

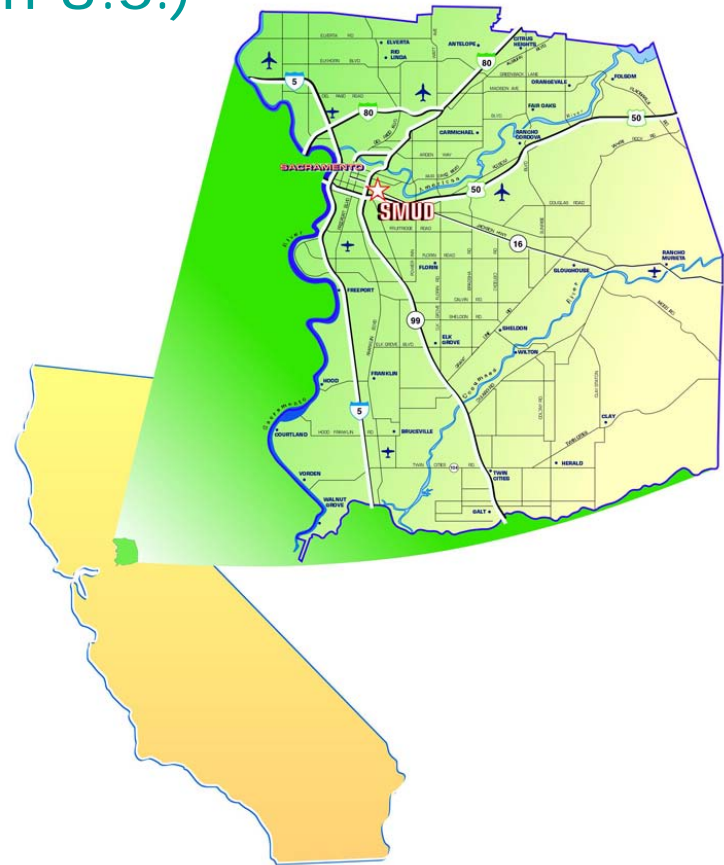
# SMUD's Successful, Value-Based Feed-In Tariff



Tim Tutt  
Sacramento Municipal Utility District

# Sacramento Municipal Utility District

- ◆ Publicly Owned (Sixth Largest in U.S.)
- ◆ Fifth Largest California Utility
- ◆ 900 Square Mile Service Area
- ◆ Population Of 1.4 Million
- ◆ Over 578,000 Customers
- ◆ Peak Demand About 3000 MW
- ◆ 11,000 GWh Annual Sales



# SMUD's Adopted Sustainability Targets

- Renewable Portfolio Standard
  - *20% - 2010 (Plus 3% For Greenergy)*
    - *Goal Accomplished!*
  - *33% - 2020 (Plus 4% For Greenergy)*
- Energy Efficiency Programs
  - *15% Reduction In Forecast Load By 2018*
- GHG Reductions
  - *Reduce GHG For Retail Load To 10% of 1990 Emissions By 2020*

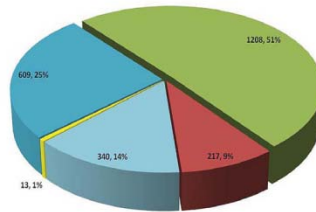


# SMUD's Current Clean Energy Efforts

- **SMUD Solar Shares**<sup>SM</sup>
- *Solarhighways*
- *Community Renewable Energy Deployment*



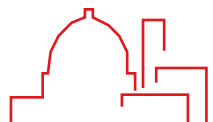
SMUD's Total 2009 Renewables Supply



- Biomass
- Geothermal
- Small Hydro
- Solar
- Wind

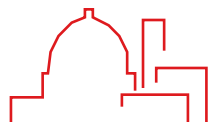
- *CSI/SolarSmart Homes*
- *Renewable Procurement*
- *Greenenergy*

- *Efficiency Programs*
- *Smart Grid Deployment*
- *EV Leadership*
- *Feed-In Tariff*



# SMUD's Feed-In Tariff

- **SMUD Board Approved 100 MW FIT In October, 2009, With The Following Goals**
  - ***Support*** SMUD's Strategic Directives for Environmental Protection and Resource Planning
  - ***Bridge*** the gap between California Solar Initiative net metered incentive programs and our bilateral renewables procurements
  - ***Encourage*** local resources & develop distributed generation within SMUD's service territory
  - ***Objectively Value*** the energy provided to SMUD ratepayers – based on avoided costs, with GHG and avoided gas risk adders



# SMUD's Feed-In Tariff Rates

## Renewable FIT Rates – 2010 Vintage

Time of Use Period	2010 Start Year			2011 Start Year			2012 Start Year		
	10-Year	15-Year	20-Year	10-Year	15-Year	20-Year	10-Year	15-Year	20-Year
WinterOffPeak	\$0.0745	\$0.0807	\$0.0865	\$0.0785	\$0.0846	\$0.0905	\$0.0821	\$0.0883	\$0.0943
WinterOnPeak	\$0.0903	\$0.0974	\$0.1039	\$0.0949	\$0.1018	\$0.1085	\$0.0990	\$0.1059	\$0.1126
WinterSuperPeak	\$0.1115	\$0.1193	\$0.1267	\$0.1163	\$0.1241	\$0.1315	\$0.1207	\$0.1286	\$0.1361
SpringOffPeak	\$0.0632	\$0.0690	\$0.0743	\$0.0673	\$0.0729	\$0.0783	\$0.0706	\$0.0763	\$0.0817
SpringOnPeak	\$0.0772	\$0.0834	\$0.0893	\$0.0815	\$0.0876	\$0.0935	\$0.0850	\$0.0912	\$0.0971
SpringSuperPeak	\$0.0819	\$0.0884	\$0.0944	\$0.0863	\$0.0926	\$0.0987	\$0.0899	\$0.0963	\$0.1024
SummerOffPeak	\$0.0800	\$0.0865	\$0.0925	\$0.0842	\$0.0906	\$0.0967	\$0.0880	\$0.0945	\$0.1008
SummerOnPeak	\$0.0871	\$0.0936	\$0.0998	\$0.0913	\$0.0978	\$0.1041	\$0.0949	\$0.1015	\$0.1078
SummerSuperPeak	\$0.2942	\$0.3092	\$0.3234	\$0.3007	\$0.3162	\$0.3308	\$0.3088	\$0.3246	\$0.3396
<b>Annual Average</b>	<b>\$0.0968</b>	<b>\$0.1040</b>	<b>\$0.1107</b>	<b>\$0.1013</b>	<b>\$0.1084</b>	<b>\$0.1151</b>	<b>\$0.1053</b>	<b>\$0.1125</b>	<b>\$0.1194</b>

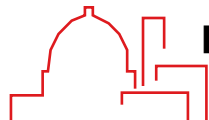
- *Are levelized for contract term (no escalation)*
- *PV Production-Weighted , non-tracking, south orientation, 20 year contract*

■ *2010 – 13.9 ¢/kWh*

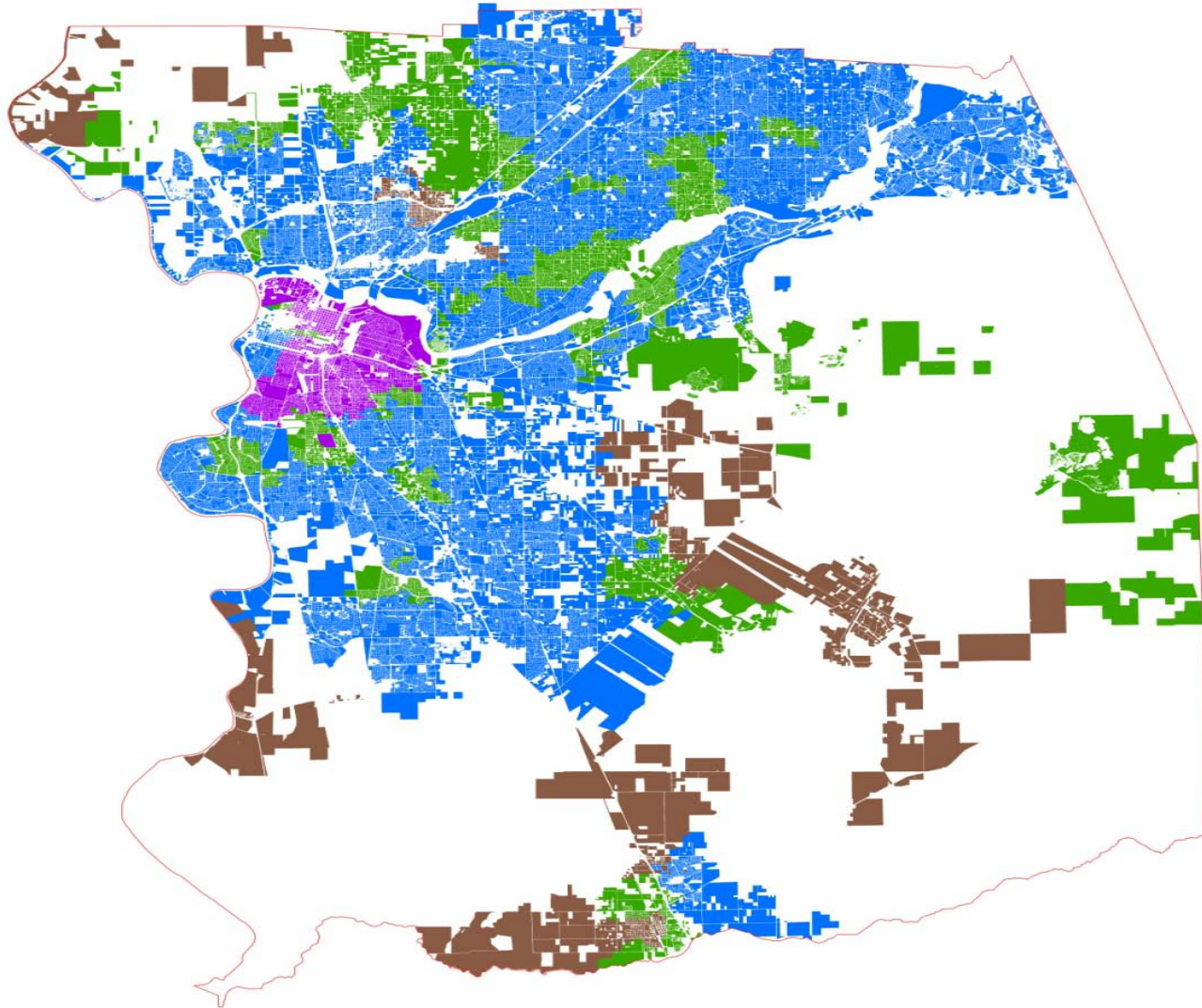
■ *2011 – 14.4 ¢/kWh*

■ *2012 – 14.8 ¢/kWh*

*Current Prices  
15-20% lower*

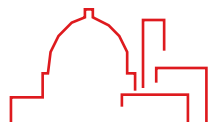


# Feed-In Tariff Interconnection Map



# SMUD's Feed-In Tariff - Response

- Opened On January 4, 2010  
Received 28 Applications For  
120 MW Of PV
- Some Vetting And  
Modifications Required, But..
  - *Fully Booked In One Week!*
- **Why** Such A Response?
  - *Significant Reductions Have Occurred In PV Costs.*
  - *Value-Based Time Of Day Payments And Cost Adders  
Yielded Rates Sufficient For PV*
  - *Simple/Straightforward Low-Transaction Cost Process*



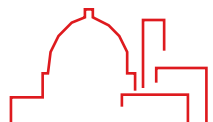
# Feed-In Tariff Progress To Date

- *Executed Contracts With 99.9 MW*
- *24 MW Have Been Approved By The Sacramento Planning Commission*
- *30 MW Of Projects Recently Purchased By Constellation Energy*
- *Expect 29.9 MW online in 2011 and 70 online in 2012*



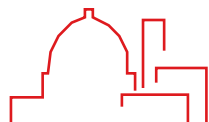
# Feed-In Tariff Lessons Learned

- *Engage Local Jurisdictions Early To Minimize Permitting "Surprises."*
- *Research and Understand What Is Appropriate Mitigation For Farmland*
- *Consider How To Accept Applications -- First Come, First Served Not Necessarily Most Egalitarian*
- *Consider Limits On Developers And Ownership To Spread Opportunities and Risks*
- *Consider Including Project Milestones – Permitting Or Interconnection – To Keep Progress Going*
- *Establish Preferences For Brownfields And Strategic Locations To Make Development Smoother*



# Conclusion And Next Steps

- *Value-Based Feed-In Tariff CAN Work With Today's Solar Costs If Done Correctly*
- *SMUD Nearing Completion Of Strategic Integrated Resource Planning Process – Additional FIT Procurement Likely Part of Some Scenarios*
- *Governor Brown's Proposed 12,000 MW Distributed Generation Goal May Be a Factor*



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