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SCE's Distribution Generation Interconnection and Load Energization Processes

May 9, 2023

Energy for What's Ahead®

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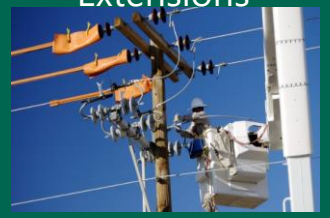
Distribution Load Energization and Generation Interconnection Tariffs

Distribution Load Energization Tariffs

Rule 15

Distribution Line Extensions



Rule 16

Service Extensions

Rule 29

EV Infrastructure

Wholesale Distribution Access Tariff (WDAT)

SCE projected to experience fastest load growth in decades (~8% growth over the years 2023 - 2028), per 2022 CEC IPER

Distribution Generation Interconnection Tariffs

Rule 21

 # Projects Completed: 596,104 (99.7% are under NEM)

Total Nameplate: 6,730 MW
Avg NEM project size at 8.3 kW

Wholesale Distribution Access Tariff (WDAT)

 # Projects Completed: 158

Total Nameplate: 789 MW
(Avg project size at 5 MW)

Majority of interconnection projects and nameplate capacity are from Rule 21 - NEM

Distribution Load Energization Process

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Load Energization Process

Customer Application	Engineering & Design	Customer Requirements	Scheduling	Construction & Final Accounting
Customer provides project information to SCE • Customer contacts SCE via phone call, email, or other • SCE representative requests materials/forms required to start process • Customer confirms with SCE representative that all required documents are received • Customer/SCE meeting or site visit (as applicable) • Other steps as required	***SCE Engineering Review and Design Processes*** • SCE Engineering assessment • Preliminary Design Creation • Other steps as required (e.g., facility inspections, rights checks, patrols)	***Customer completes required steps to move forward*** • Invoices paid • Contracts signed • Request existing meter removal (e.g., temp) • Other steps as required (e.g., easements, UG ducts & structures inspection/release)	***Permits Secured, materials ordered, and work scheduled*** • Permits finalized • Materials ordered • Crews scheduled • Switching/outages scheduled • Customer obtains governmental authority release of electrical panel • Other steps as required	***Job constructed in field and post-construction activities*** • Crews execute work on site • Meter set and energized • Final accounting of materials and crew labor • Mapping updates • Other steps as required
Customer Dependent	***~6-8 weeks, can be 12+ weeks for large projects***	***Customer Dependent***	***Res/Small Com: 24 days+LOE Larger projects: 8 weeks+LOE***	

Note that If grid upgrades are identified as needed through the SCE Engineering assessment process, additional steps may be required in parallel with these high-level steps as shown. In general, grid upgrades need to be complete before final load energization unless a temporary/interim solution is identified and approved by SCE

Useful links:

1. SCE's Local Planning Timeline (https://www.sce.com/sites/default/files/inline-files/LocalPlanning_WorkOrderTimelinePlanner.pdf)
2. SCE's Applicant Design Process (https://www.sce.com/sites/default/files/inline-files/NDPPM_ApplicantDesignProcessOverview_0.pdf)

Typical Energization Process Delays and Hurdles

- **Customer Application Processing**
  - Incomplete Applications
  - Inaccurate information on application
  - Delays in submittal (maps, grants, all requirements, etc.)
- **Engineering & Design**
  - Variability in amount/size of requests
  - Scope of job (larger project = longer timelines) or changes in scope of job (size, timeline or location)
  - Delays in permitting, environmental, state/local/federal government requirements, rights checks, and facility inspections
  - System capacity constraints and associated timelines for projects to increase capacity
  - Delayed communication from customers
- **Customer Requirements**
  - Customer delays in submitting payment/contracts
  - Inaccurate installations of ducts, panel and/or trenching
  - Inability to obtain city/county release
- **Scheduling**
  - Storm/emergent conditions cause scheduling delays
  - Supply chain challenges for SCE and for customer
  - Unable to schedule work for construction until all requirements have been met by customer
- **Construction & Final Accounting**
  - Customer site issues can cause construction delays

- **Areas of focus**
  - Additional personnel to handle requests (engineers, planners, project manager, line crews)
  - Further development of existing tools like DRPEP
  - In development of an online application process for new business requests
  - Provide additional information on SCE.com that outlines processes more clearly for customers and developers
  - Continue customer outreach for developers & customers to educate on SCE requirements, processes, and timelines and reduce construction delays
  - Creating exception process to allow customer to phase in load ahead of full capacity needs that may require a system upgrade project
  - Continue development of temporary power service bridging solutions, including project staging, if available
  - Streamlining process to proactively increase system capacity to meet load growth needs
  - Improving permitting/environmental processes - providing electronic solutions

Distribution Generation Interconnection Processes

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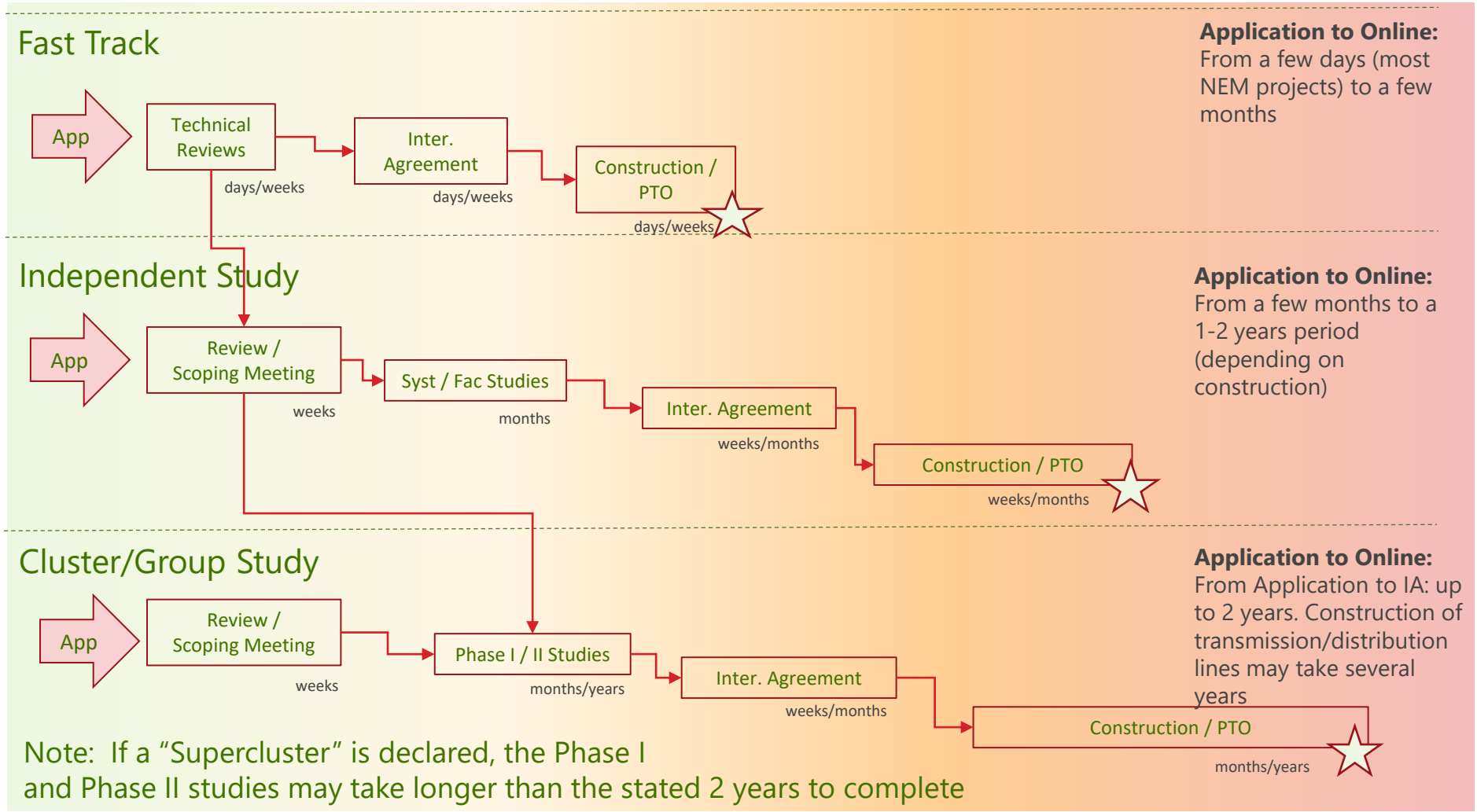
Generation Interconnection Processes (High-Level Timeline)

For Illustration Purposes Only

Majority of interconnections processed under Fast Track

---- days ---------- weeks ----------months ---------- years ----------



Fast Track Process

1 Application Processing

Reviews for information completeness, including:
- Site Plan Diagram and Single Line Electrical Diagram stamped by a Professional Engineer
- Site Exclusivity documentation

Typical deficiencies in Application
- Lack of site exclusivity documentation or technical data are typical reasons for triggering a deficiency notice
- When application package is complete, the interconnection request is "deemed valid" and progressed

2 Initial Review

Perform technical screening review
- Hold optional initial review results meeting with customer
- If Initial Review passes, move to Step 4 (Interconnection Agreement)
- If Initial Review fails, next steps include:
  - Supplemental Review
  - Detailed Study Process
  - Withdraw

Typical reason for failing Initial Review
- Upgrades may be required

3 Supplemental Review (if available)

Perform supplemental technical screening review
- Hold optional Supplemental review results meeting with customer
- If Supplemental Review passes, move to Step 4 (Interconnection Agreement)
- If Supplemental Review fails, next steps include:
  - Detailed Study Process
  - Withdraw

Typical reason for failing Initial Review
- Upgrades may be required

4 Interconnection Agreement

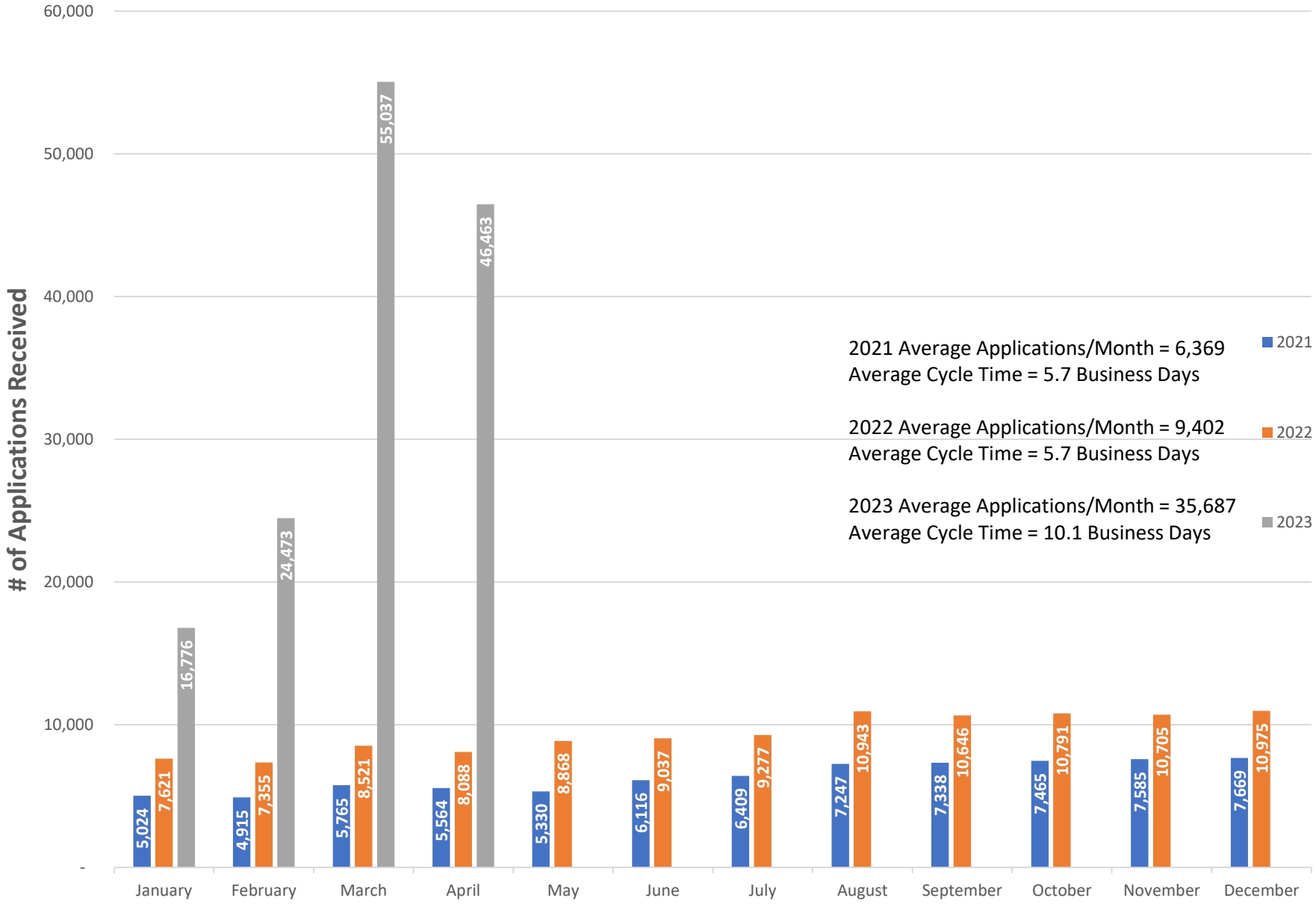
Interconnection Agreement (IA)
- Scope of required facilities and upgrades:
  - Interconnection facilities
  - Distribution upgrades Network upgrades
  - Operational requirements
- Financial responsibility for facilities and upgrades (if any)
- Taxes, financial security, milestones, and other important information

IAs are executed by all parties

5 Project Implementation (If Facilities required)

Project Implementation Milestones
- If needed, upgrades are required
  - SCE commences kick-off meeting with customer and initiate construction
  - SCE holds regular project meetings with team and customer
  - All milestones identified in Interconnection Agreement

NEM 2.0 Applications Received



Typical Interconnection Delays and Opportunities

Potential Reasons for Delay

Application Processing

- Application information not complete
- Applicants making changes during interconnection process
- High volume of applications leads to review delays

Technical Studies

- Applicants making changes during interconnection process

Interconnection Agreement

- Delays in customer payment
- Integrity of processes (e.g., Customer reaching out trying to start project implementation before kick-off), which consumes times for individuals involved

Project Implementation

- Supply chain delays
- Weather related delays
- Permitting and project line routing
- Outages to complete construction must be coordinated with other projects
- High level scope that requires design changes due to discrepancies between desktop analysis and installed equipment

Opportunities

- Early engagement with the utility
- Developers to leverage consulting firms with expertise in California generation interconnection processes
- Development of new interconnection tools (enhancement to existing tools) to streamline interconnection studies
- Limit when and how interconnection requests are changed during the Interconnection process
- Streamline permitting and licensing for infrastructure development

Appendix

Independent Study Process / Cluster Group Study

1 Application Processing

Reviews for information completeness, including:
- Site Plan Diagram and Single Line Electrical Diagram stamped by a Professional Engineer
- Site Exclusivity documentation

Typical deficiencies in Application
- Lack of site exclusivity documentation or technical data are typical reasons for triggering a deficiency notice
- When application package is complete, the interconnection request is "deemed valid" and progressed

2 Technical Scoping Meeting

Ensure common understanding of interconnection project and applicable tariff procedures
- Agreement on interconnection point and generator size
- Outline general study process steps for track chosen by Interconnection Customer and discuss alternative study tracks that might be available

5 Business Days (3BD CAISO) after Scoping Meeting, the Developer must:
- Provide confirmation on Point of Interconnection
- Provide confirmation on generator size

3 Technical Studies

Determine impact of generation project on SCE's grid
- Identify scope of facilities required to ensure safety, reliability of grid
  - Interconnection Facilities
  - Distribution Upgrades
  - Network Upgrades
- Studies include:
  - Independent Study
    - System Impact
    - Facilities Study
  - Group Study
    - Phase I & Phase II

Outcome of Studies
- Identify facilities needed to interconnect
- identify feasible construction schedule
- Identify cost responsibilities and financial requirements

4 Interconnection Agreement

Interconnection Agreement (IA)
- Scope of required Facilities and upgrades:
  - Interconnection facilities
  - Distribution upgrades Network upgrades
  - Operational requirements
- Financial responsibility for facilities and upgrades (if any)
- Taxes, financial security, milestones, and other important information

IAs are executed by all parties

5 Project Implementation (If Facilities required)

Project Implementation Milestones
- SCE commences kick-off meeting with customer and initiate construction
- SCE holds regular project meetings with team and customer
- All milestones identified in Interconnection Agreement

Distribution Interconnection Portfolio

Interconnection Status	PTO Issued			Queued		
Tariff	Total Nameplate (MW)	Project Count	Average Size/Project (MW/Project)	Total Nameplate (MW)	Project Count	Average Size/Project (MW/Project)
NEM	4,964	594,563	0.0083	2,853	142,777	0.0200
Others	0	3	0.0551	58	15	3.8899
QF	21	38	0.5546	4	1	3.9000
Rule 21 Export	236	161	1.4675	243	74	3.2818
Rule 21 Multi-Tariff	0	0	0.0000	1	1	1.0000
Rule 21 Non-Export	719	1,339	0.5373	155	257	0.6029
WDAT	789	158	4.9942	638	110	5.8015
Total	**6,730**	**596,262**	0.0113	**3,952**	**143,235**	0.0276