

Climate Protection Grant Program

**Climate Protection Committee Meeting
June 4, 2018**

**Abby Young
Climate Protection Manager**





Climate Protection Grant Program

- \$4.5 million authorized in FYE 2018 budget
- Early concept presented to the Climate Protection Committee
- Extensive outreach
- Input from public agencies
- Input on guidelines from the Climate Protection Committee
- Launched call for projects April 4, 2018
- Deadline for applications May 11, 2018



Goal and Objectives

Overarching Goal:

To achieve Greenhouse Gas (GHG) reductions by accelerating implementation of the 2017 Clean Air Plan



Goal and Objectives

Objectives:

- Support implementation of Clean Air Plan measures
- Achieve air quality co-benefits
- Accelerate local implementation of GHG-reduction policies and programs
- Engage and benefit impacted communities
- Implement innovative approaches
- Create replicable solutions for Bay Area and elsewhere



Grant Program Structure

- Public agencies are eligible applicants
- Awards: between \$100,000 - \$300,000, with possible awards up to \$500,000
- Funding focuses on two program categories:
 - *Reducing GHG Emissions in Existing Buildings*
 - *Fostering Innovative Strategies*

7.4



Applications Submitted

22 Applications Submitted

- 11 applications for Reducing GHGs in Existing Buildings
- 11 applications for Fostering Innovative Strategies
- \$6.1 million total funding requested
- Applying agencies include cities, counties, CCEs, a municipal utility, a community college district, a housing authority



Evaluation Process

- Three-person scoring teams for each program category
 - Including staff from Planning, Technology Implementation Office, and Bay Area Regional Collaborative (BARC)
- Evaluators trained together to ensure consistency
- Each team discussed scoring to ensure consistency



Scoring Criteria

Criteria	Points
Potential for GHG Reduction	25
Support for the Program's objectives	20
Strength and feasibility of technical approach	20
Cost – Effectiveness	15
Strength and feasibility of deliverables and timeline	10
Strength of budget	5
Benefit to CARE Communities	5
Benefit to low – income communities	5

17 Projects Recommended for Funding

- 9 projects reduce GHGs in existing buildings
- 8 projects foster innovative strategies
- Projects span 7 counties
- GHG emission reductions, at least (conservative estimates):
 - Near-term = 22,376 metric tons CO₂e
 - Longer-term = 79,264 metric tons CO₂e
- Average cost-effectiveness = \$201/MTCO₂e



High Level Outcomes

- Regional market transformation for low-carbon technologies
- Large-scale behavior change to influence purchasing power and emissions
- Air quality, cost of living and other co-benefits



High Level Outcomes

- Public agency leadership to break down barriers to green technologies
- Stimulating creativity and innovation across sectors
- Highly replicable examples to spread influence beyond the Bay Area



Decarbonizing Buildings on a Regional Scale

Nine Projects that Help Transform the Regional Market for Low-Carbon Technologies

Low-GHG Technologies

- Heat pump water heaters
- Ductless heat pump furnaces
- “Smart” battery systems at data centers to replace diesel generators
- Upgraded refrigeration for small businesses
- Electric household appliances



Decarbonizing Buildings on a Regional Scale

Nine Projects that Help Transform the Regional Market for Low-Carbon Technologies

Strategies

- Commercial building ordinance
- Financial incentives
- Training for vendors, contractors, building inspectors and residents
- Engagement with regional distributors
- Online vendor, contractor and appliance search systems
- Engagement, outreach and education



Innovative New Approaches



Developing market for low-carbon concrete



Resilient solar for critical facilities



Reducing “super-GHGs” through refrigerated appliance recycling



Greening rental units

Improving compost market by reducing contamination



Community-wide Web-based engagement



Climate Protection Grant Application Results

Staff recommends that the Committee recommend Board of Directors' approval of proposed projects for the 2018 Climate Protection Grant Program and authorization for the Executive Officer/APCO to execute grant agreements for the recommended projects.



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Consumption-Based Greenhouse Gas Emissions Inventory

Climate Protection Committee Meeting
June 4, 2018

David Burch
Principal Environmental Planner



Overview

- Rationale for consumption-based emissions inventory (CBEI)
- Methodology & work products
- Key findings
- How CBEI helps to inform regional & local climate programs



Rationale for CBEI

- Demonstrate leadership by embracing innovative methods
- Production-based emissions inventory does not fully capture our greenhouse gas (GHG) impact:
 - A lot of goods & services we consume are imported to region
 - Need to consider full life-cycle emissions, wherever they are physically released
- Identify key sectors & appropriate policy interventions
- Fine-tune GHG-reduction programs to address local variation in size & composition of GHG footprint



Basic Concept

Step 1: Develop consumption profile for each Census block group:

- 34 factors: demographic, income, transportation, housing

Step 2: Multiply quantity of each activity or product times

appropriate full life-cycle emission factor

Step 3: Add emissions for

each category to get

total GHG footprint

Transportation

Housing

Food

Goods

Services



Total Household
GHG Footprint
(metric tons/year)

Example: Life Cycle Emissions for Automobile

Upstream

Individual Parts

Extraction of materials
Production of each part

Vehicle Assembly

Shipping to Dealer

In-Use

Upstream emissions
from refining gasoline

Fuel Consumption

Fuel economy
Fuel type
Driving conditions

Vehicle Maintenance

Downstream

Landfill

Recycling/Re-use (credit)

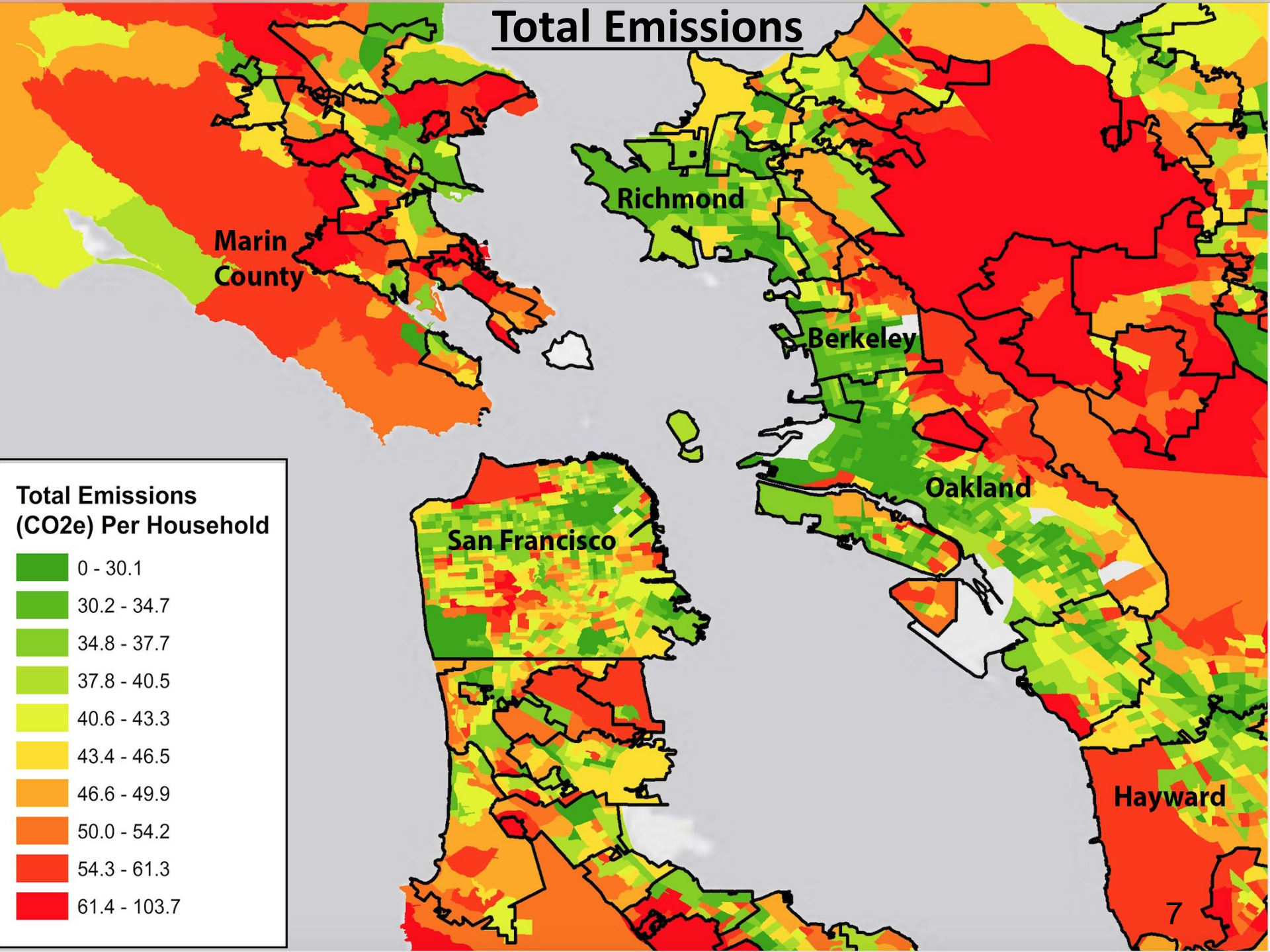




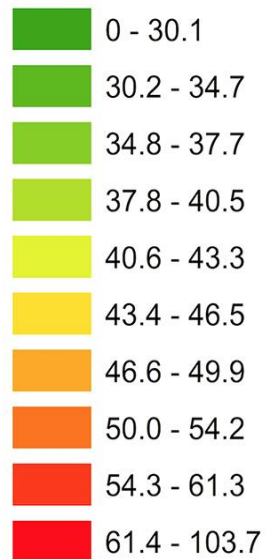
CBEI Work Products

- Regional consumption-based GHG emissions inventory (CBEI)
- collaboration with UC Berkeley's *Cool Climate Network*
- CBEI for each City and County in the region
- Interactive maps showing variation in size and composition of GHG footprint by Census block group across the region
- Report documenting the methodology
- CBEI page on District website:
www.baaqmd.gov/research-and-data/emission-inventory/consumption-based-ghg-emissions-inventory

Total Emissions



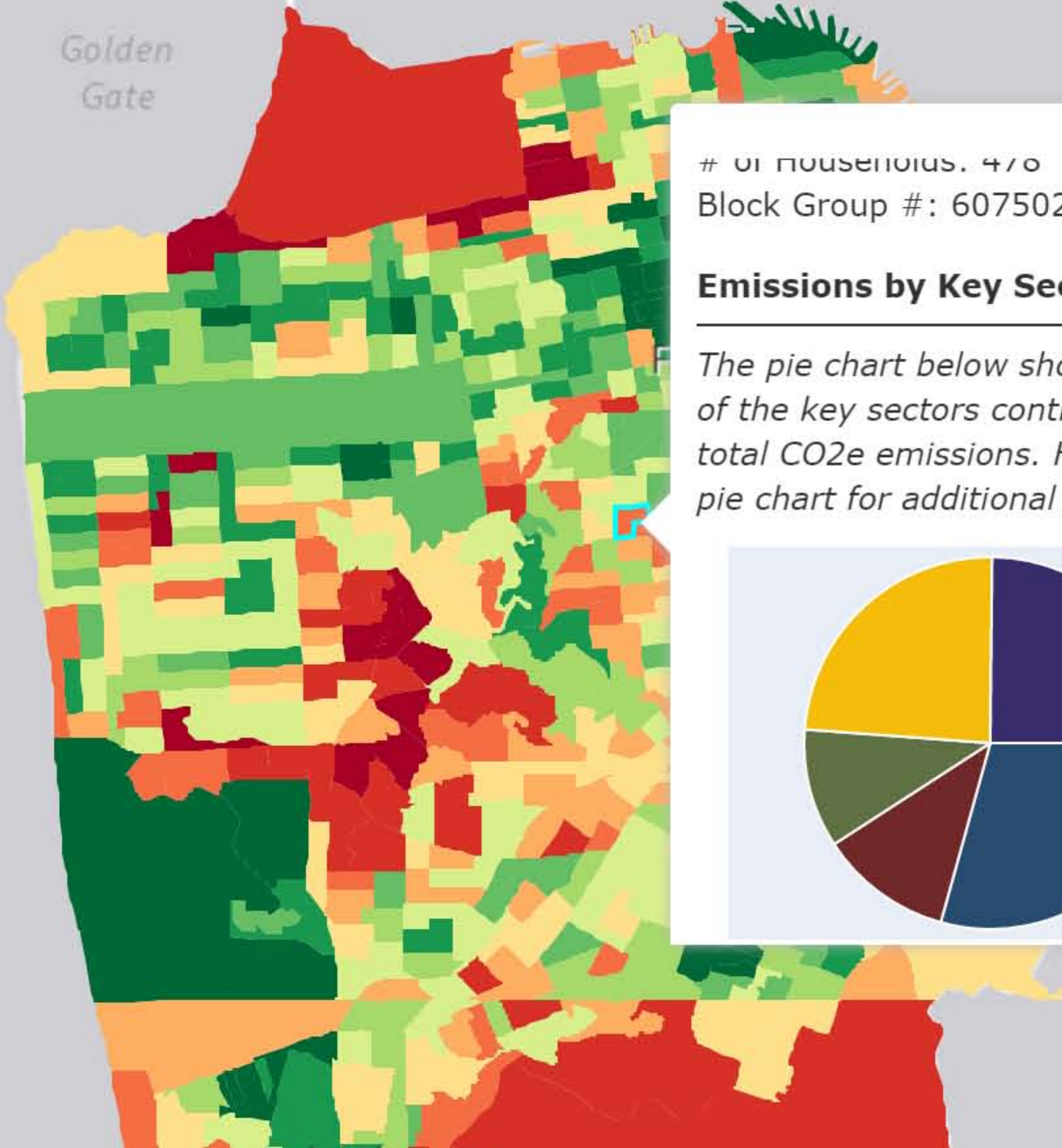
Total Emissions (CO₂e) Per Household



Block Group Detail



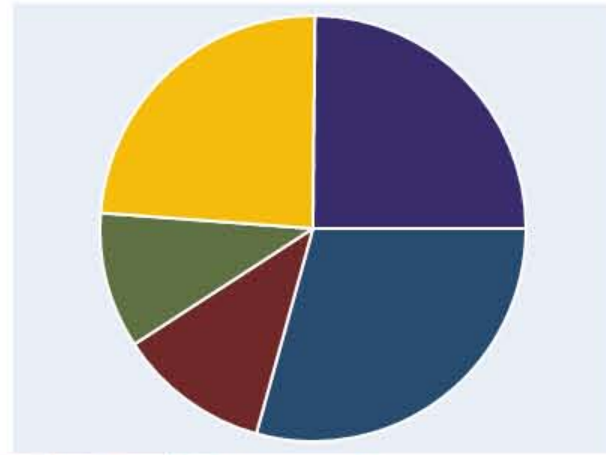
Golden Gate



of households: 470
Block Group #: 60750206003

Emissions by Key Sector

The pie chart below shows a breakdown of the key sectors contributing to the total CO₂e emissions. Hover over the pie chart for additional information.





Local Variation in GHG Footprint

Large variation in size and composition of GHG footprint

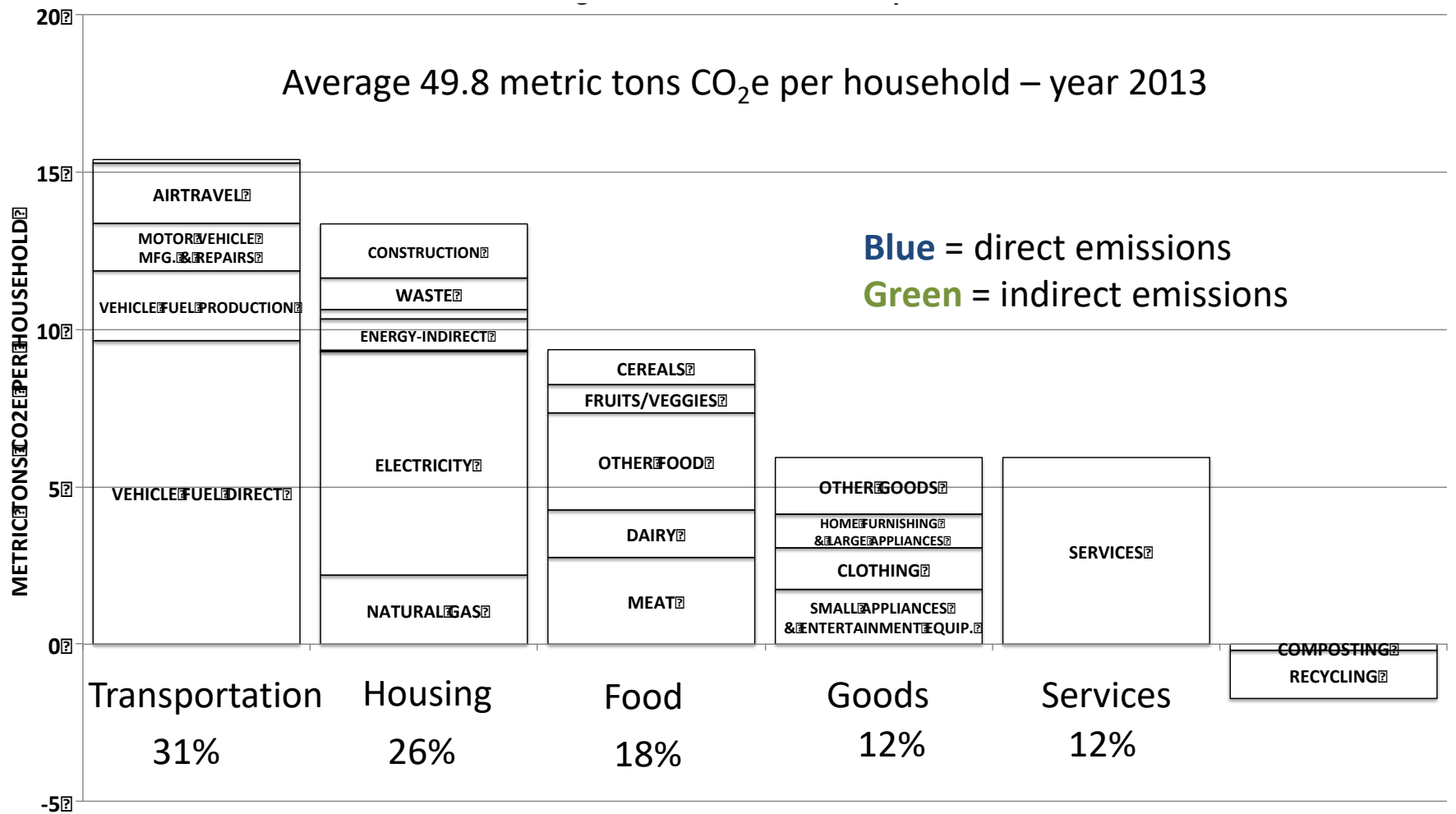
6 factors account for 92% of the variation:

- Vehicle ownership rate *
- Household income
- Carbon intensity of electricity *
- Size of home (square footage of dwelling unit)
- Household size (# people)
- Population density of neighborhood *

** indicates factor more amenable to government influence*

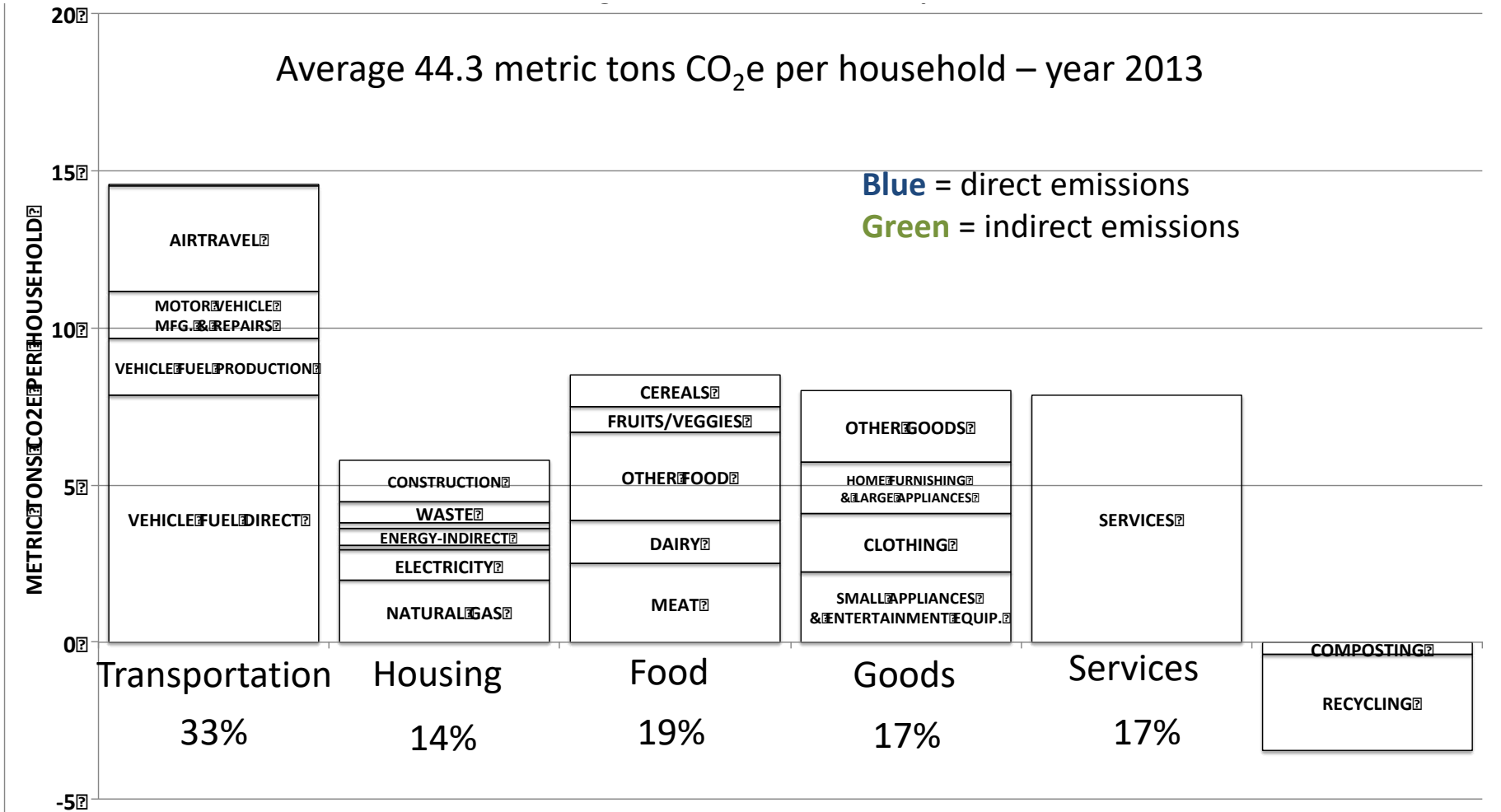
US Average Household GHG Footprint

Average 49.8 metric tons CO₂e per household – year 2013



SF Bay Area Average Household GHG Footprint

Average 44.3 metric tons CO₂e per household – year 2013





Policy Implications

- **Transportation**
 - Need to decarbonize transportation sector
 - Reduce vehicle miles traveled (VMT)
 - Direct growth to areas served by transit, shopping, services
- **Housing**
 - Promote electric space & water heating in homes & buildings
 - Retrofit existing homes to increase energy efficiency
- **Food**
 - Reduce food waste
 - Low-carbon diet: Eat lower on food chain / less processed food
- **Goods & Services**
 - Buy locally-produced goods & services
 - Consume fewer goods



Key Take-Aways

- Bay Area GHG emissions are greater from consumption perspective
 - ~ 34% greater than production-based inventory
- Household footprint varies considerably within the region
- Average Bay Area GHG footprint smaller than US average, even though we enjoy a higher standard of living



Key Take-Aways

- But we need to greatly reduce average GHG footprint in order to achieve long-range targets for 2030 & 2050
- Government cannot do it all
- We need help from business & residents to achieve targets



Using CBEI in Climate Protection Program

Educating and motivating Bay Area residents to reduce GHG footprint:

- Vision for 2050 in Clean Air Plan: “conscientious consumption”
- Community Climate Solutions “*Go CO2 Free*” platform
- Highlight the benefit of reducing demand & promoting efficiency
in key sectors: transportation, energy, buildings



Using CBEI in Climate Protection Program

- Climate Protection Grant Program: take advantage of green electricity to promote electrification of heating & cooling in buildings
- Collaborating with Acterra to organize conference re: reducing GHG emissions from food sector



Looking Forward

- District will continue to promote & refine CBEI:
 - Improvements to methodology & assumptions
 - Explore additional policy & outreach opportunities
- Local partners are embracing consumption-based perspective



Looking Forward

- Many cities are including CBEI as they revise their climate action plans to address 2030 GHG targets
- CBEI can help make the case for infill development
- Continue educating Bay Area residents about how they can help protect the climate



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For Additional Information

www.baaqmd.gov/plans-and-climate/climate-protection

www.baaqmd.gov/research-and-data/emission-inventory/consumption-based-ghg-emissions-inventory

<http://coolclimate.berkeley.edu/inventory>