Interconnection of Storage and Generating Facilities

Distribution Interconnection Update: Proposed Reform of CPUC Electric Rule 21

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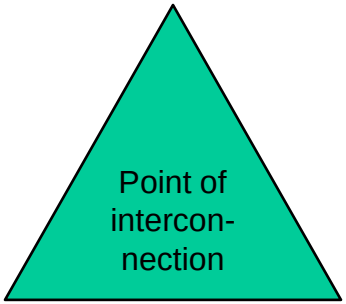
Role of an Interconnection Tariff In Serving DG Procurement

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 & Redesigned Rule 21

2002 – Net Energy Metering

2006 – CSI

2008 – Renewable FIT

2011 – QF Settlement RAM Auction #1

1980-2008: Qualifying Facilities (Rule 21)

2011-forward:
QFs<20 MW
Efficient CHP (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: 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

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

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

WDAT

- ***Point of interconnection on IOU-controlled distribution system***
- ***Wholesale sale and/or electrical output is interdependent with queued-ahead transmission system applicants***

CPUC System-side DG Programs that use WDAT:

- Renewable Auction Mechanism (RAM)
- IOU Solar PV Programs
- Renewable Portfolio Standard (RPS) solicitations
- QFs with negotiated power purchase agreement (PPA)

CAISO Tariff

- ***Point of Interconnection on CAISO-controlled transmission system***
- ***Wholesale sale***

CPUC System-side DG Programs that use CAISO tariff:

- RAM
- IOU Solar PV Programs
- RPS solicitations
- QFs with negotiated PPA

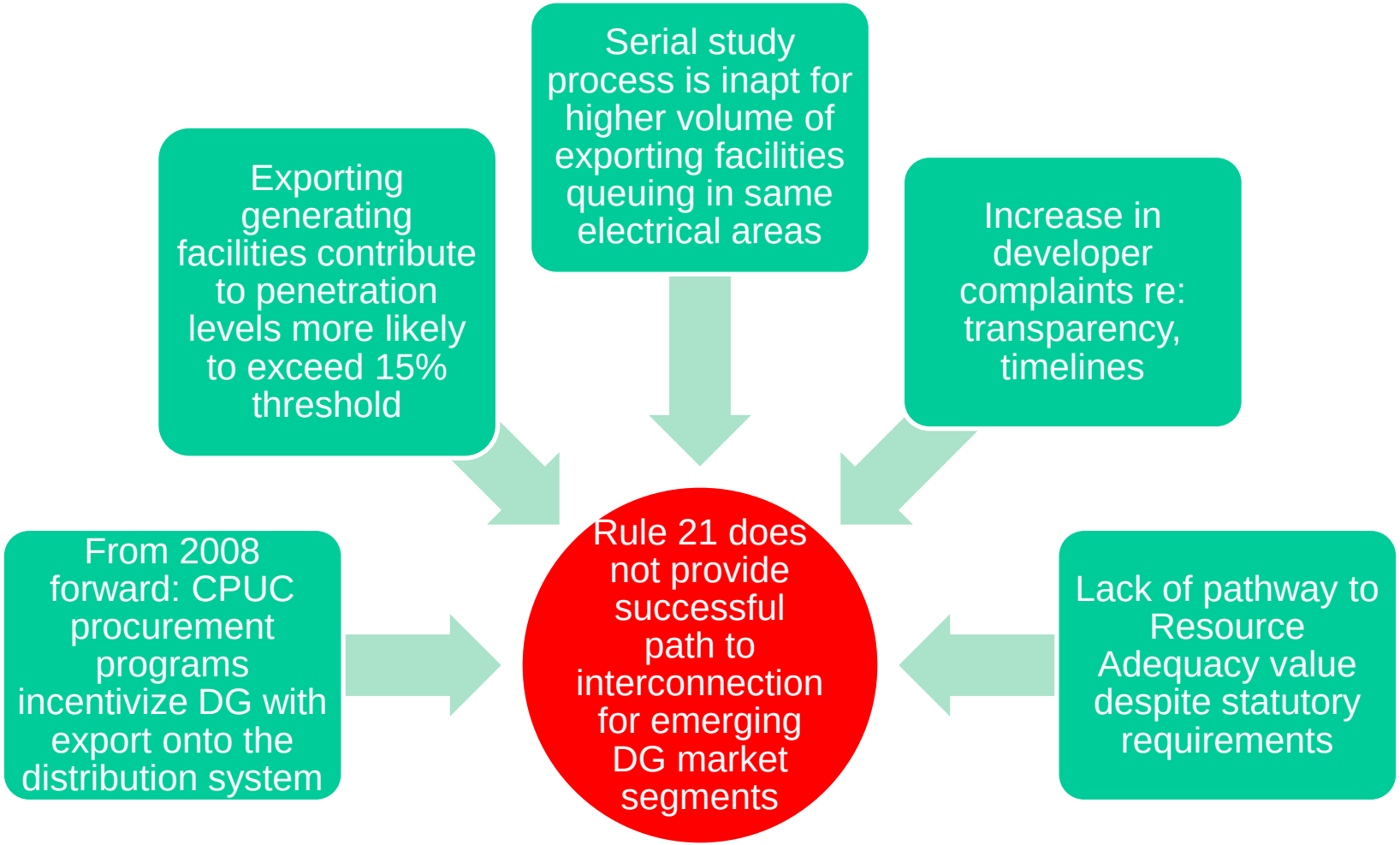
"Customer side of the meter"

"System side of the meter"

IOU-Controlled Distribution System

CAISO-Controlled Transmission System

The Need for Reform



CPUC-Led Reform Process

- Rule 21 Working Group – Active 2000-2008, workshops April & August 2011

- 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

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

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

- 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*

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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