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CITY OF OAKLAND

AGENDA REPORT

2009 JUN 11 PM 4: 07

TO: Office of the City Administrator
ATTN: Dan Lindheim
FROM: Public Works Agency
DATE: June 23, 2009

RE: **Resolution Approving Preliminary Planning Targets For Development Of The Draft Oakland Energy And Climate Action Plan**

SUMMARY

An Oakland Energy and Climate Action Plan (ECAP) is being developed to identify, evaluate and recommend prioritized actions to reduce energy consumption and greenhouse gas (GHG) emissions in Oakland. The ECAP will identify energy and climate goals, clarify policy direction, and identify priority actions for reducing energy use and GHG emissions in a framework that supports implementation and funding decisions.

City Council direction on preliminary GHG reduction planning targets is needed to facilitate the next phase of developing the ECAP. Staff recommends the City Council approve a preliminary planning GHG reduction target for the year 2020 at 36% below 2005 levels, on a path toward reducing GHG emissions by 83% below 2005 levels by 2050. This recommendation has been developed based on recent climate science and community input at several workshops and meetings.

Following approval of a preliminary planning target, staff will analyze many possible GHG reduction actions and develop a draft ECAP recommending a prioritized set of actions to achieve the 36% below 2005 GHG emissions by 2020 target. A draft ECAP will be presented to City Council in fall 2009 at which point formal policy goals and priority actions can be considered.

Staff anticipates that the final Oakland Energy and Climate Action Plan will demonstrate Oakland's leadership on energy, climate and sustainability issues, while offering an effective prioritized roadmap for action to 2020.

FISCAL IMPACT

No fiscal impacts are associated with approving a preliminary planning target for developing the Oakland Energy and Climate Action Plan.

BACKGROUND

The City of Oakland is committed to fulfilling its vision of becoming a model sustainable city. Optimizing the use of energy and minimizing associated energy costs and GHG emissions are important components of this vision. Under the leadership of the Mayor and City Council, and spearheaded by the Public Works Agency, the City is developing the ECAP to identify, evaluate

Item #: _____
Public Works Committee
June 23, 2009

and prioritize GHG reduction actions for City operations and on a citywide basis. The purpose of the ECAP is to identify energy and climate goals, clarify policy direction, and identify priority actions for reducing energy use and GHG emissions in a framework that supports implementation and funding decisions.

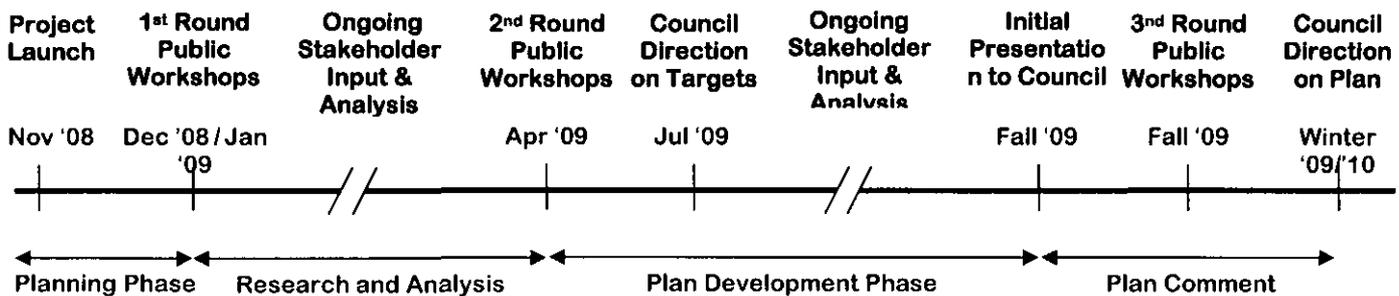
Although the City has worked for many years to reduce energy use and GHG emissions, this is the City’s first effort to establish formal energy and climate goals supported by a comprehensive plan of action. This analysis focuses specifically on actions the City government can take to foster GHG reductions in Oakland, primarily in the areas of transportation and land use, building energy use, consumption and waste reduction, and community engagement.

ECAP Development Process Overview

As part of the Williams Energy Settlement funding, City Council authorized funding to enlist ICLEI – Local Governments for Sustainability to assist the City with developing a climate action plan. Since fall 2008, staff has gathered public input, performed research, and analyzed potential GHG reduction targets and actions that could help to achieve those targets.

After receiving City Council direction on a preliminary GHG reduction planning target, staff will analyze many possible GHG reduction actions and develop prioritized recommendations on how best to achieve the targets. A draft version of the ECAP will be presented to the City Council in fall 2009. It is anticipated that an additional round of public workshops will be held for input prior to preparation of the final draft ECAP.

Below is the timeline for the development of the ECAP.



Stakeholder Engagement

Four public workshops have been held thus far to gather public input on the development of the ECAP. Approximately 200 people attended these workshops, representing a variety of interests, including local nonprofit and advocacy organizations, government agencies, utilities, interest groups, private companies, and individual citizens. The first two workshops (held in December

2008 and January 2009) covered potential ways to reduce GHG emissions and issues to be considered while developing the ECAP. Two workshops held in April 2009 covered potential GHG reduction targets and actions to be evaluated for potential inclusion in the ECAP. Input from these workshops is being used to inform the ECAP development process and formulate evaluative criteria that will be used in considering actions for inclusion in the ECAP.

Information from all four workshops, along with other project information, has been posted to the City's website at www.sustainableoakland.com. Additional public input has been gathered through this website, as well as from targeted focus group meetings. A third round of public workshops is planned for fall 2009, after the draft ECAP is presented to the Council.

KEY ISSUES AND IMPACTS

A clear scientific near-consensus has emerged regarding the dangers of increasing concentrations of greenhouse gases in the Earth's atmosphere and the significant role that anthropogenic (human caused) sources of GHG emissions are playing in increasing those concentrations. Tremendous collective action will be necessary in the near term on a global scale to reduce GHG emissions to safe levels.¹ The latest report of the Intergovernmental Panel on Climate Change (IPCC), a body of the world's most authoritative climate scientists, suggests that industrialized countries like the U.S. will need to reduce GHG emissions to levels 25-40% below 1990 levels by 2020 and 80-95% below 1990 levels by 2050 in order to achieve a level of climate stabilization that includes relatively minor consequences.²

Oakland's GHG emissions would need to be reduced by at least 36% below 2005 levels by 2020, and 83% below 2005 levels by 2050, to align with these IPCC recommendations. These goals have been translated to reference Oakland's existing 2005 baseline GHG inventory as data on Oakland's 1990 emissions are unavailable.³

Recent climate policies adopted at the State level in California (e.g., AB 32, SB 375) aim to reduce statewide GHG emissions to 1990 levels by 2020.⁴ Executive Order S-3-05 issued by Governor Schwarzenegger calls for statewide GHG reductions of 80% below 1990 levels by 2050.⁵ A variety of State-driven strategies are being developed and implemented to help reach these statewide goals. Additional and complementary local actions will be needed to help achieve these goals.

¹ Further discussion of the potential impacts of climate change and GHG reduction scenarios is provided in Attachment C.

² Gupta, S., D. A. Tirpak, N. Burger, J. Gupta, N. Höhne, A. I. Boncheva, G. M. Kanoan, C. Kolstad, J. A. Kruger, A. Michaelowa, S. Murase, J. Pershing, T. Saijo, A. Sari, 2007: Policies, Instruments and Co-operative Arrangements. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

³ Further information on Oakland's 2005 GHG inventory and translation of target baselines from 1990 to 2005 are provided in Attachment A and Attachment C.

⁴ California Air Resources Board. Climate Change Program. <http://www.arb.ca.gov/cc/cc.htm>

⁵ State of California Executive Department. Executive Order S-3-05. <http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm>

Many of the causes of climate change occur locally in Oakland, just as they occur in communities all over the world. GHG emissions result from the combustion of fossil fuel-derived energy sources commonly used to heat, light and power our buildings, as well as to move people and goods. Other sources of GHG emissions include methane produced by the decomposition of waste. Each of these sources of GHG emissions can be controlled or influenced to some extent through local policy mechanisms and other actions under the domain of municipal governments.

The City of Oakland has long embraced its responsibility to provide leadership on reducing energy use and GHG emissions, and is continuing to implement policies and actions to achieve further GHG reductions. In developing the ECAP, the City is now considering establishing formal targets for reducing citywide GHG emissions, and how to best prioritize a comprehensive approach to meeting those targets.

Recommendation: 36% Reduction from 2005 GHG Emissions by 2020

It is recommended that the City Council approve preliminary planning targets for development of the Energy and Climate Action Plan aimed at reducing citywide GHG emissions by the equivalent of 36% from 2005 levels by the year 2020, on a path toward reducing GHG emissions by approximately 83% of 2005 levels by 2050. This recommendation has been developed based on publications of the Intergovernmental Panel on Climate Change and community input at several public workshops and meetings.

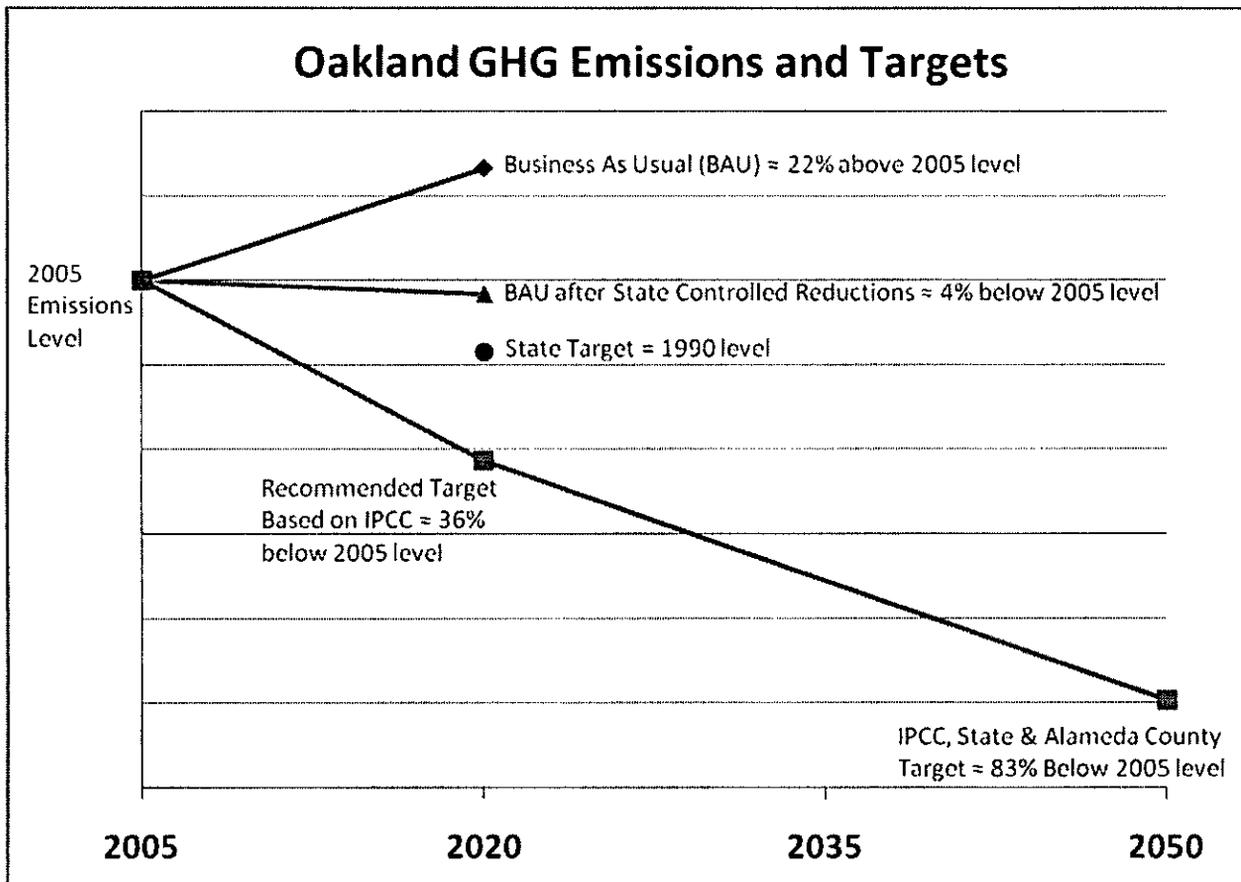
Staff believes these are stretch goals in line with a level of GHG reductions capable of helping to achieve an acceptable level of climate stabilization, if undertaken simultaneously throughout the industrial world. Based on IPCC documented science, by meeting such targets, the Oakland community would fulfill its fair share of GHG reductions, and would model this level of reductions for other communities.

Other jurisdictions in California have adopted a wide range of GHG reduction targets. For example, the California Air Resources Board has encouraged local governments to adopt GHG reduction targets of 15% below current levels by 2020.⁶ The City of Berkeley is on a path to reduce GHG emissions by ~25% from 2005 levels by 2020 en route to a longer term goal of reducing GHG emissions by 80% by 2050, as outlined in its recently approved Climate Action Plan.⁷

⁶ California Air Resources Board. "Climate Change Proposed Scoping Plan."
<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

⁷ Further discussion of GHG reduction targets adopted by other jurisdictions is provided in Attachment B.

Based on Oakland's baseline 2005 GHG inventory totaling approximately 3 million metric tons of CO₂-equivalent (CO₂e) emissions, and current forecasts of business-as-usual emissions growth, reducing GHG emissions by the equivalent of 36% below 2005 levels by 2020 will require taking actions that cumulatively add up to approximately 1.1 million metric tons of CO₂e reductions.



A wide variety of potential actions through which the City can foster GHG reductions in Oakland are being considered for potential inclusion in the draft ECAP. Potential actions under consideration include programs, projects and policies (e.g., traffic signal synchronization, energy efficiency requirements for new construction), primarily in the areas of transportation and land use, building energy use, consumption and waste reduction, and community engagement. Ideas for some potential actions have been developed based on adopted City policy documents (e.g., General Plan, Bicycle and Pedestrian Master Plans, Zero Waste Strategic Plan) and other relevant documents (e.g., Oil Independent Oakland Task Force 2020 Plan), as well as community input and lessons drawn from other local governments.

Consideration of Actions Reducing GHG Emissions Outside of Oakland

Some policies and actions that could be undertaken by the Oakland city government might result in significant GHG reductions in other geographic communities, or in the future, in ways that are difficult to represent in a traditional inventory of Oakland citywide GHG emissions. For example:

- Fostering population movement to dense, transit-served urban centers like Oakland may lead to statewide reductions in vehicle miles traveled and associated GHG emissions (while possibly increasing vehicle use and GHG emissions within Oakland).
- Fostering decreased consumption of material resources can help to conserve fossil fuel energy use associated with production and transportation of goods outside of Oakland.
- Fostering decreased generation of waste sent to landfill may lead to reductions in landfill methane in another geographic location where Oakland’s waste is sent.

In many cases these ‘lifecycle’ benefits occur elsewhere and can be difficult to quantify accurately. In situations where the GHG reduction benefits from these kinds of actions can be estimated at a sufficient level of accuracy, they will be reported as part of the story of Oakland’s progress in fostering GHG emissions reductions.

PROGRAM DESCRIPTION

Preliminary GHG reduction planning targets are needed to facilitate development of the draft ECAP. Staff will develop a draft ECAP recommending prioritized actions to achieve these targets. In addition, staff will use a set of evaluative criteria that were developed based on community input to qualitatively and quantitatively evaluate actions.

Evaluative Criteria for Developing the Energy and Climate Action Plan

Many actions will be necessary to meet any GHG reduction target. The evaluative criteria outlined in Table 1 will be used to evaluate potential GHG reduction actions and recommend prioritization of these actions to help guide future planning and budgeting discussions. These nine evaluative criteria capture the range of issues expressed by the community at the four public workshops held to date.

Table 1. Proposed Evaluative Criteria for Considering Potential Energy and Climate Actions

Evaluative Criteria	Issues to Consider
GHG Reduction Potential	<ul style="list-style-type: none">• Magnitude of GHG reductions• Measurability of reductions

Implementation Cost and Access to Funding	<ul style="list-style-type: none"> • Cost to City budget • Cost to other stakeholders • Access to funding
Financial Rate of Return	<ul style="list-style-type: none"> • Return on investment to City and/or stakeholders implementing the action • Protection from future costs
GHG Reduction Cost Effectiveness	<ul style="list-style-type: none"> • Relative cost/benefit assessment in terms of estimated GHG reductions
Economic Development Potential	<ul style="list-style-type: none"> • Job creation potential • Business development and retention potential • Workforce development potential • Cost savings to community • Education benefits for community
Creation of Significant Social Equity Benefits	<ul style="list-style-type: none"> • Benefits to disadvantaged residents in the form of jobs, cost savings, and other opportunities • Reduction of pollution in heavily impacted neighborhoods • Equity in protection from impacts of climate change
Feasibility & Speed of Implementation	<ul style="list-style-type: none"> • Degree of City control to implement the action • Level of staff effort required • Resources required • Degree of stakeholder support • Amount of time needed to complete implementation • Time period during which implementation can begin
Leveraging Partnerships	<ul style="list-style-type: none"> • Leverage partnerships with community stakeholders • Leverage partnerships on a regional, state or national level • Facilitate replication in other communities
Longevity of Benefits	<ul style="list-style-type: none"> • Persistence of benefits over time • Opportunity to support future additional benefits

Revisiting Climate Targets and Plans

It is reasonable to assume that climate science will continue to evolve in the coming years and revisions to the target recommended in this report may be appropriate. The draft ECAP will provide milestones to periodically revisit GHG reduction targets in order to consider ongoing scientific, policy and technological developments, as well as progress toward the goal.

Consideration of Alternate Targets and Sub-Targets

It may be appropriate to consider alternate targets and/or sub-targets regarding GHG reductions associated with specific sectors (e.g., residential, commercial), sources (e.g., electricity, petroleum, methane), or locations (e.g., minimum percentage of overall target that must be directly measurable within Oakland's traditional GHG inventory) after reviewing the actions recommended in the draft ECAP. Framing targets on a per capita basis as well as an absolute basis could also be considered to enable future reflection on GHG reduction process, irrespective of population migration patterns.

SUSTAINABLE OPPORTUNITIES

Economic: Many potential GHG reduction actions can save money through improved efficiency and decreased waste, as well as other economic benefits through job creation and business attraction. Each potential action includes costs and benefits that will be weighed during development of the ECAP.

Environmental: Reducing GHG emissions can create significant environmental benefits by helping to reduce the impacts of climate change, as well as potentially conserving water and natural resources, reducing impacts associated with landfills, improving local air quality, reducing ecological impacts associated with pollution, and many others.

Social Equity: Reducing GHG emissions can result in social equity benefits, such as through the creation of green jobs, reduction in local air pollutants, and targeting of programs to underserved communities. Staff plans to include social equity considerations in the process of prioritizing actions during development of the ECAP.

DISABILITY AND SENIOR CITIZEN ACCESS

This report and resolution will not have any direct impact on access for persons with disabilities or senior citizens.

RECOMMENDATION AND RATIONALE

Staff recommends that the City Council adopt the attached resolution approving preliminary planning targets for development of the Energy and Climate Action Plan aimed at reducing citywide GHG emissions by the equivalent of 36% from 2005 levels by the year 2020, on a path toward reducing GHG emissions by approximately 83% of 2005 levels by 2050. This recommendation has been developed based on publications of the Intergovernmental Panel on Climate Change and community input at several public workshops and meetings.

A clear planning target will enable staff to develop the draft ECAP recommending prioritized actions needed to meet the target.

ACTION REQUESTED OF THE CITY COUNCIL

Staff recommends that the City Council approve the Resolution Approving Preliminary Planning Targets for Development of the Draft Oakland Energy and Climate Action Plan.

Respectfully submitted,



Raul Godinez II, P.E.
Director, Public Works Agency

Reviewed by:
Brooke A. Levin, Assistant Director

Reviewed by:
Susan Katchee, Environmental Services Manager

Prepared by:
Garrett Fitzgerald, Sustainability Coordinator
Environmental Services Division

- Attachment A: Overview of Oakland's 2005 GHG Emissions
- Attachment B: Review of GHG Reduction Targets Established by Other Jurisdictions
- Attachment C: Identifying an Oakland Preliminary Planning Target for GHG Reduction

APPROVED AND FORWARDED TO THE
PUBLIC WORKS COMMITTEE



Office of the City Administrator

Item #: _____
Public Works Committee
June 23, 2009

Overview of Oakland's 2005 GHG Emissions

Existing estimates of GHG emissions in Oakland are being considered in the context of development of the Energy and Climate Action Plan. Further information on efforts to date to quantify GHG emissions in Oakland is provided below.

Challenges Associated with Quantifying Oakland's GHG Emissions

Many local governments in California and throughout the country have developed greenhouse gas (GHG) emission inventories for the purpose of documenting performance and assisting the identification of opportunities to reduce emissions. However, no official protocol has been developed and imposed on local governments to guide quantification of GHG emissions associated with geographically defined communities.

While widespread agreement exists that emissions associated with building energy use and transportation fuel should be counted, precise methodologies differ in how this accounting is done. Further, methodologies differ even more widely regarding GHG accounting associated with solid waste decomposition and recycling, regional ports located within or outside the community (e.g., airports, seaports), non-road vehicle traffic (e.g., airplanes, trains, ships), pass-through highway vehicle travel, upstream and downstream lifecycle emissions associated with activity occurring in the community, and other sources. Data for many of these sources can be difficult to obtain and relate to a particular geographic community, yet all can be significant sources of GHG emissions. Debate also exists as to whether community-scale GHG accounting should seek to include all GHG sources within each community or focus on areas of most policy relevance to the local government performing the assessment, establishing reduction targets and developing plans.

With the assistance of ICLEI – Local Governments for Sustainability, an Oakland GHG emissions inventory was developed for the year 2005, following an approach similar to that used by other jurisdictions. Under Oakland's traditional GHG inventory methodology, emissions associated with building energy use and transportation occurring within Oakland's geographic boundaries have been included, along with methane that will result from landfill decomposition of Oakland's solid waste, regardless of the location of those landfills. All highway travel within Oakland's boundaries has been included in Oakland's inventory, despite the limited policy-relevance of the portion of that travel comprised of vehicles that neither begin nor end their trips in Oakland. Non-road vehicle travel and other potential GHG sources have been excluded from the inventory due to data limitations and other factors.

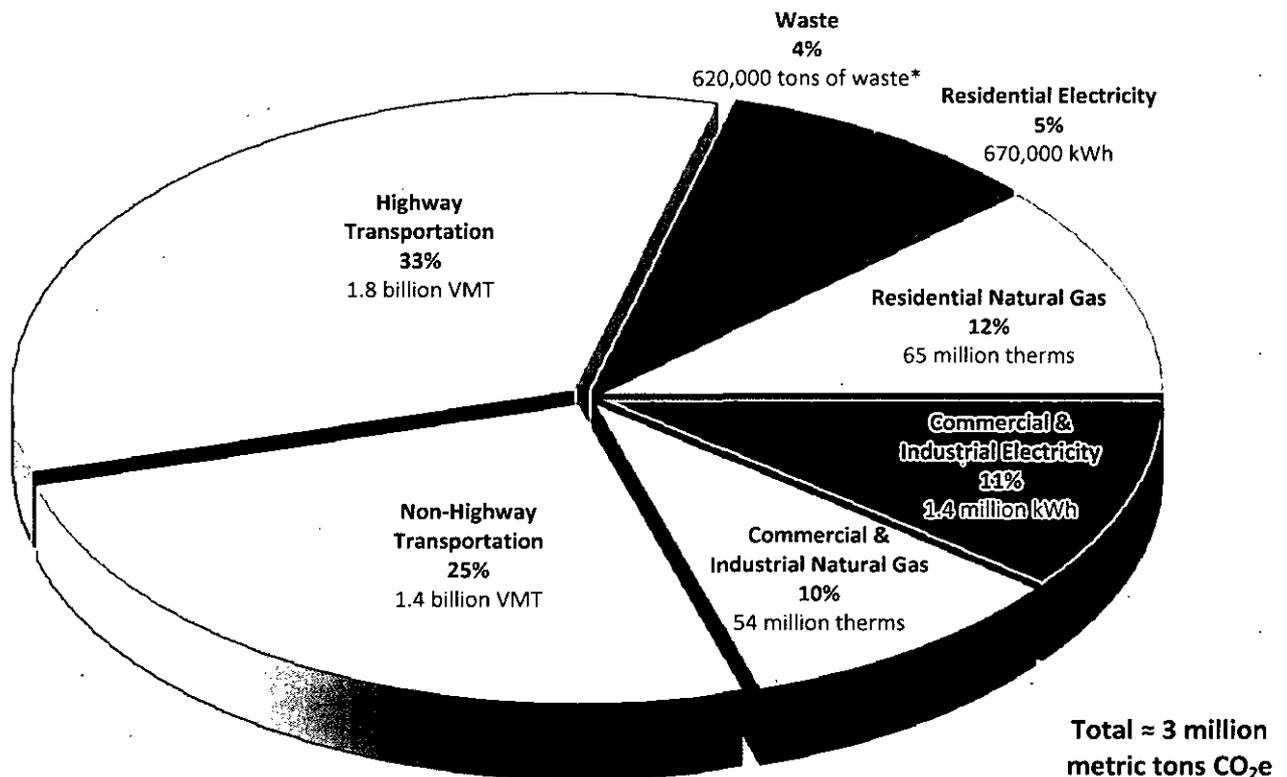
It is reasonable to assume that GHG inventory methodologies will continue to evolve in the coming years as driven by changes in data availability, scientific understanding, and the application of GHG inventories. For example, the California Air Resources Board is currently planning to develop a voluntary protocol to guide local governments in estimating GHG emissions associated with their geographically defined communities. This process is slated to begin in summer 2009, with a completion date to be determined.

As GHG inventory methodologies evolve, Oakland's baseline 2005 and other inventories may be adjusted to comply with improved methodologies. It will be important to maintain an ability to compare GHG emissions over time in a meaningful and appropriate method to allow for demonstration of progress in reducing GHG emissions. For this reason, GHG reduction targets are defined in terms of percentages of a baseline rather than absolute tons of GHG emissions to best maintain relevance.

Overview of Oakland GHG Emissions in 2005

Figure A1 describes Oakland's 2005 GHG emissions based on the methodology used to estimate citywide GHG emissions to date.

Figure A1. 2005 Oakland Citywide GHG Emissions by Source – Traditional Methodology



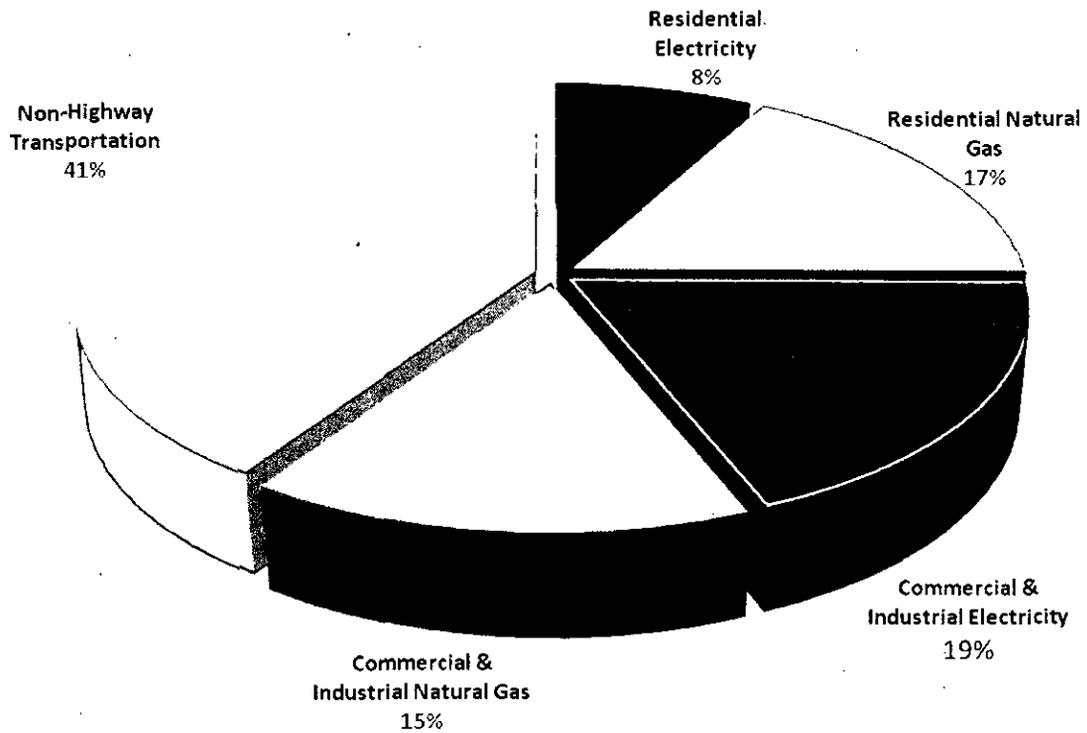
*Includes 416,827 tons of disposal plus 201,625 tons of alternative daily cover (ADC).
 Source: Oakland 2005 GHG Inventory developed by ICLEI – Local Governments for Sustainability; Updated Nov 2008

When emissions associated with all highway transportation are included, approximately 58% of Oakland's annual GHG emissions are associated with the transportation sector. Under this perspective, natural gas consumption represents approximately 22% of Oakland's GHG emissions, electricity 16%, and waste decomposition 4%.

As shown in Figure A2, these proportions can change significantly depending on which sources are considered to be part of Oakland's GHG inventory. For example, if emissions associated with

highway travel and solid waste decomposition are excluded, as is occasionally the case in other jurisdictions, transportation sources account for only 41% of Oakland's GHG emissions.

Figure A2. 2005 Oakland Citywide GHG Emissions by Source – Excluding Highway Transportation and Waste Decomposition



Review of GHG Reduction Targets Established by Other Jurisdictions

Other jurisdictions within and outside of California have adopted a wide range of community-scale GHG reduction targets. These targets reference a variety of baseline reference years and target years, influenced by the date at which each target was adopted, local data availability, and other factors. These variables make direct comparison of adopted GHG reduction targets difficult. Below is a summary of selected GHG reduction targets adopted by other institutions.

Jurisdiction	Community-Scale GHG Reduction Target
State	
California Assembly Bill 32	1990 levels by 2020 ¹
Executive Order S-3-05	80% below 1990 levels by 2050 ²
California Air Resources Board	Encourages local governments to adopt GHG reduction targets of 15% below current levels by 2020 ³
California Cities	
Berkeley	80% below 2000 levels by 2050, on a path to reduce GHG emissions by ~25% from 2005 levels by 2020
Chula Vista	20% below 1990 levels by 2010
Hayward	12% below 2005 levels by 2020, 83% below 2005 level by 2050
Los Angeles	35% below 1990 levels by 2030
Palo Alto	5% below 2005 levels by 2012 and 15% below 2005 levels by 2020
San Diego	15% below 1990 levels by 2010
Bay-Area Counties	
Alameda County	80% below ~2007 levels by 2050
Marin County	15% below 2000 levels by 2020
San Francisco	20% below 1990 levels by 2012
Sonoma County (all nine cities in Sonoma County have adopted targets at least as aggressive)	25% below 1990 levels by 2015
National, International	
Denmark	21% below 1990 levels by 2012
European Union	20% below 1990 levels by 2020
Germany	21% below 1990 levels by 2012
Luxembourg	28% below 1990 levels by 2010
Sweden	25% below 1990 levels by 2020
United Kingdom	20% below 1990 levels by 2010
Kyoto Protocol (and U.S. Mayors' Climate Protection Agreement)	7% below 1990 levels by 2012

¹ California Air Resources Board. <http://www.arb.ca.gov/cc/cc.htm>

² State of California Executive Department. Executive Order S-3-05. <http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm>

³ California Air Resources Board. "Climate Change Proposed Scoping Plan." <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

State Perspective on Role of Local Governments in Reducing GHG Emissions

Below is an excerpt from the California Air Resources Board (CARB) adopted Climate Change Scoping Plan describing CARB's perspective on the role of local governments in reducing GHG emissions in California.⁴

The Role of Local Government: Essential Partners

Local governments are essential partners in achieving California's goals to reduce greenhouse gas emissions. They have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce greenhouse gas emissions rely on local government actions.

Over 120 California cities have already signed on to the U.S. Conference of Mayors Climate Protection Agreement. In addition, over 30 California cities and counties have committed to developing and implementing Climate Action Plans. Many local governments and related organizations have already begun educating Californians on the benefits of energy efficiency measures, public transportation, solar homes, and recycling. These communities have not only demonstrated courageous leadership in taking initiative to reduce greenhouse gas emissions, they are also reaping important co-benefits, including local economic benefits, more sustainable communities, and improved quality of life.

Land use planning and urban growth decisions are also areas where successful implementation of the Scoping Plan relies on local government. Local governments have primary authority to plan, zone, approve, and permit how and where land is developed to accommodate population growth and the changing needs of their jurisdictions. Decisions on how land is used will have large impacts on the greenhouse gas emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas sectors.

To provide local governments guidance on how to inventory and report greenhouse gas emissions from government buildings, facilities, vehicles, wastewater and potable water treatment facilities, landfill and composting facilities, and other government operations, ARB recently adopted the Local Government Operations Protocol. ARB encourages local governments to use this protocol to track their progress in achieving reductions from municipal operations. ARB is also developing an additional protocol for community emissions. This protocol will go beyond just municipal operations and include emissions from the community as a whole, including residential and commercial activity. These local protocols will play a key role in ensuring that strategies that are developed and implemented at the local level, like urban forestry and greening projects, water and energy efficiency projects, and others, can be appropriately quantified and credited toward California's efforts to reduce greenhouse gas emissions.

⁴ California Air Resources Board. "Climate Change Proposed Scoping Plan."
<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

In addition to tracking emissions using these protocols, ARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15 percent from current levels by 2020. To consolidate climate action resources and aid local governments in their emission reduction efforts, the ARB is developing various tools and guidance for use by local governments, including the next generation of best practices, case studies, a calculator to help calculate local greenhouse gas emissions, and other decision support tools.

The recent passage of SB 375 (Steinberg, Chapter 728, Statutes of 2008) creates a process whereby local governments and other stakeholders work together within their region to achieve reduction of greenhouse gas emissions through integrated development patterns, improved transportation planning, and other transportation measures and policies. The implementation of regional transportation-related greenhouse gas emissions targets and SB 375 are discussed in more detail in Section C.

Identifying an Oakland Preliminary Planning Target for GHG Reduction

A clear scientific near-consensus has emerged regarding the dangers of escalating concentrations of greenhouse gases in the Earth's atmosphere and the significant role that anthropogenic (human caused) sources of GHG emissions are playing in increasing those concentrations. Tremendous collective action will be necessary in the near term on a global scale to reduce GHG emissions to safe levels.

Projected local impacts of climate change include rising Bay and delta waters, decreased potable water supply, increased fire danger, added stress on infrastructure, pricing and quality of life impacts, ecological impacts, and other impacts. The State Climate Action Team has predicted that sea levels may rise between 12 and 36 inches by the end of this century.¹ According to the Bay Conservation and Development Commission, low-elevation portions of Oakland, including the Oakland airport, could be vulnerable to a 16-inch rise in sea level.²

Current Scientific Perspective on Needed GHG Reduction Goals

Significant reductions in global anthropogenic GHG emissions are projected to be necessary to reverse present trends and restore a stabilized atmospheric GHG concentration level similar to that of recent history. According to climate scientist James Hansen, "If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO₂ will need to be reduced from its current 385 ppm to at most 350 ppm, but likely less than that."³ Achieving an atmospheric GHG concentration of 350 ppm CO₂ would roughly correlate to a concentration of approximately 450 ppm in total CO₂-equivalent (CO₂e) terms, a metric often used to express the total equivalent warming potential of CO₂ and other relatively minor but also significant greenhouse gases in the atmosphere.⁴

According to the latest report of the Intergovernmental Panel on Climate Change (IPCC), a body of the world's most authoritative climate scientists, achieving even an atmospheric GHG concentration of 450 ppm CO₂e will yield some negative climate impacts, including some deglaciation, species extinction, and changes in frequency and severity of flooding, droughts, fires and other impacts. However, this target is frequently framed in the literature near the best-

¹ California Climate Action Team. Draft Biennial Report. March 2009. <http://www.climatechange.ca.gov/publications/cat/>

² Bay Conservation and Development Commission. "San Francisco Bay Scenarios for Sea Level Rise Index Map" http://www.bcdc.ca.gov/planning/climate_change/index_map.shtml

³ Hansen, James and Makiko Sato, Pushker Kharecha, David Beerling, Robert Berner, Valerie Masson-Delmotte, Mark Pagani, Maureen Raymo, Dana L. Royer, James C. Zachos. "Target Atmospheric CO₂: Where Should Humanity Aim?" *The Open Atmospheric Science Journal*. Volume 2. ISSN: 1874-2823. pp.217-231

⁴ Fisher, B.S., N. Nakicenovic, K. Alfsen, J. Corfee Morlot, F. de la Chesnaye, J.C. Hourcade, K. Jiang, M. Kainuma, E. la Rovere, A. Matysek, A. Rana, K. Riahi, R.G. Richels, S. Rose, D.P. van Vuuren and R. Warren. 2007. *Issues Related to Mitigation in the Long-Term Context*. In *Climate Change 2007: Mitigation - Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, S O. Davidson and B. Metz (eds.), Cambridge University Press, Cambridge. pp.229-230

case scenario end of the future range of projections, requiring highly aggressive GHG reductions.⁵

The IPCC's Fourth Assessment Report (FAR) suggests that industrialized countries would need to reduce GHG emissions to levels 25-40% below 1990 levels by 2020 and 80-95% below 1990 levels by 2050 to achieve a stabilized atmospheric GHG concentration of 450 ppm CO₂-equivalent (CO₂e).

Applying Current Global Climate Science in the Context of Oakland

Data are unavailable regarding Oakland's 1990 GHG emissions, but a 2005 GHG inventory has been developed for Oakland. Using Oakland's existing 2005 GHG emissions inventory as a baseline will allow progress to be measured and demonstrated going forward.

Based on information provided by the California Air Resources Board, achieving a statewide GHG reduction of 25% below 1990 levels would correlate to a statewide reduction target of approximately 36% below 2005 GHG levels. Achieving statewide reductions of 80% below 1990 levels would be roughly equivalent to an 83% reduction relative to 2005 levels.

Faced with a lack of data for 1990, Staff are assuming similar GHG emissions growth has occurred in Oakland to the State average during the time period from 1990 to 2005. Thus for Oakland to meet the IPCC-suggested GHG reduction targets for industrialized countries, Oakland's GHG emissions would need to be reduced by at least 36% below 2005 levels by 2020, and 83% below 2005 levels by 2050.

Considering GHG Reduction Targets in the Context of Recent State Policy Action

Recent climate policies adopted at the State level in California (e.g., AB 32, SB 375) aim to reduce statewide GHG emissions to 1990 levels by 2020.⁶ This correlates to a reduction of approximately 15% below current levels by 2020. Executive Order S-3-05 issued by Governor Schwarzenegger calls for statewide GHG reductions of 80% below 1990 levels by 2050.⁷

As recently documented in the Climate Change Proposed Scoping Plan adopted by the California Air Resources Board (CARB) in December 2008, a variety of State-driven strategies are being developed and implemented to help achieve these statewide goals. Additional and complementary local actions will be needed to help reach these goals and make additional progress. Table C1 summarizes these State-driven strategies outlined in the CARB Scoping Plan.

⁵ Gupta, S., D. A. Tirpak, N. Burger, J. Gupta, N. Höhne, A. I. Boncheva, G. M. Kanoan, C. Kolstad, J. A. Kruger, A. Michaelowa, S. Murase, J. Pershing, T. Saijo, A. Sari, 2007: Policies, Instruments and Co-operative Arrangements. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

⁶ California Air Resources Board. <http://www.arb.ca.gov/cc/cc.htm>

⁷ State of California Executive Department. Executive Order S-3-05. <http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm>

Table C1. Recommended Greenhouse Gas Reduction Measures from CARB Climate Change Scoping Plan⁸

Recommended Reduction Measures
California Light-Duty Vehicle Greenhouse Gas Standards <ul style="list-style-type: none"> • Implement Pavley standards • Develop Pavley II light-duty vehicle standards
Energy Efficiency <ul style="list-style-type: none"> • Building/appliance efficiency, new programs, etc. • Increase CHP generation by 30,000 GWh • Solar Water Heating (AB 1470 goal)
Renewables Portfolio Standard (33% by 2020)
Low Carbon Fuel Standard
Regional Transportation-Related GHG Targets
Vehicle Efficiency Measures
Goods Movement <ul style="list-style-type: none"> • Ship Electrification at Ports • System-Wide Efficiency Improvements
Million Solar Roofs
Medium/Heavy Duty Vehicles <ul style="list-style-type: none"> • Heavy-Duty Vehicle Greenhouse Gas Emission Reduction (Aerodynamic Efficiency) • Medium- and Heavy-Duty Vehicle Hybridization
High Speed Rail
Industrial Measures (for sources covered under cap-and-trade program) <ul style="list-style-type: none"> • Refinery Measures • Energy Efficiency & Co-Benefits Audits
Additional Reductions Necessary to Achieve the Cap
High Global Warming Potential Gas Measures
Sustainable Forests
Industrial Measures (for sources not covered under cap and trade program) <ul style="list-style-type: none"> • Oil and Gas Extraction and Transmission
Recycling and Waste (landfill methane capture)
Other Recommended Measures
State Government Operations
Local Government Operations
Green Buildings
Recycling and Waste (other measures)
Water Sector Measures
Methane Capture at Large Dairies

While some of these strategies may not affect Oakland significantly, most will have some impact in Oakland and should be considered in the context of developing local GHG reduction targets and plans for meeting those targets.

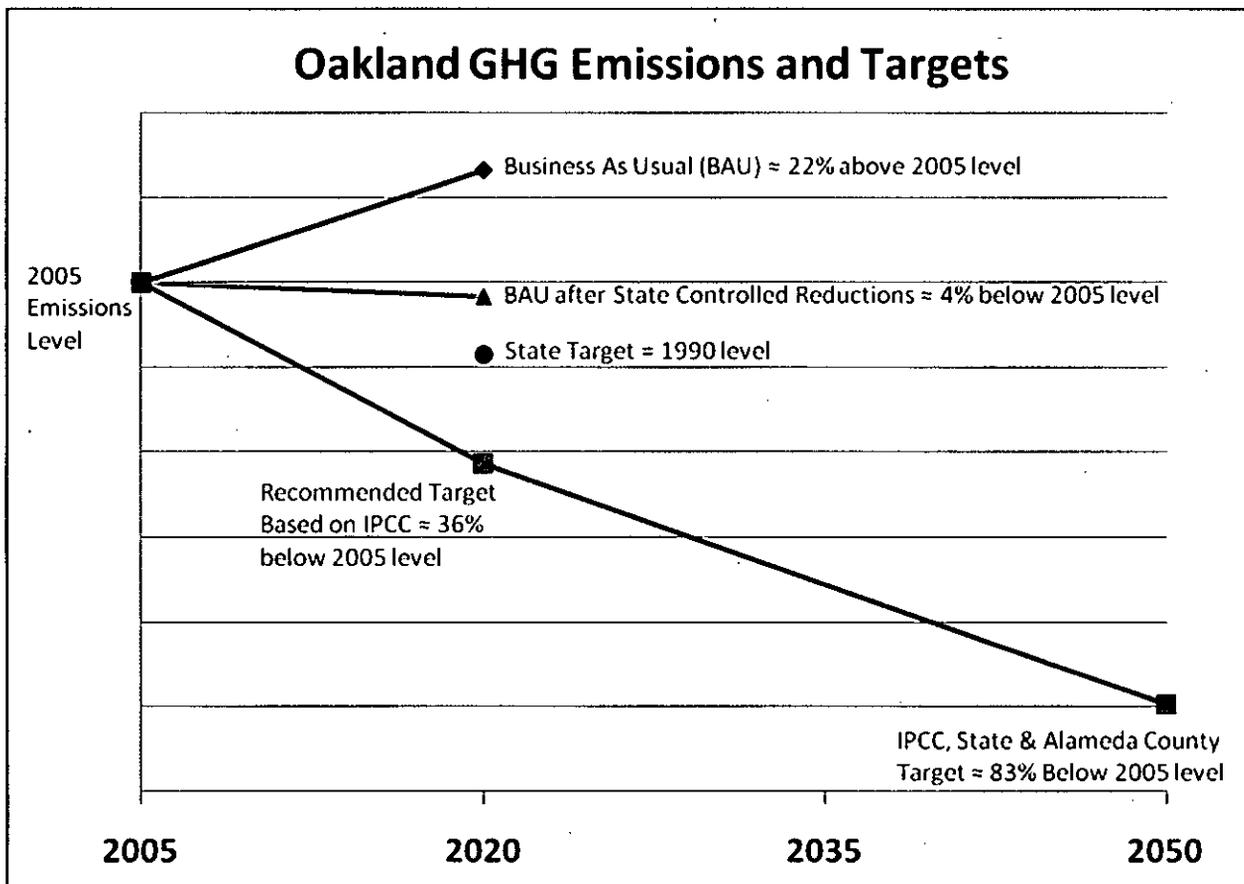
⁸ California Air Resources Board. "Climate Change Proposed Scoping Plan." Oct 2008. <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

Some of these State-driven strategies will affect future GHG emissions in Oakland irrespective of additional local action. For example, strategies such as requiring the sale of low carbon fuels and more fuel efficient vehicles on a statewide basis may create GHG reductions in Oakland without imposing new burdens on local government. Projections of future GHG emissions in Oakland are based on the assumed implementation of these strategies.

Other State-driven strategies outline goals for creating GHG reductions that can be translated to Oakland, but which will only be met via the City taking policy or other action. To avoid any double-counting of GHG reductions, achievement of these goals is not assumed in business-as-usual projections of future GHG emissions in Oakland, as potential actions under consideration in the development of the ECAP will be needed to achieve these goals.

For the purpose of quantifying GHG reductions associated with a preliminary planning target, Oakland's business-as-usual 2020 GHG projections have been adjusted based on these factors. These projections are also based on projected change in population and economic activity provided by the Association of Bay Area Governments and vehicle miles traveled provided by the California Energy Commission.

Figure C1. Oakland GHG Emissions and Targets



Under business-as-usual conditions without implementation of the strategies outlined in the CARB Climate Change Scoping Plan, GHG emissions in Oakland were projected to increase by approximately 22% above 2005 levels by 2020. Assuming implementation of State-driven strategies as described above, Oakland's GHG emissions in 2020 are projected to be approximately 4% below 2005 levels in the absence of additional local action.

Based on Oakland's baseline 2005 GHG inventory totaling approximately 3 million metric tons of CO₂e emissions, and current forecasts of business-as-usual emissions growth, reducing GHG emissions by the equivalent of 36% below 2005 levels by 2020 will require taking actions that cumulatively add up to approximately 1.1 million metric tons CO₂e of reductions.

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OFFICE OF THE CITY CLERK
OAKLAND

OAKLAND CITY COUNCIL


City Attorney

RESOLUTION No. _____ C.M.S.
2009 JUN 11 PM 4:07

RESOLUTION APPROVING PRELIMINARY PLANNING TARGETS FOR DEVELOPMENT OF THE DRAFT OAKLAND ENERGY AND CLIMATE ACTION PLAN

WHEREAS, the City of Oakland is committed to providing leadership on energy and climate issues as part of becoming a model sustainable city; and

WHEREAS, a clear scientific near-consensus has emerged regarding the dangers of increasing concentrations of greenhouse gases in the Earth's atmosphere and the significant role that anthropogenic sources of GHG emissions play in increasing those concentrations; and

WHEREAS, the latest report of the Intergovernmental Panel on Climate Change (IPCC), a body of the world's most authoritative climate scientists, suggests that industrialized countries must reduce GHG emissions to levels 25-40% below 1990 levels by 2020 and 80-95% below 1990 levels by 2050 to achieve a level of climate stabilization that includes relatively minor consequences; and

WHEREAS, Oakland's GHG emissions must be reduced by at least 36% below 2005 levels by 2020, and 83% below 2005 levels by 2050 to align with the IPCC recommendations; and

WHEREAS, tremendous collective action will be necessary in the near term on a global scale to reduce GHG emissions to safe levels, and a variety of opportunities exist in Oakland to provide leadership on reducing GHG emissions; and

WHEREAS, the City of Oakland is developing an Energy and Climate Action Plan to identify energy and climate goals, clarify policy direction, and recommend priority actions for reducing energy use and GHG emissions in a framework that supports implementation and funding discussions; now, therefore be it

RESOLVED: That the City of Oakland is committed to continuing to provide leadership to reduce greenhouse gas emissions to mitigate the future effects of climate change both locally and globally; and be it

FURTHER RESOLVED: That the City Council hereby directs staff to develop the draft Oakland Energy and Climate Action Plan using a preliminary planning GHG reduction target equivalent to 36% below 2005 GHG emissions by 2020.

IN COUNCIL, OAKLAND, CALIFORNIA, _____, 20____

PASSED BY THE FOLLOWING VOTE:

AYES - BROOKS, DE LA FUENTE, KAPLAN, KERNIGHAN, NADEL, QUAN, REID, and PRESIDENT BRUNNER

NOES -

ABSENT -

ABSTENTION -

ATTEST: _____
LaTonda Simmons
City Clerk and Clerk of the Council
of the City of Oakland, California