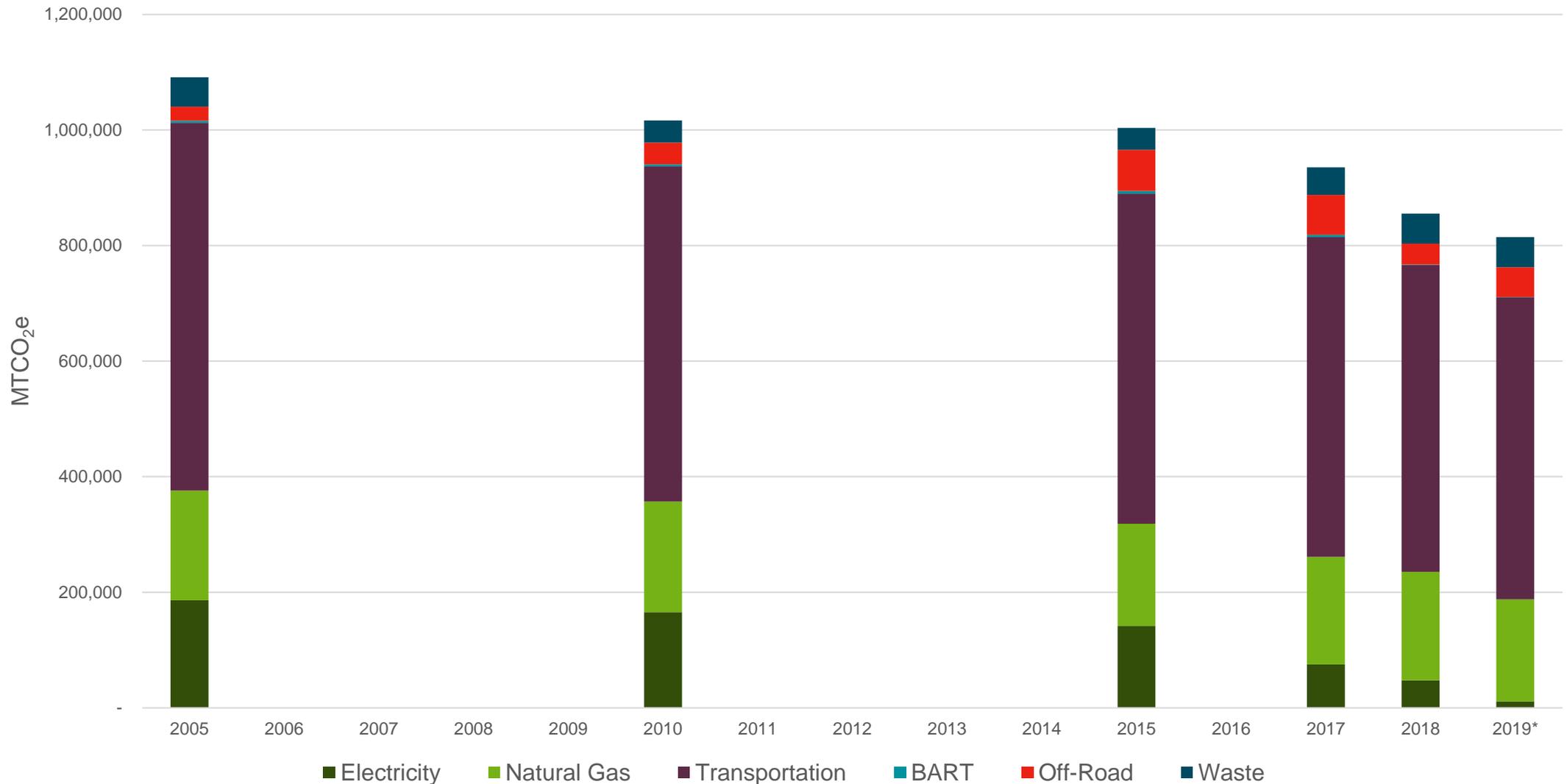
	2005	2010	2015	2017	2018	% Change from 2005	2019*	% Change from 2005
Electricity	185,890	165,304	141,854	75,118	47,531	-74.4%	11,013	-94.1%
Natural Gas	189,995	191,526	176,803	186,110	187,991	-1.1%	176,649	-7.0%
Transportation	636,581	580,238	571,556	553,298	531,104	-16.5%	522,897	-17.9%
BART	3,440	3,425	4,276	3,994	556	-83.5%	547	-84.1%
Off-Road Vehicles	24,345	37,630	71,034	69,279	36,064	+48.1%	51,392	+111.1%
Waste	50,924	38,338	38,148	47,555	52,209	+2.5%	52,209	+2.5%
Total	1,091,174	1,016,461	1,003,670	935,354	855,465	-21.6%	814,707	-25.3%
Hayward Population	140,530	143,921	155,753	159,623	159,603		160,197	
Total Emissions/ Capita	5.2	4.8	4.4	4.1	3.7	-28.9%	3.5	-32.5%

*Electricity and waste sectors are estimated data in 2019

Relative Contributions to Hayward's GHG Emissions (2018)

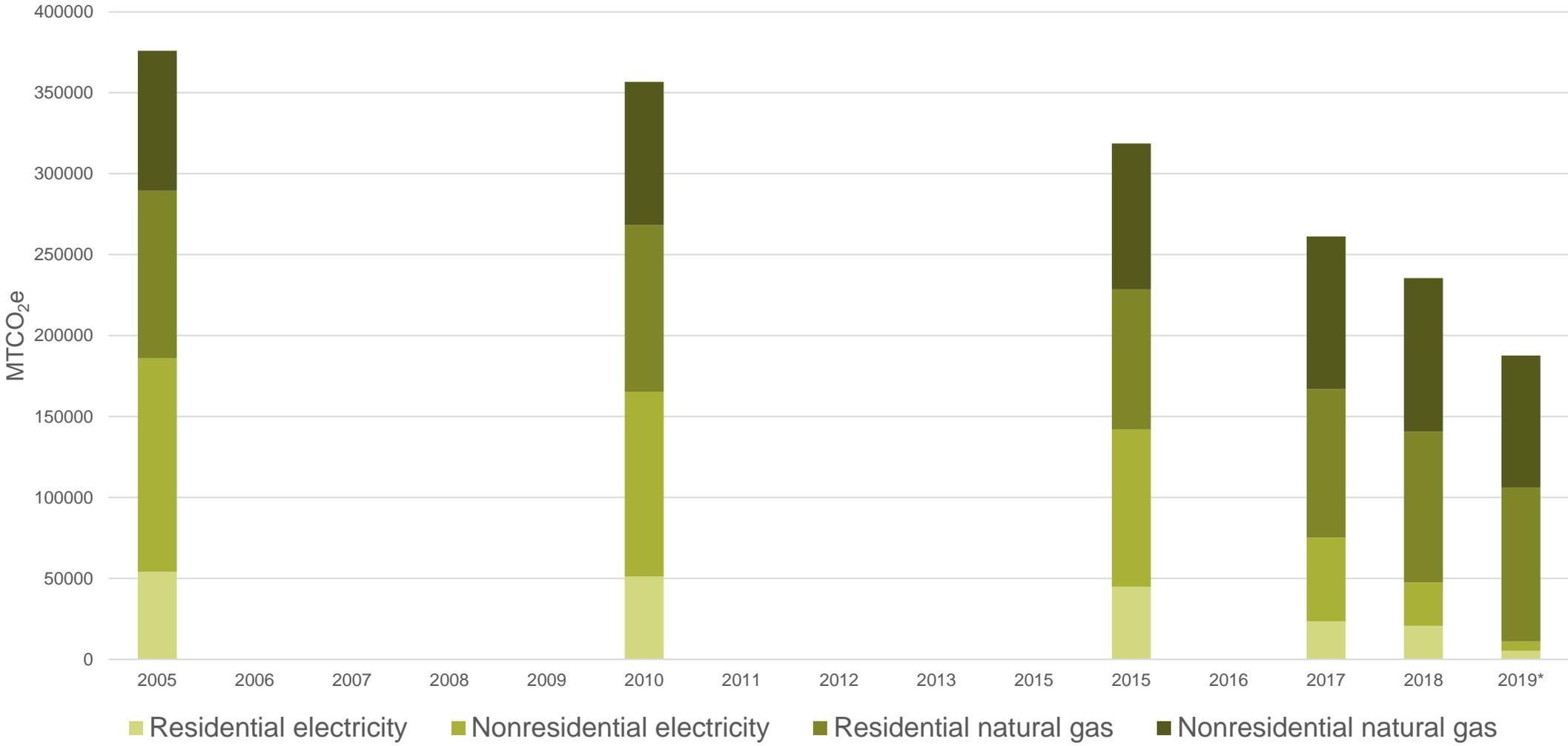


Hayward's GHG Emissions by Subsector



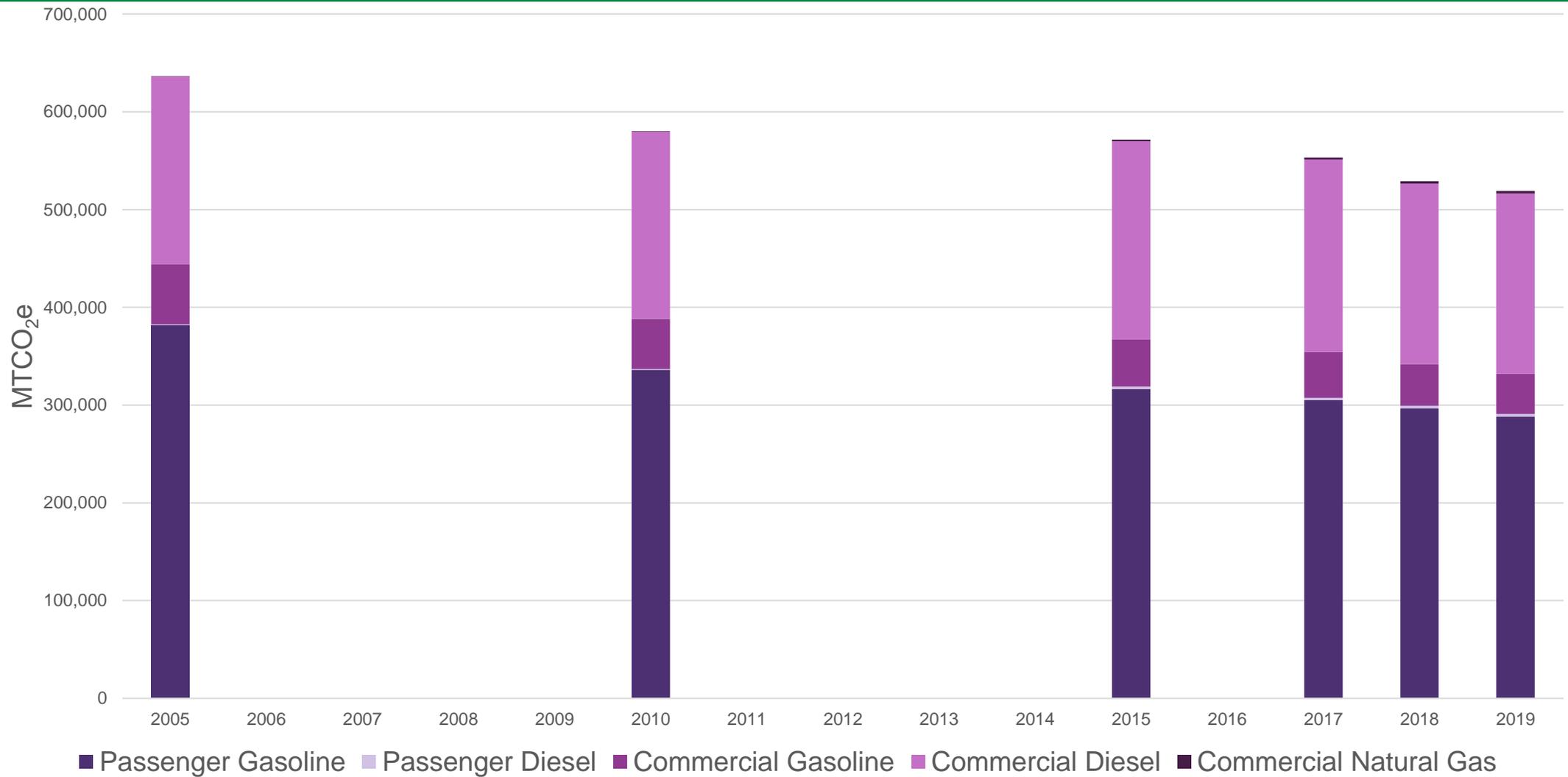
*Electricity and waste sectors are estimated data in 2019

Energy Sector



*Electricity and waste sectors are estimated data in 2019

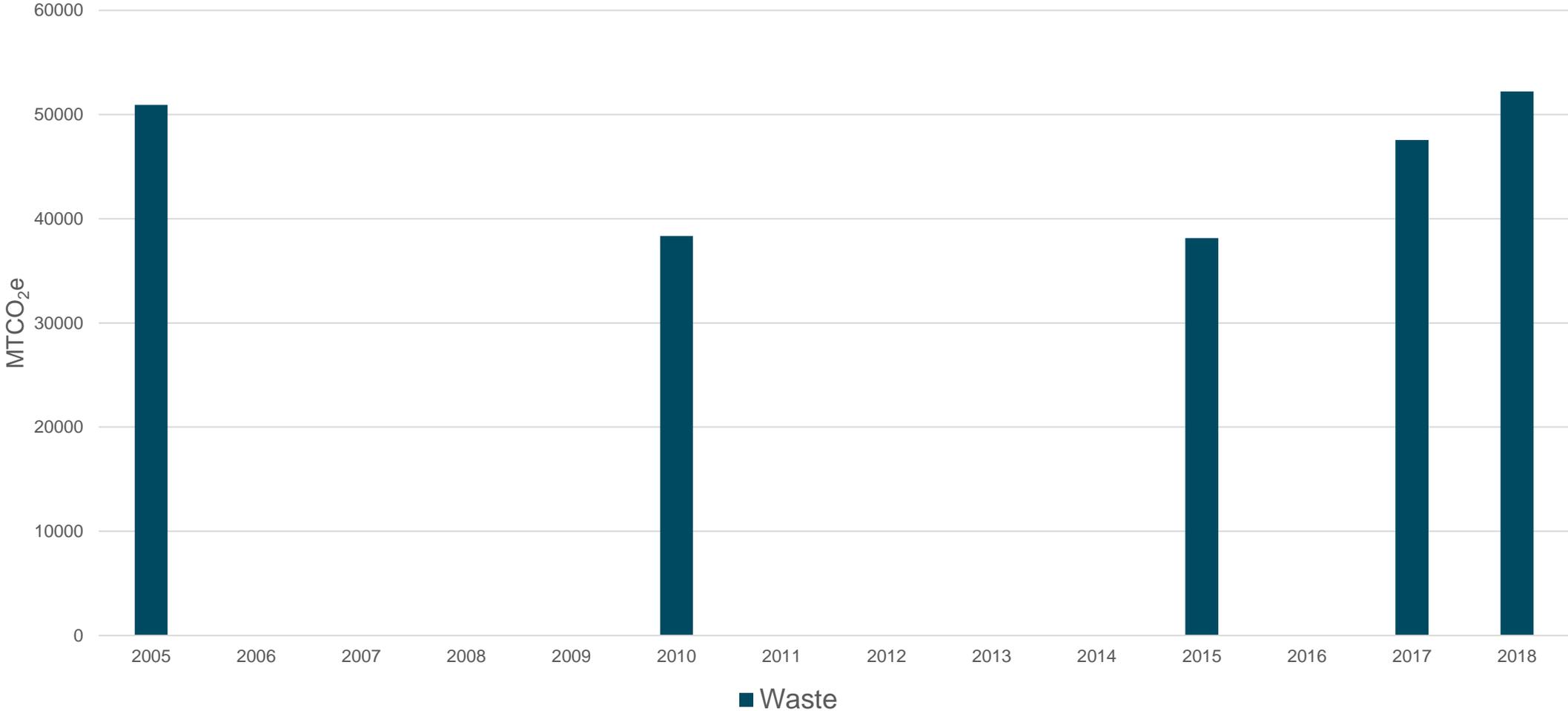
Transportation Sector



Off-road Vehicles Sector

	2005	2010	2015	2017	2018	% Change from 2005	2019	% Change from 2005
Agricultural Equipment	0	0	0	0	0		0	
Airport Ground Support Equipment	0	0	0	0	0		0	
Construction and Mining Equipment	0	11,478	40,143	37,833	5,696	-50%*	20,447	+78%*
Dredging	0	0	0	0	0		0	
Entertainment Equipment	83	83	83	85	83	+1%	83	0%
Industrial Equipment	12,564	13,030	14,007	14,350	14,522	+16%	14,697	+17%
Lawn and Garden Equipment	2,470	2,460	2,562	2,664	2,640	+7%	2,653	+7%
Light Commercial Equipment	4,958	5,009	5,046	5,141	5,185	+5%	5,230	+5%
Logging Equipment	0	0	0	0	0		0	
Military Tactical Supp. Equip.	0	0	0	0	0		0	
Oil Drilling	0	0	0	0	0		0	
Pleasure Craft	1,531	1,751	2,036	2,218	2,247	+47%	2,311	+51%
Recreational Equipment	379	455	544	597	608	+60%	628	+66%
Transport Refrigeration Units	2,359	3,000	3,832	4,461	5,083	+115%	5,342	+126%
Total GHG Emissions	24,345	37,265	68,251	67,348	36,064	+48%	51,392	+111%

Solid Waste Sector



Progress Toward 2020 Goal

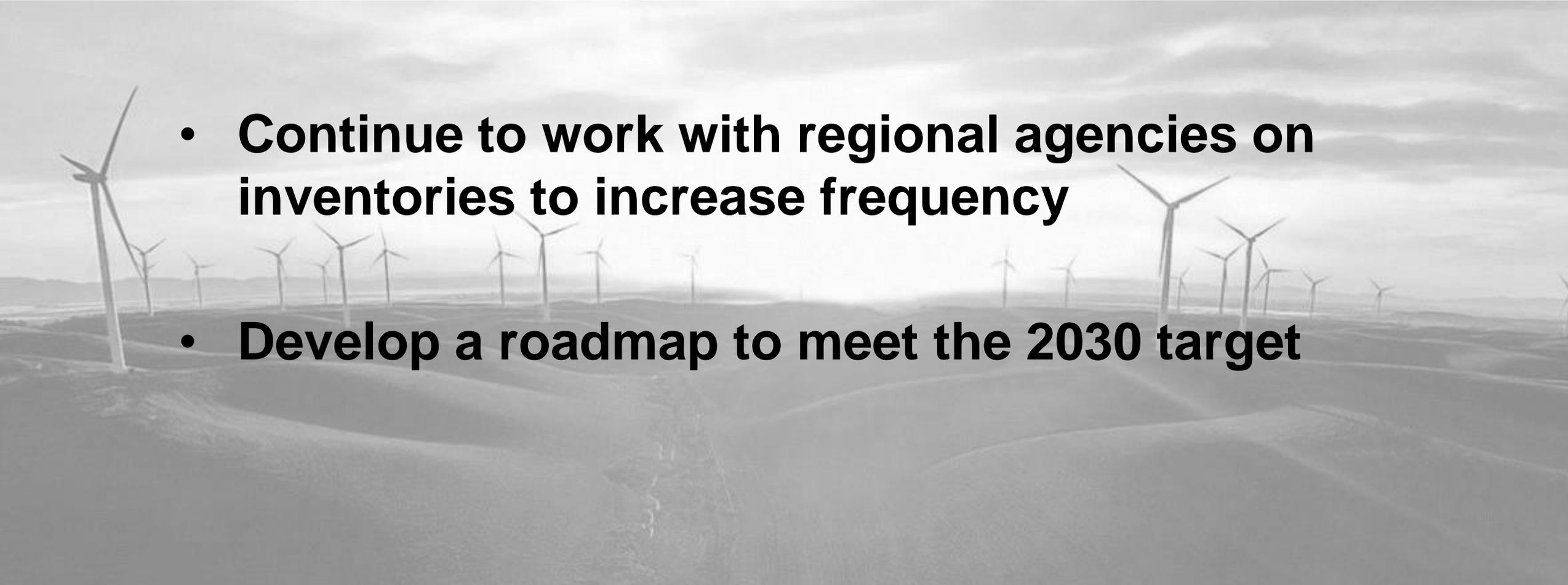
2018 GHG Emission Reduction Predictions without EBCE's Brilliant 100 Product

	2005	2018 - Actual	<i>2018 - Scenario</i>
Electricity	185,890	47,531	58,655
Natural Gas	189,995	187,991	187,991
Transportation	636,581	531,104	531,104
BART	3,440	566	566
Off-Road	24,345	36,064	36,064
Waste	50,924	52,209	52,209
Total	1,091,174	855,465	866,589
Percent Change from 2005 to 2018		21.6%	20.6%

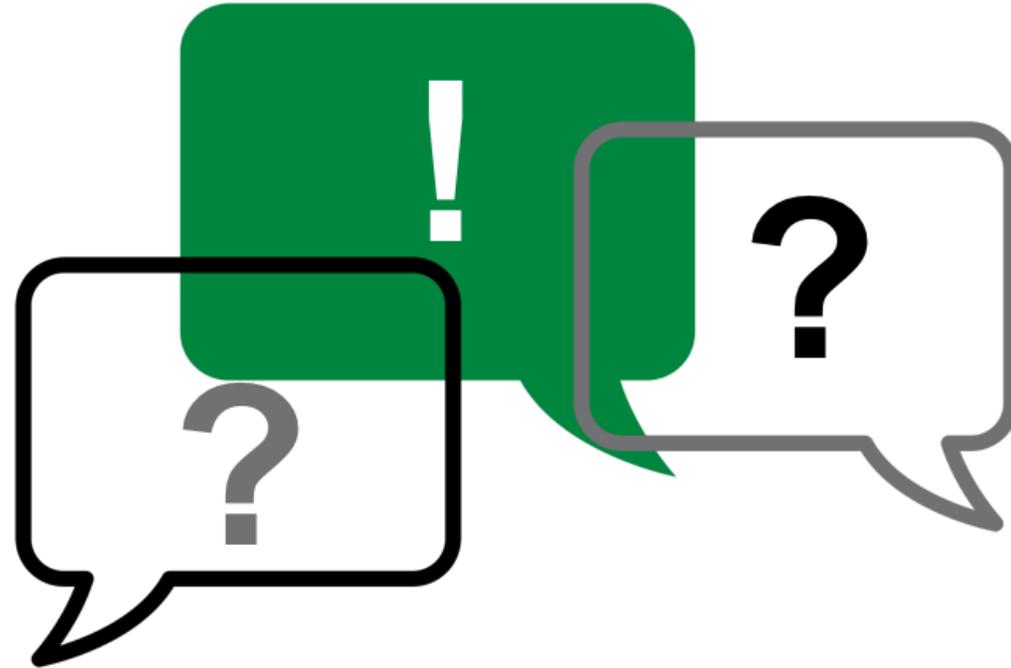
Limitations of the Inventory

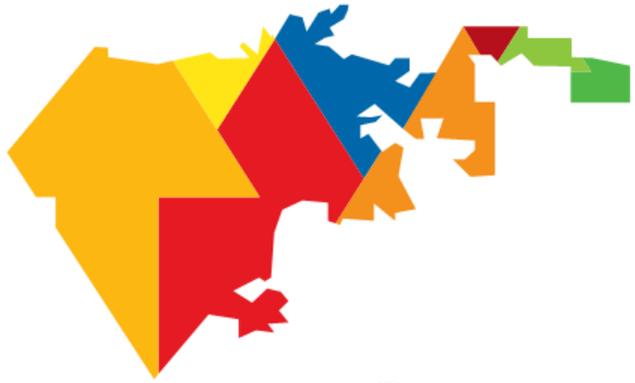
- **Inventory is not a complete carbon footprint.**
- **Emissions associated with food and other products/services purchased are not included.**

Next Steps

- 
- **Continue to work with regional agencies on inventories to increase frequency**
 - **Develop a roadmap to meet the 2030 target**

Questions





Council Sustainability Committee

Proposed 2020 Agenda Planning Calendar

September 14, 2020



Proposed 2020 Agenda Planning Calendar

Special Meeting: Thursday, October 15, 2020

[Default Electricity Product from East Bay Community Energy](#)

Monday, November 9, 2020

Limiting the Number of Service Stations Selling Fossil Fuel

[Proposed Updates to Strategic Roadmap Priority: Combat Climate Change](#)

Proposed 2020 Agenda Planning Calendar

Unscheduled Items

Sustainable Groundwater Plan

Long Term Water Conservation Framework

Low Carbon Concrete

Roadmap to Meet 2030 GHG Target

Pilot Program for Reusable Dishware

Advanced Metering Infrastructure (AMI) Customer Portal Pilot Program Update

EV Charging Requirements for Existing Multifamily Properties

Ending Natural Gas Use by 2045

[Implementation of Reach Code](#)

[Implementation of Strategic Roadmap \(Combat Climate Change projects\)](#)

[Draft Revisions to the Municipal Regional Stormwater Permit \(MRP 3.0\)](#)

Next Meetings

Thursday, October 15, 2020

Monday, November 9, 2020