Mayors' Commission on Climate Change

Meeting #2 | March 18, 2019

City of SACRAMENTO

CITY OF WEST SACRAMENTO

Progress Report

Defining Carbon Zero

For the purpose of the Mayors' Commission on Climate Change, "carbon zero" is interpreted as carbon neutral, meaning that the net greenhouse gas emissions of Sacramento and of West Sacramento equal zero.

The primary focus of the Commission is on achieving near-zero greenhouse gas emissions through deep carbon reductions in order to achieve carbon neutrality by 2045.

Preliminary Recommendations for the **Built Environment**

Obadiah Bartholomy | SMUD & Built Environment TAC Lead

Agenda

- Vision
  - ⇢ Key Principles
  - ⇢ Catalyzing Concept
- Milestones & Strategies
  - ⇢ Existing Buildings
  - ⇢ New Construction
  - ⇢ Land Use
  - ⇢ Green Space
- Potential Funding Sources

Draft Vision

We envision compact, walkable communities that integrate efficient design, localized renewable energy systems, and nature-based solutions, leveraging carbon neutrality to achieve positive health, equity, economic development, and resiliency outcomes. Investments will match priorities and strategies will be pursued in a manner that considers both costs, including avoided costs, and benefits.

Communities will be fossil-free and fully electrified with an abundance of green space and affordable housing, designed to prioritize vibrant public spaces, multimodal and active transportation, resource conservation, and quality of life for all.

Key Principles

- Authentically and inclusively engage residents, stakeholders, businesses and community leaders
- Prioritize investments and projects in existing communities and existing development, particularly in disadvantaged communities
- Align all local plans with the Commission's recommendations by 2025
- Forge regional partnerships to support ambitious action on climate change
- Enable and implement the ambitious actions necessary to achieve the recommended carbon neutrality goal

Catalyzing Concept

Zero Carbon Innovation Zones

- Zoning category to attract R&D and investment, to create EcoVillages that embody Living Community Challenge Framework
- Demonstrate regenerative approach to development: energy, water, waste, food systems, and more
- Scale out experimentation with tiny houses, micro-dwelling clusters, deep retrofits of existing buildings and mixed use infill
- Position our communities at the forefront of innovation in sustainable architecture and a model for the state

A Key Challenge In Focus

Building Decarbonization

- Emissions from natural gas combustion for appliances remain the biggest challenge
- Like many cities in California, these recommendations look to electrification to address this challenge
- Many co-benefits of eliminating combustion
- SMUD offers generous incentives aimed at Market Transformation, but need local policy support

Existing Buildings: Residential

Draft 2030 Milestones

- 33% of all homes to be all electric and fossil-fuel free
  - ⇢ Proportional share of single-family, multi-family, and low-income
- 50% of replacement space/water heating is electric
- Allocate 30% of existing parking for vehicle charging

Existing Buildings: Residential

Key Strategies

- Develop a pathway to a decarbonization code requirement
- Establish a code enforcement mechanism – Point-of-Sale Inspection
- Deliver energy efficiency and electrification together

Existing Buildings: Commercial

Draft 2030 Milestones

- Eliminate fossil fuel use in 33% of existing buildings
- Achieve 30% reduction in commercial building carbon emissions

Existing Buildings: Commercial

Key Strategies

- Expand building benchmarking and develop carbon rating system & targets
- Work towards all-electric code requirement for equipment replacement for smaller buildings and 30% reduction performance target for larger buildings by 2030
- Establish an enforcement mechanism – point of sale or lease, or fee-based approach if feasible

New Construction

Draft 2030 Milestones

- 100% of new residential homes, and 80% of new commercial buildings, be carbon neutral
- All new construction garages have EV charging and 30% of new commercial and multifamily spaces equipped with EV chargers

New Construction

Key Strategies

- Develop code requirement for all new construction to be 100% all-electric
- Establish reach-codes for EV charging infrastructure in multi-family and commercial buildings

Land Use

Draft 2030 Milestones

- Establish and enforce urban growth boundary and agricultural easements for the region (by 2025)
- Achieve an additional 35,000 new dwelling units & triple current affordable housing units within 1/2 mile of high-quality transit
- 70% of City households pay no more than 35% of income for housing

Land Use

Key Strategies

- Develop a regional urban growth boundary limited to existing urban development and already-approved development projects
- All planning and zoning to prioritize Transit-Oriented-Development, and increase allowable density for single-family designations
- Create a locational efficiency metric to prioritize or incentivize developments (e.g. based on walkscore, VMT, CO_2e, siting, etc.)

Green Space

Draft 2030 Milestones

- Achieve an average tree canopy of 25%
- Provide a park or green space within a 5-minute walk of residences

Green Space

Key Strategies

- Plant 200,000 trees in disadvantaged communities and support with tree care education programs
- Purchase/use blighted or distressed properties to expand green space
- Manage public open space and parks for enhanced carbon sequestration

Potential Funding Sources

- Coordinate local efforts and pursue existing state and federal grant opportunities, including California Climate Investment programs
- Increase taxes and fees on vacant, blighted, abandoned, or unoccupied properties. Transition property tax obligations from buildings to land and increase taxes for undeveloped land within the City
- Adopt a financing district for encouraging development on abandoned, blighted, or undeveloped properties within the City
- Work with the State to establish a statutory exemption from CEQA for projects that meet the Commission's climate and equity goals, prioritize infill development, and reduce sprawl.
- Fully implement SB-743 and establish a VMT fee to support equitable, VMT-reducing projects.
- Fees for buildings in the lowest tier of building carbon emissions rating system (reference existing commercial section) which could be paid into a fund for financing upgrades.

Key Takeaways

- Substantially increase efforts to promote more efficient land use and increase green space
- Adopt transformative policies to promote all-electric buildings
  - ⇢ Many important co-benefits (e.g., health, air quality, cost savings)
  - ⇢ Technologies exists today
  - ⇢ Incentives available
  - ⇢ Not alone, many cities doing this
- Fees and other pricing mechanisms can provide a price signal and fund transition from fossil fuels

Pathways to Deep Carbon Reductions in Oakland

Providing the financial, strategic, and technical basis for achieving ambitious climate goals.

Daniel Hamilton
Sustainability Director
City of Oakland, CA

Fundamentals of a New Oakland Climate Strategy

3 Needs to Prepare a Truly Transformative Climate Policy

1. Understand the True and Total Cost of Actions
2. Understand How Costs are Met (and Options)
3. Prioritize Actions by Cost Effectiveness and Impact

Understand the True Costs of Climate Action

Cost Estimation has only recently been done in Climate Planning

- **Governmental Costs**
  - City of Oakland
  - City of La Mesa
  - San Diego County
- **Full Social Costs**
  - City of Toronto

City of La Mesa

Table 1. Dollar per MT CO_2e to Achieve 2020 GHG Reductions for CAP Measures

CAP Measure	Administrator	Participant	Non-Participant	Measure	Society	GHGs Reduced in 2020 (MT CO_2e)
	A	P	NP	A+P+NP=M	M+E=S	
Energy						
E-1: Building Retrofit Program	($1)	($160)	($126)	($287)	($282)	4,200
E-2: Shade Tree Program	($1,763)	($410)	-	($2,194)	($1,761)	<1
E-3: Municipal Energy Efficiency Goal	($59)	$232	($17)	$157	$179	30
E-4: Public Lighting	($13)	$125	-	$112	$142	170
E-5: Solar Photovoltaic Program	($1)	$146	($181)	($36)	($14)	2,240
E-6: Solar Hot Water Program	($59)	($30)	($118)	($215)	($191)	30
E-8: Zero Net Energy Construction	($1)	($143)	($69)	($212)	($186)	806
Transportation and Land Use						
T-1: Bicycle and Pedestrian Infrastructure Development	($95)	$21	-	($73)	($23)	50
T-3: Transportation Demand Management Program	($21)	$229	($28)	$182	$246	2,000
T-4: Mixed-Use and Transit-Oriented Development	($43)	$22	-	($21)	$46	1,890
T-5: Alternative Refueling Infrastructure Development	($89)	($22)	($28)	($129)	($94)	150
T-6: Municipal Fleet Transition	($809)	$84	-	($716)	($692)	10
Water						
W-1: Urban Water Management Plan Programs	($8)	$644	($209)	$427	$453	450
Solid Waste						
SW-3: 75% Waste Diversion Strategy	($3)	($59)	-	($58)	($29)	5,350
Agriculture and Conservation						
G-1: Urban Forest Management	($21)	($94)	-	($115)	($75)	50
G-2: Expanded Urban Forestry Program	($9)	($162)	-	($162)	($143)	745
Total	($11)	$8	($58)	($61)	($26)	18,171

City of Toronto

TransformTO *Leading by example*

Business Case 4.1: Expand energy retrofits at City facilities

Type of business case:	Enhancement of existing program	**Lead City Division:**	Environment & Energy

Objective: To scale-up energy efficiency retrofits of the City-owned real estate portfolio to achieve energy savings of up to 50%, including low-carbon fuel switching (i.e. geothermal).

Action: Starting in 2017, an accelerated work plan will be implemented for screening potential buildings for retrofit opportunities, conducting more energy audits, completing business cases and managing contractors responsible for the installation of energy efficiency measures.

Risk/Dependency/Limitation: Energy price trends, capacity of geothermal energy industry and results of the city-wide real estate review are underlying factors and limitations that will impact this strategy.

Alignment with Toronto's Strategic Actions:
- ✓ Support Environmental Sustainability
- ✓ Good governance

Scenario	Projected Capital 2017-2020 ($000)	Net benefit (cost) over project lifetime (NPV/2016$)	Emission Reduction Potential by 2020 (tonnes CO_2e)	Total Operating 2017-2020	
				Total Expenditure ($000)	Staffing Level by 2020 (# of FTEs)
Low	$84,000	($54,000)	15,000	$1,900	3.0
High	$147,000	$18,500	40,000		

Potential Capital Funding Sources:
- ✓ Sustainable Energy Plan Financing
- ✓ Cap & Trade Proceeds
- ✓ Provincial/Federal infrastructure funding

Fundamentals of a New Oakland Climate Strategy

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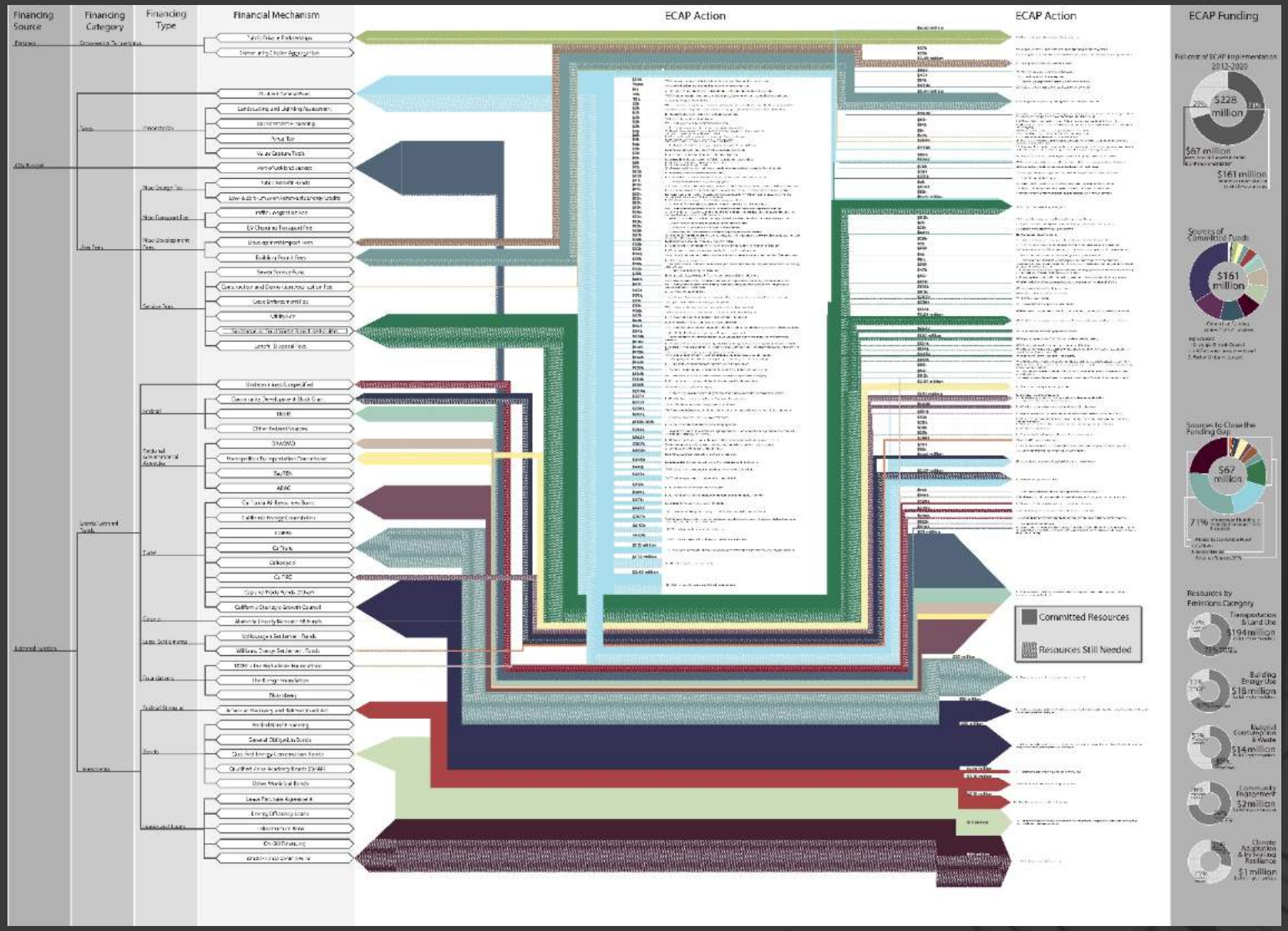
Understand How the Costs are Met

Maps sources of financing to each of the 175 Action Items in ECAP

- $228M in total cost
  - $161M spent to date
  - $67M remaining through 2020
- $194M in transportation and land use
- Demonstrates the dozens of sources for funding climate action, from General Fund and user fees to grants, philanthropy, and partnerships



Fundamentals of a New Oakland Climate Strategy

3 Needs to Prepare a Truly Transformative Climate Policy

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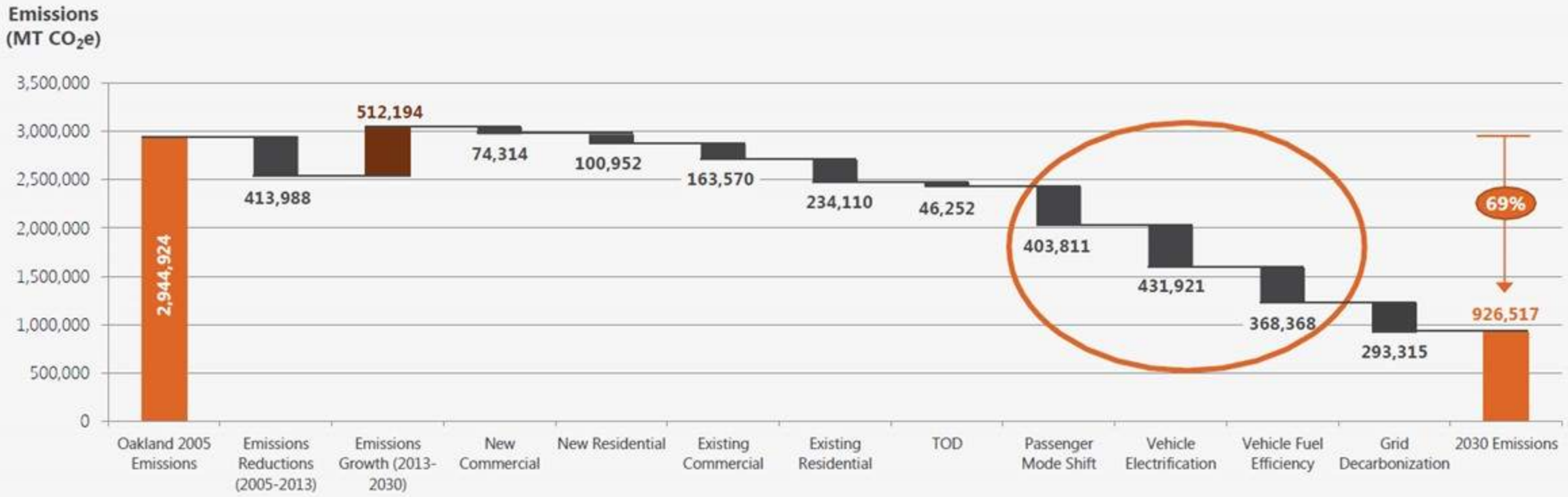
Prioritize Actions by Cost Effectiveness and Impact

Transportation offers the largest opportunities for GHG reductions in the 2030 Deep Decarbonization scenario, but Oakland must make progress in all areas

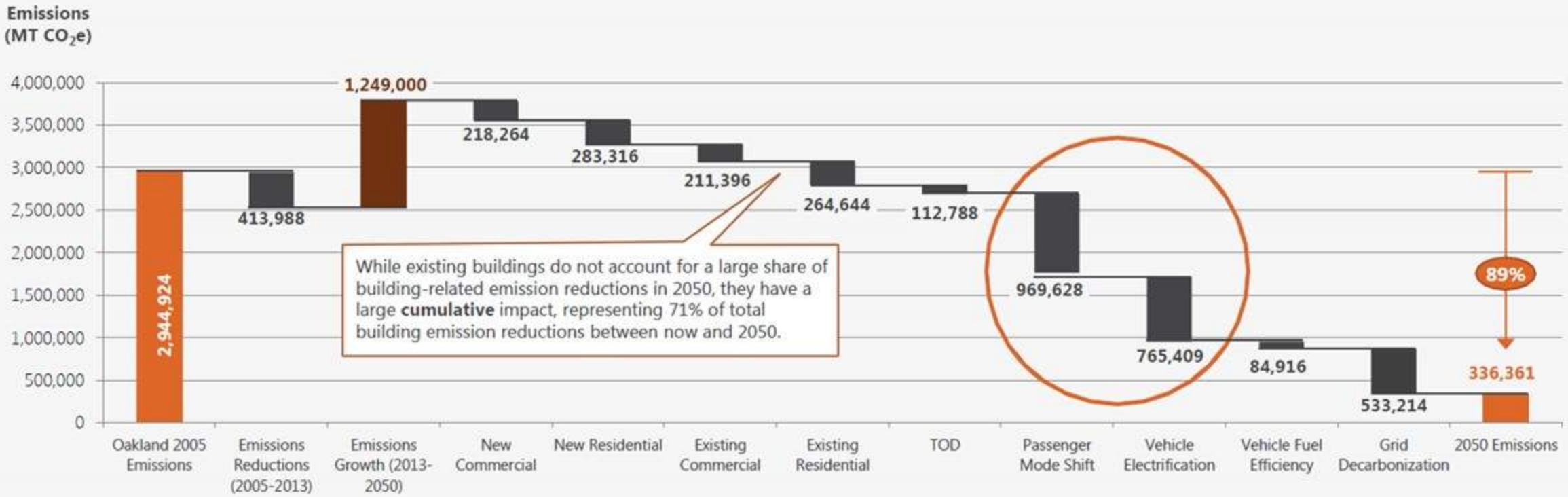
2030 Emissions Reductions in Deep Decarbonization Scenario



Source: Bloomberg Associates Analysis, CURB

Shifting to less carbon intensive modes of transport and electrifying vehicles offer the largest GHG reductions in the 2050 Deep Decarbonization scenario

2050 Emissions Reductions in Deep Decarbonization Scenario



Source: Bloomberg Associates Analysis, CURB

Filtering actions by overall GHG reduction potential enables the City to target its efforts for maximum impact

To reduce building emissions, significant City action is needed to electrify Heating Systems and improve Insulation and Windows in existing buildings.

Extent to Which City Action is Required to Achieve Deep Decarbonization

Building System	Overall GHG Reduction Potential	New Buildings				Existing Buildings			
		Residential		Commercial		Residential		Commercial	
		2030	2050	2030	2050	2030	2050	2030	2050
Lighting	2%								
Appliances	1%								
Space Heating	**18%**								
Water Heating & Fixtures	3%								
Cooling	1%								
Building Envelope	**12%**								

Legend

- **Low** — Minimal City action required to achieve goals
- **Medium** — Moderate City action required to achieve goals
- **High** — Significant City actions required to achieve goals
- Priority City action

Source: Bloomberg Associates Analysis, CURB

The CURB analysis shows that a few changes are key to reducing Oakland's GHG emissions

While cities must take an "all of the above" approach to climate action to achieve deep reductions, the analysis shows that not all actions are equal. Given the projected changes that will occur to Oakland's building and transportation systems as new technologies are adopted and State and Federal regulations take effect, **there are a few changes that have an outsized impact on the city's GHG emissions**.

1. **Shift to 100% carbon-free energy**
2. **Eliminate fossil fuels from building heating systems**
3. **Improve building insulation and windows**
4. **Significantly shift people away from private auto trips**
5. **Accelerate the electrification of vehicles**

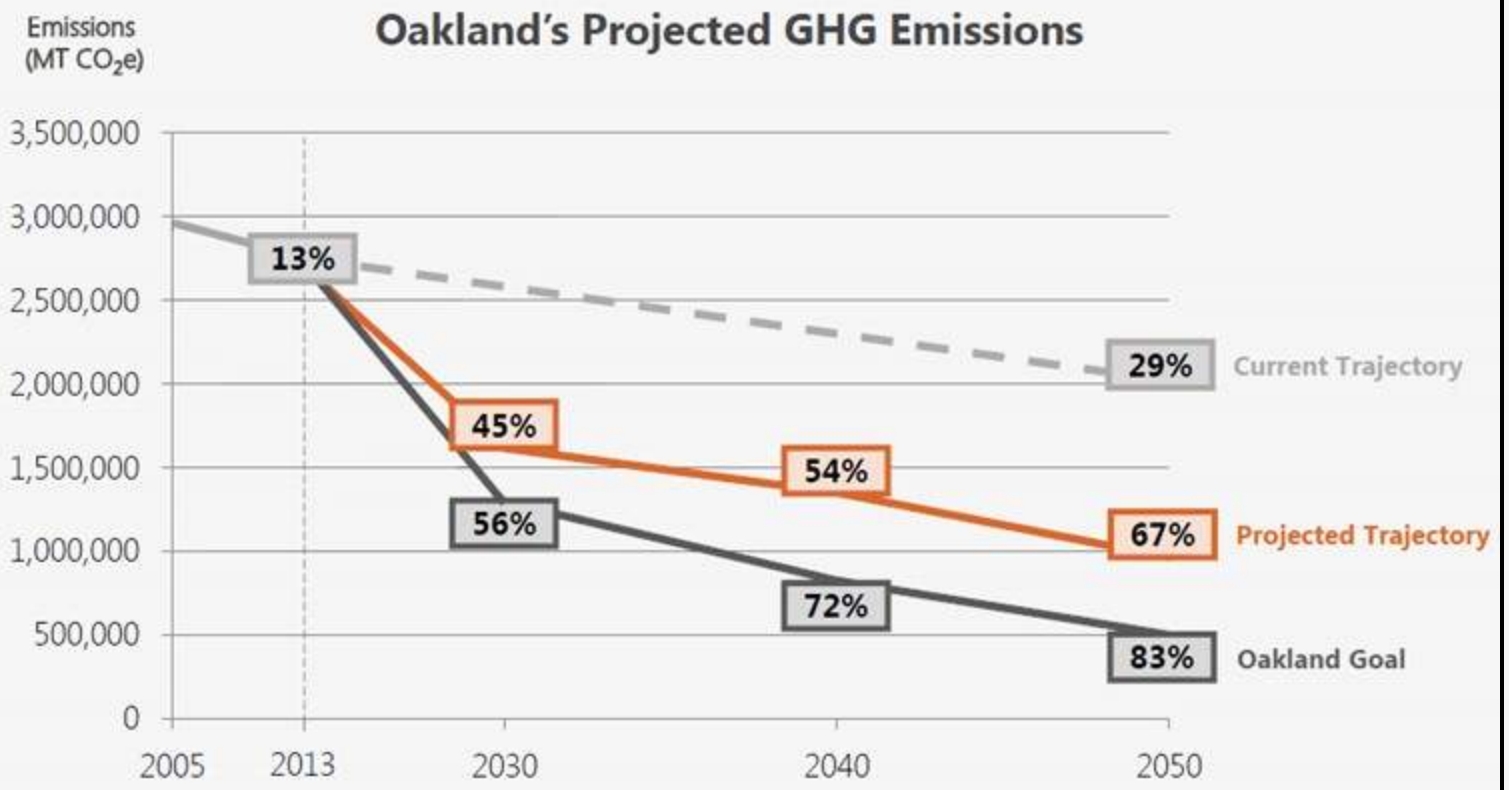
At its current pace, Oakland will not meet its 2050 GHG reduction goal

Key Findings

Projected emissions will go down significantly based on market forces, existing and likely policy, and regular replacement of building and transportation stock.

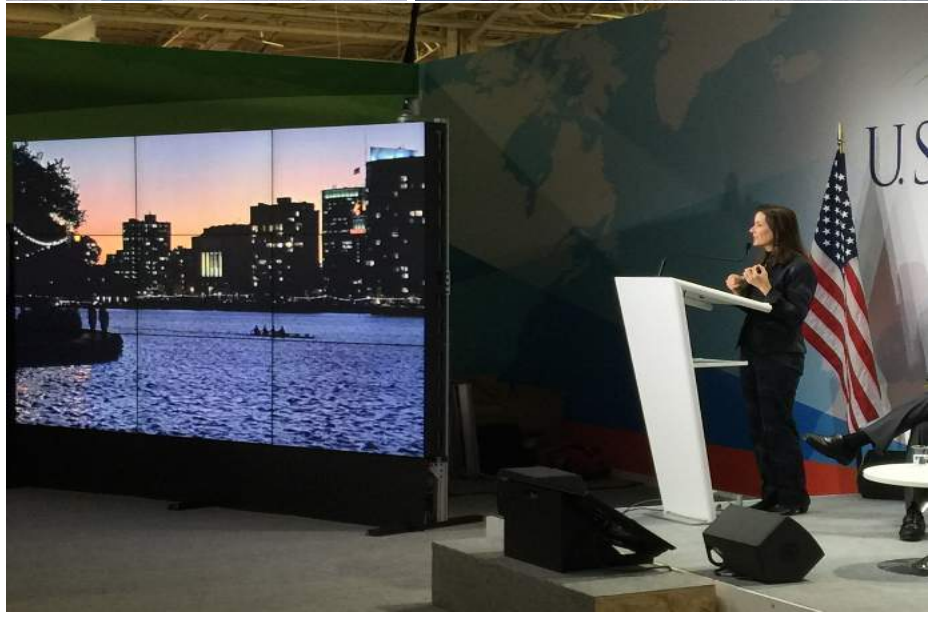
City increment is lower and much more manageable than traditionally described.

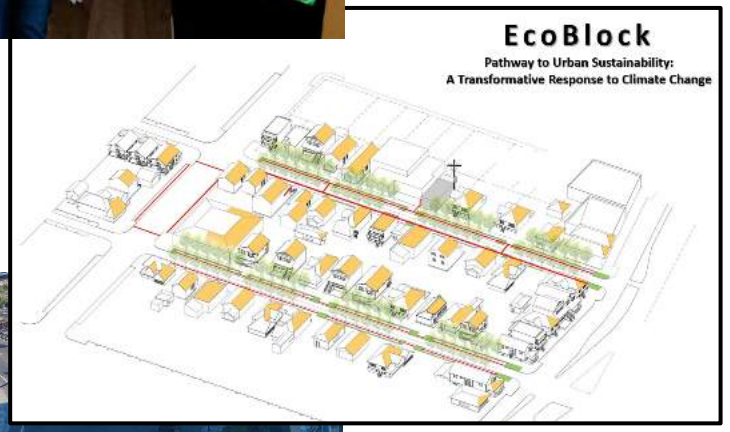
Oakland City Council adopted 2030 and 2050 targets consistent with this analysis and recommendation.

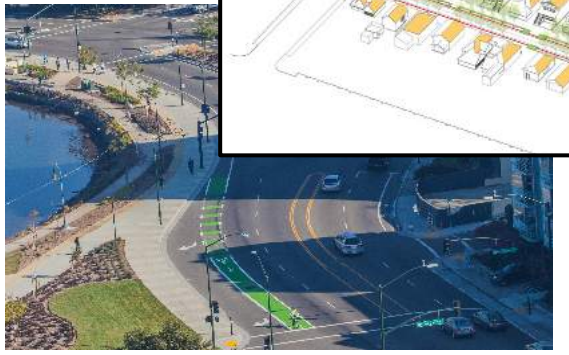


Source: Bloomberg Associates Analysis, CURB

With clear costs, a detailed financing strategy, and cost-effective solutions, the community is ready to lead conversations about how to equitably implement ideas that enhance climate justice and address broad social needs and priorities.







Discussion

1. Based on the Built Environment TAC recommendations, do you think the identified milestones and strategies are ambitious enough to achieve our carbon zero vision?
2. How can we support these strategies in a way that aligns with our economic development goals?
3. Are there any specific topics or issues that you would like the Built Environment TAC to address?

Public Comments

Thank you!

www.lgc.org/climatecommission

City of SACRAMENTO

CITY OF WEST SACRAMENTO