COUNCIL AGENDA REPORT

City of Anaheim
PUBLIC UTILITIES DEPARTMENT

DATE: **MARCH 6, 2012**

FROM: **PUBLIC UTILITIES DEPARTMENT**

SUBJECT: **CARBON OFFSETS AND CALIFORNIA CARBON ALLOWANCES TRANSACTIONS**

ATTACHMENT (YES/NO): **YES** **ITEM # 06**

RECOMMENDATION:

That the City Council, by motion:

1. Approve and authorize the City of Anaheim ("Anaheim") Public Utilities Department's ("Department") participation in the California Air Resources Board ("CARB" and any successor thereto) Cap-and-Trade Program and auction under such Program (collectively "Program" or successor Program) and/or such secondary Carbon Offsets and Carbon Allowances markets ("secondary markets");

2. Authorize and approve the purchase, trade, and/or sale of Carbon Offsets and/or Carbon Allowances by Anaheim as part of CARB's auction and/or secondary markets, and direct the Public Utilities General Manager or designee, on behalf of Anaheim, to take such actions to purchase, trade, and/or sell Carbon Offsets and Carbon Allowances on an as needed basis in order to comply with California's Assembly Bill 32 ("AB 32") and CARB's Program, as well as prepare, attest to, execute and, where appropriate, register or submit such information and/or documentation as needed with appropriate or designated agencies;

3. Authorize the Public Utilities General Manager or designee, on behalf of Anaheim, to negotiate, execute, and deliver Carbon Offset and/or Carbon Allowance purchase and sales agreements with CARB, brokers, other utilities, exchanges, carbon traders, including supplemental transaction confirmations and service agreements that are the best and least-cost solutions for Anaheim with such changes, additions, insertions, and omissions as shall be approved by the Public Utilities General Manager consistent with

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the Department's Wholesale Energy Risk Management Program, in addition to any other agreements, documents, and instruments necessary, advisable, or required to implement, participate, and administer Anaheim's participation in the secondary markets and CARB's Program;

4. Authorize the Risk Manager to modify insurance and indemnification provisions of any Program or secondary market agreements so long as such modified provisions are in Anaheim's best interests; and

5. Authorize the Public Utilities General Manager or designee, on behalf of Anaheim, to designate an Authorized Account Representative and alternate Designated Authorized Account Representative for CARB's Program or other mandatory reporting requirements and execute and deliver attestations or other reporting documents related to AB 32.

SUMMARY:

In late 2006, the State Legislature passed AB 32 requiring a statewide reduction in Green House Gas (GHG) emissions to 1990 levels by the year 2020; the reduction would effectively be a 30% decline in emissions from current statewide output. AB 32 became effective in 2007 and the CARB was assigned as the lead agency to develop and implement its goals. The rules and regulations developed by CARB became effective on January 1, 2012. CARB will continue to refine its rules, but the Department is required to participate in related market simulations later this year, with the auction market for emissions going live in 2013; hence the need to request authorization at this time.

We project that the related transaction activities will cost the Department up to $5 million annually over the next 8 years, much less than 10% of our annual wholesale transactions portfolio of $48 million. Viewed from this perspective, Cap-and-Trade represents a relatively small component of our overall annual wholesale transactions activities. The cost assumptions associated with the carbon auction market and the potential purchase of carbon offsets were previously included in our rate projections and remain the same as those we have shared with Council and the public over the last few years. To refresh, we estimate a 12% to 17% rate impact over the next decade associated with emissions-related legislative mandates. This projected increase not only includes the cost of Cap-and-Trade transactions, but also includes the cost of increasing Anaheim's renewable power portfolio to the mandated 33% between now and 2020.

It is important to note that the legislature also provided penalty authority to the CARB. Were Anaheim to do nothing, or to decline to comply, a conservative estimate of the penalties that could be legally assessed exceeds $75 million over the next 8 years. Given the cost of

participating in the Program versus non-participation, it is clear that not participating would result in nearly doubling the costs to Anaheim rate payers.

Therefore, the Department seeks Council authority to participate in Allowance transactions activities related to the Program, including the secondary markets (Offsets and Allowances) as necessary, in order to meet its emission compliance obligations.

DISCUSSION:

Since the enactment of AB 32, the Department has participated in a cooperative effort with the major investor-owned utilities (IOUs) and other publicly-owned utilities (POUs) in workshops and hearings held by the CARB in order to affect the final rules and regulations with respect to AB 32 implementation.

AB 32 requires the Department, along with every other electric utility in the state, to comply with the CARB's regulations intended to lower GHG emissions to 1990 levels by 2020. One of the primary mechanisms the CARB has identified to help achieve the overall objective of AB 32 is the institution of a market mechanism aptly called the Cap-and-Trade Program.

To date, all Southern California utilities, as required by law, have registered their intent to participate in Cap and Trade, and have reported their generation portfolio details to the CARB including SCE, PG&E, LADWP, Riverside, Pasadena, as well as Anaheim.

<u>Cap-and-Trade Program (Program)</u>
The Program encourages the reduction of carbon emissions through the use of economic pricing mechanisms. It is designed to provide each utility with an annual allocation of Allowances (the "cap") that will be applied against the amount of emissions the utility actually produces from its carbon-based electricity generating resources for that year. An Allowance is an authorization to emit one metric ton of GHG covered under the Program. An Allowance is a fully marketable commodity that may be bought, sold, or traded for use by entities under the Program.
In the initial phase of the Program, a limited amount of free Allowances are provided to utilities to credit against emissions that are actually produced from carbon-based energy resources utilized to meet retail energy requirements. The initial amount of free Allowances will then decrease by a predetermined amount each year. This gradual ramp down in free Allowances is designed to give much needed time for utilities to reduce their dependence on carbon intensive resources and contracts but at the same time, create an impetus to act as the amount of free Allowances provided are reduced.

By placing a limit on the overall number of Allowances available to the electric sector, and instituting a market mechanism allowing entities with a compliance obligation to purchase and sell Allowances, economic value is created. The intent is to have the value of the Allowances increase over time such that emission reductions are driven by the value the market places on them.

The Program includes an auction process (the "trade") and is the primary vehicle used to procure Allowances when actual emissions exceed allocation or, conversely, sell excess Allowances if allocated more than needed for compliance. On an annual basis, the Department will be required to "retire" 30% of its Allowances to cover the previous operating year's generation totals. At the end of each three-year compliance period, the Department will be required to retire all Allowances that might yet remain for that compliance period. In other words, Allowances cannot be carried over to subsequent compliance periods.

The framework and logistics of the Program are still under development. Because of the complexity, the magnitude of trading volume and the need to determine safeguards with a newly developed market, the CARB will continue developing the rules and architecture of the auction process over the course of this year. During the year, the Department will nevertheless be required to participate in the auction process, including bidding and possibly trading with counterparties since a secondary market will naturally be a by-product of the primary auction process. This is again why the Department is seeking Council authority at this time to participate in the Program.

Offsets

As part of the Program, the CARB also allows for the procurement of carbon Offsets separate from the allocated free Allowances. A carbon Offset is a tradable compliance instrument issued or approved by the CARB that represents a GHG reduction or GHG removal enhancement of one metric ton of carbon dioxide equivalent. Offsets are determined from specific emission reduction projects which must be approved by the CARB (such as urban forest development or methane destruction from livestock operations) that can be measured and marketed by the entity creating the Offset.

The Offsets can be procured to help meet compliance obligations. The cost of an Offset can be as much as 70% less than the cost of an Allowance, making Offsets more desirable to purchase over Allowances. Given this cost effectiveness, the CARB understood that allowing the use of too many offsets could impact the effectiveness of the Program overall; therefore, they have placed a limit on the amount of Offsets that can be used. Under its regulatory authority, the CARB will only allow up to 8% of an entity's total obligation to be provided by the less expensive purchase of a carbon Offset. Therefore, the Department seeks Council authority to participate in the Offset market (which is the least-cost alternative) as necessary in order to cost effectively meet its emission compliance obligations.

Secondary Markets

While the majority of Allowances will primarily be traded quarterly through the CARB run Cap-and-Trade Program, companies also have the ability to buy and sell Allowances and Offsets in the secondary market. The secondary market is comprised of bilateral transactions between companies (brokered and direct) and carbon Exchanges such as the Chicago Climate Exchange and Intercontinental Exchange, which typically take the form of a service agreement.

The secondary market provides the Department the ability to buy and sell Allowances and Offsets on a daily basis. This ability to trade in much smaller increments and timeframes can augment the Department's ability to hedge carbon emission production on a daily basis rather than rely on the CARB quarterly auction process where the pricing may not be as transparent. In addition, the secondary market provides another source of Carbon Allowances in the event the Department was not entirely successful in obtaining all of the Carbon Allowances needed in the auction process. The Department, therefore, also seeks Council authority to participate in the secondary markets, as necessary, in order to cost effectively meet its emission compliance obligations.

Management of Allowances Required for Compliance

While all elements of the Program have not been finalized, enough progress has been made to determine the Department's initial likely participation levels in both the carbon Offset and Allowance markets. Currently, the Department's carbon-based generation resources total 86% of its portfolio (62% coal and 24% natural gas). Across the next 8 years, the Department estimates it will need 17.4 million tons of Allowances, but 15.7 million tons will be provided as free Allowances. This leaves approximately 1.7 million tons of Allowances and Offsets required over the next 8 years. The Department can meet a little over 100 thousand tons of that obligation through the purchase of Offsets before we hit the 8% CARB limit on the use of Offsets. Therefore, with what we know right now, the Department will need to buy approximately 1.56 million tons of Allowances in order to meet our AB 32 compliance obligation and to avoid penalties. In an effort to make this easier to understand, we have summarized that information in the table below.

2012 to 2020	AB 32 20% GHG Reduction to 1990 Levels
Allowances required	17.4 million tons
Allowances Allocated for free	15.7 million tons
Additional Allowances needed	1.7 million tons
Allowances purchased through Offsets	136 thousand tons
Allowances remaining to be purchased	1.56 million tons

*A detailed table showing Carbon Allocation and Carbon Offsets projection by year is attached.

The Department estimates the cost of Carbon Allowances (at today's prices) to range from $10.00/ton to $40.00/ton; given this range, the cost of compliance to reach a 20% reduction in carbon emissions by 2020 ranges from $16 million to $62 million. As the carbon market matures and demand for Allowances increases (due to the emission cap being tightened as 2020 approaches), Carbon Allowance prices are estimated to reach upwards of $71.00/ton, totaling $111 million. This is $50 million more than the current market value. Therefore, it is critical that the Department employ strategies that protect it from the potential impact of higher prices as the Allowances are reduced by the CARB.

Market Mitigation Strategies

The Department is not planning to simply buy all allowances needed, nor allow itself to be completely exposed to the likelihood of increases in Carbon Allowance prices. The Department has developed mitigation plans to limit the exposure for these additional Allowances through the deployment of internal plant dispatch optimization tools. These tools monitor plant performance and market pricing signals in real-time to determine the opportune time to modify operations and mitigate its carbon requirements. This strategy is also called "emissions dispatch" and results in using carbon based resources in such a way that not only considers the marginal cost of fuel, but also assigns an emissions cost as well. This strategy will result in either reduced reliance on higher concentrated carbon-based resources (i.e., coal), which would be replaced with less expensive and cleaner options, or will provide sufficient revenues in the wholesale market to offset the cost of procuring the additional emission Allowances necessary to meet compliance obligations for operating higher concentrated carbon-based resources.

In addition, in conjunction with leading industry experts, the Department is developing detailed market monitoring plans that take advantage of sophisticated pricing forecasting models. This will provide hedging capabilities for the Department's resources in upcoming auctions as well as in the bilateral market. Employing a myriad of mitigation strategies, as mentioned, provides the Department with a strong initial position to further develop our carbon market strategy, as well as mitigate the potential risks associated with our carbon requirements.

Risk Control, Program Monitoring and Reporting

Effective monitoring of the risk associated with the Program is critical; at the State level the CARB itself has mandated several controls to mitigate the risk associated with carbon market. The maximum number of Carbon Offsets that an entity can purchase will be limited to 8% of the total annual compliance obligation. Allowing 8% of an entity's emissions obligation to be served with lower cost Carbon Offsets aids in mitigating the Program's exposure from the higher priced Carbon Allowances.

Additionally, the CARB has set a floor price of $10 for Carbon Allowances to protect the market from being devalued and to protect the value of investments already made by entities to hedge carbon emissions. Further, the CARB has created a market of reserve tiers which set aside additional Allowances at a maximum price of $40, $45 and $50 per metric ton. This acts as a price ceiling to mitigate the price risk associated with the Cap-and-Trade market. These market level controls act to both predict as well as limit the financial exposure for all entities that have to purchase Offsets or Allowances in order to operate generation facilities and serve load.

At the local level, the Program will be managed under the auspices of the Utility's Wholesale Energy Risk Management Program (ERM), a program used to manage the risk associated for short term energy trading transactions. For all transactions greater than 1 year, the Department will bring those transactions to the City Council for approval. Provisions will include set purchase and sale volumes of Carbon Allowances and Offsets for each Compliance Period and will identify Department officers and staff who will be responsible for monitoring the risks associated with Carbon Offset and Allowance transactions made by the Department.

ERM program risk controls establish credit limits for each counter party to help control the risk of default in either payments or delivery of Carbon Offsets. Risk monitoring will also be controlled through the segregation of duties at the operational management level to ensure the proper checks and balances are in place. All carbon price and volatility information will be monitored through the ERM provisions in order to assess the risk with any current and future transactions. Further, the credit controls under the ERM program will be used to monitor any ongoing credit exposure associated with counterparties that transact with the Department. Trading limits, as well as other risk management provisions will also be monitored through the ERM program to ensure that exposure is limited. As part of executive level oversight of the Program, on an annual basis and at a minimum, a review will be conducted by the ERM Program's Risk Management Committee, consisting of senior members of the City Attorney's Office, The City Finance Department, and the Utilities Department.

With respect to reporting, on a quarterly basis the Department will create position reports that identify and track any Carbon Allowance or Offset surplus or deficit positions within its portfolio and will, in addition, conduct monthly resource planning meetings to determine the most cost effective solution to optimize its carbon portfolio as changes in market conditions occur. For each year, position reports will be made available to the Public Utilities Board and independently audited to ensure compliance. In addition, no later than 18 months after each 3-year Compliance Period an Emissions Compliance Report will be made available to the Public Utilities Board and Council for review. The underlying reason for the 18-month delay in reporting is to allow time for verification and true-up of Carbon Allowance and Carbon Offset transactions by the CARB.

Together the CARB requirements and the Department's ERM program will provide extensive risk management measures that minimize the Department's exposure in the Cap-and-Trade Program and secondary markets.

CONCLUSION:

The Department is seeking approval to enter into the mandatory Cap-and-Trade Program run under the guidance of CARB and to participate in the Carbon Allowance and Offset secondary markets. This will enable the Department to help mitigate the financial impacts associated the Program and its associated upward pressure on rates, assuming costs increase as projected.

To ensure compliance by all electric utilities, CARB has also incorporated significant financial penalties for non-compliance in its rules and regulations. The penalty for non-compliance is estimated to be in the range of $50 per ton. The Department's financial exposure to this penalty, over the next 8 years, is approximately $75 million if the Department were to exercise no mitigation at all.

The Department has options at its disposal to help mitigate the risk of financial penalties, which include participation in the CARB run auction process under the Program, where supplementary Carbon Allowances may be purchased if necessary. Further, the Department also has the ability to reduce carbon emissions by operating all of its coal and natural gas facilities at reduced levels during the course of the year, thereby significantly reducing its reliance on Carbon Allowances and hence any corresponding penalties. Finally, the Department can enter into bilateral contracts in the open market to purchase Allowances and

Offsets if it is determined that operating its facilities at higher levels is more cost-effective overall than operating them at reduced levels to minimize emissions. The Department intends to employ all of these options in order to provide the best and least-cost solution versus the potential for penalties under the Program.

IMPACT ON BUDGET:

There is no impact on the General Fund. Funds are available in the Public Utilities Purchased Power Supply budget.

Respectfully submitted,

Marcie L. Edwards
Public Utilities General Manager

Attachment:
1. Carbon Allowances and Carbon Offsets Projections

Anaheim Emissions	2013	2014	2015	2016	2017	2018	2019	2020	TOTAL
IPP	1,510	1,510	1,510	1,514	1,510	1,510	1,510	1,514	12,089
Magnolia	229	249	251	252	251	252	252	253	1,989
CTG/CPP	63	63	65	69	69	71	72	74	545
San Juan	315	352	331	358	334	361	338	362	2,750
PPM 1	6	6	6	6	6	6	6	6	51
Purchases	5	2	2	2	5	3	4	2	26
Total	2,129	2,182	2,166	2,202	2,176	2,203	2,182	2,211	17,451
Anaheim Allowances	1,988	1,994	1,948	1,980	1,957	1,969	1,956	1,955	15,747
Allowances Needed	141	187	218	221	219	234	226	257	1,704
Offsets (Metric Tons)	11	15	17	18	18	19	18	21	136
Offset Costs $10M/T	$ 112,960	$ 149,997	$ 174,280	$ 177,091	$ 175,236	$ 186,996	$ 181,108	$ 205,502	$ 1,363,170
Offsel Costs $20M/T	$ 225,919	$ 299,995	$ 348,559	$ 354,183	$ 350,472	$ 373,991	$ 362,217	$ 411,004	$ 2,726,340
Allowances Needed-Offsets	129.90	172.50	200.42	203.66	201.52	215.05	208.27	236.33	1,567.65
Allowance Cost $10	$ 1,299,037	$ 1,724,971	$ 2,004,217	$ 2,036,551	$ 2,015,214	$ 2,150,450	$ 2,082,747	$ 2,363,271	$ 15,676,458
Allowance Cost $40	$ 5,196,148	$ 6,899,882	$ 8,016,867	$ 8,146,204	$ 8,060,858	$ 8,601,801	$ 8,330,987	$ 9,453,083	$ 62,705,830

**Emissions and allowances in thousand metric tons*

***This assumes business as usual and not backing off resources (such as coal)*