Interconnection of Storage and Generating Facilities

Distribution Interconnection Update: Proposed Reform of CPUC Electric Rule 21

Presentation to IEPR Workshop
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Role of an Interconnection Tariff In Serving DG Procurement

DG Procurement Programs:
• Set overall program MW target and resource type goals
• Set individual project size cap, eligible generating technologies
• Set pricing methodology (feed-in tariff, auction, request for offers, adders)

Interconnection tariff:
• Sets technical standards for parallel operation of generating facilities to ensure safety and reliability of distribution system
• Comply with CPUC, FERC standards (open access, consistent standards)
• Neutral as to size, resource type, generating technology, pricing
• Sets engineering analysis tracks appropriate to generating facility characteristics
• Sets rules of communication, timelines, dispute resolution
Success of DG Relies on Interconnection

1979 - PURPA
1980 - Rule 21
2000 – AB 970 & Rule 21
2002 – Net Energy Metering
2006 – CSI
2008 – Renewable FIT
2011 – QF Settlement
RAM Auction #1

1980-2008: Qualifying Facilities (Rule 21)
2000-2010: Self-Generation Incentive Program: 441 interconnected facilities, 227 MW installed capacity (Rule 21)
2006-present: California Solar Initiative: 113,860 interconnected facilities, 1.1 GW installed capacity
2008-present: Renewable FIT
SCE: 4 interconnected facilities, ~400 queued (Rule 21)
PG&E: 23 interconnected facilities, 79 queued (WDAT)
SDG&E: 4 interconnected facilities, 6 queued (WDAT)
179 MW in contract as of Jan 2012
2011-forward: QFs<20 MW Efficient CHP (Rule 21)
2011: RAM auction #1
13 projects, 140 MW capacity (WDAT)
Applicability of Rule 21, the Wholesale Distribution Access Tariffs, and the CAISO Tariff Generator Interconnection Procedure

**Rule 21**
- Point of interconnection on IOU-controlled distribution system
- "Compensation" for excess energy

**CPUC Customer-side DG programs using Rule 21:**
- Net Energy Metering
- Non-export
- Self-Generation Incentive Program
- Storage
- Virtual Net Energy Metering

**CPUC System-side DG Programs likely to use Rule 21:**
- Renewable Feed-In Tariff
- Efficient Combined Heat and Power Feed-In Tariff
- Qualifying Facilities (QFs) selling to host utility at avoided cost

**CPUC System-side DG Programs that use Rule 21:**
- Renewable Auction Mechanism (RAM)
- IOU Solar PV Programs
- Renewable Portfolio Standard (RPS) solicitations
- QFs with negotiated power purchase agreement (PPA)

**WDAT**
- Point of interconnection on IOU-controlled distribution system
- Sale of full or partial output at avoided cost to host utility ("PURPA contract")

**CAISO-Controlled Transmission System**
- Wholesale sale and/or electrical output is interdependent with queued-ahead transmission system applicants

**CPUC System-side DG Programs that use CAISO tariff:**
- RAM
- IOU Solar PV Programs
- RPS solicitations
- QFs with negotiated PPA

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"Customer side of the meter"  "System side of the meter"

IOU-Controlled Distribution System

CAISO-Controlled Transmission System
The Need for Reform

- Serial study process is inapt for higher volume of exporting facilities queuing in same electrical areas
- Increase in developer complaints re: transparency, timelines
- Rule 21 does not provide successful path to interconnection for emerging DG market segments
- Lack of pathway to Resource Adequacy value despite statutory requirements
- From 2008 forward: CPUC procurement programs incentivize DG with export onto the distribution system
- Exporting generating facilities contribute to penetration levels more likely to exceed 15% threshold
CPUC-Led Reform Process


- 8/23/2011 - Confidential Distribution System Interconnection Settlement Process launched by CPUC Staff

- 9/22/2011 – Interconnection rulemaking on CPUC’s own motion approved (R.11-09-011)
  - Procedural forum for results of Settlement
  - Interconnection issues identified within OIR could be addressed within Settlement, as OIR Phase 1, or OIR Phase 2

- 3/16/2012 – Proposed Settlement filed in R.11-09-011
  - Centerpiece: Revised Rule 21

- 4/23/2012 – IOU Transition Plans filed
  - Proposals to move queued applicants from presently effective Rule 21 to Proposed Rule 21

- 6/6/2012 – Distribution Group Study Process Workshop
  - Proposal to be filed in R.11-09-011

- Q2-Q3 2012 – CPUC consideration of Proposed Settlement
  - Conclusion of R.11-09-011, Phase 1

- Q2-Q3 2012 – Launch Phase 2
Distribution System Interconnection Settlement Details

• Resources:
  – Technical assistance from Energy Commission
    • Engineering expert available to consult with parties and CPUC Staff
  – NREL – Technical white paper addressing 15% penetration threshold

• Negotiations and Parties:
  – 80 Settlement Parties in weekly confidential negotiations:
    • IOUs, CAISO, DRA, TURN, developers of solar, combined heat and power, and storage facilities; California and national DG and solar advocacy groups
    • 12 full-day, all-Party negotiation meetings (Aug 2011-Feb 2012)
    • 10 full-day drafting sessions by core drafting team

• Degree of Consensus:
  – 14 Settling Parties signed Proposed Settlement
  – One issue within Proposed Settlement protested by DRA
  – Settling Parties:
    • PG&E
    • SDG&E
    • SCE
    • Aloha Systems
    • California Farm Bureau Federation
    • Center For Energy Efficiency and Renewable Technologies
    • Clean Coalition
    • Interstate Renewable Energy Council
    • Sierra Club
    • Solar Energy Industries Association
    • SunEdison
    • Sunlight Partners
    • Sustainable Conservation
    • Vote Solar Initiative
Proposed Settlement: High-Level Summary

- Settlement Agreement:
  - Recommends CPUC approval of full Settlement
  - Recommends priorities for next phase of reform

- Rule 21 Tariff
  - Technical reforms: Appropriate engineering analysis of export, non-export, and net energy metered facilities
    - Transparency reforms: Procedural clarity, predictability, alignment with wholesale distribution tariffs

- Standardized Interconnection Request Application
  - Uniform application across utilities

- Standardized Interconnection Agreement for Exporting Facilities
  - Uniform interconnection agreement across utilities
Highlights of Rule 21 Technical Reforms

- Fast Track
  - Initial Review:
    - 8 → 13 screens without increase in time for review*
    - Exporting generating facilities eligible (3 MW – SCE, PG&E; 1.5 MW – SDG&E)*
    - Storage eligible*
    - Articulates transmission dependency test*
    - Resource Adequacy achievable through CAISO deliverability assessment or DG Deliverability Initiative (pending approval)*
  - Supplemental Review
    - 100% of minimum load penetration threshold – national best practice*
    - Power quality, voltage, safety, reliability tests*

- Detailed Study
  - Independent Study Process – drawn from wholesale tariffs*
  - Distribution Group Study Process – June 2012 workshop*
  - Transmission Cluster Study Process – clear transition for Rule 21 applicants with transmission system dependencies*

*Identified as a need in R.11-09-011.
Highlights of Rule 21 Transparency Reforms

o Timelines
  • Clear timelines for Fast Track or Detailed Study completion by utility, decisions by applicant*
  • Clear withdrawal standards, procedures*

o First looks
  • Pre-Application Report
  • Integrated, public Rule 21 and WDAT queue, including requests queued ahead on circuit or substation*

o Dispute resolution
  • Missed deadlines: IOU ombudsman, CPUC CAB, CPUC ALJ Alternative Dispute Resolution Program
  • Non-deadline disputes: Meet-and-confer, ADR, formal complaint*

*Identified as a need in R.11-09-011.
Anticipated Results from Rule 21 Redesign

**Fast Track**
- Sustain high level of successful Fast Track evaluation for Net Energy Metering customers
- Increase number of exporting generating facilities may achieve interconnection following Fast Track
- Improve market understanding of DG locations where Fast Track will be possible using new tools: Pre-Application Report, published queue, online interconnection maps, CAISO DG Deliverability Initiative
- Improve market understanding of engineering review and associated time frames
- Improve utility accountability for meeting deadlines

**Independent Study Process**
- Improve market understanding of eligibility for ISP
- Improve market understanding of engineering studies required
- Improve utility ability to meet new study deadlines

**Distribution Group Study Process**
- Results forthcoming following June 2012 workshop, proposal, and tariff drafting

**Transmission Cluster Study Process**
- Improve market understanding of engineering conditions under which Rule 21 applicant may enter transmission cluster

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*Distribution System*  
*Transmission System*
R.11-09-011: Next Steps

- Proposed Decision and CPUC Consideration of Proposed Settlement: Q2-Q3 2012

- Settling Parties’ recommended Phase 2 scope
  1. Metering requirements;
  2. Reconsideration of Fast Track size limits, 15% screen;
  3. Cost allocation and certainty issues, e.g., earlier cost certainty, cost averaging, cost sharing, planned distribution system upgrades appropriate for rate-based support;
  4. IOU reporting on actual cost of system impact studies and facilities studies;
  5. Distribution Group Study Process development; and
  6. Reconsideration of timelines, timeline compliance, and timeline remedies.

- CPUC consideration of IOU transition plans (filed 4/23/2012)
- CPUC consideration of additional standardized interconnection agreements (to be filed June 2012)
- Staff proposal addressing IOU reporting on DG interconnection success, Rule 21 compliance
Look Ahead: Interconnection and CPUC Actions, 2012-2013

• Implementation:
  – Developer use of siting tools
    • Rule 21 Pre-Application Report
    • Published integrated Rule 21 and WDAT queues
    • IOU online interconnection maps
    • CAISO DG Deliverability Initiative

• Technical:
  – Net Energy Metering program open to all RPS-eligible generation technologies as of 1/2012 (adding bioenergy, geothermal, landfill gas, ocean-based)
  – Technology certification
  – Tie DG functions to technical standards, e.g., metering – R.11-09-011, Phase 2

• Policy:
  – Cost issues - Tension between cost certainty and volume of queued interconnection applicants; appropriateness of ratepayer contribution to distribution system upgrades – R.11-09-011, Phase 2
  – Cost-benefit analysis (e.g., jobs, environmental benefit, ratepayer impact) of DG procurement and siting – CPUC technical expert analysis
Questions, Conclusions

Proposed Settlement:
http://docs.cpuc.ca.gov/EFILE/MOTION/162852.PDF

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