City of Albany

405 KAINS AVENUE • ALBANY, CALIFORNIA 94706

July 20, 2009

City of Albany City Council

Subject: Sustainability Committee Request to Analyze the Potential for Wind Power Development along the Albany Waterfront

The City of Albany Sustainability Committee is aware of the possible transfer of ownership of the Albany Bulb from the City of Albany to a state or regional entity. The Albany Bulb is a city-owned 38-acre property with a potentially strong wind resource. We are concerned that a wholesale transfer would terminate the opportunity for the City to reap the benefits of a potential renewable energy development on the bulb. The timing of this is paramount, as we are now reviewing the Draft City of Albany Climate Action Plan ("Draft CAP"), and are concerned that the CAP cannot be achieved if ownership of the bulb site is transferred. This memo serves to provide some background on the potential for renewable energy development, primarily wind power, on the Albany shoreline.

Background

The following findings were identified in the Draft CAP:

- 59% of Albany's Greenhouse Gas (GHG) emissions are from non-transportation energy usage, such as electricity.
- Albany's adopted target requires the community's GHG emissions to be reduced by 25%, or 17,450 MTCO2e, below 2004 baseline emission levels by 2020.
- GHG emissions associated with residential and commercial electricity use in Albany are projected to increase over time.

Therefore, reducing emissions from electricity use in Albany is essential to achieving the CAP. Indeed, one measure identified in the Draft CAP states that Albany should "Research feasibility of wind energy generation on the Albany Bulb." If the City of Albany moves forward with transferring ownership and future rights of the bulb, then this opportunity will in all likelihood be lost.

The Opportunity

Renewable energy developments provide multiple societal benefits to the local community including job creation, increase in tax revenues, and environmental benefits. The potential benefits of a wind power development on the Bulb include:

- The site is close to urban electric load, which makes it potentially attractive for wind developers and electric utilities because it avoids the need to build long transmission lines as is typical with wind power developments.

CITY ADMINISTRATOR
PH. (510) 528-5710
FAX (510) 528-5797

CITY ATTORNEY
PH. (510) 528-5858
FAX (510) 526-9190

CITY CLERK
PH. (510) 528-5720
FAX (510) 528-5797

CITY COUNCIL
PH. (510) 528-5720
FAX (510) 528-5797

COMMUNITY DEVELOPMENT & ENVIRONMENTAL RESOURCES
- Building
- Engineering
- Environmental Resources
- Maintenance
- Planning

PH. (510) 528-5760
FAX (510) 524-9359

FINANCE & ADMINISTRATIVE SERVICES
CITY TREASURER
PH. (510) 528-5730
FAX (510) 528-2743

FIRE & EMERGENCY MEDICAL SERVICES
PH. (510) 528-5771
FAX (510) 528-5774

PERSONNEL
PH. (510) 528-5714
FAX (510) 528-5797

POLICE
PH. (510) 525-7300
FAX (510) 525-1360

RECREATION & COMMUNITY SERVICES
1249 Marin Avenue
PH. (510) 524-9283
FAX (510) 528-8914
- Friendship Club/ Childcare Program PH. (510) 559-7220
- Senior Center PH. (510) 524-9122 FAX (510) 524-8940
- Teen Center PH. (510) 525-0576

- California's Renewable Portfolio Standard law has created demand for renewable energy that currently exceeds supply, leading utilities to scour the state in search of suitable renewable energy development sites. Federal clean energy and/or GHG legislation would potentially increase that demand.
- Wind development is compatible with many other potential uses of the site.
- The cost of renewable energy technology has decreased over time and concurrent increasing price of electricity means potential savings on municipal energy bill if the City of Albany is able to purchase and/or consume the electricity generated on the Bulb.
- A medium-scale development of 20 megawatts of wind power would require an investment of around $40 million, which would certainly provide jobs, stimulate the local economy, and help the tax base. A project of the scale would provide most of the electricity consumed within Albany's city limits.
- City Council has expressed a strong interest in and commitment to reducing greenhouse gas emissions and this project would be the largest source of greenhouse gas emissions reduction the Sustainability Committee can identify.

The Bulb is a potentially highly desirable financial asset with the promise of providing a potential revenue source for the City, if it continues to own the Bulb. If ownership of the Bulb is transferred, there is a great risk that a project would not happen; and if it did happen, that the benefits would not accrue to the City of Albany and its constituents.

Economics

Without knowing the scope of a project, it is difficult to anticipate the level of investment required, the amount of electricity generated, and the payback on the investment. However, below we outline a portfolio of options that would be presented.

The Electricity:

- Net Metering – electricity likely consumed by Golden Gate Fields – electricity valued at retail:
  - permit wind-energy projects up to 50 kW to net meter; and
  - require wind-energy projects from 50 kW to 1 MW to utilize "wind energy co-metering," which provides for time-of-use pricing and credits.
- Feed-in Tariff (8-31 cents per kWh) is a Power Purchase Agreement for small facilities (less than 1.5 MW). (http://www.pge.com/tariffs/tm2/pdf/ELEC_SCHEDS_E-SRG.pdf)
- Standard Power Purchase Agreement – for projects larger than 1.5 MW. Price is negotiated.

Other considerations include who would purchase the power. While PG&E may seem like the obvious choice, there are other potentially interested utilities such as Alameda Power & Telecom, Port of Oakland, and the Marin Community Choice Aggregation. In fact, the City of Albany could itself consider pursuing

Community Choice Aggregation and use a local wind development as the primary source of electricity for all Albany homes and businesses.

This memo does not address solar as we do not see large-scale off-site solar as economically viable in Albany, nor would it generate a significant amount of electricity, nor would it be as compatible with other uses of the Bulb as compared to a wind power development.

Scale of the project

The most common modern utility-scale wind turbines are 1.5 megawatts. These have slow-moving blades and are not what you see at Altamont Pass. Smaller wind turbines tend to have blades that spin more rotations per minute. Here are two examples of modern wind turbine models:

- GE 1.5 megawatt (1.5 megawatt)
  - Hub height: 80 meters (263 feet)
  - Rotor diameter: 82.5 meters
  - 40-50 ft diameter concrete pad
  - Cost = $3 million installed
  - Annual output = 3,900 MWhs
- Northwind 100 kilowatt
  - Hub height: 37 meters (121 feet)
  - Rotor diameter: 21 meters
  - Cost = $600,000 installed
  - Annual output = 260 MWhs

The table below provides estimates of electricity use in Albany, the associated level of carbon emissions, and one example of the electrical output of a wind development on the Bulb. A wind power project of that scale would single-handedly meet the City's GHG emissions reduction goal.

ALBANY ELECTRIC DEMAND

	MWhs	Metric Tons CO2
Residential load	26,519	9,678
Non-residential load	38,650	14,105
Total Annual Demand	65,169	23,783

POTENTIAL WIND SUPPLY

Number of turbines	14
Nameplate Capacity	1.5
Generating capacity factor	0.35

Hours in a year	8760	
Total Annual Output	64,386	MWhs

Potential Fatal Flaws

The Sustainability Committee is requesting that the City not transfer ownership of the Bulb nor commit to a land use plan for bulb without first evaluating the site for potential wind development, or without first creating contractual provisions that retain the right for the City to develop renewable energy facilities. A site evaluation would include study of potential wildlife impacts, evaluate the potential engineering challenges given that the site is a former landfill, and determine whether the wind resource is of sufficient quality and quantity to for a project. Further, an analysis would determine what the size and scope of such a project could be, whether there are transmission and/or distribution challenges, identify possible developers and power purchasers, etc.

There are several potential barriers to executing a wind development on the Bulb. These include, but are not limited to:

- Poor quality or quantity of wind
- The disruption of the view as a political deal-killer (i.e. opposition from the community)
- Preservation of wetlands area prevents such a development
- Protection of migratory birds or other wildlife prevents such a development
- Foundation engineering problems due to the instability of the foundation (former landfill)
- The economics are not favorable
- Problems in physically delivering electricity to load
- Difficulty in financing the project

These unanswered questions are the reason why the Sustainability Committee is asking City Council to sanction a one-year study of the Bulb as a potential site for a wind development, as recommended in the Draft CAP.

Recommendation

The Sustainability Committee hereby recommends either:

1) The City should retain ownership of the Bulb until a renewable energy feasibility study has been conducted as described above, or;
2) Retain an easement to site renewable energy facilities, including but not limited to wind turbines, solar panel installations; or
3) retain the right to lease back land $1 for renewable energy facilities.

These options allow the City to retain renewable energy development rights for future use, even if title to land is conveyed.

Since we do not know where or how large of a site(s) would be needed, the conveyance term could be written as "not larger than X square feet" plus air rights for turbines. Either way, any renewable energy development would be subject to

receiving all applicable permits and approvals, as well as full environmental review.

The City of Albany Sustainability Committee recommends undertaking the following steps before transferring ownership of the Bulb:

- Talk with Golden Gate Fields about their interest in joining with the City on a wind power and/or solar electric development on the coastline.
- Have a wind analysis done by installing a meteorological tower at the site and measuring wind speed for a year. This costs approximately $20,000.
- Conduct a preliminary environmental and engineering evaluation of the site to determine whether the site would pass an Environmental Impact Report. Such a study would determine potential impacts on wildlife.
- Vet the issue with local stakeholders to see if such a project would be supported by the community.
- Review what other cities, such as Hull, MA and Brisbane, CA are doing.

We respectfully request that City Council consider this request, and we are happy to meet with Council to discuss this issue further.

Sincerely,

Thomas J. Cooper
Sustainability Committee Chair