

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources.

Rulemaking 11-09-011  
(Filed September 22, 2011)

Joint Motion of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company Regarding Implementation of Smart Inverter Functionalities

Rulemaking 11-09-011  
(Filed July 18, 2014)

CLEAN COALITION COMMENTS ON JOINT MOTION TO  
ADOPT REVISIONS TO ELECTRIC TARIFF RULE 21 TO  
INCLUDE IMPLEMENTATION OF SMART INVERTER FUNCTIONALITIES

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ADOPT REVISIONS TO ELECTRIC TARIFF RULE 21 TO  
INCLUDE IMPLEMENTATION OF SMART INVERTER FUNCTIONALITIES

I. INTRODUCTION

The Clean Coalition offers these comments to the July 18<sup>th</sup>, 2014 Joint Parties Motion per the Amended Scoping Memo and Ruling of May 13<sup>th</sup>, 2014.

The Clean Coalition is a California-based nonprofit organization whose mission is to accelerate the transition to local energy systems through innovative policies and programs that deliver cost-effective renewable energy, strengthen local economies, foster environmental sustainability, and provide energy resilience. To achieve this mission, the Clean Coalition promotes proven best practices, including the expansion of Wholesale Distributed Generation (WDG) connected to the distribution grid and serving local load. The Clean Coalition drives policy innovation to remove barriers to the procurement and interconnection of WDG projects, integrated with Intelligent Grid (IG) solutions such as demand response, energy storage, and advanced inverters. The Clean Coalition is active in numerous proceedings before the California Public Utilities Commission, the California Energy Commission, and other state and federal agencies throughout the United States. The Clean Coalition also designs and implements WDG and IG programs for utilities and state and local governments.

II. SUMMARY

- The Clean Coalition supports the Motion conditional upon limited edits to reflect the consensus intent and further refinements offered by the Smart Inverter Working Group since July 7<sup>th</sup>, 2014.
- Scheduled mandatory compliance dates should reflect changes in the scheduled adoption of the Tariff and related standards.

- Associated refinements are required in future Interconnection Agreements and/or compensation for grid services where the operation flexibility provided to distribution system operators in this Tariff may have significant cost or value implications for other parties.

### III COMMENTS

#### a. General Comments

The Clean Coalition wishes to acknowledge the collaboration of the Smart Inverter Working Group (SIWG), including both provider and utility representatives, in working toward consensus positions on issues, and the Energy Division staff for their foresight and efficiency in addressing this topic. While perspectives and the focus of concerns vary, we believe substantial alignment has been achieved in delineating an effective path toward realization of the benefits of substantial deployment of advanced inverters.

We believe all parties share common goal of ensuring customers have equal access and opportunity to generation choices, and to clean, reliable, safe and secure power at the least total net cost. While we are succeeding in effectively addressing the technical standards, we must acknowledge that critical separate but associated issues relating to potential loss of revenue and compensation for grid services must also be addressed that are beyond the scope of this current Motion regarding technical standards for interconnection.

The Clean Coalition supports the use of advanced inverter functionality as a core component of integrated intelligent grid (IG) operation to achieve these goals, and adoption of these standards will significantly aide the development of Distribution Resource Planning required by the Utilities in 2015 and onward. Along with energy efficiency, demand side management (including appropriate energy storage and broad application of demand response) and distributed generation serving local loads, advanced inverter functionality reduces the costs of integrating clean but variable energy into the existing electrical systems. As advanced inverter capabilities are deployed and utilized,

both controllable and autonomous functionality can provide voltage support, frequency support, resilience and ride through of system anomalies, and improved visibility. Since most distributed generation and storage systems, including all PV systems, include inverters, the marginal cost of utilizing inverters with increased functionality can avoid much costlier investments that would otherwise be required in stand alone facilities, distribution and transmission upgrades, and additional generation.

We are already seeing the likely value of advanced inverter capabilities in our research as we develop detailed distribution grid power flow modeling with the integration of high levels of PV. The Clean Coalition's work in a forthcoming case study of the Hunter's Point urban substation in San Francisco demonstrates the potential to supply nearly 100% of coincident load through local distributed PV while maintaining power quality and reliability. These results were achieved solely through the application of siting optimization complimented with advanced inverter autonomous functionalities as specified in the SIWG recommendations.

At the same time, we note broad agreement that there are potentially significant cost implications that will need to be addressed that once new requirements and operational standards are adopted. Several of the proposed new features could have a very significant negative impact on system revenue under the allowable operational range established by each utility, and new rate structures or compensation mechanisms will need to be developed to mitigate these impacts. With this consideration, it is both appropriate to only require such functionality where and when it is anticipated to be cost effective, and where the value does not result in a net cost burden against either system owners or non-owner ratepayers. The proposed Tariff language provides appropriate operational flexibility to the distribution system operator, but must be balanced with cost and revenue considerations in the Interconnection Agreement or compensation tariffs.

The Clean Coalition agrees that the proposed modifications to the Rule 21 Tariff broadly represent the consensus developed through July 7<sup>th</sup> 2014 by the Smart Inverter Working Group (SIWG), of which the Clean Coalition is a participant, regarding

implementation relevant recommendations. The SIWG has been continuing to address topics, and some recent refinements should be incorporated into the proposed Tariff modifications, as identified by individual Parties.

We continue support of phased implementation of inverter requirements, including an initial permissive period starting immediately after the publication of a revised version ANSI/UL 1741. Mandatory requirements should allow sufficient time for development, certification and inventory allocation to avoid undue cost or disruption for installers, customers and manufacturers, and we address these dates specifically in ‘Recommended Edit’ below.

The Clean Coalition also agrees that the proposed added definitions for Smart Inverter, Continuous Operation, Mandatory Operation, Momentary Cessation, Nominal, Permissive Operation, Trip, and Voltage Excursion are reasonable; however, all definitions may benefit from further refinement or clarification and we support consideration of such as recommended by Parties.

b. Recommended Edit – Timing:

The Clean Coalition continues to advocate for and strongly supports the goal of rapid adoption, deployment, and implementation of advanced inverter functionalities, however we recognize that an adoption period is necessary for market response to product certification and mandatory standards, as we have noted in prior comments. While immediate use deployment is preferred under permissive standards we believe broad consensus has been reached reflecting a period for market adaption to mandatory standards following adoption of these new technical requirements, and for certification following finalization of updated UL-1741 standards related to these new capabilities. These periods, as previously recommended, would be 12 months for certification subsequent to the date of publication of the relevant UL-1741 standards, and 18 months subsequent to the adoption of the Rule 21 Tariff revisions, which ever occurs later. In light of the changes and uncertainty in the schedule for adoption of this the proposed

Tariff amendments and related certification standards, the mandatory compliance dates should be adjusted to reflect the minimum recommended period for implementation, as indicated below:

Proposed modification to the Joint Motion:  
(changes highlighted)

#### H. GENERATING FACILITY DESIGN AND OPERATING REQUIREMENTS<sup>1</sup>

Section H shall be used for interconnection of non-inverter based technologies.

Section H shall also continue to be used for interconnection of inverter based technologies until the later of two dates: either (1) ~~December 31, 2015~~ *//DATE//[Eighteen (18) months following adoption of these Tariff modifications]* or (2) *Twelve (12) months following* the date the Supplement SA of UL-1741, (with CA requirements) is approved by the full UL-1741 Standards Technical Panel (STP). Following such date, Section Hh shall apply for interconnection of inverter based technologies. Until such date, Section Hh, may be used in all or in part, for inverter based technologies by mutual agreement of the Distribution Provider and the Applicant.

#### IV. CONCLUSION

The Clean Coalition supports the Joint Utilities Motion for modification of Rule 21 with the above noted considerations. Advanced inverter functionality is less expensive than traditional alternatives for facilitating high penetrations of renewable energy in distribution networks and supporting the integration of intermittent renewable generation. Timely deployment and utilization will allow utilities to defer customer charges for distribution and transmission grid upgrades that would otherwise be required to integrate planned levels of distributed generation.

The Clean Coalition appreciates this opportunity to provide comments and looks forward to continuing to work with the Commission and other stakeholders on these

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<sup>1</sup> SCE (U 338-E) proposed revision to Rule 21, Cal. PUC Sheet No. 54834-E

important issues for the successful transition to secure, sustainable, and cost effective energy supplies with equal access for all customers.

Respectfully submitted,

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