Poseidon Resources
Carlsbad Desalination Plant

Climate Action Plan

November, 2007

POSEIDON
RESOURCES

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Poseidon Resources is committed to rendering the Carlsbad Desalination Plant carbon neutral. This is the first major infrastructure project in the state to voluntarily commit to carbon neutrality. Poseidon's Climate Action Plan identifies a menu of seven potential measures to erase the Carlsbad facility's carbon footprint at an estimated cost of nearly $70 million. Poseidon plans to pursue a mix of measures from the following portfolio: install premium energy efficient equipment, perform a LEED-type process for the facility, secure rooftop and/or locally produced solar energy, develop a 37 acre wetlands mitigation project, and buy carbon offset projects and/or renewable energy credits.

Introduction

Poseidon Resources is developing a desalination plant in Carlsbad, CA (the Project) with the capacity to deliver on average approximately 50 million gallons per day (mgd) of drinking water, or 56,000 acre-feet per year. From the desalination plant, the desalinated water will be distributed along several pipeline routes to the City of Carlsbad and various local water districts as wholesale water purchasers for ultimate use and consumption by homes and businesses in Northern San Diego County.

To operate the proposed desalination plant, Poseidon would use system power from San Diego Gas & Electric (SDG&E). The total power usage is expected to be 246,156 MWH per year. Based on the estimated power usage, this Climate Action Plan (the Plan) describes the carbon emission baseline for the Project, the options available to Poseidon to reduce the Project's carbon emissions, and the process and timeline to mitigate the Project's net carbon emissions.

As a part of the permitting process, Poseidon must receive approvals from, among others, the California Coastal Commission (CCC) and the California State Lands Commission (CSLC). Poseidon anticipates hearings before the CCC on November 15, 2007 and the CSLC on December 3, 2007, respectively, at which time approval decisions are expected by the agencies.

Carlsbad Desalination Plant: Energy Profile and Carbon Footprint

All modern desalination plants are built with energy recovery devices (ERD) that reduce the energy consumption of a plant of the Project's capacity by about 16%, from 37.1 average mega-watts (aMW) down to a baseline of 31.3 aMW. Poseidon is also committing to install a new high efficiency energy recovery devise (ERD), premium efficiency motors, and variable frequency drives in the Project, all of which will further reduce their energy consumption by more than 10 percent, or 3.2 aMW. Thus the Project Baseline energy consumption for the purposes of calculating its carbon footprint is 28.1 aMW, or 246,156 MWH per year.

The **California Climate Action Registry** (CCAR) was established in 2001 by the California Legislature (SB 1771) as a non-profit voluntary registry for greenhouse gas (GHG) emissions. The purpose of the Registry is to help companies and organizations to establish GHG emissions baselines, and to establish a reporting mechanism to annually update their emissions factor.

The 2007 General Reporting Protocol (the Protocol) of the California Climate Action Registry (CCAR) sets forth the accepted rules for a company such as Poseidon to create its GHG inventory. The Protocol is based on internationally accepted principles and was developed in collaboration with numerous state and federal agencies, including the California's Energy Commission (CEC) and California EPA. The California Air Resources Board, the agency that has primary regulatory authority over greenhouse gas emissions in California, has embraced the Protocol as part of its effort to encourage early action to reduce greenhouse gas emission pending the development of mandatory requirements which have not yet been developed for industrial facilities such as the Carlsbad Desalination Plant.

Chapter 6 of the General Reporting Protocol describes a key element in the calculation of an operation's carbon footprint based on electricity usage: the "emission factor" of the source of the electricity. The Protocol also explains how to calculate the emission factor for purchased electricity. The basic principle underlying the protocol is that one should use the most accurate and specific data that is available:

> "An electric grid emission factor represents the amount of GHGs emitted per unit of electricity consumed from the electricity transmission and distribution system, and is reported in pounds per kilowatt-hour (lbs/kWh or /MWh).
>
> As a practical matter it is often very difficult to determine the exact fuel source for your electricity. Thus, regional/power pool emission factors for electricity consumption can be used to determine emissions based on electricity consumed. If you can obtain certifiable emission factors specific to the supplier of your electricity, you are encouraged to use those factors in calculating your indirect emissions from electricity generation. *If your electricity provider reports an electricity delivery*

metric under the Registry's Power/Utility Protocol, you may use this factor to determine your emissions, as it is more accurate than the default regional factor." (CCAR General Reporting Protocol, Page 31. Emphasis supplied.)

SDG&E's Certified Emission Factor for System Power

The Project intends to purchase all of its power needs from SDG&E system power. Accordingly, the appropriate emission factor to use for the Project's indirect carbon emissions from its electricity purchases is SDG&E's most recently certified annual emission factor. The certified emission factor for delivered electricity is set forth in the utility's Annual Emissions Report, registered with the CCAR in March 2007. In the Emission's Report, which is updated annually and available on CCAR's website, the current certified emission factor for SDG&E system power is 546.46 lbs of CO_2 per delivered MWH of electricity.

SDG&E's emissions factor is comparable to other utility emissions factors. Table 1 compares the CCAR certified emissions factors for major California utilities.

Table 1: Comparison of Emission Factors among California Utilities

CCAR Annual Emission Reports			
Utility	**Report Year**	**Report Date**	**Emission Factor**
SDG&E	2005	March 2007	546
SDG&E	2004	March 2006	614
PG&E	2005	December 2006	489
PG&E	2004	October 2006	566
SCE	2005	January 2006	666
SCE	2004	February 2006	679

The Carlsbad Desalination Plant's Carbon Footprint

Based on the CCAR's most recent certified emission factor for SDG&E system power, the carbon footprint for a standard modern desalination plant at 31.3 a MW would be nearly 68,000 metric tons of CO_2. Since Poseidon is committed to installing the high efficiency ERD and other efficiency measures, the Project's energy profile is reduced to 28.1 aMW or 246,156 MWh per year, and the plant's gross carbon footprint[1] is then 61,004 metric tons of CO_2 per year.

[1] By carbon footprint Poseidon means the indirect CO_2 emissions from the electricity used by the proposed Project supplied from SDG&E system power.

To determine the Carlsbad Operation's ultimate carbon footprint, other reductions in carbon emissions resulting from the Project must also be considered. One major source of carbon reductions results from the fact that the Project is introducing a new, local source of water into the San Diego area; water that will displace imported water from the State Water Project (SWP) – a system with its own significant energy load and related carbon emissions. For every acre-foot of SWP water that is replaced by water from the proposed Project, 3.4 MWh of energy use is avoided, along with associated carbon emissions. And since the Project requires 4.4 MWh of energy to produce one acre-foot of water, the net energy required to deliver water from the Project is 1.0 MWh/AF. Given that 1.0 MWh/AF equals 6.4 aMW per year of energy to deliver the water, the total energy use that is avoided as a result of the Project is 21.7 aMW.

Water from the desalination plant will provide direct, one-to-one replacement of water to meet the requirements of local water agencies' Urban Water Management Plans, thus eliminating the need to import 56,000 acre feet of water into the region.

Since the SWP does not have a published Annual Emissions Report with the CCAR, Poseidon used the certified emission factor for SDG&E system. Assuming the same emission factor, or grid intensity factor, of 546 lbs of CO_2 per MWH for the SWP's energy sources, the Project will result in a reduction of 47,240 metric tons of CO_2 emissions from SWP-related sources, resulting in a net carbon footprint of 13,764 metric tons of CO_2 from the Project.[2]

It is important to understand that circumstances will change over the life of the Project. SDG&E's emission factors are updated annually and the amount of energy consumed by the Project may change. As a result, it will be necessary to recalculate the carbon footprint of the Project on an annual basis. Poseidon has committed to address its net carbon emissions based upon annual calculations of its carbon footprint. That is one reason why it is critical to use a known, certified, reliable emission factor– as well as one that is easily accessible over the life of the project – that is based on internationally accepted protocols. The only known emissions factor for SDG&E is the one registered with the CCAR.

Poseidon will continuously explore new technologies and processes to reduce and offset the carbon footprint of the desalination facility, such as the use of carbon dioxide from the ambient air for water treatment.

[2] If the SWP elects to pump water for other uses, then the responsibility for those associated carbon emissions lies with those other users. Any other result would be an unfair and unwarranted "double counting" of carbon emissions, requiring Poseidon to offset emissions caused by other parties' activities not associated with Poseidon's operations.

AB 32, Carlsbad Desalination, and San Diego Regional Water Supply Master Plan

The Project is one element of a broad regional strategy to improve the diversity and reliability of the region's water supply by reducing the dependence on imported water. As shown in table below, the San Diego region is taking steps to diversify its water supply portfolio through significant water conservation efforts, maximizing the availability and use of recycled water, and the development of new potable water supply infrastructure such as this desalination project.

The implementation of the Regional Water Supply Master Plan will result in an overall reduction in the average energy needed to acquire and treat water for the San Diego region – including this proposed desalination project – and this trend is expected to continue through the year 2020.

Table 2 illustrates that between 1990 and 2010 – benchmark years under AB32, California's Global Warming Solution's Act of 2006 (AB32) – the average energy consumption will be reduced by 16 percent, assuming the Project will be added to the mix during this period. Between 1990 and 2020, the year by which AB32 requires a reduction of GHG to 1990 levels, the average energy consumption for acquisition and treatment of water is reduced by 19 percent. This change in supply mix will significantly reduce greenhouse gas emissions from the region's water supply system. And given its central role in reducing reliance on imported water and Poseidon Resource's commitment to carbon mitigation measures, the Project will play a substantial role in ensuring the region is able to meet the objectives of AB32.

Table 2: 1990 to 2020 Average Energy Consumption
Acquisition and Treatment of Water for the San Diego Region

	1990		**2000**		**2010**		**2020**	
	Supply AFY	**Average Energy Use MWh/AF**	**Supply AFY**	**Average Energy Use MWh/AF**	**Supply (AFY)**	**Average Energy Use MWh/AF**	**Supply AFY**	**Average Energy Use MWh/AF**
Conservation	0		25,518	0	79,960	0	94,170	0
Imported Water (MWD - 60% SWP, 40% CRA)	672,844	3.0	596,443	3.0	389,858	3.0	311,438	3.0
Water Transfers	0		0		70,000	2.6	190,000	2.6
Canal Lining Projects	0		0		77,700	2.6	77,700	2.6
Surface Water	44,173	0.3	9,535	0.3	59,649	0.3	59,649	0.3
Groundwater	0		0		17,175	0.5	19,775	0.5
Groundwater Recovery	0		2,014	1.6	11,400	1.6	11,400	1.6
Water Recycling	0		1,423	1.2	33,668	1.2	45,548	1.2
Seawater Desalination	0		0		56,000	4.4	56,000	4.4
Flow-Weighted Average		**2.83**		**2.83**		**2.37**		**2.28**

Energy Use								
Percent Change in Average Energy Use		**NA**		**0%**		**(16%)**		**(19%)**

Carlsbad Desalination Plant's Climate Action Plan

Since maintaining carbon neutrality is an ongoing process dependant on dynamic information, Poseidon's Climate Action Plan is largely a roadmap for identifying, securing, monitoring and updating measures to eliminate the Project's carbon footprint. This roadmap involves the following steps, completed each year:

1. Determine the MWHs used by the Project for the previous year using utility billing data from SDG&E.

2. Determine SDG&E's emission factor for system power from its most recent CCAR Annual Emissions Report. Reports are done annually and are accessible on the CCAR's website.

3. Calculate the Project's gross carbon footprint by multiplying its MWH by the emissions factor.

4. Calculate the Project's net carbon footprint by subtracting carbon benefits and any existing offset projects and/or RECs.

5. Purchase carbon offsets or RECs to zero-out the Project's net carbon footprint.

When implementing Poseidon's plan, energy efficiency measures as well as on-site renewable resources will be given the highest priority. With that in mind, the following are elements of the Climate Action Plan – along with their estimated costs – to reduce the Carlsbad Desalination Project from a gross carbon footprint of about 68,000 tons of CO_2 to zero. Each element and the process for achieving it is set forth in more detail in Appendix A.

1. **High Efficiency ERD.** Poseidon will include the high efficiency ERD in the Project reducing electricity consumption by 10 percent or 3.2 aMW, reducing the carbon footprint of the Project to 61,004 tons of CO_2. The high efficiency ERD will cost about $5 million more than a standard ERD (for a total of $11 million), will need to be replaced every 10 years, and will increase initial O&M costs about $40,000 per year. Over the 30 year life of project the high efficiency ERD will cost Poseidon nearly $42 million (including inflation at 3%).

2. **Replacement of Imported Water.** Poseidon's carbon footprint is reduced by the reduction in emissions resulting from replacing imported water. The associated emissions savings is 47,240 metric tons of CO_2, resulting in a net carbon footprint for the Project of 13,764 metric tons of CO_2.

3. **Energy Efficiency.** Poseidon will install premium, highly efficient motors and variable frequency drives to optimize the flow of water through the desalination facility. Like other efficiency measures, these devices will need replacement about every 10 years. The energy savings from these energy conservation measures is already included in the baseline 28.1 aMW energy use calculation. Over the 30 year life of project these energy conservation measures will cost Poseidon nearly $11 million (including inflation at 3%).

   Poseidon will also perform an exhaustive energy audit of the engineering specifications and will evaluate the energy efficiency of each component in the Project to determine if it can be replaced with premium energy efficient equipment. As well, the audit will evaluate all the processes in the Project, with the objective of making them more energy efficient. The energy audit process will take 4-6 months after final regulatory approvals are complete. The result will be a specific list of premium energy efficient equipment, with their costs and estimated energy savings. Energy savings measures will be monitored and verified once the Project becomes operational. The energy savings will be converted to metric tons of CO_2, which will be deducted from the 13,764 net carbon footprint.

4. **LEED-type Process.** Poseidon will do a LEED-type process and implement as many of the LEED Checklist items as are reasonably possible. The LEED-type process will take 4-6 months after final regulatory approvals are complete. The result will be a specific list of recommended LEED actions, with their costs and estimated energy and CO_2 savings. At this point Poseidon estimates that LEED could represent an investment of up to $5 million in capital cost. Energy and CO_2 savings will be monitored and verified once the Project becomes operational. The energy savings will be converted to metric tons of CO_2, which will be deducted from the 13,764 net carbon footprint.

5. **Solar Photo-voltaic (PV) Project.** Poseidon is exploring the development of a rooftop solar PV project that will cost approximately $4.1 million, generating about 777 MWH of energy and saving 193 metric tons of CO_2 per year. Actual generation will be monitored on an on-going basis, and the metric tons of CO_2 will be calculated and deducted from the 13,764 net carbon footprint. Poseidon is also exploring participation in a nearby offsite, larger scale solar project to further reduce the Project's carbon footprint.

6. **Wetlands Mitigation.** Poseidon will restore and enhance 37 acres of wetlands as a part of this project, at a cost of approximately $3 million. The restoration project will be in the proximity of the Project and will be implemented 12 months after commercial operation begins, and restoration will be complete within 12 months. These wetlands will be set-aside and preserved for the life of the Project. Once the wetlands are restored they will act as a carbon "sink" or carbon sequestration project trapping CO_2. The amount of carbon sequestered from the project will be calculated and that amount will be deducted from the 13,764 net carbon footprint.

7. **Offsets and RECs.** For the remainder of the Project's carbon emissions, Poseidon will purchase a combination of carbon offset projects and Renewable Energy Credits (RECs). Contracts for offset projects provide more price stability and are typically established for longer terms (10-20 years) then RECs (1-3 years). About one-and-half-to-two years before operations begin, Poseidon will develop and issue an RFP for carbon offset projects and renewable energy credits. The RFP will require compliance with the Green-e certification standards. Poseidon will then select the best mix from the responses and contract for their acquisition or development. The exact nature and cost of the offset projects and RECs will be known once the RFP process is complete. If Poseidon were to purchase local offset projects, each with 10 year contract terms, the initial solicitation would cost an estimated $1.2 million in offset projects for the first decade, and over $5 million over the Project's 30 year life. Offsets or RECs will be used as the swing mitigation option to "true-up" annual changes to the Project's net carbon footprint.

As summarized in Table 3, the seven elements of Poseidon's Climate Action Plan will reduce the Project's net carbon emissions to zero over the life of the Project. Over the 30 year life of the Project, the gross capital cost of this Climate Action Plan is expected to be approximately $66 million.

Table 3: Climate Action Plan Measures and Costs

Climate Action Plan Measure	aMW	Tons of CO2	Cost (Millions)
New Desalination Plant with ERD (Baseline)	31.3	67,951	
High Efficiency ERD Premium Energy Efficient Pump Motors & VFDs	(3.2)	(6,947)	$52.4
Net Energy Use	28.1	61,004	
Replacement of Imported Water	21.8	(47,240)	
Other Energy Efficiency Measures	TBD	TBD	TBD
LEED-type Process	TBD	TBD	$5.0
Solar PV Project	TBD	TBD	TBD
Wetlands Mitigation Project Capital Cost	n/a	TBD	$3.0
Offsets/RECs	n/a	(13,764)	$5.1
TOTALS	**6.3**	**0**	**$66.4**

Table 4 summarizes the process and timing to implement the initial phases of Poseidon's Climate Action Plan. Appendix A sets forth this information in greater detail. The initial phase will be followed by annual validation and adjustments as set forth above.

Table 4: Process and Timing to Initiate the Climate Action Plan

Measure	Process	Timing
High Efficiency ERD	Engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Premium Efficiency Motors & VFDs	Engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Other Energy Efficiency Measures	Audit & engineering/design & include in construction	Complete 4-6 months after final regulatory approval
LEED-type Process	LEED-type process & engineering/design & include in construction	Complete 4-6 months after final regulatory approval
Solar PV Rooftop Project	Design, procure & construct	Start after regulatory approval, completed as part of Project construction by October 1, 2010
Wetlands Mitigation	Identify & develop mitigation plan & implement	Start 12 months after commercial operation and would be completed within 12 months
Offsets/RECs	RFP, evaluation & selection, contracting, acquisition or development, monitoring & verification	Write RFP Fall 2008, RFP released in Oct 2008 - Mar 2009, Selection & Contracting Nov 2008 – Oct 2009, Project development Oct 2009 – Oct 2010

Appendix A

Carbon Mitigation Options and Processes

There are several options available to Poseidon to mitigate its production of carbon, including:

1. Improving the energy efficiency of the Project
2. Building on-site or nearby renewable resource project(s)
3. Purchasing a mix of carbon offset projects
4. Purchasing green power

The implementation of Poseidon's plan will favor conservation and efficiency measures as well as on-site or near-by renewable energy generation. Each of these options and how Poseidon would procure them are more fully described in the following sections:

1. Improving The Initial Energy Efficiency Of The Project

All new desalination plants are built with a standard energy recovery device (ERD), and it reduces the energy consumption of a standard plant from 37.1 aMW down to 31.3 aMW. Therefore, the baseline energy consumption for a standard desalination plant is 31.3 aMW.

High Efficiency ERD - The Project could install a high efficiency ERD (similar to a DWEER system) that reduces the energy consumed by about an additional 10%, which takes the plant from 31.3 aMW to 28.1 aMW – a reduction in energy requirements of 3.2 aMW. A high efficiency ERD has successfully been installed at the Ashkelon desalination plant with similar energy savings. For a full explanation of the ERD and the high efficiency ERD, see Appendix B.

Energy Efficient Equipment - In addition to the high efficiency ERD, likely the most cost-effective option to reduce the energy use of the Project would be to install other high efficiency equipment. Poseidon has committed to install premium efficient motors and variable frequency drives (VFD) on the intake water pumps. An experienced industrial process energy auditor/engineer would suggest additional premium energy efficient equipment or design changes to replace other specified pieces of equipment. Premium energy efficient equipment could include: low-energy high-output lighting, additional skylights, and low-friction piping materials (FRP and HDPE). The cost of installing energy efficient equipment can be achieved in the range of 2-8 cents/KWH, and are among the most cost-effective mitigations options available to Poseidon. An added benefit of energy conservation measures is that they tend to be low capital cost with significant operating cost savings.

LEED-type Process - Poseidon could evaluate the project against Leadership in Energy and Environmental Design (LEED) principles. However, the LEED program was designed around making office and commercial buildings more energy efficient, and LEED certification for industrial facilities is notoriously difficult, if not impossible, to achieve. Nevertheless, the Project can be evaluated through a LEED-type process, and Poseidon Resources can implement as many of the LEED Checklist items as are reasonably possible, including many of the following items:

- Alternative Transportation: Bicycle Storage & Changing Rooms
- Alternative Transportation: Low Emitting & Fuel Efficient Vehicles
- Alternative Transportation: Parking Capacity
- Site Development: Protect & Restore Habitat
- Water Efficient Landscaping: Reduce by 50%
- Innovative Energy Saving Technologies, Materials and Equipment
- Water Use Reduction: 20% Reduction Goal
- Fundamental Refrigerant Management
- Optimize Energy Performance
- Storage & Collection of Recyclables
- Minimum IAQ Performance
- Construction IAQ Management Plan
- Low-Emitting Materials: Adhesives & Sealants
- Controllability of Systems: Lighting
- Innovation in Design: LEED Educational Program
- Use a LEED Accredited Professional

Other Carbon-Reducing Measures – Poseidon is exploring other measures to reduce the overall carbon footprint of the seawater desalination project, including the use of carbon dioxide from the air for water treatment. Carbon dioxide would be added to the desalinated water for increased product water stability and corrosion protection. When carbon dioxide is combined with calcium hydroxide (lime) and injected into the low-salinity water produced by the RO process, it would calcium hardness in the form of calcium bicarbonate to the drinking water. In this process gaseous carbon dioxide is converted to soluble calcium bicarbonate which remains in the drinking water. Sequestration of gaseous carbon dioxide obtained from ambient air into soluble form of calcium bicarbonate and introducing it in the drinking water would have two key benefits – (1) it would allow reducing the overall carbon dioxide footprint of the plant, and (2) it would enhance product water stability.

The costs of energy conservation measures and the LEED-type process are difficult to calculate at this time without a more specific and comprehensive engineering analysis, but these items are likely to be some of the most cost-effective options for reducing the Project's energy consumption and carbon footprint.

2. Building On-Site Or Near-By Renewable Resources

Displacing SDG&E system power with clean on-site, or nearby, renewable resources reduces the Project's carbon footprint. The March 2007 Brummitt study shows that a tilt array design on the Project's 55,000 square foot roof could generate about 777 MWH per

year. With a $4.1 million up-front cost and the substantial federal and state incentives (Business Energy Tax Credit, California Solar Initiative, the Modified Accelerated Cost-Recovery System, and Net Metering), along with the energy savings, the PV project would have a payback period of approximately 10 years. The system would provide about 0.3% of the total energy consumption of the Project and reduce the Projects carbon footprint by 193 metric tons. In addition to the economic development benefits bestowed on the local solar community by a large PV project, adding a solar PV array on the Project's rooftop would lower the Project's operating costs.

Other renewable projects could include the installation of mini-hydro turbines (i.e. - Pelton turbines) on the discharge pipeline.

3. Purchasing Offset Projects

Carbon offset projects derived from a bidding process is another option for reducing the Project's carbon footprint. A Greenhouse Gas (GHG) offset project is created when a specific project either reduces, avoids or sequesters GHG emissions. Offset projects can come from increasing energy efficiency in buildings or industries, reducing transportation emissions, generating electricity from renewable resources such as solar or wind, modifying industrial processes so that they emitted fewer GHGs, installing cogeneration, or capturing CO_2 in protected forests. (Another option described in the section below is called "Green Tags". These differ from offsets in that green tags come solely from certain renewable energy projects built after 1999).

In order for an offset to be recognized as legitimate and thus effective, it must demonstrate that the offset project would not have occurred without the funding from the offset purchaser. This is called "additionality." Once the project is complete, the reductions must also be rigorously monitored, verified and quantified. To measure the reductions, a baseline of GHG emissions must be established that quantifies the GHG emissions prior to the development of the offset project. Once the offset project is developed a new projection of GHG emissions must be undertaken by an independent third party to quantify the reduction, and the project must be monitored to verify that the reductions persist over time. A certified monitoring and verification plan is an essential component to ensure future regulatory compatibility of offset purchases.

"Green-e" recently embarked on an effort to standardize and certify the procurement of carbon offset projects – as they have done with Renewable Energy Credits (RECs) (Green-e is more fully described below). The Green-e Greenhouse Gas (GHG) Emission Reduction Product Certification Standard was approved by the Green-e Governance Board in June 2007. This standard will form the basis of a new consumer protection certification program offered by Green-e for offsets sold in the voluntary market. Green-e program staff is now working on developing a list of eligible organizations that will offer offsets. This is essential for future regulatory compliance.

Offsets have additional important environmental, social, and economic co-benefits. They commonly reduce other atmospheric pollutants, restore degraded lands, improve water quality and watersheds, protect endangered species, create jobs and save money through avoided energy purchases.

Examples of previously certified offset projects include: steam plant & paper manufacturer energy efficiency upgrades, small-scale rural wind development, rainforest restoration, forest preservation, school boiler conversion, lumber mill cogeneration, truck stop electrification, internet-based carpool matching, and traffic signal optimization.

The Project could acquire offsets by soliciting projects through a Request For Proposals (RFP). The steps in the RFP process are:

1. Determine how many tons of carbon to be offset.
2. Determine the RFP parameters such as: minimum project size, geographic boundaries for acceptable projects and implementation deadline. Determine the evaluation criteria such as: additionality, cost-effectiveness, reliability of the project proposer, reliability of the project concept and implementation plan, ownership, financial risk and mitigation plan, monitoring and verification plan, and co-benefits.
3. Advertise and distribute the RFP.
4. Evaluate the responses and proposals.
5. Make a selection of one or more offset projects.
6. Negotiate a contract with the offset project provider.
7. Certify the project's implementation/completion and make the payment

8. Monitor the project over time and verify the actual tons of carbon reduced.

The cost of offset projects varies depending on the geographic boundaries. Recent offset projects developed for compliance with California's AB 32 rules ranged from $7-$11 per metric ton. Some of these offers included the monitoring and verification plan and some did not. An appropriate average cost of offsets is about $9 per ton. The term for offset projects usually varies from 10-20 years.

4. Purchasing Green Power

There are two ways to purchase green power for the Project: direct purchase of a renewable project's output or the purchase of renewable energy credits or RECs (some times called green tags).

Direct Purchase - The market for renewables is currently very tight. Both the supply and demand for renewables is expected to grow because of the California Renewable

Portfolio Standard law (SB 1078) which requires 20% of electricity purchases in California to come from qualifying renewable resources by 2017. Currently the most competitive renewable resource is wind power, followed by geothermal and then solar PV. A significant challenge in purchasing wind power is the limited amount of available transmission capacity on the system to get the output delivered to the Project.

To directly purchase the output of a renewable resource, Poseidon would issue an RFP or work with a consultant to solicit proposals. The steps include:

1. Determine how much power will want to be purchased.
2. Determine the RFP parameters such as: response deadline, types of power contract required (i.e. – a purely output or guaranteed flat amount), payment terms, require power to be delivered to the Project, statement of qualifications, and project description.
3. Advertise and distribute the RFP.
4. Evaluate the responses and proposals.
5. Make a selection of one or more of the projects.
6. Negotiate a contract (Power Purchase Agreement or PPA) with the renewables project provider.
7. Accept and manage delivery of power and make payments.

Current prices for wind projects are at or above $70 per MWH at the busbar plus about an additional $10 for transmission and delivery, for a total cost of about $80 per MWH. One would have to net out the cost of the regular purchased power, and the resulting cost would be about $26 per ton of CO2.

RECs or Green Tags - An alternative to purchasing renewables directly would be to purchase Green Tags or Renewable Energy Credits (RECs), which are created when a renewable energy facility generates electricity. Each unique certificate represents all of the environmental attributes or benefits of a specific quantity of renewable generation (wind, geothermal and solar), namely the benefits that everyone receives when conventional fuels, such as coal, nuclear, oil, or gas are displaced. What you pay for when you buy renewable energy certificates is the benefit of displacing other non-renewable sources from the electric grid.[3] RECs are essentially carbon offsets that come exclusively from renewable generation resources.

Green-e is the national organization that certifies renewable energy projects, and is the nation's leading independent certification and verification program for renewable energy and companies that use renewable energy. Green-e certified over five million MWH of renewable energy sold in 2005. The Green-e Governance Board approved the Green-e National Standard in December 2005. This standard went into effect on January 1, 2007. Compliance with the Green-e standard ensures that your REC purchases will be

[3] From Green-e web site

recognized as legitimate. When purchasing RECs, Poseidon will be Green-e certified to ensure future regulatory compliance. Green Tags are a brand-name of RECs sold by one of the leading suppliers -- the Bonneville Environmental Foundation (BEF). One REC equals 1 metric ton of carbon. If and when comparable entities have adopted comparable standards as the marketplace develops for RECs, RECs may be secured from such alternative providers.

The process for obtaining RECs or Green Tags is similar to the process for purchasing offset projects. Poseidon will issue an RFP or contract directly with a supplier of RECs (such as BEF):

1. Determine how many MWH will want to be purchased and then calculate the number of tags or RECs required.
2. Determine the RFP parameters such as: geographic boundaries for acceptable RECs and a proposal deadline.
3. Determine the evaluation criteria such as: additionality, cost-effectiveness, reliability of the project proposer, reliability of the project concept and implementation plan, ownership, financial risk and mitigation plan, monitoring and verification plan, and co-benefits.
4. Advertise and distribute the RFP.
5. Evaluate the responses and proposals.
6. Make a selection of one or more RECs.
7. Negotiate a contract with the REC provider.
8. Make an annual payment over the term of the contract. Currently RECs are being sold for a term of 1-3 years, which means they would need to be repurchased at the end of that term. This also means that this process would become an on-going task every 1 to 3 years for the life of the Project.

RECs in California are currently being sold for about $5.00 per MWH. National RECs are being sold for less (in the range of about $2.50-$3.00), but they may not be certified and may not be recognized by local regulators.