



A  Sempra Energy<sup>®</sup> utility



# *SDG&E Distribution System Interconnection Update*

*May 14, 2012*

# *Distribution Interconnection & System Programs*



- **All Distribution interconnections are managed by SDG&E's Customer Generation group under the Transmission & Distribution Engineering Department**
- **SDG&E's distribution voltage is defined as facilities operating at 12.47 kV<sub>LL</sub> or below**
- **CPUC – Rule 21**
  - **NEM (AB 489)**
  - **VNM-V**
  - **Feed in Tariff (FiT) (SB 32)**
  - **QF Settlement/AB 1613 (Sch CHP)**
- **FERC – CAISO**
  - **Renewable Auction Mechanism (RAM)**
  - **WDAT/SGIP**

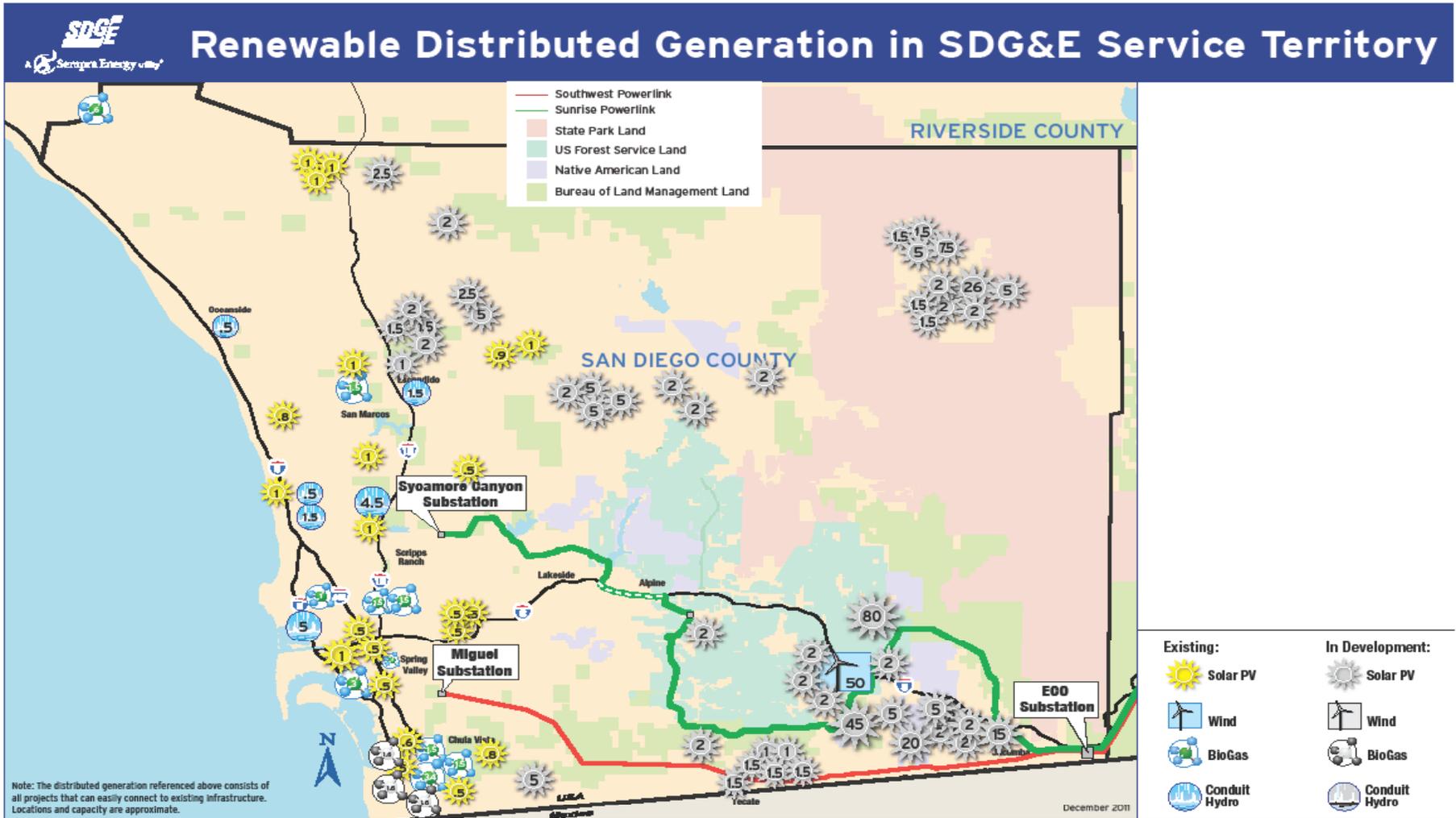
# SDG&E Quick Overview – All Distribution System Interconnections



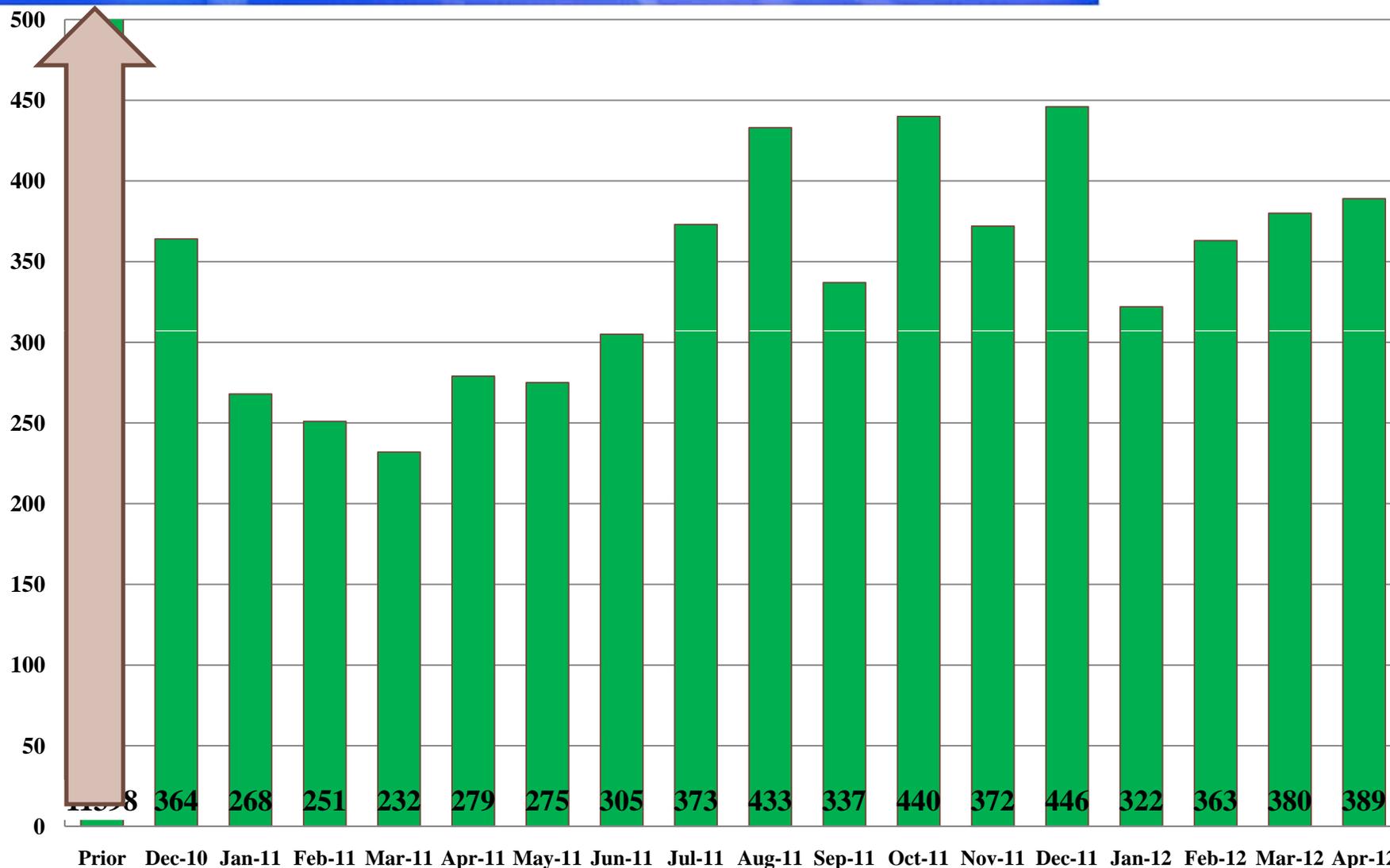
April, 1 2012

	Type	No. of Units	Nameplate kW
<b>NEM Projects</b>			
	Solar PV/Wind	16,838	130,604
<b>DG Projects w/ Interconnection Agreements</b>			
	Non-NEM PV	49	8,381
	FiT	4	6,000
	Bio-Gas DG	9	28,315
	Fossil Fired Engines	54	395,126
	Fuel Cells	19	10,546
	Hydro:	7	9,434
	Steam Turbines:	4	11,409
			<hr/> 469,211
Off System DG (Yuma)		1	53,000
<b>Pending DG</b>			
	Battery	1	25
	Bio-Gas DG	1	150
	Fuel Cells	2	1,365
	Fossil Fired Engines	4	18,840
			<hr/> 20,380
<b>Pending WDAT</b>			
	Solar PV - SGIP	22	111,000
	Solar PV - LGIP	1	40,000
			<hr/> 151,000
<b>Pending Rule 21</b>			
	Solar PV (FiT)	11	33,000
	Bio-Gas/Mass (FiT)	3	4,800
			<hr/> 37,800
<b>NEM Projection thru 2016</b>			
	(3000/yr @ 25 MW yr)/5 x 5yr)	15000	125,000
RAM FiT/SEPV		TBD	287,000
FIT SB 32		TBD	56,000
<b>GRAND TOTAL</b>			<b>1,329,995</b>

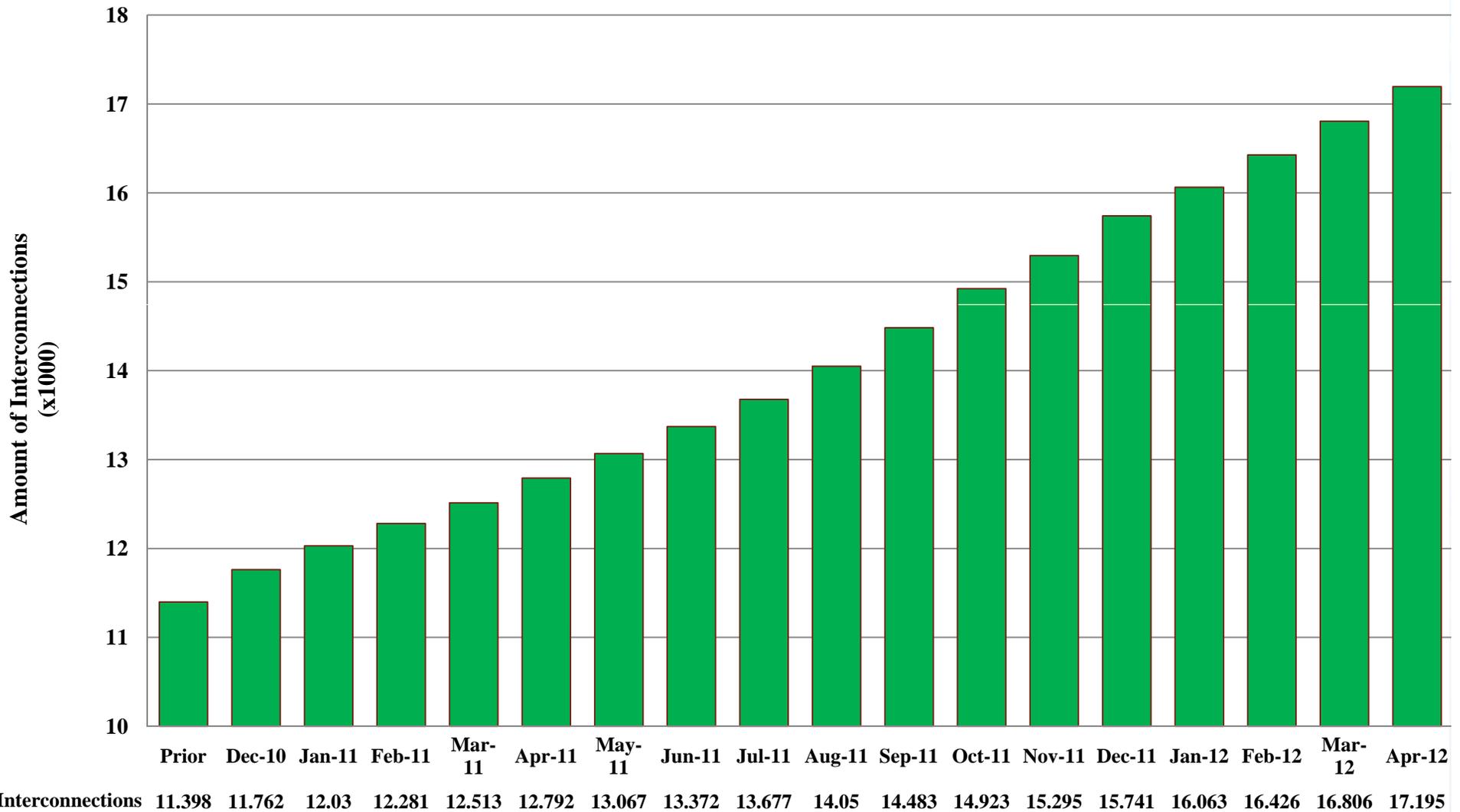
# Current Areas of Renewable Generation Activity



# *SDG&E Net Energy Metering Monthly Count Additions*

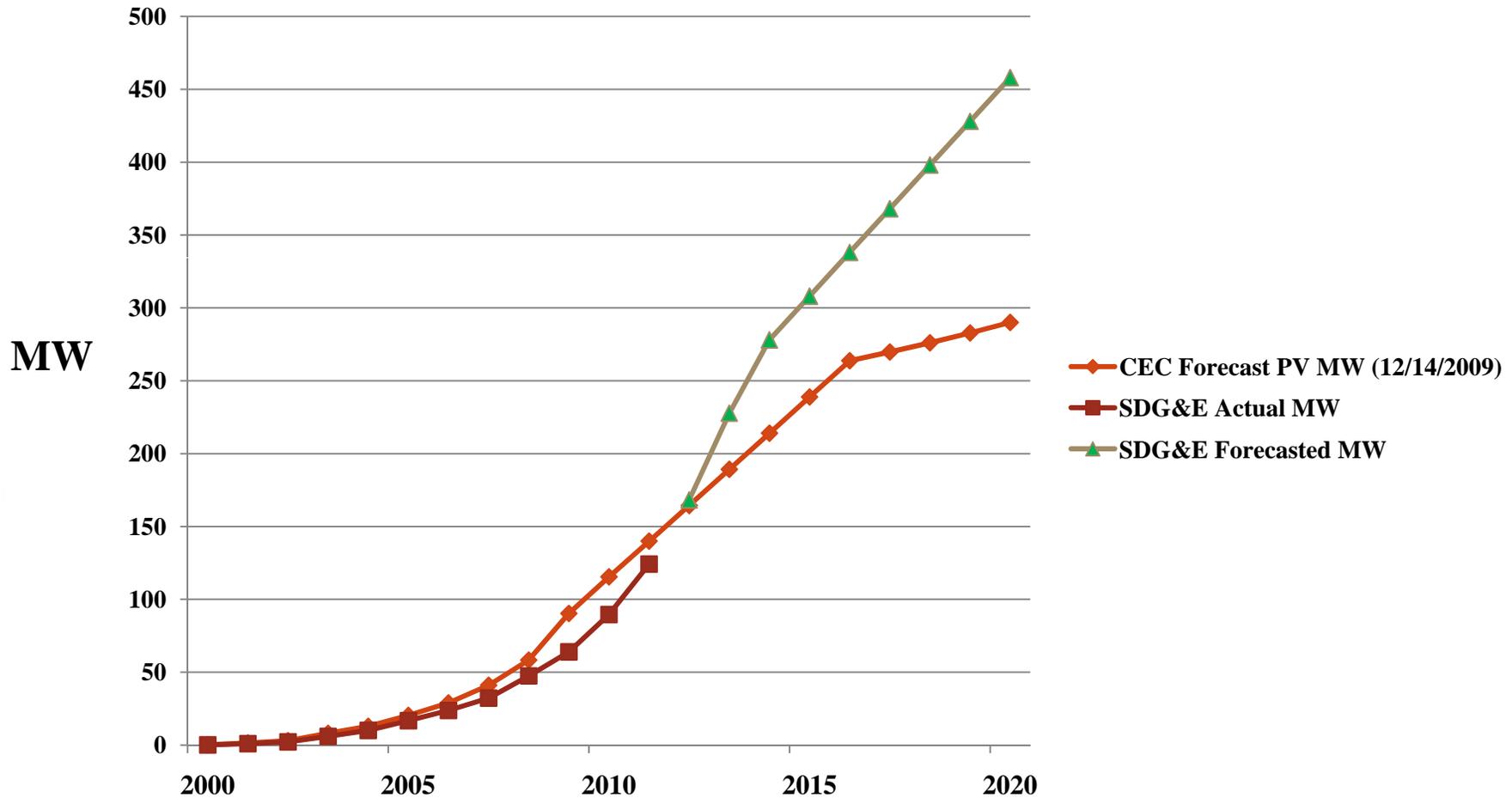


# SDG&E Net Energy Metering Cumulative Count



Interconnections 11.398 11.762 12.03 12.281 12.513 12.792 13.067 13.372 13.677 14.05 14.483 14.923 15.295 15.741 16.063 16.426 16.806 17.195

# NEM CEC Forecasted PV Growth vs. SDG&E Actual and Forecasted PV Growth



# *Rule 21 Activity: 2011 – Present Day Non-Net Energy Metering Projects (Export)*



## “Feed-in-Tariff”

### 2011

- ◆ Qtr 3 - 13 Applications Submitted @ 18.5 MWs
- ◆ Qtr 4 - 5 Applications Submitted @ 7.5 MWs

### 2012

- ◆ Qtr 2 – 10 Applications Remaining @ 14 MWs

# WDAT – SGIP

## Activity: Pre-2011 - Present



Pre-2011 – 4 Applications Submitted @ 22.5 MWs

### 2011

- ◆ Qtr 1 - 21 Applications Submitted @ 60 MWs
- ◆ Qtr 2 - 11 Applications Submitted @ 48.5MWs
- ◆ Qtr 3 - 0 Applications -----
- ◆ Qtr 4 - 1 Application Submitted @ 7 MWs

### 2012

- ◆ Qtr 1 - 2 Applications Submitted @ 12 MWs
- ◆ Qtr 2 - 2 Applications Submitted @ 50 MWs

★ Qtr 2 – 23 Applications Remaining @ 151 MWs

# *SDG&E Experiences/Challenges*



## **Application Processing**

- Sudden in-rush in volume of applications challenge limited Company resources
  - Tariff timelines are challenging to successfully meet timelines
  - Tariff does not provide for screening applications that are unreasonable (e.g. systems larger than system capacities); all applications must be processed and studied; utilizes limited resources
- ➔ Example: SDG&E substation capacity 7.5 MWs; 2 project submittals for the same substation - 1 FiT project submitted in 2011 @ 8MWs; another FiT project submitted 2nd qtr of 2012 @ 40 MWs, same location, and 8 miles from the substation. The contractor was briefed on these facts but insisted on submitting his application. Either project requires major substation upgrade that would probably render either noneconomic.

## **WDAT Fast Track Applications**

- Fourteen projects applied for the Fast Track process; thirteen failed to pass the 15% penetration threshold

# *SDG&E Experiences/Challenges* *(cont.)*



## **Project Location**

- Areas where land is readily available (“rural area”); outside SDG&E’s load centers
- SDG&E Distribution circuit/substation capacities very limited in rural areas; often times several miles from the substation

## **Voltage Issues**

- High voltage at the Point of Interconnection (POI)
- Current flow back to substation negatively impacts bus voltage and adjacent circuits
- Regulators lockout with current flow in the reverse direction
- Reactive power compensation required
- Coordination with other distribution circuit support equipment (e.g. capacitors, regulators, load tap changers)

# Current Activities



- WDAT – SGIP: SDG&E’s current tariff out of conformance with other IOUs and CAISO
  - ◆ SDG&E planning to file reformed SGIP June of this year
  - ◆ Reformed SGIP no longer requires a Feasibility Study; reduces study time by 50 BD
  - ◆ Reformed SGIP allows \$100,000 deposit in lieu of site exclusivity demonstration
  - ◆ Reformed SGIP increased deposits should reduce speculation (e.g. IR deposit increase from \$1000 to \$50,000 + \$1000/MW)
  - ◆ Reformed SGIP includes an Engineering & Procurement Agreement provision that allows a developer to proceed with design/procurement prior to GIA execution
- WDAT/Rule 21 Queue
  - ◆ SDG&E implemented combining WDAT & Rule 21 projects into a single queue

# Current Activities



## **SDG&E realigned distribution interconnection responsibilities by consolidating all requests for interconnection under a single group - Customer Generation**

- ◆ In order to effectively manage the distribution interconnections, two FTE's were added to the Customer Generation section.
- ◆ In order to effectively manage the volume of engineering workflow, SDG&E works with engineering consultants.
- ◆ SDG&E is implementing an improved database to more efficiently handle increased volumes of interconnection requests and maintain more detailed records
- ◆ SDG&E is acquiring distribution software to better analyze the dynamic effects of greater amounts of intermittent renewable distributed generation being added to the distribution system