Expanding Renewable Energy use in Del Mar

Del Mar's Energy Issues Advisory Committee

February 9, 2006

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Meeting Overview

- About EPIC
- Existing Solar Incentive Programs
- EPACT of 2005
- CSI
- Del Mar Solar Policy
- Case Studies
  - City of San Diego
  - Del Mar Fairgrounds

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About EPIC

- Academic and Research Center
  - University of San Diego School of Law
- EPIC Mission
  - Educate the public and public officials concerning energy issues and policies;
  - Educate law school students about energy law and policy;
  - Conduct research and analysis on energy trends, policy options and their implications; and,
  - Encourage the use and development of less costly and more environmentally-friendly energy resources.

About EPIC

- Current EPIC Projects
  - Smart Grid Study
  - Solar Laws
  - Distribute Renewable Energy Credits
  - Energy Law and Policy Course/Clinic

Energy Efficiency First

- The cheapest kilowatt is the one not used!
- Maximize efficiency first…
  - Building design and orientation
  - Windows
  - Lighting
  - Insulation
  - HVAC
  - ETC.
- …Then look at distributed generation

Existing Solar Incentive Programs

- California Energy Commission (CEC)
- Rebates for Projects <30 kW
- Current Rebate: $2.80/watt
- Rebate Declines $0.20 every 6 months
- Pilot Performance Based Incentive
  - Pays incentive based on system output
- www.consumerenergycenter.com/erprebate/

Existing Solar Incentive Programs

- Self Generation Incentive Program
  - San Diego Regional Energy Office
  - $2.80/watt
  - PV Systems 30 kW – 1 MW
  - Other Distributed Generation Technologies
    - CHP
    - Fuel Cells
    - Wind
  - Very high demand for funding
    - Recent increase and CSI will alleviate to some extent
  - For more info, see www.sdenergy.org

Energy Policy Act of 2005

- Business Energy Tax Credit (§1336, §1337)
  - Credit Value
    - 10% for microturbines, geothermal
    - 30% for all other technologies
    - Certain caps apply
  - Eligible Taxpayer
    - Commercial taxpayers installing eligible equipment
  - Eligible Equipment
    - PV, solar water (not pools), fuel cells, microturbines, and solar hybrid lighting
  - Expiration Date
    - Expires 12-31-07
    - Reverts back to 10% Business Tax Credit

Energy Policy Act of 2005

Business Energy Tax Credit Caps

Technology	Credit	Cap
Fuel Cells	30%	$500/0.5 kW
Microturbines	10%	$200/kW
Photovoltaics	30%	No cap
Solar Water Heating	30%	No cap
Solar Hybrid Lighting	30%	No cap
Geothermal	10%	No cap

Energy Policy Act of 2005

- Residential Solar/Fuel Cell Credit (§1335)
  - Credit Value
    - 30% of equipment cost
    - $2,000 cap for PV and solar water heating
    - $500/0.5kW cap for fuel cells
  - Eligible Taxpayer
    - Residential taxpayers installing eligible equipment
  - Eligible Equipment
    - PV, solar water (not pools), and fuel cells,
  - Expiration Date
    - For residential property placed in service after December 31, 2005 but on or before December 31, 2007.

CA Solar Initiative

- CPUC Approved CSI on 1-12-06
  - D.06-01-024
  - Funding levels
  - Basic program framework
  - Workshops to work out details
- Financial Incentives
  - Photovoltaics
  - Solar thermal electric
  - Solar water heating (pilot)

CA Solar Initiative

- Funding Amount
  - $2.5 billion (CPUC)
    - Commercial and Existing Residential Buildings (CERB)
  - $350 million (CEC)
    - Residential New Construction Component (RNCC)
- Key Provisions
  - 10-year program
  - PV Incentives @ $2.80/watt
    - Declining steadily over time to zero
  - Increase rebate limit from 1 MW to 5 MW
  - Consider performance-based incentives

CA Solar Initiative

- Key Provisions (cont'd)
  - Recommended 5% R&D set aside
  - 10% set aside for low income/affordable housing
  - Require energy audit
  - Advanced meter requirement

CA Solar Initiative

- What will the CSI mean for the region?

Year	Total Annual Budget CERB	Administration Allocation	R&D Allocation	Total Estimated Incentives	Sample Rebate Schedule	Estimated MW Annually	Estimated MW Cumulative with Existing	Estimated Peak MW Contribution (50% reduction)
2005							20	10.0
2006	$35,454,545	$3,545,455	$0	$31,909,091	$2.80	11.4	31.4	15.7
2007	$41,954,545	$4,195,455	$2,097,727	$35,661,364	$2.50	14.3	45.7	22.8
2008	$41,954,545	$4,195,455	$2,097,727	$35,661,364	$2.25	15.8	61.5	30.8
2009	$41,954,545	$4,195,455	$2,097,727	$35,661,364	$2.00	17.8	79.3	39.7
2010	$32,204,545	$3,220,455	$1,610,227	$27,373,864	$1.75	15.6	95.0	47.5
2011	$32,204,545	$3,220,455	$1,610,227	$27,373,864	$1.50	18.2	113.2	56.6
2012	$32,204,545	$3,220,455	$1,610,227	$27,373,864	$1.25	21.9	135.1	67.6
2013	$19,204,545	$1,920,455	$960,227	$16,323,864	$1.00	16.3	151.5	75.7
2014	$19,204,545	$1,920,455	$960,227	$16,323,864	$0.75	21.8	173.2	86.6
2015	$19,204,545	$1,920,455	$960,227	$16,323,864	$0.50	32.6	205.9	102.9
2016	$9,454,545	$945,455	$472,727	$8,036,364	$0.25	32.1	238.0	119.0
	$325,000,000	$32,500,000	$14,477,273	$278,022,727		218.0		

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City of Del Mar Policy

- Solar Energy Ordinance (Ord. 306)
  - Focuses on space and water heating
  - Select Provisions:
    - Solar heating for all new heated buildings
    - Air conditioning discouraged
    - Solar water heating – REPEALED
    - Solar heating for ALL pools >75 SF
    - Remodels conform to space heating section
    - Exemption if compliance represents hardship
- Could be vehicle for policy changes

Actions to Promote Solar Energy

- Green Building Policy
  - Many cities in CA
- Expedited Permitting
- Reduced/Free Permitting
  - County of San Diego – no permitting fee for PV
- Mandates
  - Very controversial
  - Questionably effective
- Solar Water Pre-plumb
  - City of Carlsbad

Actions to Promote Solar Energy

- Education
  - Solar Energy Week Proclamation
  - Solar Homes Tour Sited in Del Mar
  - Solar Energy on Del Mar Facilities
    - Educational materials
  - Solar on Schools
    - Supporting Curriculum
  - Educational Piece on Tax Credits/Rebates
    - Mailer
    - Newsletter
    - Etc.

Regional Economies of Scale

- Regional Action
  - Regional aggregation of products
  - Regional financing mechanism
    - Financing remains a barrier
  - Regional education programs
- Challenges
  - Harmonizing procurement processes
  - Possible need for bonding authority
  - Politics

Case Study: City of San Diego

- Sustainable Energy Advisory Board
  - Consider ways to encourage 30 MW of PV in City limits by 2013
- Recommendations Included
  - Expedited permitting program
  - Power Purchase Agreement
  - Education

Case Study: City of San Diego

- Power Purchase Agreement
  - 1 MW of PV
- Sun Edison
  - Installs
  - Owns
  - Operates
  - Retains some portion of RECs
  - Sells power to City of San Diego
    - $0.12/kWh
    - 1% annually inflation factor
- Advantage
  - No capital outlay
  - Similar or lower ongoing expenses

Case Study: Del Mar Fairgrounds

- 1 MW
  - ~200 San Diego Homes
- Installed Cost: $4.51/watt
- Nearly 10,000 Modules
  - Installed on 11 Barns
- 20% of Fairgrounds power
- Rebate: $2.2 M
- CA Construction Authority
  - Installing PV at fairgrounds in CA

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Case Study: Del Mar Fairgrounds

- How did CCA do it?
  - In-house engineering
    - CCA staff designed project
  - Disaggregated bid process
    - Bulk module purchase
    - Bulk inverter purchase
    - Separate installation contract

Questions?

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