



Carbon Neutral Seattle

City Council Briefing
May 23, 2011



Carbon Neutral Seattle Project

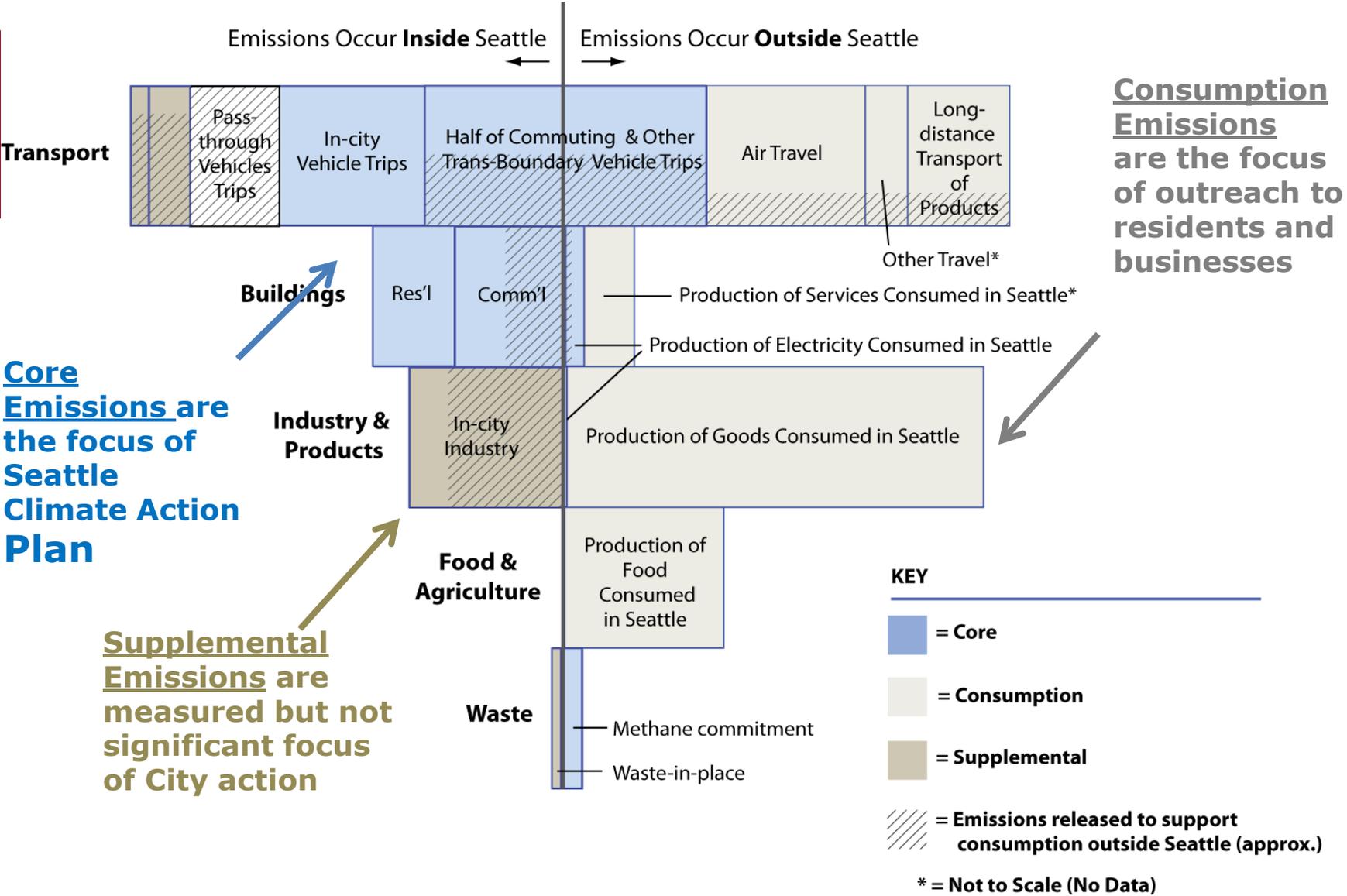
- Define City's carbon neutral goal
Zero net emissions by 2050 (in road transportation, buildings and waste sectors)
- Develop carbon neutral emission reduction scenario
Proof of concept demonstrating one pathway to becoming a climate-friendly community.
- Goal and scenario inform Seattle Climate Action Plan update
Action Plan update process to begin in September 2011, with Plan complete by summer 2012.



Carbon Neutral Scenario

- “What if” analysis that outlines one of many possible pathways to achieve deep emission reductions
- Proof of concept that asked what is possible.
 - It is not an action roadmap or an economic or political feasibility analysis.
- Will inform City’s action planning.
 - Financial and political feasibility and community support will be considered during the action planning process.

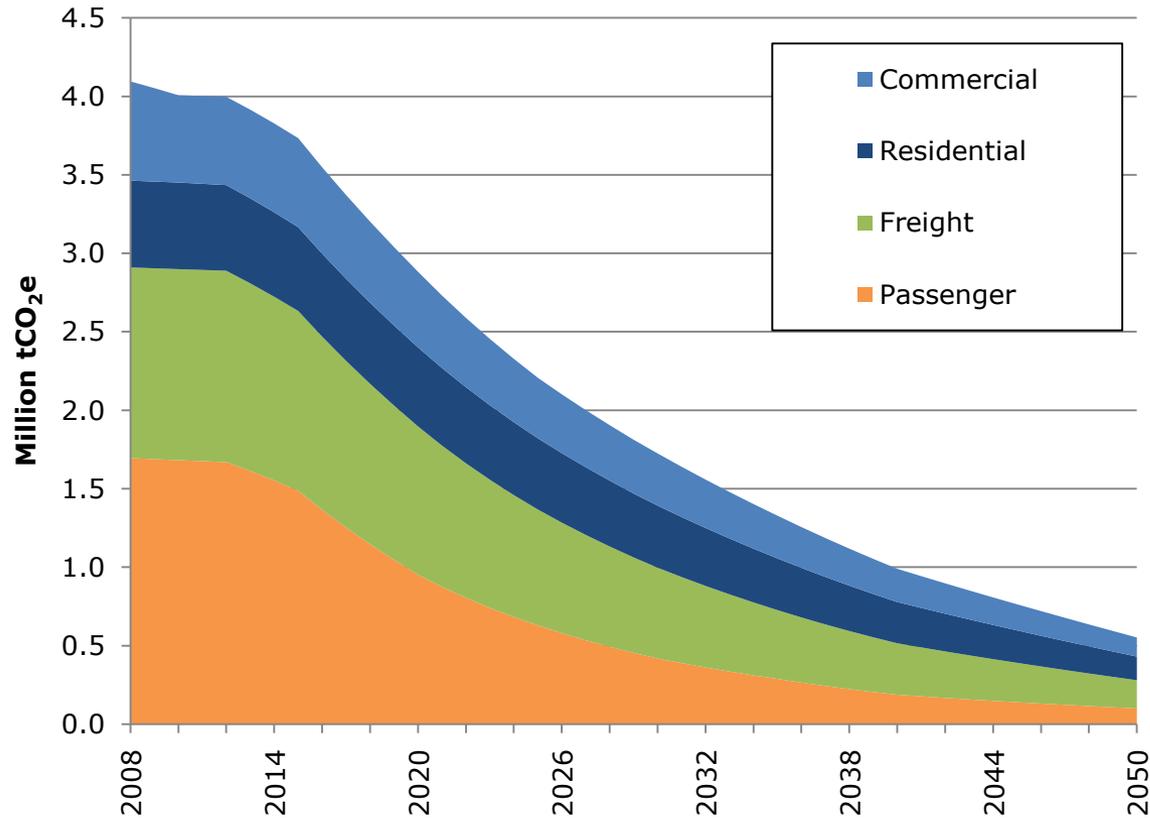
Seattle's GHG Measurement Framework



CN Scenario Strategies

Emission Sector	Less of GHG Producing Activity	Cleaner GHG Producing Activity
ROAD TRANSPORTATION (Passenger & Freight)	Reduce vehicle travel Increase vehicle efficiency	Mode & Fuel switching
BUILDINGS (Residential & Commercial)	Increase building efficiency	Fuel switching
WASTE	Increase waste diversion	Reduce landfill gas emissions

CN Scenario Results



Change from 2008 in total emissions:

2020 – 30% reduction

2030 – 58% reduction

2050 – 87% reduction

CN Scenario - Transportation

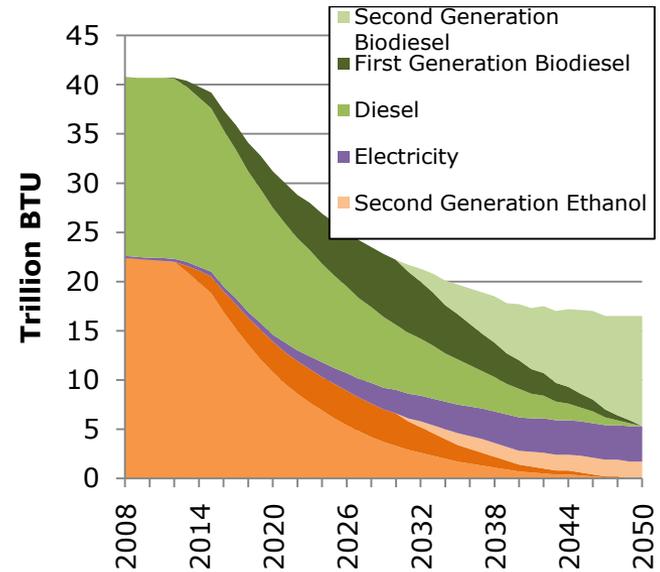
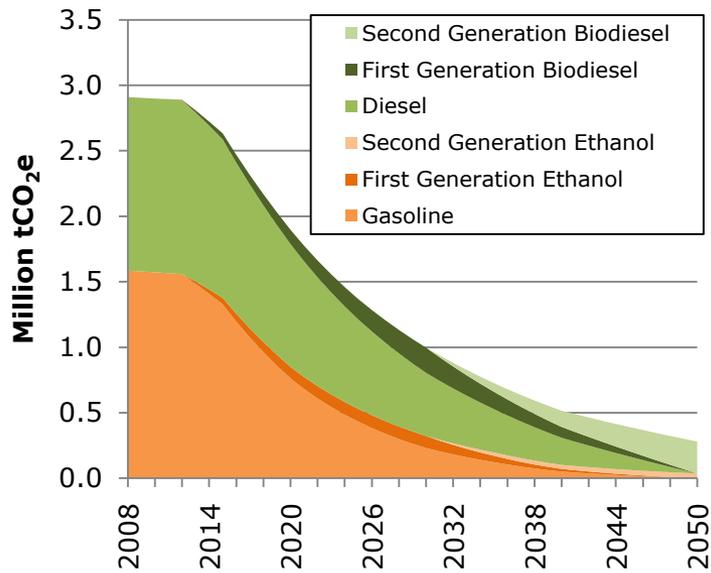
○ Strategies

- Transit/bike/pedestrian infrastructure
- Pricing (road, parking, VMT)
- Transportation demand management
- Land use/compact development
- Fuel efficiency & switching—electrification & biofuels

○ Assumptions

- Rapid & extensive increase in transit
- 80% of passenger vehicles are electric by 2050
- Next generation biofuels replace most freight diesel use

Transportation



Transportation GHG Emissions (left) and Energy Use (right) by fuel, Carbon Neutral Scenario, 2008-2050

Passenger VMT reductions per capita:

- 20% by 2020
- 31% by 2030
- 53% by 2050

CN Scenario - Buildings

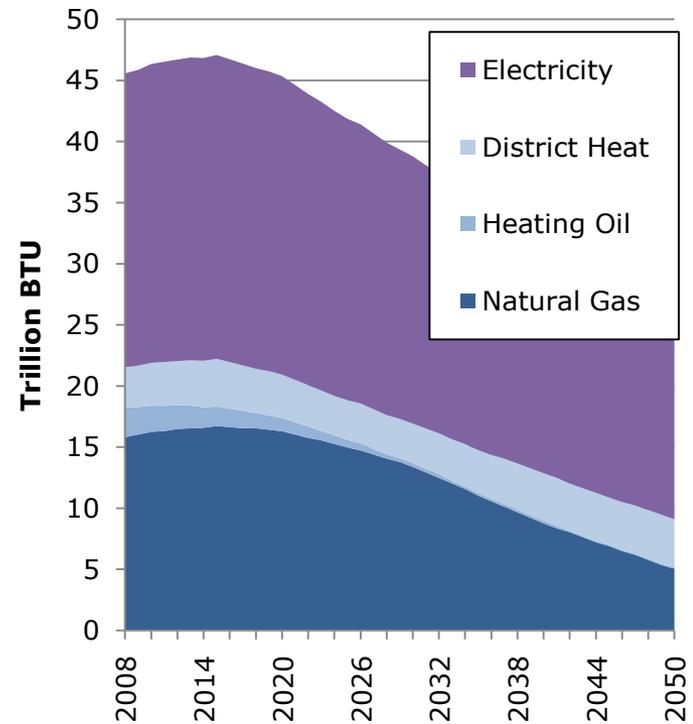
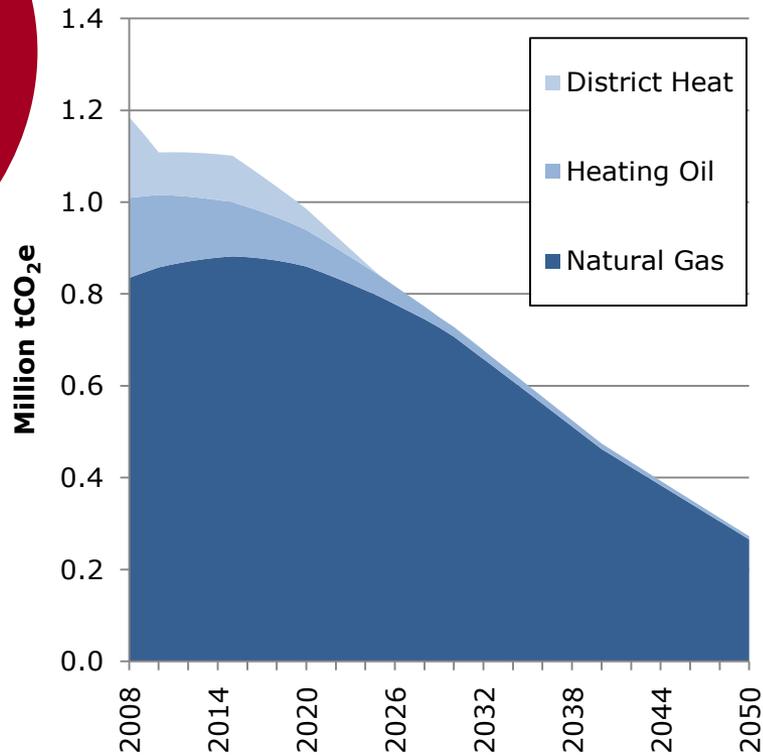
○ Strategies

- Green building design
- Energy efficiency retrofits
- Distributed energy production
- District energy systems

○ Assumptions

- 90% of existing residential buildings are retrofit by 2050
- All new residential buildings are built to deep passive design levels by 2030
- 95% of commercial gas & oil space and water heating switched to district energy or heat pumps by 2050

Buildings



Residential and Commercial Building GHG Emissions (left) and Energy Use (right) by fuel, Carbon Neutral Scenario, 2008-2050

CN Scenario - Waste

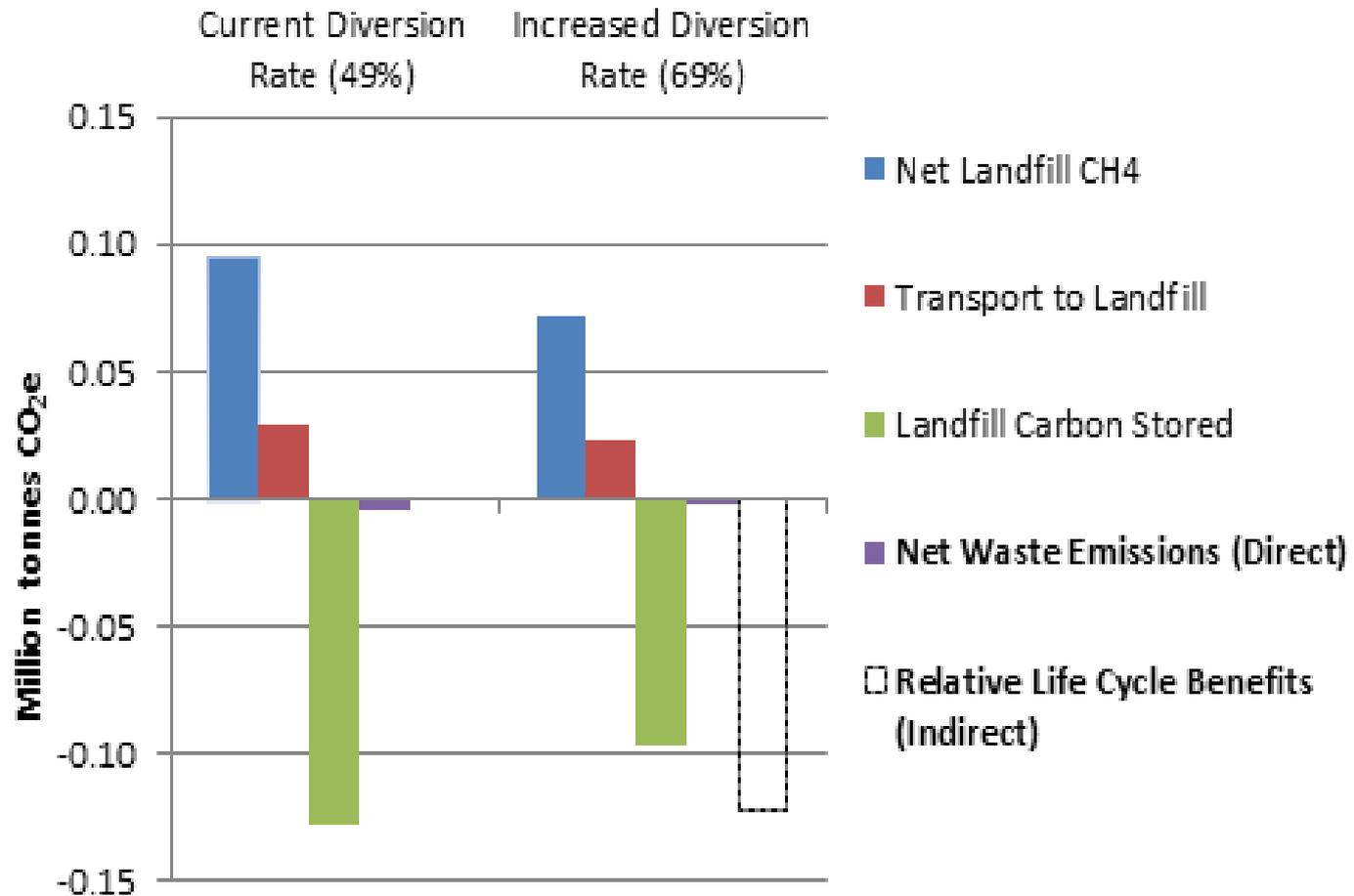
○ Strategies

- Increase diversion rate
- Reduce waste generation

○ Assumptions

- 70% of waste is diverted to recycling or composting by 2025
- Landfill gas emissions are reduced 50% by 2050

Waste



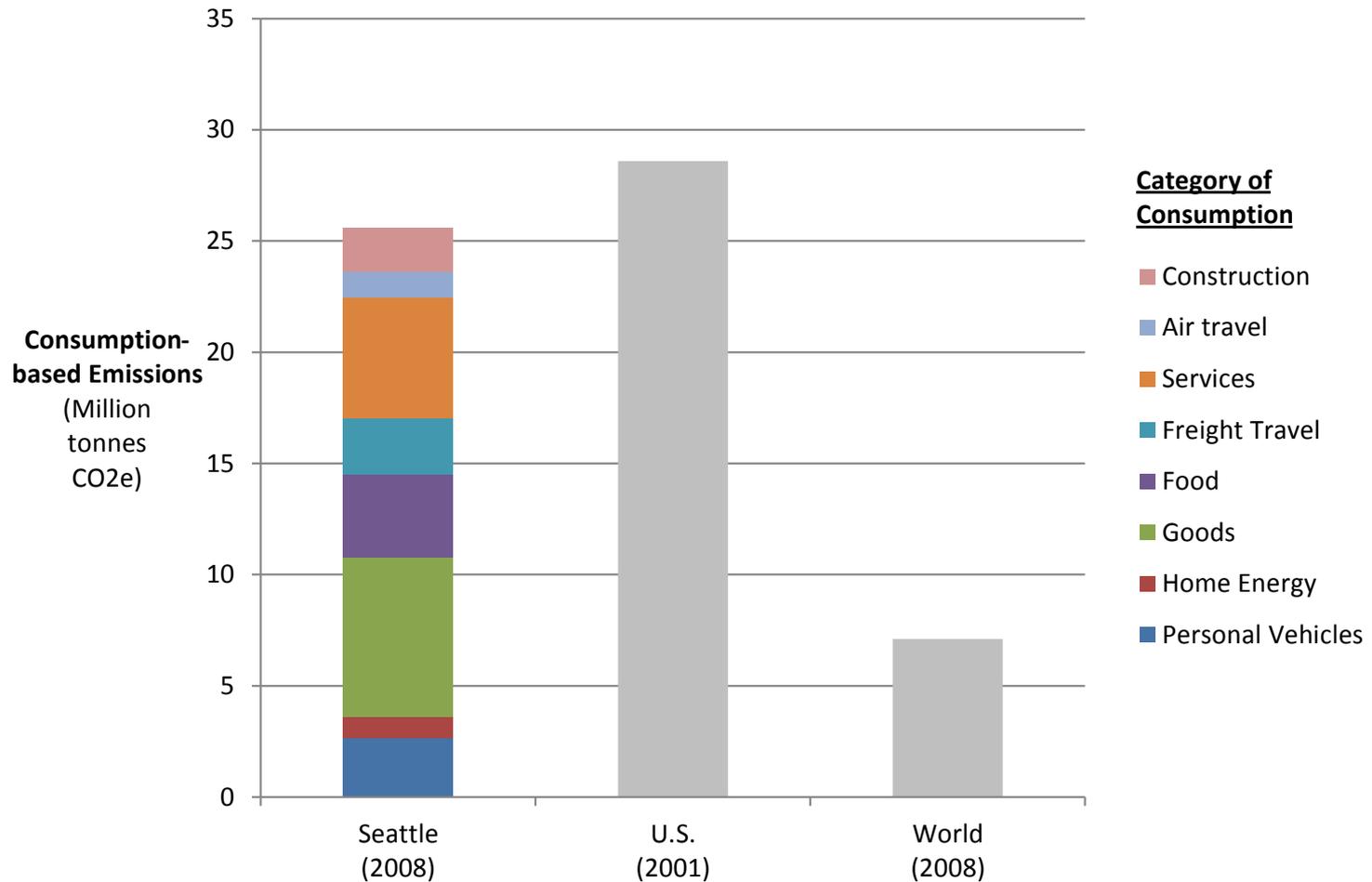
2020 Outcomes Based on Carbon Neutral Scenario Assumptions

	Reduction in GHG Emissions-Producing Activity	Reduction in GHG Emission Intensity of Activity
Transportation	<u>Reduction in vehicle miles travelled (VMT)</u>	<u>Decrease in GHG per mile of Seattle vehicles</u>
Passenger	20% reduction in light duty VMT/capita	35% reduction
Freight	7% increase in total VMT	25% reduction
Buildings	<u>Decrease in energy use</u>	<u>Decrease in GHG intensity of energy mix</u>
Residential	15% reduction in residential energy use/capita	15% reduction in tonnes CO2e/billion BTU residential and commercial buildings combined
Commercial	15% reduction in commercial energy use/employee	
Waste	<u>Increase in recycling and composting rate</u>	<u>Reduction in GHG intensity of waste</u>
	Increase diversion rate from 49% to 69%	50% reduction in methane emissions commitment per ton waste disposed
TOTAL GHG Emissions Reduction	30% reduction in per capita emissions by 2020 90% reduction in per capita emissions by 2050	

Goods & Services

- Production and transport of goods, food, and services *consumed* in Seattle
- Different methodology, not additive with core emissions
- Sketch analysis derived from economic data
- Select findings
 - Emissions from producing goods and services are significantly greater than the emissions associated with transporting them, even over long distances
 - Emissions associated with producing goods and services represent over 40% of total consumption emissions

Goods & Services





Climate Action Plan Process

- Summer 2011
 - Hold focus groups to inform community engagement and action planning
 - Soft launch of CAP community engagement
- Fall 2011 – Spring 2012
 - Technical Advisory Groups develop emission sector action plans
 - Hard launch of CAP community engagement
- Spring 2012 – Summer 2012
 - Develop CAP funding strategy
 - Green Ribbon Commission finalizes action plan