



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

THE COST OF ACCESS

GRID AND INTEGRATION CODES AND COSTS

NOEL A. OBIORA
SENIOR PUBLIC UTILITIES COUNSEL
CALIFORNIA PUBLIC UTILITIES COMMISSION

October 2013



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

NOTICE

OPINIONS STATED IN THIS PRESENTATION ARE
THOSE OF THE AUTHOR AND NOT THE
OPINIONS OF THE CALIFORNIA PUBLIC
UTILITIES COMMISSION



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

CALIFORNIA'S RULE 21

DISTRIBUTION LEVEL GENERATION INTERCONNECTION
TO THE GRID

1. **Distribution Grid** interconnections - generation locating at the substation and below
2. **Net Energy Metering (NEM)** interconnections (special carve out) – residential/commercial behind the meter generation

CONSIDER THE PROBLEM OF A RULE DESIGNED
TO INTERCONNECT HOUSES NOW HAVING
TO DEAL WITH INTERMITTENT GENERATION
RESOURCES

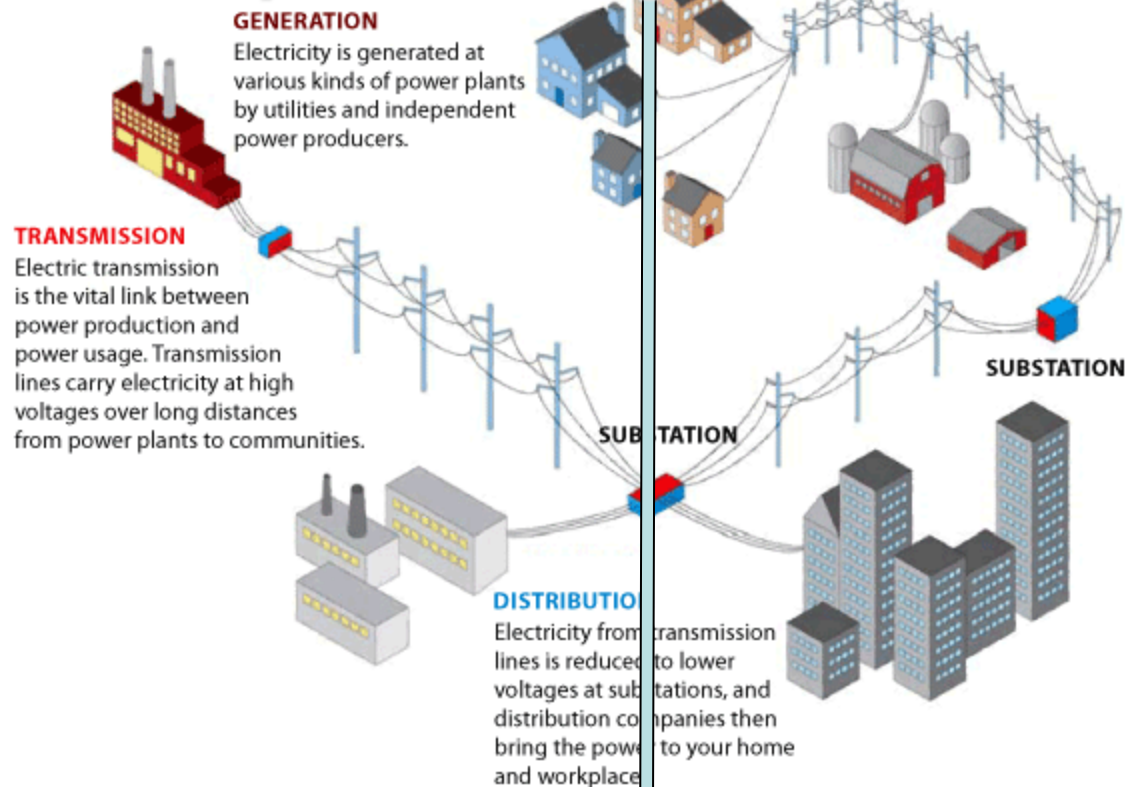


USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

*In order for any money to show ~the energy has to flow
~ So what developers and the utilities need to know ~ is how
the interconnection process will go*





USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

ROLE OF PUBLIC UTILITIES COMMISSIONS

- ESTABLISH THE APPLICABLE NON DISCRIMINATORY RULES
 - FACILITATE ACCESS TO DATA
- ENSURE TIMELY RESPONSES TO DATA REQUESTS, REQUEST FOR INTERCONNECTION AND ENGINEERING STUDIES
 - ESTABLISH FINANCIAL QUALIFICATION RULES
- ESTABLISH DISPUTE AND ALTERNATIVE RESOLUTION RULES



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

THE NEED FOR A NEW RULE

- (1) Define the appropriate interconnection study process for all types of generation resources seeking interconnection to the distribution system;
- (2) Create distribution-level interconnection procedures for storage technologies;
- (3) Evaluate and determine appropriate processes for establishing distribution-level interconnection queues (serial or cluster);
- (4) Establish data and reporting requirements;
- (5) Evaluate the need to revise technical operating standards due to advances in technology, communications, and the potential need for the system operator to control these systems;
- (6) Define distinct engineering methodologies based on the characteristics of the resource, such as the resource's impact on the transmission system;
- (7) Establish a path to resource adequacy qualification for resources that have certain characteristics; and
- (8) Review and modify, if necessary, the screening mechanism that limits an expedited interconnection to fifteen percent of a line section's peak load.



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

Streamlined & Standardized

- Interconnection Application
 - Study processes
- Generation Interconnection Agreement (GIA)
- Set Timelines between utility and developers & expectations
 - 157 trigger points



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

FAST TRACK ELIGIBILITY

Non-Exporting and Net Energy Metered Generating Facilities are eligible for Fast Track evaluation regardless of the Gross Nameplate Rating of the proposed Generating Facility. Exporting Generating Facilities with a Gross Nameplate Rating no larger than 3.0 MWs on a 12 kV, 16 kV or 33 kV interconnection for Southern California Edison, 1.5 MW on a 12 kV interconnection for San Diego Gas & Electric, and 3.0 MW on a 12 kV or higher interconnection for PG&E are also eligible for Fast Track evaluation.



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

DETAILED STUDY

Exporting generating facilities that agree to the installation of approved protective devices at the applicant's cost will use the generating facility's net export capacity for purposes of determining Fast Track eligibility; provided, however, that these applicants will be required to submit to a Supplemental Review. All other generating facilities will be required to submit an application for Detailed Study.

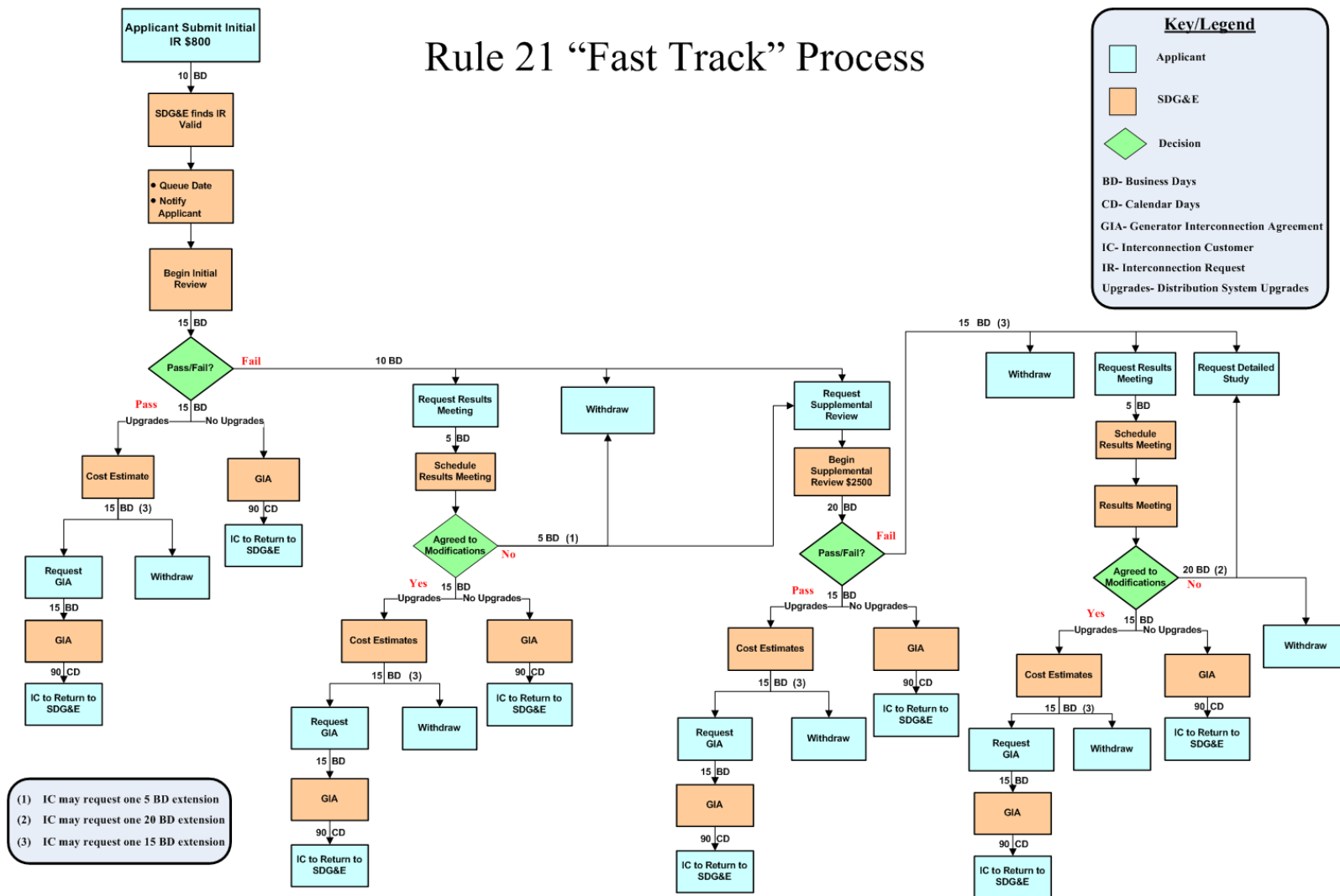


USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

Rule 21 “Fast Track” Process



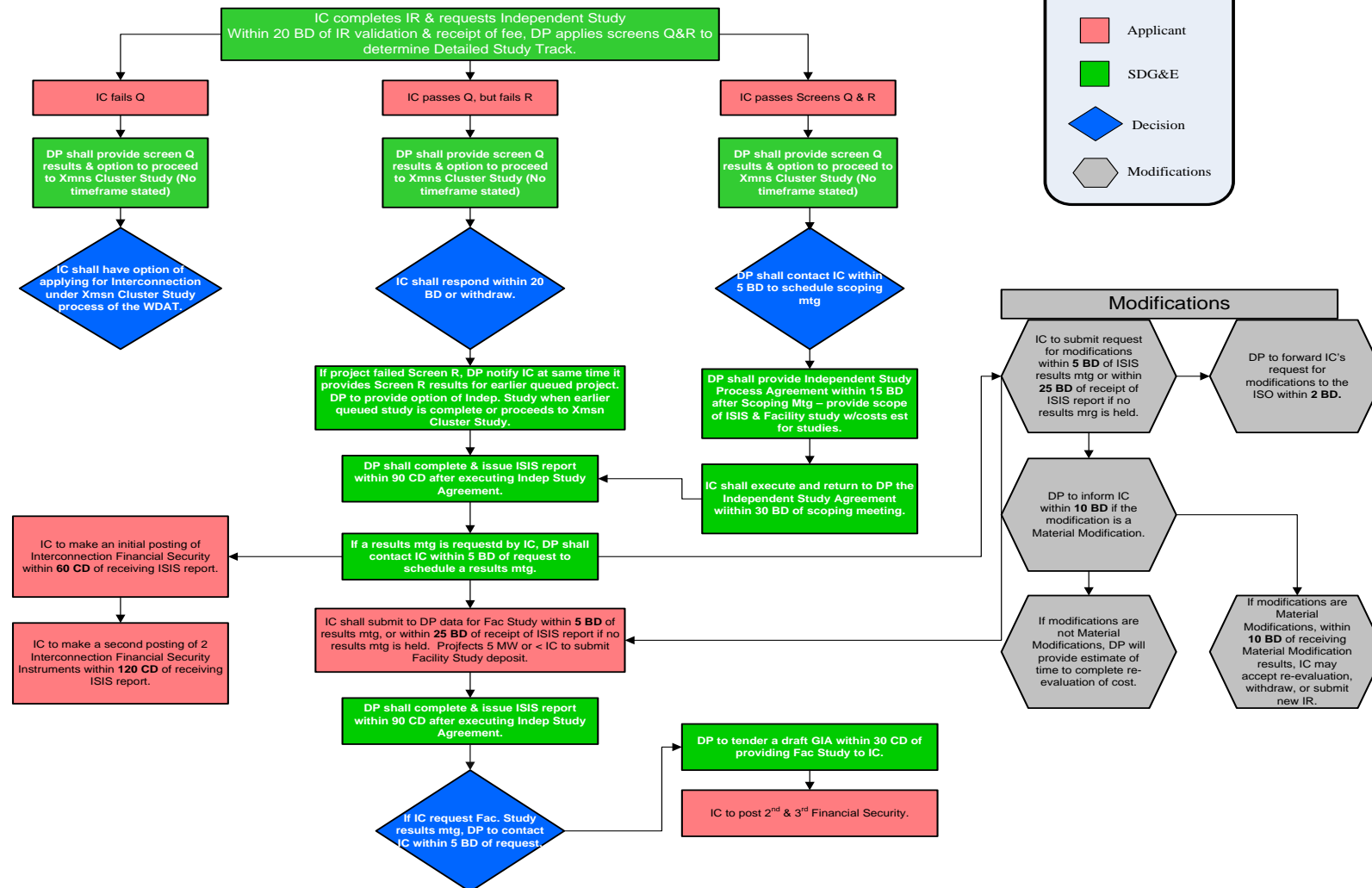


USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

Rule 21 “Detailed Study” Process





USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

PHASE II ISSUES

- COST PREDICTABILITY
 - COST ESTIMATE ACCOUNTING
- CONSTRUCTION AND PERMITTING
- UTILITY DATA MANAGEMENT



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

COST CERTAINTY ISSUES

- INITIAL COST ESTIMATES CAN CHANGE FROM THE AGREED TO FIGURE TO A FIGURE BEYOND WHAT THE DEVELOPER IS WILLING TO OR CAPABLE OF PAYING IN THE CONTEXT OF THE INVESTMENT
- THESE COSTS CHANGES CAN THREATEN THE FINANCIAL BACKING FOR THE PROJECTS AND ULTIMATELY RESULT IN PROJECT FAILURE



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

POSSIBLE REASONS

- INTERCONNECTION QUEUE IS FIRST COME-FIRST SERVE
- INTERCONNECTION STUDIES FOR DEVELOPERS ARE ASSUME CONSTRUCTION UPGRADE OF EARLIER PROJECTS IN THE QUEUE WOULD BE BUILT
- AND AS PROJECTS MOVE THROUGH THE QUEUE INTERCONNECTION ESTIMATES CHANGE
- PROJECTS IN THE QUEUE NOT PAYING FOR THEIR OWN INTERCONNECTION UPGRADES OR EVEN THOSE PAYING THUS AFFECT COSTS OF SUBSEQUENT PROJECTS
- PROJECTS IN THE QUEUE DROPPING OUT OF THE QUEUE COMPLETELY, MAY THEN NECESSITATING NEW INTERCONNECTION REPORT
- NOT TO MENTION DELAYS IN CONSTRUCTION OF EARLIER UPGRADES ADDING TO THE COST OF PROJECTS AT THE BACK OF THE QUEUE



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

POSSIBLE SOLUTIONS

- **DISTRIBUTION GROUP STUDY**

- create interconnection group studies for interdependent projects attempting to locate at similar electrical areas on the distribution grid;

- **NEW TECHNOLOGIES**

Rule 21 is technology neutral but several technologies have been identified to be considered in Phase II of the proceeding that could help resolve some of the interconnection difficulties and complexities: 1) Smart Inverters; 2) Storage; 3) Synchronous Generation



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

COMMISSION DECISION ADOPTING SETTLEMENT [DECISION 12-09-018]

“Rule 21 governs the interconnection of electric generation systems to the distribution grid of Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E). The Settlement was submitted to the Commission by fourteen parties following eight months of negotiation.” [p.2.]

“The settlement discussions were open to any entity with an interest in distribution level interconnection issues.”
[p.8.]



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

THE FOURTEEN SIGNATORIES TO THE SETTLEMENT

1) PG&E, (2) SCE (3) SDG&E (4) Aloha Systems Incorporated, (5) California Farm Bureau Federation, (6) Center For Energy Efficiency and Renewable Technologies, (7) Clean Coalition, (8) Interstate Renewable Energy Council Inc., (9) Sierra Club, (10) Solar Energy Industries Association, (11) SunEdison, (12) Sunlight Partners, (13) Sustainable Conservation, and (14) The Vote Solar Initiative (collectively, Joint Settlement Parties).



USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

OTHER PARTICIPANTS INVOLVED IN THE PROCEEDING

“The settlement discussion also included participation by a number of Other entities and government agencies. These included: The Division Of Rate Payer Advocates (DRA), the California Energy Commission, the California Independent System Operator (CAISO), numerous developers of distributed generation, including renewable, combined heat and power and storage systems and advocacy groups supporting different segments of the distributed generation market. Overall 81 entities participated.”

D.12-09-018, p.8