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## **PG&E – Marin Greenhouse Gas Reduction and Renewable Energy Partnership Proposal**

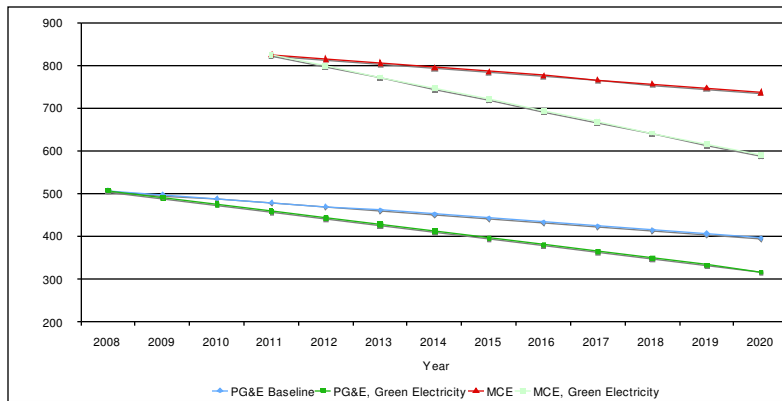


**Larry Simi, Director PG&E Government Relations/Public Affairs  
Joe Nation, Ph.D. ENVIRON International**

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**November 18, 2008**

## Marin-PG&E Partnership GHG Emissions Rate 2008-2020



Note: Marin-PG&E Partnership estimates based on CPUC-Energy Commission AB 32 CEE Reference Case, Renewables Aggressive Case. Subject to removal of obstacles to renewables development. MCE based on 25% renewables in 2011, growing at same rate as PG&E.

We start with PGE actual. We start with MCE docs with 25%.

## Proposed Marin-PG&E Programs

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- Community Renewable Energy Projects
- Additional Renewable Energy Procured Under the “Marin Green Electricity Program”
- Energy Efficiency Programs
- Joint Marketing with Local Solar Vendors
- PG&E Technical Support for “Sustainable Communities” Initiatives under SB 375 and AB 32
- Accelerated Deployment of Plug-in Hybrid Electric Vehicle Infrastructure and Services in Marin
- Green the Non-Profit Sector
- Green Jobs Initiative

My idea is simply to talk briefly about these programs and how they reduce GHG. We should have back-up detailed slides if they want more info.

Non-profit details: 3-Year Green Initiative \$35K for CA Film Institute, MCF \$50K for green projects,

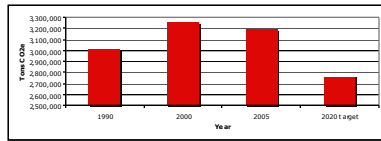
Jobs/education: Cool the Earth \$5K; Marin Conservation Corps Project Regeneration \$10K, Marin Link/Next Generation Green Schools \$5K, Point Reyes National Seashore \$10 for low income environ education

## **Marin-PG&E Greenhouse Gas Reduction and Renewable Energy Partnership**

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**Joe Nation, Ph.D.**  
**ENVIRON International**  
**Nov. 18, 2008**

## PG&E Commits to Partner to Meet Marin's GHG Goals



Source: Marin County Community Development Agency, Marin County Re-inventory of Greenhouse Gas Emissions, Sept. 2007.

QuickTime™ and a decompressor are needed to see this picture.

Source: Marin County Community Development Agency, Marin County Re-inventory of Greenhouse Gas Emissions, Sept. 2007.

- Marin 2020 target: 2.764 million tons CO2e
- Requires 424,000 ton reduction, or 13% below 2005 inventory
- Requires focus on other sectors, especially transportation
- Marin-PG&E partnership can deliver a large share of reductions

Under realistic scenarios, PG&E can help deliver at least and perhaps up to 65% of 2020 GHG reduction target. But even an elimination of all electricity in the county (or 100% green electricity) only reduces GHG 275,000 tons per year.

## Community Renewables Could Target Local Solar Potential

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- The Marin Green Electricity Program is voluntary opt-in to 100% renewables
- County consultant targeted 220 MW PV (316 GWh)
- Focus on large-scale deployment to minimize costs
  - Public/government/school buildings: 18 MW potential
  - 745 commercial rooftops with 58 MW potential
  - 338 institutional: 13 MW potential
  - Total potential MWh from large-scale: 144 GWh (11% load)
- Residential rooftop PV
  - 20 plus million square feet, but likely lower potential, higher costs

The link between solar and the Green Tariff is illustrative only. The main point of this slide is to create the link between PG&E renewable efforts and local government, i.e., to require their active cooperation to site these solar “facilities”

# PG&E Renewables – 3684 MW

## Under Construction

## In Pipeline

Project	MW	Technology
Big Valley Lumber	8	Biomass
Bottle Rock USRG	17-55	Geothermal
Buckeye Hydro	0.4	Hydro
Buena Vista Energy LLC	38	Wind
Calpine	57	Geothermal
Calpine Geysers	200	Geothermal
Calpine Geysers 13 & 20	110	Geothermal
CBEA Projects (Sierra, CRES, Madera)	42	Biomass
Diablo Winds	18	Wind
Eden Vale Dairy	0.15	Biogas
FPL Energy -MortezumaWinds	32	Wind
Global Common - Chowchilla	9	Biomass
Global Common - El Nido	9	Biomass
Green Vots	2	PV
HFI Silvan	20-40	Biomass
Iberdrola/BPA Killia	91	Wind
Military Pass Rd. (Vulcan)	60 -120	Geothermal
Pacific Renewable Energy Generation 1	83	Wind
Palco	6.8	Biomass
PPM-Klondike	85	Wind
Shiloh 1 Wind Project LLC – PPM	75	Wind
Tunnel Hydro	0.6	Hydro
Wheelabrator #4	3	Biomass
<b>TOTAL</b>	<b>1085 MW</b>	

Project	MW	Technology	On-line
Arlington Wind (Horizon)	103	Wind	December 2008
enXco	150	Wind	December 2008
CaRenew	5	PV	April 2009
Liberty Biofuels McCarthy Family Farms	5-10	Biofuels	December 2009
Newberry	60-120	Geothermal	January 2010
Wadham	26	Biomass	January 2010
IAE Truckhaven	49	Geothermal	July 2010
SunPower	250	PV	December 2010
Ausra	177	Solar Thermal	January 2011
Solel	553	Solar Thermal	January 2011
Evira (San Joaquin Solar)	106	Solar / Biofuels	June 2011
OptiSolar	550	PV	December 2011
Bright Source	500	Solar Thermal	January 2012
Bio_Energy LLC	TBD	Biogas	tbd
Microgy	TBD	Biogas	tbd
<b>TOTAL</b>	<b>2599 MW</b>		

Small projects. Range from 5 to 553MW.

## Marin-PG&E Partnership for Energy Efficiency

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- PG&E Programs
  - Rebates, energy audits, direct install, appliance turn-in: performance contracting, energy management services: typically nonresidential programs
- Focus on Energy Conservation and Building Efficiency
  - Energy audits, combined heat and power, solar water heaters, smart meters, building energy design services, energy efficiency rebates and incentives, demand response programs, employer and commuter transportation programs, assistance and job training to “green energy” vendors and developers
- Expand, coordinate with local non-profits, other funding sources

Probably delete this slide for the presentation.

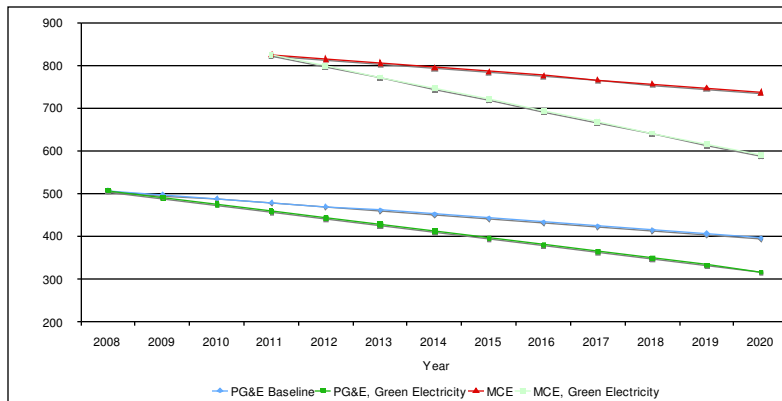
## Other Partnership Environmental Programs

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- ClimateSmart Program
- Transportation
  - Partnership with Plug-In Partners and Plug-In Bay Area to promote development and deployment of plug-in hybrid and dedicated electric technology
  - Largest fleet of natural gas vehicles operated by any utility in U.S., including liquefied natural gas heavy-duty vehicles: avoided the emission of 60,330 tCO<sub>2</sub> in 2007 alone
  - First utility to demonstrate Vehicle-to-Grid technology
  - Clean Air Transportation Program: supports the use of alternative fuel vehicles by customers with fleet vehicles
- Integrated Resource Planning and Sustainable Communities

Briefly. Very innovative programs in export sector; leader on green building design, sustainable communities. Link programs in comprehensive fashion. Resource to building industry, local governments.

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## Summary: Advantages of Marin-PG&E Partnership

Element	Marin-PG&E Partnership	Marin Clean Energy
Annual GHG impact by 2020	Reduction of 102,000 metric tons/yr	Increase of 51,000 metric tons/yr
GHG/MWh in 2020	318 lbs/MWh	590 lbs/MWh
New renewables in development	3684 MW	0 MW
County/City debt and liability exposure	None	\$475 million long-term debt plus \$22 million short-term debt
County/City guarantee for debt and liability	No	Likely
Customer choice	Yes	Automatic enrollment
Customer base	Stable	Uncertain

## Partnership Elements

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- Shared responsibilities
  - Clearly identified in advance
- Roles
  - County: target setting, land use/permitting assistance
  - PG&E: target setting, technical support, project development
- Operations
  - Regular collaboration, consultation
- Structure
  - Committee with joint administrative roles

## Proposed Next Steps

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Date	Action
December, 2008	PG&E Presentations to Other Marin Towns and Cities
December, 2008	County, towns and cities appoint staff to discuss mutual projects and programs that could be included in Marin-PG&E Partnership
January-March, 2009	PG&E, Marin County, towns and cities identify mutual projects and programs, solicit public comment
June, 2009	PG&E, Marin County, towns and cities agree on Green Partnership
January, 2010	PG&E, Marin County, towns and cities begin implementation of projects, programs

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