Tracking and Verification of DG Generation and RECs

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Overview

In this presentation we will address:

- Why should we track and verify DG generation and RECs?
- Who's doing it and how?
- Lessons learned

Why should we track and verify DG generation and RECs?

- Sales of renewable energy certificates (RECs) can provide a significant source of additional revenue for owners and developers of renewable distributed generation (DG).
- Tracking and verification creates confidence in these RECs
- Tracking also generates data to support state renewable energy programs

Who's Doing It And How?

- Currently, RECs for renewable DG facilities are claimed through existing tracking systems by owners in:
  - New England
  - Wisconsin
  - New Jersey
- Examples:
  - NJ S-RECs
  - MTC Production Tracking System (PTS)

New Jersey S-RECS

New Jersey BPU Mandated Registry

- Provides a market framework for solar power
- Clean Power Markets & Pace Energy Project developed and administer Solar REC Program for NJ BPU
  - Registry based on model Clean Power Markets developed with US DOE funding (see paper)

NJ S-REC Registry - purposes

It provides . . .

- The means to track compliance w/ NJ solar/renewable portfolio mandate
- A marketplace for sales & purchases of solar RECs based on electricity generated in NJ
- Additional revenue to owners of solar/PV systems (small & large) wanting to sell S-RECs

S-RECs have value in NJ . . . because

- Retail suppliers must meet solar RPS
- RECs from solar may be used by green market vendors
- Individuals may want to purchase S-RECs and retire them to own environmental benefits
- Estimated value – between $150 – 300/MWh because. . .
  - NJ Solar Alternate Compliance Mechanism (SACP) equals $300 per MWh for 2005 reporting year

NJ Solar Registry Metering . . .

Small – **less than 10 kW**

- Meter or inverter readings

OR

- Engineering estimates

Large – **10 kW +**

- Meter, inverter or DAS readings

Long term goal . . .

metered output from all systems

NJ Registry – Measurement & Verification

- AC kWh from system ⟶ # of S-RECs
- Measure inverter's AC output or meter installed on AC side
    - Includes energy used to meet on-site load

- Verification: Systems inspected on random basis
    - Inspectors check expected output

NJ Registry … experience so far

- Launched in June 2004
- Issued 236 S-RECs by end of August
- Over 300 solar systems in data base so far
- Estimate
  - 4,850 S-RECS needed to meet June 05 solar portfolio requirement – (0.01 % of sales)
  - 40,000 S-RECS needed to meet June 07 solar portfolio requirement – (0.16 % of sales)

MTC Production Tracking System (PTS)

PTS: Evolution

- MTC needed a way to administer "payment for production" incentives for 200+ PV systems
- RFP out Spring of 2002 – Contract awarded to Cadmus Group, Inc.
- Additional features added through 2004 include

⇒Focus on DG generation tracking – does not track RECs

⇒PTS allows REC rights owners to track / aggregate kWh to report to the NE GIS for RECs

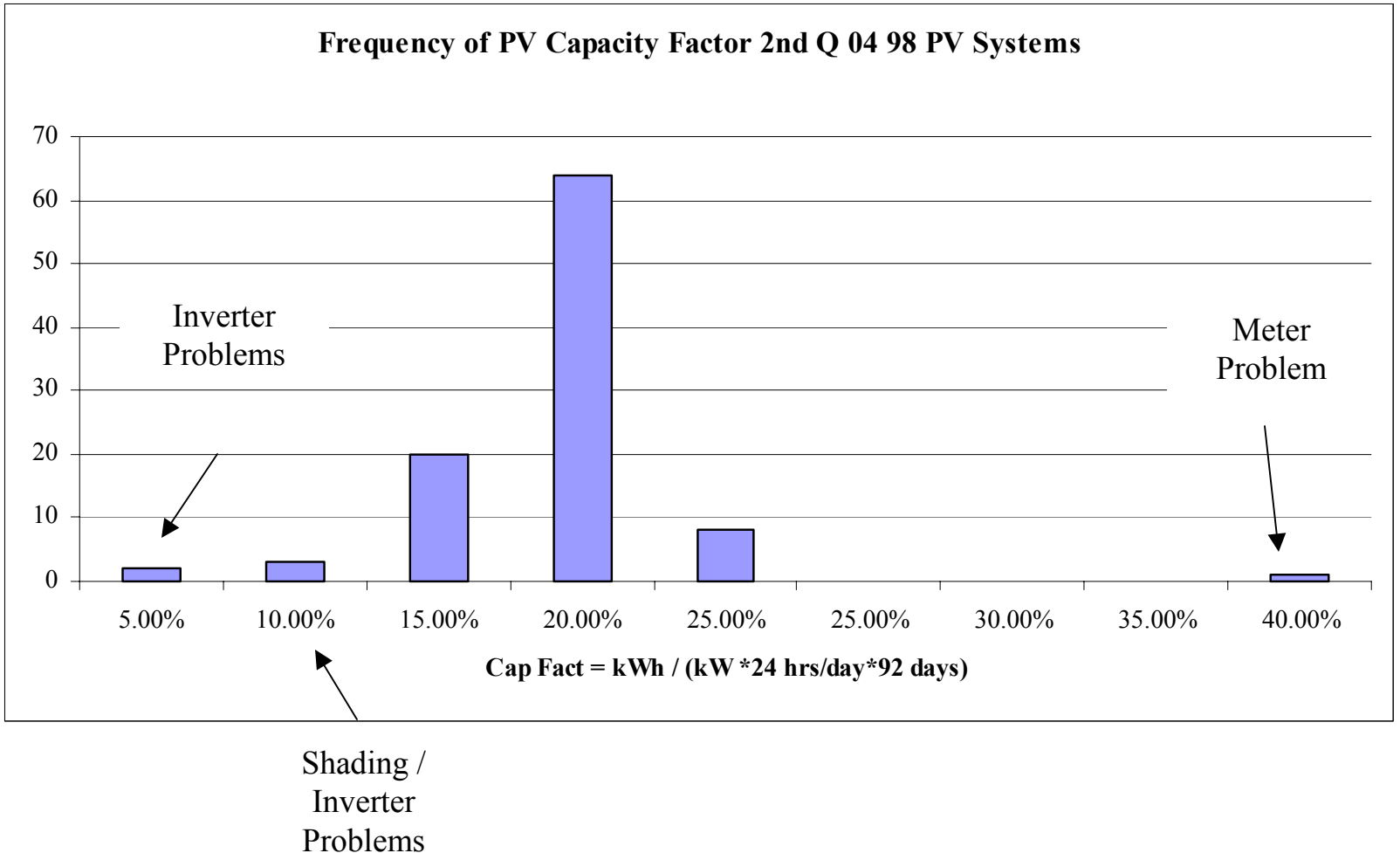
PTS:Tracking

- Registry – information on systems funded
  - Size, location, manufacturer, installer, $
  - 8/04: 251 PV, 2 small wind, 1 fuel cell, 1 land fill gas
- Generation Tracking
  - 126 systems reported monthly generation for 2nd Q 04
  - Only revenue quality meters may be used
  - Monthly meter reading by owner or rep and manual data entry to PTS website – also report maintenance
  - OR automated transfer of DAS data (with rev qual meter) using XML

PTS:Verification

- Registry confirmation
  - e.g. “are you sure that PV on your house is **ONE MW**?”
- Spot checking of suspicious generation data / user assistance and training
- Relative ranking of generation based on performance metrics
- Annual audits with spot meter checks

2nd Q 2004


Frequency of PV Capacity Factor 2nd Q 04 98 PV Systems
70
60
50
40
30
20
10
0
Inverter Problems
Meter Problem
5.00%
10.00%
15.00%
20.00%
25.00%
25.00%
30.00%
35.00%
40.00%
Cap Fact = kWh / (kW *24 hrs/day*92 days)
Shading / Inverter Problems

PTS: Lessons Learned

- Can home owners be trusted to read meters and report generation? YES
- Does a meter add significant cost to a PV installation? NO
- Residential PV primary issue – shading
- Commercial PV primary issue – DAS data accuracy when lack of rev quality meter

Conclusion: S-RECS / PTS Lessons Learned

- Tracking / verification helps DG economics
  - Allows DG to sell RECs and/or receive production incentives, just like larger renewable installations
- Build tracking / verification system to meet needs of program
  - Tracking of RECs in addition to tracking of generation?
  - How many systems / REC accounts will be tracked?
  - What level of precision / accuracy is acceptable?
- Learn by doing
  - Build in flexibility to tweak system as needed to improve performance or add additional features
  - Move toward more automated monitoring as number of systems increase

Follow Up / Contacts

Go see NJ S-REC Program

at NJ Clean Energy Program website www.njcep.com/srec/ (select the Background Information option)

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