



• August 15-18, 2010 • Dallas, Texas •
• Dallas Convention Center •



August 18, 2010

Greenhouse Gas Track

Presented by Kevin DeGroat, Antares Group, Inc.

EO13514 Update

- RE Accounting Tool Released on FedCenter Site
 - Combines EPA Act and GHG Accounting for RE in One Spreadsheet
 - Hides Complicated Calculations on GHG Emissions, Energy Intensity Reduction Phase Out, REC Swap, etc....
 - Requires Many Data Fields, but Mostly Pull-Down Selections
- Scope 1 Direct Emissions from On-Site Non-Electric RE
- Scope 2: Electricity Producing RE and Purchases of Electric and Non-Electric
- Scope 3: T&D Losses from RE
- Available at www.FedCenter.gov/ghg

Section 4: Renewable Energy and Carbon Offsets

- Emissions reductions from Renewable Energy Purchases (RECs) or On-site Generation are Indirect, Affect Scope 2 Emissions
 - When On-site Generation Displaces Direct Use of Fossil Fuels, it Helps Reduce Scope 1
- Carbon Offsets
 - Not Eligible to Reduce an Agency's Emissions, Because No Guidelines for Offset Eligibility Established Yet
- Renewable Energy Purchases in Base Year Will Not Influence Target Calculations

Section 4: Renewable Energy and Carbon Offsets

- 4.1 Purchases Including RECs
 - Must Acquire Environmental Attributes to Reduce Scope 2, but RE without RECs (hosted projects) can be tracked as a Scope 3 reduction effort
 - REC Purchases Count Against Scope 2 Emissions
 - On-site RE Projects Also Reduce Scope 3 Emissions
 - Calculations:
 - REC or Purchase Carbon Impact Based on Location of Renewable Energy Project, Not Purchaser Location, eGrid Subregion Non-Baseload Values for Electricity
 - Biomass Must Add N₂O and CH₄ Emissions from Combustion
 - GHG Emissions from Electricity from Landfill Gas Does Not Include Methane Destruction for Scope 2, Only Electricity Displacement
 - On-Site Landfills May Include Methane Destruction Credits
 - MSW: Must Separate Renewable from Non-Renewable Waste Streams in Calculations of Scope 2, Report Both

Section 4: Renewable Energy and Carbon Offsets

- 4.2 On-Site Renewable Energy
 - On-Site Projects that Reduce Purchased On-Site Power or Fuel Use e Help with Scope 2, Also Reduce Scope 3
 - If Project is Separately Metered and Delivered, Need to Adjust Scope 2 Emissions Using e-Grid Factor
 - Any Reduced Use of Fossil Fuels On-site Automatically Accounted for in Scope 1 Reductions
 - Any Direct Emissions from On-Site Projects (i.e. N₂O and CH₄ for Biomass Combustion) Are Reported as Scope 1 Emissions
 - If RECs for On-Site Project Are Not Retained, Must Adjust Scope 1 and Scope 2 Based on Conventional Electricity or Fuels Needed to Replace Energy From Project (for Electricity, eGrid Estimates)
 - Third-Party Ownership of On-Site Systems: Unless Site Retains RECs, Treat as Normal Grid-Based Electricity for Emissions.

Section 4: Renewable Energy and Carbon Offsets

- 4.2 On-Site Renewable Energy (continued)
 - On-Site Renewable Energy Not Generating Electricity
 - Solar Water Heating, GSHPs, Geothermal Direct Use as Examples
 - Automatically Reduce Scope 1 and Scope 2 Emissions
 - Biomass Systems Must Adjust Scope 1 for Any Net GHG Emissions (i.e. CH₄ and N₂O)
 - If Owned by External Entity Adjust Scope 2
 - Agencies Must Retain Non-Electric Equivalent of RECs to Report Emissions Reduction
 - If Not Retained, Adjust As If the Energy Came from Conventional Sources
 - Limited Markets for Non-Electric RECs and Limited Verification and Tracking Systems for These Types of RECs Warrant Caution

SRCC for Standard SWH Systems

**SOLAR WATER HEATING
CERTIFICATION AND RATING**



SRCC OG-300

CERTIFIED SOLAR WATER HEATING SYSTEM

SUPPLIER: Heliodyne, Inc.
4910 Seaport Avenue
Richmond, CA 94804 USA
(510) 237-9614
(510) 237-7018 Fax

SYSTEM NAME: Helio-Pak Helix SS PV

SYSTEM TYPE: Indirect Forced Circulation

LOCATION: TAMFORTH



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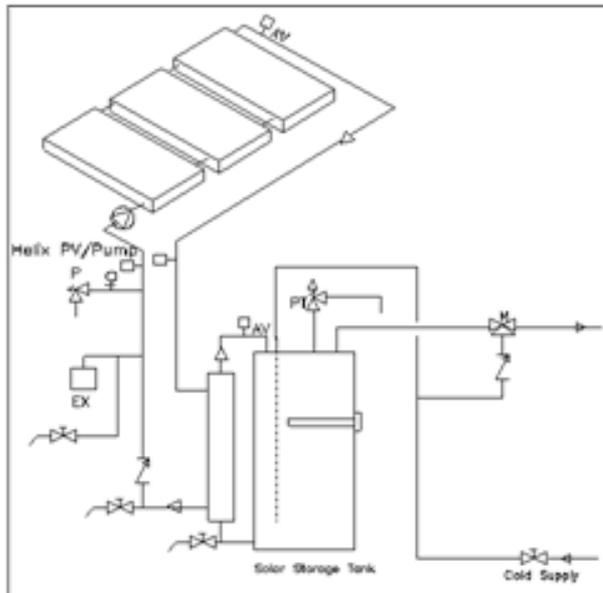
SYSTEM TYPE: Indirect Forced Circulation

LOCATION: TAMFORTH

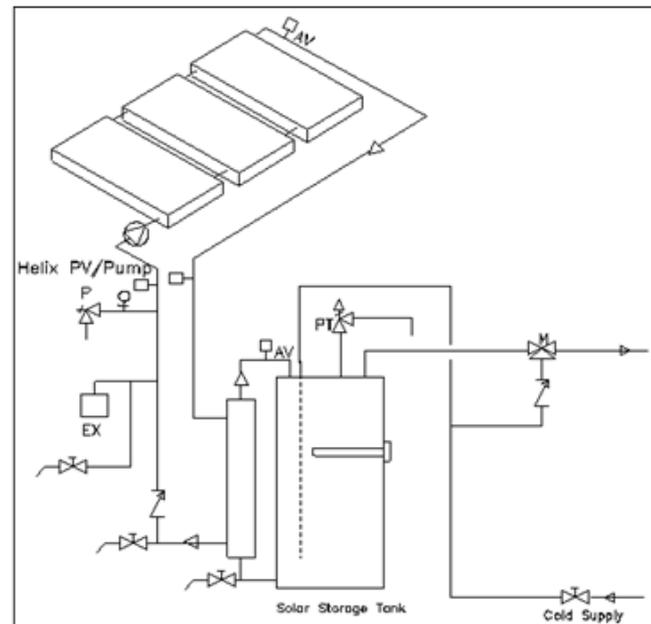
Description: Glazed Flat-Plate, Photovoltaic Panel Controller, Shell and Tube Heat Exchanger with a Single Wall, No Load Side Heat Exchanger, Freeze Tolerance: -60 F, Fluid Class II, Electric Auxiliary Tank

System Model Name	Com 300#	Com Date	Collector Panel Manufacturer	Collector Panel Name	Total Panel area (Sq-ft)	Solar Tank Vol (g)	Solar Tank Vel (g)	Aux Tank Vol (g)	Aux Tank Vel (g)	SEF	Annual Savings (kWh)	Annual Solar Fraction
HP HX SS 3 3366 G PV 120 SE S	2005003R	28-APR-06	Heliodyne, Inc.	336 001	7.5	80.3	454	120		3.7	3431	.82
HP HX SS 3 408 G PV 120 SE S	2005003L	28-APR-06	Heliodyne, Inc.	408 001	9	96.7	454	120		11.3	3530	.85

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OG-300 System Reference 2005003R SVG Diagram Display



Section 3.0 Biogenic Emissions and Sequestration

- Section 3.1 Biofuel Combustion
 - 3.1 Biofuels Combustion
 - Reported Separately
 - CH₄ and N₂O Must Be Reported, but CO₂ is Considered Neutral
 - Emissions from Fossil Fuel Component Must Be Reported in Full
 - 3.2 Biomass Combustion
 - Reported Separately
 - CH₄ and N₂O Must Be Reported, but CO₂ is Considered Neutral
 - Emissions from Fossil Fuel Component Must Be Reported in Full
 - No Reporting Required for Wildfires or Prescribed Burning

E-Grid Regions and Non-Baseload CO2 Equivalent Emission (lbs/MWh)



Overview: RE Requirements

Source of Requirement	Produce, Use, or Both	Level...	Applies to...
EO13514 Section 9	Use, All RE	Individual agency goals	All Agencies
EPAAct 2005 Federal Use Goal	Use, Electric	3% FY07-09 5% FY10-12 7.5% FY13...	All Agencies
Executive Order 13423	Use, All RE	½ of EPAAct Federal Goal from “New” Sources	All Agencies
DoD National Defense Reauthorization Act of 2007	Produce or Use, All RE	25% of electricity by 2025	DoD
EISA 2007 SWH Requirement	Use, Solar Water Heating	30% of hot water needs in new buildings/major renovations	All Agencies
EISA Sustainable Design Standards	Use, All RE	All new buildings, renovations	All Agencies
EPAAct 2005 BLM Production Goal	Produce, Electric	10,000 MW by 2015	BLM

RE Site Ownership Information

Renewable Energy Site/Ownership Information							
Electric Generating Capacity (MW) (optional)	Facility Name (optional)	Facility Zip (5 digit)	Goal Subject or Excluded Building	Siting Status: On -Site, Federal or Indian Land	Placed in Service Before or After January 1, 1999	REC Status: Ownership and Purchase Status	Does Agency Own T&D System that Delivers Purchased Electricity?

Electric projects that are off-grid do not require a zip code. Multiple systems of the same type can be grouped into one entry.

Systems that do not produce electricity do not require a zip code.

If the facility served by the renewable energy is excluded from energy performance requirements, choose Excluded. All other facilities are Goal. Systems that do not directly serve a facility, like a remote sensor, should be listed as Excluded.

On Federal or Indian Land, On User Site
 On Federal or Indian Land, Transmitted to Site
 NOT on Federal or Indian Land, Adjacent to User Site
 NOT on Federal or Indian Land, Transmitted to User Site

Needed to determine if transmission and distribution losses are Scope 1 or Scope 3, if applicable.

This is a REC-only purchase
 This is a Green Energy Purchase (REC and Energy)
 Agency owns RECs for this project
 Agency does not own RECs for this project

RE Project Information

Renewable Energy Project Information

Scope 1 or Scope 2 Project?	Electric or Non-Electric Renewable Energy	Renewable Electricity Type	Non-Electric Energy Type



For Scope 1, any biogenic emissions will be added to Scope 1 emissions.
 For Scope 2, any biogenic emissions will be added to Scope 2 emissions.
BE SURE SCOPE 1 AND SCOPE 2 RENEWABLE ENERGY DATA IS REPORTED SEPARATELY FROM OTHER ENERGY DATA.

Electric On Grid
 Electric Off Grid
 Non-Electric
 Both, On-Grid
 Both, Off-Grid

NA
 Biomass (including wood, agricultural by-products, ethanol, biodiesel, animal fat, vegetable oil, etc....)
 Landfill Gas
 Municipal Solid Waste
 Wind
 Solar Photovoltaic
 Concentrating Solar Power (CSP)
 Incremental Hydropower
 Hydrokinetic (non-ocean)
 Ocean (Thermal, Wave, Tidal, other)
 Conventional Hydropower

NA
 Biomass (including LFG, MSW, Other)
 Solar Thermal (including water and space conditioning)
 Geothermal
 Ground Source Heat Pumps
 Mechanical (i.e., direct water pumping)
 Daylighting

RE Consumption, Production

Non-Electric Energy Use or Output (Million BTUs)	Electric Energy Use or Output (KWh)	Electricity Use (MWh)	\$ Spent on Project or Purchase for Fiscal Year	Costs/kWh	Costs/Million BTU
		-		FALSE	FALSE

DO NOT ENTER any value in this column for:
 Daylighting
 Ground Source Heat Pumps
 Solar Heating and Cooling including Hot Water

Use Column M for non-Electric Energy Consumption or Production. Convert kWh to BTUs using 3412 BTU/kWh, if applicable.

For a REC purchase the amount spent on RECs for this FY. For a renewable thermal or electric purchase the amount spent on the energy this FY. For a project or upgrade, the amount invested this FY. Include biomass fuel costs here and in Column S.

RE Consumption, Production and Fuel

Principal Biomass Fuel Type	Principal Biomass Fuel Use (Million BTUs)	Secondary/Blended Fuel Type	Secondary/Blended Fuel Use (Million BTUs)	Fuel Costs	Costs/Million BTU
					FALSE

Municipal solid waste
 Wood and wood residuals
 Agricultural byproducts
 Solid byproducts
 Biogas (captured methane)
 Ethanol (100%)
 Biodiesel (100%)
 Rendered animal fat
 Vegetable oil

Coal Anthracite
 Coal Bituminous
 Coal Subbituminous
 Coal Lignite
 Coal Coke
 Coal Mixed (Commercial sector)
 Coal Mixed (industrial coking)
 Coal Mixed (industrial sector)
 Coal Mixed (Electric Power sector)
 Natural Gas Pipeline (Weighted U.S. Average)
 Distillate Fuel Oil No. 1
 Distillate Fuel Oil No. 2
 Distillate Fuel Oil No. 4
 Distillate Fuel Oil No. 5
 Distillate Fuel Oil No. 6
 Still gas
 Kerosene
 Liquefied petroleum gases (LPG)
 Propane
 Propylene
 Ethane
 Ethylene
 Isobutene
 Isobutylene
 Butane

Butylene
 Naphtha (<401 degrees F)
 Natural gasoline
 Other oil (>401 degrees F)
 Pentanes plus
 Petrochemical feedstocks
 Petroleum coke
 Special naphtha
 Unfinished oils
 Heavy gas oils
 Lubricants
 Motor gasoline
 Aviation gasoline
 Kerosene-type jet fuel
 Asphalt and road oil
 Crude oil
 Municipal solid waste
 Tires
 Blast furnace gas
 Coke oven gas
 Wood and wood residuals
 Agricultural byproducts
 Peat
 Solid byproducts
 Biogas (captured methane)
 Ethanol (100%)
 Biodiesel (100%)
 Rendered animal fat
 Vegetable oil

Contact Information

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