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Comparing Germany's and California's Interconnection Processes for PV Systems

A. Tweedie and E. Doris

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

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National Renewable Energy Laboratory
1617 Cole Boulevard
Golden, Colorado 80401
303-275-3000 • www.nrel.gov

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Purpose/Background

This report is a deliverable of the U.S. Department of Energy's (DOE) Solar Energy Technologies Program State Technical Assistance Team. This project provides technical assistance to state policymakers and public utility commissions in support of overcoming market barriers to the broad deployment of solar technologies.

This white paper was created as a response to an inquiry from the California Public Utilities Commission staff to better understand the interconnection procedures in California and Germany for the purpose of potentially identifying areas of process improvement.

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1 Introduction

Establishing interconnection to the grid is a recognized barrier to the deployment of distributed energy generation, both in the United States and in Germany (Rose et al. 2010, German Solar Industry Association [GSIA] 2010). In the United States, stringent technical requirements, obstructive utility practices, and prohibitive regulatory barriers are common obstacles faced by distributed generation projects (Alderfer, Starrs, & Eldridge 2000). In Germany, grid connection procedures are the greatest cause of delay in photovoltaic (PV) system development, according to the German Solar Industry Association (GSIA 2010).

Much progress has been made in the last decade toward standardizing and streamlining interconnection processes. In the United States, the Institute of Electrical and Electronic Engineers (IEEE) publishes standard requirements for various technical aspects of grid interconnection (Keyes & Fox 2008). A number of states and regions have developed standard interconnection procedures to normalize utility-developer interactions (Fink, Porter, & Rogers 2010). In Germany, the legal framework established by the Renewable Energy Sources Act (EEG) has resolved some, but not all, obstacles to connecting PV systems to utility grids (GSIA 2010).

Despite reported progress, interconnection wait times are still considered lengthy by some developers. This report preliminarily compares interconnection processes for small[1] residential applications as well as larger commercial- and utility-scale projects in California and Germany to identify important differences. This work is meant to be a starting point to better understand and inform the different interconnection processes. The report first compares the administrative process of establishing interconnection in California and Germany, including the steps taken by developers and utilities and the average length of time utilities take to process applications. Second, this paper compares the burden that the required paperwork places on developers and describes the content and the approximate time required of developers to complete the requisite paperwork. Note that this paper is literature-based and is not a primary research endeavor, and thus the information provided herein is limited by the available literature. Primary research could help better inform understanding of the barriers associated with the interconnection of PV systems.

[1] In this report, "small" PV in Germany is defined as systems 5 kWp or less, as this is the cut off used by PV Legal. "Small" PV in California is defined as systems under 10 kW, in accordance with Rule 21.

2 Existing Literature

The most common source of information on interconnection policy in both the United States and Europe is the literature on renewable energy support schemes. These reports discuss grid access as part of a wider examination of best practices or obstacles to deployment (Mendonça 2007; Ragwitz et al. 2007; Klein et al. 2008; Couture et al. 2010). A number of papers comment on interconnection in the context of comparing feed-in tariff policies between European countries or between U.S. states (Held et al. 2007; Couture & Cory 2009). This body of work discusses the importance of clear and standardized interconnection policy generally, but it does not elaborate on the specific details of the interconnection processes in specific locales.

A smaller body of literature focuses specifically on interconnection policies in the United States. The Network for New Energy Choices (NNEC) annual report, *Freeing the Grid,* outlines interconnection procedure best practices and grades states' policies (Rose et al. 2010). Working off the NNEC grading criteria, the Solar America Board for Codes and Standards analyzes four interconnection policies for small generation facilities in the United States (Keyes & Fox 2008). Such analyses supplement individual state evaluation of interconnection policies' effectiveness, such as the California Energy Commission's (CEC) 2010 report on the timeliness of interconnection by investor-owned utilities (Reflective Energies 2010).

Little information on German interconnection procedures is available in English. A useful source of information is the PV Legal online database for Germany, which describes the administrative processes associated with PV projects in that country, including interconnection. As part of the PV Legal project, the GSIA published a preliminary report on barriers to PV deployment in Germany (GSIA 2010). In addition, a German language guide to installing residential PV provides a rough explanation of the interconnection process (Schmitz & Volkmann 2010).

However, the literature review revealed no documentation making a direct comparison of the interconnection procedures in Germany and California. This report partially fills this gap in the literature. This report focuses only on the interconnection procedures for solar PV systems.

3 Comparing the Administrative Interconnection Process

It is important to compare the administrative steps involved in establishing interconnection, in order to identify similarities and differences in the Californian and German processes. This section addresses both the steps taken by developers and utilities in order to establish interconnection and the time utilities typically take to process interconnection applications.

3.1 Residential-Scale Interconnection in California

The process of applying for interconnection in California varies by jurisdiction and by utility. Most residential PV systems in California serve on-site load and thus are subject to state, rather than Federal Energy Regulatory Commission (FERC), jurisdiction. As such, the procedure for establishing interconnection for residential-scale projects is outlined by the California Public Utilities Commission (CPUC).

California was the second state in the United States to develop interconnection standards, with the establishment of Rule 21 in 2000 (Database of State Incentives for Renewables & Efficiency [DSIRE] 2011; Fink, Porter, & Rogers 2010). The purpose of Rule 21 is to streamline and standardize California's interconnection procedures (Fink, Porter, & Rogers 2010). In the first 3 years after the establishment of Rule 21, processing time for interconnection requests dropped from approximately 1 year to less than 3 months (Fink, Porter, & Rogers 2010). Under Rule 21, the interconnection process in California can be characterized in four broad steps: (1) application, (2) utility review, (3) interconnection agreement, and (4) installation and commissioning (see diagram in Appendix A).

The first step is to complete an **application**. Within the process established by Rule 21, applications and requirements vary slightly by utility (DSIRE 2011). Some utilities have moved to streamline and simplify interconnection procedures for small systems. For example, San Diego Gas and Electric (SDG&E) has adopted an online combined net metering and interconnection application for systems 30 kilowatts (kW)[2] or less, which is discussed further below.[3]

During the **utility review** process, all applicants enter the same screening process, regardless of project capacity (Fink, Porter, & Rogers 2010).[4] Projects are assessed in an initial review of eight screening criteria. Projects under 11 kW automatically satisfy three of the eight screens (Fink, Porter, & Rogers 2010). Projects that pass the initial review qualify for a simplified interconnection (Fink, Porter, & Rogers 2010).[5] If systems do not qualify for a simplified interconnection, utilities have an opportunity to perform a review and determine what features and upgrades will be necessary for interconnection (Fink, Porter, & Rogers 2010). Generally, PV systems under 10 kW are granted a simplified interconnection and do not require any supplemental review or interconnection studies (DSIRE 2001).

[2] Unless otherwise noted, all references to installed capacity in this paper are stated in terms of DC output.
[3] For more information on SDG&E's process see http://www.sdge.com/nem/interconnectionRequirements.shtml.
[4] Note that while Rule 21 does not expedite residential-scale project applications, in the sense of providing special treatment, the system is designed so that simpler projects exit the process earlier.
[5] For more information see http://www.cpuc.ca.gov/PUC/energy/DistGen/rule21.htm.

After completing the utility review process, customers must enter into an **interconnection agreement** or contract with the utility. For small residential customers, this contract may be combined with the interconnection application.

Finally, the PV system can be installed and commissioned, a process that involves physically connecting to the distribution grid, testing, and authorizing (Cooley, Whitaker, & Prahbu 2003).

Rule 21 sets limits on the time utilities may take to respond to interconnection applications. Utilities are required to notify applicants on the completeness of their application within 10 business days (Fink, Porter, & Rogers 2010). The initial review must be completed by the utility within 20 days (Fink, Porter, & Rogers 2010). Data on residential PV systems processed through the California Solar Initiative provide a case study on utility processing times for interconnection applications (see Table 1). For the time period of July 1, 2010, through September 30, 2010, the average time required for interconnection for each utility, measured from when an application is completed to when a utility grants a PV system owner "permission to operate," was less than 1 month (CPUC 2010). For residential systems, PG&E's interconnection wait time averaged 16 calendar days, SCE's averaged 5.9 days, and SDG&E's averaged just 3.1 days (CPUC 2010). This time estimate only takes into consideration the processing time on the utilities' end, not the time it takes developers to complete the necessary paperwork, which is addressed in Section 4.1.

Table 1: Interconnection Time for Residential PV Systems Processed Through the California Solar Initiative (Days)

Utility	Residential Q3 2010
PG&E	16.0
SCE	5.9
SDG&E	3.1

Source: CPUC 2010

3.2 Residential-Scale Interconnection in Germany[6]

European Union (EU) law governs Germany's interconnection process. Under EU law, member states **may** prioritize the interconnection of renewable energy generators. Germany passed the Renewable Energy Sources Act (EEG) in 2000 (Deutscher Bundgestag 2000) and subsequently updated it in 2004 and 2008.The EEG **requires** that utilities prioritize connecting renewable energy projects to the grid (Deutscher Bundgestag 2009). However, without a legislated timeframe for responding to interconnection requests, some argue that the law still allows utilities to delay PV projects (GSIA 2010). Further, the exact requirements for establishing interconnection, including technical interconnection criteria, vary by utility (Schmitz & Volkmann 2010).

[6] Documented process information (in English) for the German system is somewhat limited. Most of the information in this report comes from PV Legal, an EU-sponsored research project dedicated to analyzing and reducing bureaucratic barriers to PV deployment. For more information see http://www.pvlegal.eu.

The interconnection process in Germany follows the same general process as in California, including the application, utility review, and commissioning (see diagram in Appendix B). One noteworthy difference is that in Germany, no interconnection agreement or contract is required of the customer. While contracts are recommended, PV systems may connect to the grid without a contract between the customer and the utility (PV Legal 2011b; Schmitz & Volkmann 2010).

For residential-scale projects, the first step toward interconnection is to submit a **grid connection application** to the utility (PV Legal 2011c). This usually includes a site map, a circuit diagram, and technical data sheets on the modules and inverter (Schmitz & Volkmann 2010). While the literature refers to this documentation as an application, utilities are required to connect renewables to the grid, barring exceptional circumstances, suggesting that few "applications" are rejected.

In the second step, the utility reviews the application to determine the connection point. The EEG stipulates that for systems of installed capacity up to 30 kWp, located on land already connected to the grid, the existing connection point will be used to connect the new PV system (GSIA 2010). However, it is noted that in some areas with outdated grid infrastructure, particularly rural areas, interconnection studies and grid upgrades are frequently necessary, even for small systems (GSIA 2010). If grid upgrades are required, they are performed and paid for by the utility (PV Legal 2011b).[7] After receiving the interconnection request and performing the grid study, the utility submits a connection point proposal to the PV system owner (PV Legal 2011c).

In a final step, following construction or installation, the PV system is **commissioned** and connected to the grid (PV Legal 2011a).

According to an industry survey completed by PV Legal, the average time for a utility to complete an interconnection study and submit a connection point proposal for a small, residential project is 4 weeks (see Table 3) (PV Legal 2011b).[8] This average includes only the utility-end processing time, not the time developers typically need to complete the necessary forms. This issue is discussed in Section 4.2.

3.3 Commercial- and Utility-Scale Interconnection in California

Commercial- and utility-scale PV projects may fall under either CPUC or FERC jurisdiction. Those under CPUC jurisdiction must follow Rule 21 interconnection procedures (see diagram in Appendix A). As Rule 21 does not specify any size limits, all applicants are subject to the process described above. Most large projects require supplemental review. Supplemental review may consist of the following: determination of system impact, formal assessment, system study notification and cost estimate, study completion and reporting of results, notification of additional costs for applicant, distribution system modifications, system tests, notification of interconnection approval, and interconnection agreement (Coddington 2011a).

[7] The EEG stipulates that a utility may be exempted from performing upgrades if it can prove that the upgrades are "economically unreasonable."

[8] Typical duration is between zero and 10 weeks. Some wait times up to 5 months were reported for small rooftop installations (PV Legal 2011b; German Solar Industry Association 2010, p 15).

Projects that fall under FERC jurisdiction follow FERC's Small Generator Interconnection Procedures if they have a nameplate capacity of less than 2 megawatts (MW) (Fink, Porter, & Rogers 2010). This process is similar to CPUC's Rule 21. Projects first go through an initial screening process, which consists of a number of technical screens (Fink, Porter, & Rogers 2010). Projects with nameplate capacities between 2 MW and 20 MW, and those that fail the initial screening, must undergo additional studies such as feasibility studies, system impact studies, and facilities studies (Fink, Porter, & Rogers 2010, p 8). Applicants pay for these studies and any necessary transmission upgrades (Fink, Porter, & Rogers 2010). FERC rules prohibit utilities from prioritizing the interconnection of specific generation technologies (Fink, Porter, & Rogers 2010).

The California Solar Initiative provides data on non-residential PV system interconnection times (see Table 2). For the time period of July 1, 2010, through September 30, 2010, the average time required for interconnection for each utility, measured from when an application is completed to when a utility grants a PV system owner "permission to operate," was less than 1 month (CPUC 2010). For non-residential systems, PG&E averaged 13.7 days, SCE averaged 16.1 days, and SDG&E averaged 3.6 days.

Table 2: Average Interconnection Time for Non-Residential PV Systems Processed Through the California Solar Initiative (Days)

Utility	Non-Residential Q3 2010
PG&E	13.7
SCE	16.1
SDG&E	3.6

Source: CPUC 2010

3.4 Commercial- and Utility-Scale Interconnection in Germany

In Germany, commercial- and utility-scale projects follow essentially the same interconnection procedures as residential-scale projects (see diagram in Appendix B). PV Legal divides this portion of the market into two groups: commercial and industrial roof mounted systems (up to 50 kilowatt peak [kWp] and ground-mounted systems (up to 5 megawatt peak [MWp]).

Commercial- and industrial-scale roof-mounted systems (up to 50 kWp) in Germany follow the same process as residential-scale systems to establish interconnection. However, GSIA notes that for these systems, the application for grid connection can be a significant barrier, which sometimes involves long waiting periods and high fees (GSIA 2010). GSIA attributes this to the fact that for systems larger than 30 kWp, there is no legally defined preferred interconnection point, which gives grid operators leeway to obstruct the interconnection process (GSIA 2010). The GSIA report also notes that the difficulty of establishing interconnection for this segment varies a great deal by grid operator (GSIA 2010).

Ground-mounted systems (up to 5 MWp) follow the same process as residential-scale systems, except for two additional steps. Prior to submitting a grid connection application, system operators submit a "preliminary request for grid connection" in order to determine the capacity

of the existing infrastructure to support the project (PV Legal 2011e). The GSIA report identifies the application for grid connection for ground-mounted systems as a significant barrier to an expedient interconnection (GSIA 2010). GSIA notes that it is often problematic for system operators and grid operators to come to agreement on the location of the interconnection point and that the process sometimes involves long waiting periods (GSIA 2010). Ground-mounted systems may also need to notify the utility of the completion of construction before continuing with commissioning and connecting to the grid (PV Legal 2011f).

According to PV Legal's industry survey, the duration of the grid connection process was 7 weeks for roof-mounted commercial and industrial projects and 10 weeks for ground-mounted projects (see Table 3).

Table 3: German Grid Connection Process Duration (Weeks)

System Category	Min.	Avg.	Max.
Residential (up to 5 kWp)	0	4	10
Roof-Mounted Commercial and Industrial (up to 50 kWp)	4	7	10
Ground-Mounted (up to 5 MWp)	6	10	16

Source: PV Legal 2011b, PV Legal 2011g, PV Legal 2011h

4 Comparing the Interconnection Paperwork Burden

In addition to assessing the administrative process of establishing interconnection, as discussed above, a full picture of the process can only be seen when the work required of developers to complete and submit necessary paperwork in California and Germany is considered. Utility-end processing time for interconnection applications does not reflect the labor and expertise necessary to understand and complete the required paperwork.

This section compares the paperwork and documentation required of PV developers in Germany and California. Because little literature is available that captures the paperwork burden, the following case studies provide some range of the paperwork challenges in each jurisdiction. Additional primary research in this area will greatly refine the understanding of paperwork burden on developers and how it impacts the market for distributed generation.

4.1 Paperwork Burden in California: San Diego Gas & Electric Case Study

In California, some utilities have adopted streamlined applications for PV facilities with an installed capacity of 30 kW or less. In the case of San Diego Gas and Electric (SDG&E) this streamlined format combines a net metering and interconnection application and agreement into one eight-page document. The documents necessary to complete an "Agreement Package" include the application/agreement form, a single-line diagram (including equipment specifications), information on existing insurance coverage, and confirmation of final approval by the city or county (see Appendix C).

For facilities larger than 30 kW, the following documents may be required: an interconnection application (14 pages), a single-line diagram, site plans and diagrams, transformer specifications, transfer switch specifications, protective relays specifications, and an interconnection agreement (9 pages). Additionally, warning plaques and a bill of materials may be required (see Appendices D-H).

Lacking any available studies on the length of time required to complete typical Californian utilities' interconnection paperwork, an industry expert's estimates are provided in Table 4 below.

Table 4: Estimated Labor (hours) to Complete SDG&E Paperwork Necessary for Interconnection

System Category	Low	High
Facilities 30 kW or Less	12	19
Facilities Greater than 30 kW	51	81

Source: Coddington 2011b

4.2 Paperwork Burden in Germany: E.ON Mitte Case Study

E.ON Mitte, a German utility, serves approximately 2 million customers in a 12,000 square kilometer service territory covering parts of Hesse, Lower Saxony, and North Rhine-Westphalia (E.ON 2011). The paperwork required for connecting PV systems to the grid includes a

registration form, site plan, systems specifications form, and a single-line diagram (see Appendices I-N). Other paperwork may be required (see Appendix O).[9]

PV Legal conducted an industry survey in Germany in which it asked about the amount of legal and administrative labor, measured in man-hours, necessary to complete required forms and produce required documents for various stages of developing a PV project. One stage studied was the "grid connection process," covering application for grid connection through the (optional) signing of an interconnection agreement. The survey found that residential systems (up to 5 kWp) and roof-mounted commercial and industrial systems (up to 50 kWp) averaged 2 and 4 man-hours of legal-administrative labor, respectively, to complete the grid connection process. Ground-mounted systems (up to 5 MWp) averaged 25 man-hours of legal-administrative labor to complete the grid connection process (see Table 5).

Table 5: Legal-Administrative Labor Requirements to Complete Interconnection Application Process in Germany (number of man-hours)

System Category	Min.	Avg.	Max.
Residential (up to 5 kWp)	1	2	3
Roof-Mounted Commercial and Industrial (up to 50 kWp)	2	4	6
Ground-Mounted (up to 5 MWp)	6	25	46

Source: PV Legal 2011i, PV Legal 2011j, PV Legal 2011k

[9] This paperwork is applicable to residential-scale PV systems. It may also apply to commercial- and utility-scale PV systems. For more information see http://www.eon-mitte.com/index.php?parent=8689.

5 Conclusion

Germany and California have similar processes for establishing interconnection for small, residential PV systems. In both cases, systems under a specified installed capacity are exempted from in-depth reviews and studies, though there are some exceptions. Based on this review, utility-end processing time for interconnection requests in Germany and California appear similar. In Germany, utilities take an average of 4 weeks to respond to interconnection requests (by providing connection-point proposals) for residential PV systems 5 kWp or smaller. In California, utilities process California Solar Initiative interconnection applications in approximately 1 to 2 weeks. It appears that in both California and Germany, there is substantial variation in interconnection request processing time, depending on the utility and PV system type (CPUC 2010; PV Legal 2011b).

While superficially similar, the interconnection for large-scale systems in Germany and California differ on a number of important, fundamental points. In Germany, unlike in California, utilities are required to connect any system to the grid and pay for any required studies. Additionally, in Germany, no interconnection agreement is legally required (for any size system), further reducing the obstacles to establishing interconnection. No information is available on utility-end processing of commercial- and utility-scale project interconnection requests in California, so no comparison to Germany can be made by that measure.

With little information on developer-end processing times for typical California interconnection paperwork, it is difficult to draw conclusions about the relative burden or difficulty of the application in Germany and California. Based on one expert analysis, SDG&E's interconnection paperwork for small PV projects appears to place a greater burden on developers, in time and expertise required, than does E.ON Mitte's interconnection paperwork. Especially for large PV systems (larger than 30 kW), SDG&E's paperwork contains more legal language and thus may impose a larger burden on developers.

A number of factors limit our ability to draw more specific conclusions in this comparison. First, little information was available in English on Germany's interconnection process. Second, existing literature on California's interconnection process includes significantly varying assessments of utility processing time (Reflective Energies 2010). Third, fundamental differences in the legal structure governing the two processes make direct comparisons difficult. For example, in Germany, interconnection of renewable energy projects is guaranteed by law, making the interconnection paperwork more of a request than an application. Further, in Germany, utilities cannot legally require PV project owners to enter into interconnection agreements or contracts.

Inquiry into a number of key areas would help determine the impact of interconnection policies on overall interconnection time. First, it would be useful to know by how much processing time improves when renewable projects' applications for interconnection are prioritized over non-renewable projects, as is legislated in Germany. Second, it would be important to study how long the California utilities' interconnection applications and forms take PV system owners or installers to complete. Similarly, it would be useful to know how owners and installers in both California and Germany perceive the level of difficulty in completing the necessary paperwork.

Third, an expanded review, which covers other system types, the procedures and processing time associated with rebate applications, and installation time, would be informative.

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http://www.pvlegal.eu/database.html?tx_sbpvlegaldb_pi1[lifecycle]=1718&tx_sbpvlegaldb_pi1[subsegment]=1&tx_sbpvlegaldb_pi1[process]=5&cHash=4e5c0e24ae

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http://www.pvlegal.eu/database.html?tx_sbpvlegaldb_pi1[selSearch]=1&tx_sbpvlegaldb_pi1[lifecycle]=1741&tx_sbpvlegaldb_pi1[subsegment]=1&tx_sbpvlegaldb_pi1[process]=4&cHash=c27be7e1a6

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http://www.pvlegal.eu/database.html?tx_sbpvlegaldb_pi1[lifecycle]=1741&tx_sbpvlegaldb_pi1[subsegment]=1&tx_sbpvlegaldb_pi1[process]=7&cHash=10c9f31fd1

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http://www.pvlegal.eu/database.html?tx_sbpvlegaldb_pi1[selCountry]=1&tx_sbpvlegaldb_pi1[browseCountry]=25&tx_sbpvlegaldb_pi1[browseRegion]=45&tx_sbpvlegaldb_pi1[lifecycle]=1730&tx_sbpvlegaldb_pi1[subsegment]=1&tx_sbpvlegaldb_pi1[process]=4&cHash=0669e62711

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http://www.pvlegal.eu/database.html?tx_sbpvlegaldb_pi1[selCountry]=1&tx_sbpvlegaldb_pi1[browseCountry]=25&tx_sbpvlegaldb_pi1[browseRegion]=45&tx_sbpvlegaldb_pi1[lifecycle]=1741&tx_sbpvlegaldb_pi1[subsegment]=1&tx_sbpvlegaldb_pi1[process]=4&cHash=82b1c3931b

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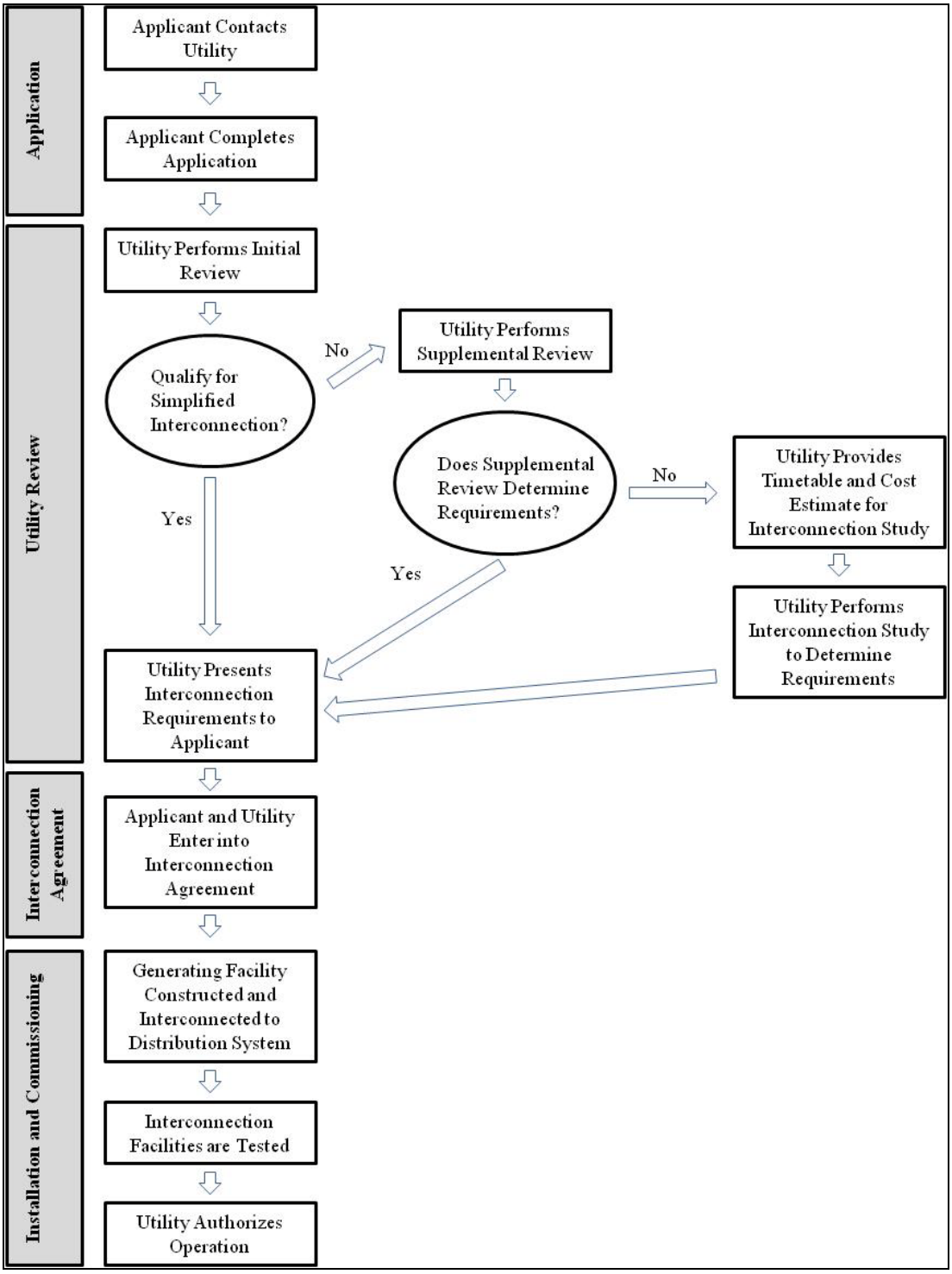
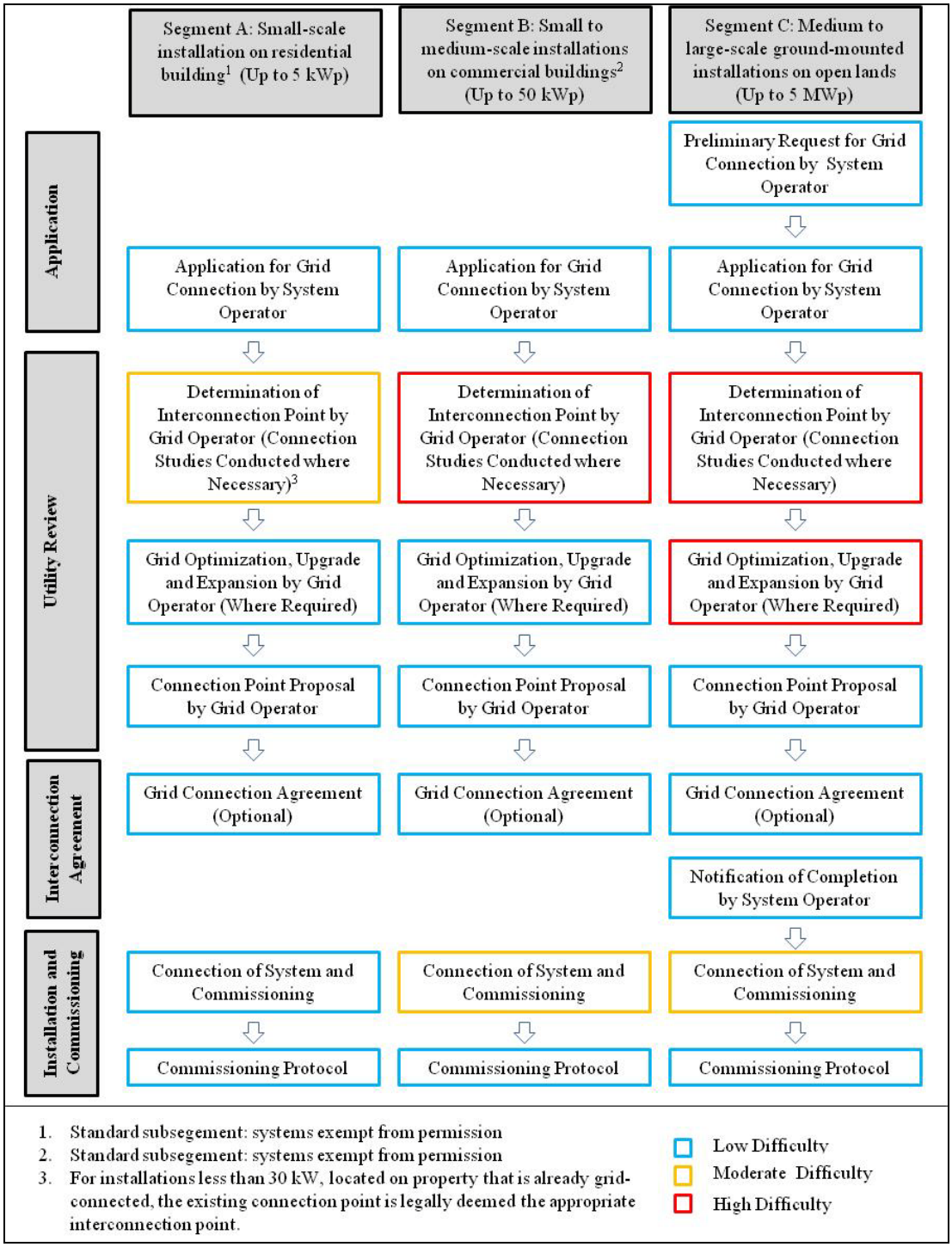
Appendix A: California (Rule 21) Interconnection Process Diagram



Source: Cooley, Whitaker, & Prabhu 2003, p 19.

Appendix B: German Interconnection Process Diagram



Source: PV Legal 2011c, PV Legal 2011l, PV Legal 2011e, PV Legal 2011m, PV Legal 2011n, PV Legal 2011f. (Note that the three installation size categories reflect PV Legal's methodology of categorization, not distinctions made by the EEG).

Appendix C: San Diego Gas & Electric Application and Interconnection Agreement for Customers with Solar and/or Wind Electric Generating Facilities of 30 Kilowatts or Less

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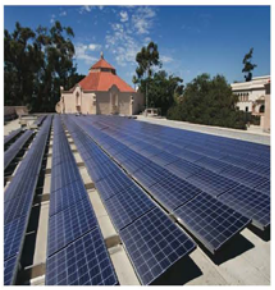

Net Energy Metering

Application and Interconnection Agreement for Customers with Solar and/or Wind Electric Generating Facilities of 30 Kilowatts or Less

Please note that this agreement does not constitute an application for any **rebate** and/or **incentive programs**. For more information on these programs and their specific applications, please contact the California Center for Sustainable Energy by website at http://www.energycenter.org or by phone 1-858-244-1177.

For more information on the New Solar Homes Partnership (NSHP) or the Emerging Renewable Program (ERP), please go to www.sdge.com/construction or www.consumerenergycenter.org/erprebate, respectively, where you will find information about the programs, including the program handbook, reservation request forms with the program contract as well as a list of requirements, FAQ's and resources. For additional questions about the NSHP program, contact an account representative by e-mail at newsolarhomes@sdge.com or by phone at 1-866-631-1744.

Application Identification (APP ID) Number _____ (for SDG&E's use only)

If you are applying for a California Solar Initiative (CSI) rebate, please check the appropriate box below and continue with this application.

- ❑ I am also applying for a CSI rebate, and understand that I will have to apply for CSI rebates separately.
- ❑ I am also applying for a NSHP rebate, and understand that I will have to apply for the NSHP rebates separately.
- ❑ Not applying for any rebates

Part I – Identifying the Generating Facility's Location and Responsible Parties

A. Applicability and Purpose:

This *NET ENERGY METERING APPLICATION AND INTERCONNECTION AGREEMENT FOR CUSTOMERS WITH SOLAR AND/OR WIND ELECTRIC GENERATING FACILITIES OF 30 KW OR LESS* ("Agreement") applies to electric rate schedule NEM, Net Energy Metering Service (NEM) for Customer-Generators ("Customer") who interconnect a solar and/or wind turbine electrical Generating Facility, or a hybrid system of both, with an aggregate capacity of 30 kilowatts (kW) or less that is located on Customer's premises, and that operates in parallel with San Diego Gas and Electric Company's ("SDG&E") Distribution System.

The purpose of this Agreement is to allow the Customer to interconnect with SDG&E's Distribution System, subject to the provisions of this Agreement and SDG&E's rate schedule NEM. Customer has elected to interconnect and operate its solar and/or wind electric Generating Facility in parallel with SDG&E's Distribution System, primarily to offset part or all of the Customer's own electrical requirements at this service point. Customer shall comply at all times with this Agreement as well as with all applicable laws, tariffs and applicable requirements of the Public Utilities Commission of the State of California.

B. Description of Service (This Agreement is being filed for, check all that apply):

- ❑ A New NEM Generating Facility interconnection (at an existing service)
- ❑ For Physical Changes to an interconnected Generating Facility with previous approval by SDG&E (adding PV panels, changing inverters/turbines or changing load and/or operations)
- ❑ A New interconnection in conjunction with a new service
  - An **Application for Service** must be completed. Additional fees may be required if a service or line extension is required (in accordance with SDG&E Electric Rules 15 and 16). Please contact SDG&E at 1-800-411-7343.

Page 1 of 8
Form 142-02765 (10/2009)

Please complete this agreement in its entirety

URL: http://www.sdge.com/documents/nem/interconnection_appl.pdf

*

- ❑ An Interconnection under Direct Access (DA)
  - Customers applying for NEM who are served under **Direct Access** by an Energy Service Provider (ESP) must contact their ESP directly for information regarding the ESP's Net Energy Metering program.
- ❑ An Interconnection under Community Choice Aggregation Service (CCA Service)
  - Customers applying for NEM who are served under Community Choice Aggregation Service by a Community Choice Aggregator (CCA) must contact their CCA directly for information regarding the CCA's Net Energy Metering program

C. Customer Generating Facility Information - Where will the Generating Facility be installed?

Name shown on SDG&E service account (Must match **Customer Name** on SDG&E bill)	Account Number	Meter Number
Street Address		
City	State	Zip
Mailing Address		
City	State	Zip
Business Phone / Home Phone	Fax	**Mandatory E-mail**

D. Contractor Information (Must be completed even if Contractor will not serve as a SDG&E contact).

Contractor	Company Name	
Mailing Address		
City	State	Zip
Business Phone / Fax	**Mandatory E-mail**	

❑ This contractor is to be used as SDG&E contact and is authorized by Customer to receive confidential Customer information and act on behalf of Customer with respect to this agreement.

By checking the box above and signing this agreement, Customer authorizes SDG&E to release information to the contact(s) named above regarding Customer's usage and billing information, Generating Facility location, size and operational characteristics as requested in the course of this interconnection process. SDG&E is granted permission to share information with authorized recipients for a period of **three years** from the date this agreement is received by SDG&E. Contact(s) are also authorized to change rate schedules served under and metering arrangements which may result in charges to Customer. Should customer wish to select a different authoriziaton period, Customer may utilize the "Authorization to Receive Customer Information or Act on a Customer's Behalf," which may be found at: http://www.sdge.com/documents/business/loa.pdf

In addition, Customer authorizes SDG&E to release to the California Energy Commission (CEC) information regarding Customer's facility, including customer name and Generating Facility location, size, and operational characteristics, as requested from time to time pursuant to the CEC's rules and regulations.

Please complete this agreement in its entirety

*

This agreement is applicable only to the Generating Facility described above and installed at the above location. The Generating Facility may not be relocated or connected to SDG&E's system at any other location without SDG&E's express written consent.

Customer shall be responsible for the design, installation, operation, and maintenance of the Generating Facility and shall obtain and maintain any required governmental authorizations and/or permits.

Part II – Requirements for Interconnection

IN SUBMITTING THIS DOCUMENT, I THE CUSTOMER, UNDERSTAND AND AGREE TO THE FOLLOWING TERMS AND CONDITIONS:

Permission to Interconnect
Customers must not operate their Generating Facility in parallel with SDG&E's Distribution System until they receive written authorization for Parallel Operation from SDG&E. Unauthorized Parallel Operation could result in injury to persons and/or damage to equipment and/or property for which the Customer may be liable.

Safe Operation of your Generating Facility
Notwithstanding any other provision of this Agreement, if at any time SDG&E determines that either (a) the Customer's Facility, or its operation, may endanger SDG&E personnel, or (b) the continued operation of the Customer's Facility may endanger the safe and reliable operation of SDG&E's electrical system, SDG&E shall have the right to disconnect the Facility from SDG&E's system. Customer's Facility shall remain disconnected until such time as SDG&E is satisfied that the unsafe condition(s) have been corrected.

Meter Access
Your meter must be installed in a safe SDG&E-accessible location and remain unobstructed by locked gates or pets. Additionally, meter access must be maintained at all times for meter reading and system maintenance. Any animals owned by the customer, including pet dogs, should not have access to these areas to avoid hindering SDG&E service personnel, preventing them from completing their work. If your self contained meter is being utilized in lieu of an AC disconnect switch, the meter must be accessible at all times and can not be located within a residence or garage.

Document and Fee Requirements
Other Documents and/or Fees *may* be required and there may be requirements for interconnection in addition to the below list**,** depending on the specifics of the planned Generating Facility. Other approvals and/or other agreements may be needed for special SDG&E programs or regulatory agency requirements.

Stale Agreements
If this agreement is still pending **two years from its date of submittal** and customer has not met all of the requirements, SDG&E will close this application and Customer will be required to submit a new application should Customer wish to take service on Schedule NEM.

A. Agreement Package
These documents are needed to ensure safe and reliable operation of SDG&E's Distribution System and to confirm that Customer's interconnection has been performed in accordance with SDG&E's tariffs. **To insure prompt attention and authorization of your project and to avoid any delays, we would like to receive your complete packages two (2) weeks or more before city or county electrical inspection is released.** As SDG&E receives the documentation described in Sections (1) through (5) below, SDG&E will begin to process the application.

Required Documents for New Applicants:

1. A completed copy of this **Agreement**. ***Please note***: the Customer name (as identified in Part I, Section C) must be the same name as on the SDG&E bill. In this Agreement, Customer will confirm their otherwise-applicable rate schedule (OAS), establishing how Customer's monthly usage or net generation will be charged/credited. Customer-initiated rate changes are governed in accordance with SDG&E's Electric Rule 12.
2. A **single-line diagram** showing Customer's actual installation of his/her Generating Facility. The diagram must include the electrical rating and operating voltages of the significant electrical components such as the service panel, the disconnect switch (if required), inverters, all wind and/or photovoltaic generators, circuit breakers and other protective devices of the Generating Facility, the general location of the Customer's loads relative to the Generating Facility, and the interconnection with SDG&E's Distribution System. The diagram must include the following information:

*

a. A description and location of the visible, lockable **AC disconnect switch** if present.

Effective January 01, 2010, customers installing inverter-based systems will no longer be required to include an AC disconnect switch when the facility has a self-contained electric revenue meter (i.e., 0-320 amp socket-based meters or 400 amp K-based meters). This type of meter is used by the vast majority of all SDG&E customers.

To accommodate this change while maintaining utility operating safety needs, the revenue meter, when appropriate, may be temporarily removed by SDG&E to isolate the customer's inverter from the electric distribution system. Removal of the revenue meter (due to an emergency or maintenance on SDG&E's system) will result in loss of electrical service to the customer's facility or residence for the duration of time that work is actively in progress.

SDG&E *recommends* that customers installing an inverter-based generator consider also installing an AC disconnect switch to facilitate maintenance of the customer's equipment (i.e. inverter, PV arrays, etc) without the need for interrupting service to the customer. The AC disconnect switch provides the additional benefit of allowing SDG&E to isolate the customer's generator from the utility's Distribution System without having to interrupt service to the customer's facility or residence but for customers with 30 kW or smaller generating facilities, the switch is optional.

SDG&E's AC disconnect requirement for Distributed Energy Resources (Distributed Generation) will continue to apply to:

- Inverter-based interconnections having a transformer-rated meter (i.e., all meter panels or switchboards employing the use of potential and current transformers).
- Non-inverter based generators, including rotating or machine-based generators – regardless if the service meter configuration is transformer-rated or self-contained.

b. A description of the specific **inverter**(s) used to control the interconnection between SDG&E and the Generating Facility, including rating, brand name, and model number. CEC-certified inverters[1] will pass the requirements for Simplified Interconnection per SDG&E's Electric Rule 21. Non-certified units will require further study and may involve additional costs.

c. A complete description of the **generating equipment that the Customer plans to install**. If the Generating Facility includes photovoltaic panels, the description must include the manufacturer name, model number, number of panels, and the nameplate rating. If the Generating Facility includes a wind turbine, the description must include the manufacturer name, model number, number of turbines, and the nameplate rating. Only CEC-certified inverters and certified wind-turbine generators without separate inverters will pass the requirements for Simplified Interconnection. (See the SDG&E website http://www.sdge.com/business/netMetering.shtml or the CEC website at: www.gosolarcalifornia.org/equipment.

d. A description of how the power output from the inverter is connected to the **main service panel via a branch breaker.** The ampere rating of this branch breaker and the main service panel breaker must be compatible with the output rating of the Generating Facility. The output rating is computed based on the total nameplate rating of the inverter.

e. If such metering is required, a complete description of the **performance (generation output) meter and related equipment.** The description must include the meter manufacturer, model number and type (socket or panel), as well as any other relevant information (e.g., socket, panels, breakers). If instrument transformers are required, the description should include this information.

3. Information regarding any existing **insurance coverage** (liability and/or property) for the Schedule-NEM Generating Facility location.

Customer shall meet all applicable safety and performance standards established by the National Electrical Code, the Institute of Electrical and Electronics Engineers, accredited testing laboratories such as Underwriters Laboratories and, where applicable, rules of the California Public Utilities Commission regarding safety and reliability. A Customer with a solar or wind-turbine electrical generating system, or a hybrid system of both, that meets those standards and rules shall not be required to install additional controls, perform or pay for additional tests, or purchase additional liability insurance.

[1] The CEC's eligible inverter list can be found under the CSI heading at: www.gosolarcalifornia.org/equipment

*

To the extent that Customer has currently in force property insurance and commercial general liability or personal liability insurance, Customer agrees that it will maintain such insurance in force for the duration of this Agreement in no less amounts than those currently in effect. San Diego Gas and Electric Company shall have the right to inspect or obtain a copy of the original policy or policies of insurance prior to commencing operation. As long as Customer meets the requirements of this section, Customer shall not be required to purchase any additional liability insurance.

- ☐ I have insurance. I hereby certify that there is presently insurance coverage in the amount of $_____ for the Schedule-NEM Generating Facility location.

  Insuring Company's Name: _____

  Insurance Policy # _____

- ☐ I **do not** have insurance. I hereby certify that there is presently $0 (zero) dollars of insurance for the Schedule-NEM Generating Facility location

4. The final approval by the city or county electrical inspector is required before SDG&E can conduct their field inspection. The **Jurisdictional inspector must notify SDG&E's New Service Department directly**. The Net Energy Department cannot accept copies of an electrical permit.

Part III – General Facility and Rate Information

A. What applicable **Rate Schedule** have you selected for your NEM account (known as your "otherwise applicable rate schedule" or "OAS")?

RESIDENTIAL:

- ☐ DR – Non-Time-of-Use Residential Service
- ☐ DRTOU – Residential Time-of-Use Service
- ☐ DRSES – Residential Time-of-Use Service (Solar Energy Systems)
- ☐ DRLI – Care Electric Domestic Service
- ☐ DM – Multi Family Service
- ☐ Other Residential rate schedule (_____) please enter

SMALL COMMERCIAL:

- ☐ A – Small General Non-Time-of-Use Service
- ☐ ALTOU – Large General Time-of-Use Service (≥20 Kw)

AGRICULTURAL:

- ☐ PA – General Agricultural Power
- ☐ PAT1– Agricultural Power - Optional Time of Use
- ☐ Other (_____)

Historical and current electrical rate information may be found at: http://www.sdge.com/business/ratesTariffs.shtml. Depending on Customer's rate schedule and metering arrangement, an installation fee and/or reprogramming fee may be required to provide net energy metering.

Customers will be billed monthly. Residential and small commercial customers may, at their option, pay amount for energy monthly or annually, with the understanding that any and all payments will be reconciled at the completion of the true-up period. Agricultural, medium and large commercial customers must pay their total bills monthly. At the end of every twelve (12) billing cycles, or other reconciliation period as provided in Schedule NEM, customer's charges will be totaled including: (1) any unpaid monthly non-energy charges, (2) the charge for any net-energy consumption as defined in rate Schedule NEM. Customer's total payments for the twelve (12) billing cycles or other reconciliation period as provided in Schedule NEM will then be subtracted from the total charges. Customer will then be billed for any balance due. In addition, SDG&E Electric Rules and Rates, including but not limited to Electric Rules 2, 14, 15, 16, and 21, Schedule NEM, and Customer's OAS may apply.

For further information on understanding NEM billing, please go to the 'related docs' section of SDG&E's Net Energy Metering website at: http://www.sdge.com/builderservices/serviceGuide.shtml

*

B. Will this account be established in a new **subdivision**?

❑ Yes **If yes**: (a) who is the developer? _____
(b) tract number? _____
(c) name of the development? _____
(d) please attach a list of lots/addresses included with this application

❑ No

C. Will an electric **vehicle** recharging facility be included as part of the load at this location?

❑ Yes
If yes, will the vehicle recharging facility be separately metered from the residence?
❑ Yes: Solar and/or Wind generators will serve: residence *or* business (circle one)
❑ No: Solar and/or Wind generators will serve both residence and business

❑ No

D. Expected **date** SDG&E Receives Final Approval of Jurisdictional Electrical Inspector of Generating Facility?

Date: _____

E. Are there any other generators connected on this account?

❑ Yes
If yes, specify what kind of generator _____

❑ No

F. Are there any possible meter access issues?

❑ Yes
If yes, check all that apply:

❑ Locked gate	❑ Meter located inside of facility/residence
❑ Unrestrained animal at meter or AC disconnect switch location	❑ Other (Please explain) _____

❑ No

G. Are you on a Demand Response program?

❑ Yes
If yes, what program are you on? _____

❑ No

(For more information on SDG&E's Demand Response programs see:
http://www.sdge.com/aboutus/longterm/longtermDemandResponse.shtml

Part IV – Description of the Generating Facilities ***Use additional sheets, if necessary.***

A. AC Disconnect Switch (see Part II, Section A.2.a above for policy on disconnect switches)
List the AC disconnect switch that will be used at this Generating Facility (Enter "N/A" if not applicable).

Disconnect Switch Manufacturer	Disconnect Switch Model Number	Disconnect Switch Rating (amps)

B. Inverters interconnected with SDG&E
List all the inverters that will be interconnected to SDG&E.

Customers with non-standard inverters which do not meet the UL and IEEE requirements specified in Electric Rule 21, or Customers whose aggregate Generating Facility capacity exceeds 15% of the peak load on the distribution line section as described in Electric Rule 21 (Section I.6.) require a **Supplemental Review** which may entail a study, additional equipment, and/or other requirements.

*

No.	Inverter Manufacturer	Inverter Model Number	Inverter Nameplate Rating[2] kW (per unit)	Inverter CEC Rating kW (per unit)	Quantity of Inverters	Inverter Output Voltage	Single or Three phase?
1							
2							

C. Photovoltaic Generator Equipment

List the photovoltaic (PV) panel information requested below. If the panels are not all identical modules, list the total capacity connected to each inverter you listed above. (Please attach additional sheets if more space is needed).

No.	PV Panel Manufacturer	PV Panel Model	PV Panel Nameplate Rating[3] kW (per unit)	PV Panel CEC Rating kW (per unit)	Quantity of PV Panels	Total Capacity[4] (kW)	Inverter number from (B) above (1 or 2)
1							
2							

D. Wind Turbine Equipment

List the wind turbine information requested below. If there is more than one wind turbine of the same type, list the total capacity connected to each inverter you listed in B) above. Indicate NONE if the inverter is incorporated in the wind turbine and no inverter is required.

No.	Wind Turbine Manufacturer	Wind Turbine Model	Wind Turbine Nameplate Rating[5] kW (per unit)	Wind Turbine CEC Rating (kW) per unit	Quantity of Wind Turbines	Total Capacity (kW)	Turbine Output Voltage	Single or Three Phase	Inverter number from (B) above (1 or 2)
1									

E. Service Panel Short Circuit Interrupting Rating:

For systems larger than 10 kW, what is the short circuit interrupting rating (SCIR) rating of the service panel connected to this generating facility? _____

F. Notices - Mailing Instructions and Assistance:

If you prefer to mail the completed agreement, it may be mailed directly to our NEM department at:

SDG&E'S P.O. BOX ADDRESS	SDG&E'S STREET ADDRESS
San Diego Gas and Electric Company Attention: Net Metering Team Mail Code CP52F P.O. Box 129831 San Diego, California 92123	San Diego Gas and Electric Company Attention: Net Metering Team Mail Code CP52F 8316 Century Park Ct San Diego, California 92123

2 The inverter rating equals the nameplate rating, in kW. If there is more than one inverter of one type being installed, the inverter rating equals the nameplate rating of one unit of the model being installed.

3 The inverter rating equals the nameplate rating, in kW. If there are more than one inverter of one type being installed, the inverter rating equals the nameplate rating of one unit of the model being installed

4 The total capacity is the PV panel (or wind turbine) rating times the quantity.

5 For all generation equipment ratings, please use the nameplate rating found on the equipment or in the equipment specifications.

Please complete this agreement in its entirety

*

Internet Agreement Forms:
If this Agreement has been completed on SDG&E's website, with the attachments, it may be automatically submitted via that system. Copies or forms requiring a signature, attachments and any applicable fees described in Part II must be mailed to SDG&E at the address noted above, in Section IV (F), Notices.

G. Indemnity and Liability.

Each party as indemnitor shall defend, hold harmless, and indemnify the other party and the directors, officers, employees, and agents of the other party against and from any and all loss, liability, damages, claim, cost, charge, demand, or expense (including any direct, indirect or consequential loss, liability, damages, claim, cost charge, demand, or expense, including retained or in-house attorneys' fees) for injury or death to persons, including employees of either party, and damage to property, including property of either party, arising out of or in connection with (a) the engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of the indemnitor's facility , or (b) the making of replacements, additions betterments to or reconstruction of the indemnitor' facilities. This indemnity shall apply notwithstanding the active or passive negligence of the indemnitee. However, neither party shall be indemnified hereunder for its loss, liability, damage, claim, cost, charge, damage, or expense resulting from its sole negligence or willful misconduct. The indemnitor shall, on the other party's request, defend any suit asserting a claim covered by this indemnity and shall pay for all costs, including reasonable attorney fees, which may be incurred by the other party in enforcing this indemnity.

H. Governing Law
This Agreement shall be interpreted, governed, and construed under the laws of the State of California as if executed and to be performed wholly within the State of California.

I. Term Of Agreement
This Agreement shall become effective as of the date of SDG&E's issuance of the Permission to Operate Letter after receipt of all applicable fees, required documents, and this completed Agreement. This Agreement shall continue in full force and effect until terminated by either Party providing 30-days prior written notice to the other Party, or when a new Customer takes service with SDG&E operating this approved generating facility. This new Customer will be interconnected subject to the terms and conditions as set forth in Schedule NEM.

J. Governing Authority
This contract shall at all times be subject to such changes or modification by the Public Utilities Commission of the State of California as said Commission may, from time to time, direct in the exercise of its jurisdiction.

☐ **CUSTOMER HAS READ IN ITS ENTIRETY AND AGREES– CUSTOMER MUST CHECK BOX.**

Customer understands and agrees that it must not operate their Generating Facility in parallel with SDG&E's Distribution System until Customer receives written authorization for Parallel Operation from SDG&E.

Customer Name (Please Print): _____

(Signature): _____ Date:_____

Title: _____

A copy of this signed agreement should be retained with the "Permission to Operate" letter to confirm Interconnection approval.

Please complete this agreement in its entirety

Appendix D: San Diego Gas & Electric Generating Facility Interconnection Application

San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 21373-E
Canceling Revised Cal. P.U.C. Sheet No. 20213-E **

SAMPLE FORMS Sheet 1

FORM 142-05203

GENERATING FACILITY
INTERCONNECTION APPLICATION

(09/09) T

(See Attached Form)

1C13
Advice Ltr. No. 2111-E
Decision No.

Issued by
Lee Schavrien
Senior Vice President
Regulatory Affairs

Date Filed Sep 25, 2009
Effective Oct 25, 2009
Resolution No.

URL: http://sdge.com/tm2/pdf/ELEC_ELEC-SF_142-05203.pdf

Part 1 – Introduction and Overview

A. Applicability: This Generating Facility Interconnection Application (Application) is used to request the interconnection of a Generating Facility to San Diego Gas and Electric Company's (SDG&E) Distribution System (over which the California Public Utilities Commission (CPUC) has jurisdiction). Refer to SDG&E's Rule 21 to determine the specific requirements for interconnecting a Generating Facility. Capitalized terms used in this Application, and not otherwise defined herein, shall have the same meanings as defined in SDG&E's Rule 21 and Rule 1.

Except as noted in the next paragraph, this Application may be used for any Generating Facility to be operated by, or for, a Customer and/or Producer to serve part or all of its electric energy requirements that would otherwise be provided by SDG&E, including "distributed generation", "cogeneration," emergency, backup, and standby generation, and Net Energy Metered (NEM) Generating Facilities. A simpler, shorter form is also available from SDG&E for Net Energy Metered Generating Facilities with a nameplate rating less than 30 kW (Form 142-05202) While Customers operating Generating Facilities isolated from SDG&E's Distribution System are not obligated to enter into an Interconnection Agreement with SDG&E, parts of this Application will need to be completed to satisfy SDG&E's notice requirements for operating an isolated Generating Facility as required by the California Health and Safety Code Section 119085(b).

This Application may not be used to apply for interconnecting Generating Facilities used to participate in transactions where all, or a portion of, the electrical output of the Generating Facility is scheduled with the California Independent System Operator. Such transactions are subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC) and require a different application available from SDG&E.

This Application is not applicable for incentives and/or rebates offered by the Energy Resources Conservation and Development Commission ("CEC") or the CPUC. Please contact those agencies directly or on their respective websites (www.energy.ca.gov and www.cpuc.ca.gov).

B. Guidelines and Steps for Interconnection: This Application must be completed and sent to SDG&E along with the additional information indicated in Part 1, Section C below to initiate SDG&E's interconnection review of the proposed Generating Facility. An Initial Review fee of $800 (payable by check or money order to San Diego Gas and Electric must accompany all Applications except those Applications for isolated Generating Facilities, Solar and Net Energy Metering Generating Facilities. The $800 Initial Review fee must be submitted separately from the Application. The check or money order must be submitted with SDG&E's "Customer Payment Remittance" (CPR) form. A copy of the CPR form may be requested by contacting: **Ken Parks** at (858) 636-5581 or email: kparks@semprautilities.com. Supplemental Review and Interconnection Study fees may be required for large capacity and/or more complex Generating Facility Interconnections; see SDG&E's Rule 21, Section C.1.b. & c. Please refer to the California Energy Commission's website:http://www.energy.ca.gov/distgen/interconnection/guide_book.html for more information regarding interconnection of a generator to SDG&E's Distribution System.

This document is only an Application. Upon acceptance, SDG&E will prepare an Interconnection Agreement for execution by the "Producer," the party that will be responsible for the Generating Facility. SDG&E may also require an inspection and testing of the Generating Facility and any related Interconnection Facilities prior to giving the Producer written authorization to operate in parallel. **Unauthorized Parallel Operation may be dangerous and may result in injury to persons and/or may cause damage to equipment and/or property for which a Producer/Customer may be liable!**

Please note, other approvals may need to be acquired, and/or other agreements may need to be formed with SDG&E or regulatory agencies, such as the Air Quality Management Districts and local governmental building and planning commissions prior to operating a Generating Facility. SDG&E's authorization to operate in parallel does not satisfy the need for an Applicant to acquire such other approvals.

C. Required Documents: Six (6) copies of this Application and each of the following documents **must be submitted** before this application will be processed. Drawings must conform to accepted engineering standards and must be legible. 11"x17" drawings are preferred.

1. A **Single-line drawing** showing the electrical relationship and descriptions of the significant electrical components such as the primary switchgear, secondary switchboard, protective relays, transformers, generators, circuit breakers, with operating voltages, capacities, and protective functions of the Generating Facility, the Customer's loads, and the interconnection with SDG&E's Distribution System. Please show the location of all required net generation electric output meters and the A.C. manually operated disconnect devices on the single line drawing.
2. **Site plans and diagrams** showing the physical relationship of the significant electrical components of the Generating Facility such as generators, transformers, primary switchgear/secondary switchboard, and control panels, the Customer's loads and the interconnection with SDG&E's Distribution System. Please show the location of all required net generation electric output meters and the A.C. manually operated disconnect devices on the site plans.
3. If **transformers** are used to interconnect the Generating Facility with SDG&E's Distribution System, please provide transformer nameplate information (voltages, capacity, winding arrangements, connections, impedance, et cetera).
4. If a **transfer switch** or scheme is used to interconnect the Generating Facility with SDG&E Distribution System, please provide component descriptions, capacity ratings, and a technical description of how the transfer scheme is intended to operate.
5. If **protective relays** are used to control the interconnection, provide protection diagrams or elementary drawings showing relay wiring and connections, proposed relay settings, and a description of how the protection scheme is intended to function.

Part 1 Cont'd – Introduction and Overview

D. **Mailing Instructions, Assistance:** When this application has been completed it may be printed and mailed, along with the required attachments to:

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1. NEM Projects "30 kW or Greater" ONLY

San Diego Gas & Electric
***Attention*: Mr. Ken Parks**
8316 Century Park Court, CP52F
San Diego, CA 92123-1582

Alternatively, you may contact SDG&E at (858) 636-5581 and make arrangements to e-mail or fax copies of the required information with payment of the required fees to follow. If you have questions or need assistance in completing this application please call.

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2. All Other Generation Projects

San Diego Gas & Electric
***Attention*: Self-Generation**
8306 Century Park Court, CP42F
San Diego, CA 92123-1593

A simpler, shorter form is also available for Net Energy Metering Customers with Solar and/or Wind Electric Generating Facilities of 30kW or Less (Form 142-02765). Alternatively, you may contact SDG&E at (858) 654-1278. N N

Part 2 – Identifying the Generating Facility's Location and Responsible Parties

Project Name:	*Date Received:*	*Generating Facility ID:*	*Application Expiration Date (Refer to Part 2, Section E)*

(For SDG&E Use Only)

***NEM Projects Only* (Check one): California Solar Initiative ____**
Self Generation Incentive Program ____
Performance Based Incentive ____

A. Customer Electric Account Information (What electric service will the Generating Facility be connected? For aggregated electric accounts (under NEM-BIO, dairy operations only) provide the primary and all associated accounts/meter information)

Name shown on SDG&E service account	Electric Account Number	Meter Number

NOTE: Customer Electric account must match the customer's utility bill account information.

Meter Location Street Address	City	State	Zip

Customer Electric Account Contact Information (Who is the customer contact for progress updates and/or additional information?)

Contact Person	Company Name

Phone	Fax	E-mail

Mailing Address	City	State	Zip

B. Project Contact Information (Who is the project contact for this Generating Facility?)

Project Contact Person (Optional)	Company Name

Phone	Fax	E-mail

Mailing Address	City	State	Zip

B.1. Will the Generating Facility be owned by a (third) party other than the name appearing on the SDG&E service account in A. above (please check)? _____ Yes _____No

Part 2 Cont'd – Identifying the Generating Facility's Location and Responsible Parties

C. 1. Customer - Generation Facility Interconnection Agreement ("GFIA") or Customer Generation Agreement ("CGA") (applicable to 3rd Party Owner Only) Information (Please identify, if known, the party that will execute the applicable agreement.) Not applicable for Net Energy Metering Applicants.

Person Executing the GFIA/CGA	Title of Person Executing GFIA/CGA

Name of Legal Entity to be entered in signatures section of the GFIA/CGA

C.2. 3rd Party Owner – GFIA Information (Please identify the Party, if known, that will execute the GFIA). Not applicable for Net Energy Metering Applicants.

Person Executing the GFIA	Title of Person Executing GFIA

Name of Legal Entity to be entered in signatures section of the GFIA

D. Operating Date (What date is this Generating Facility expected to begin operation?)

E. Expiration Date* (The date the status of this Application is changed to "withdrawn" by SDG&E?)

*** The information submitted in this Application will remain active and valid for a period of 12 months from the date the Application was accepted by SDG&E as a "completed" Application. If the project has not received written authorization to operate in parallel, or that reasonable proof the project is going forward has not been submitted to SDG&E by that time, the Application will be considered "withdrawn". To the extent that the Initial Review, Supplemental Review, or Detailed Interconnection Study fees have been paid to and the corresponding reviews/study completed by SDG&E, Applicant will only be entitled to a return of one-half of the Initial Review fee of $400. All other fees will be forfeited.**

Part 3 - Describing the Generating Facility and Host Customer's Electrical Facilities

A. (MP&I)	Indicate the operating mode of the Generating Facility	operating mode options: __1 __2 __3 (Choose one)

Instructions and Notes

Choose from the following operating mode options:

1. **Parallel Operation:** The Generating Facility will interconnect and operate "in parallel" with SDG&E's Distribution System for more than one (1) second.
2. **Momentary Parallel Operation (MP):** The Generating Facility will interconnect and operate on a "momentary parallel" basis with SDG&E's Distribution System for a duration of one (1) second or less through transfer switches or operating schemes specifically designed and engineered for such operation.
3. **Isolated Operation (I):** The Generating Facility will be "isolated" and prevented from becoming interconnected with SDG&E's Distribution System through a transfer switch or operating scheme specifically designed and engineered for such operation.

If the answer is operating mode option 1, "parallel operation," please supply all of the information requested for the Generating Facility. Be sure to supply adequate information including diagrams and written descriptions regarding the protective relays that will be used to detect faults or abnormal operating conditions on SDG&E's Distribution System.

If the answer is operating mode option 2, "momentary parallel operation," only questions A, E and F of this Part 3 and questions A, B, E, F, I, L, M, N, and S of Part 4 need be answered. Be sure, however, to supply adequate information including diagrams and written descriptions regarding the switching device or scheme that will be used to limit the parallel operation period to one second or less. Please also describe the back up or protective device and controls that will trip the Generating Facility should the transfer switch or scheme not complete the transfer in one second or less.

If the answer is operating mode option 3, "Isolated Operation," ," only questions A, E, and F of this Part 3 and questions A, B, F, and S of Part 4 need be answered. Be sure, however, to supply adequate information including diagrams and written descriptions regarding the isolating switching device or scheme that will be used to prevent the Generating Facility from operating in parallel with SDG&E's Distribution System.

B. *Parallel Operation Applications Only*	If the Answer to Section A above was operating mode option 1, please indicate the type of agreement that is being requested with this Application. If operating mode option 2 ,3 or 4 was selected, please skip to questions E and F. If agreement options 2, 3, 4, 6, 7, 9, 10, 11, 12 or 13 to this Section B are chosen, please provide an estimate of the maximum kW the Generating Facility is expected to export to SDG&E's Distribution System. If SDG&E determines that the amount of power to be exported is significant in relation to the capacity available on its Distribution System, it may request additional information, including time of delivery or seasonal kW/kWh estimates.	agreement options: __1 __2 __3 __4 __5 __6 __7 __8 __9 __10 __11 __12 __13 (Choose all that apply) _____ Maximum kW

Instructions and Notes

Sample agreements are available from SDG&E for review. Choose from the following thirteen (13) agreement options:

Customer Owned Generating Facility (not NEM eligible)

1. **A Generating Facility Interconnection Agreement (Form 142-05202)** that provides for parallel operation of the Generating Facility, but does not provide for exporting power to SDG&E's Distribution System.
2. **A Generating Facility Interconnection Agreement (Inadvertent Export) (Form 142-0544)** that provides for parallel operation of the Generating Facility, and the occasional, inadvertent, non-compensated, export of power to SDG&E's Distribution System for one secord or less.
3. **A "Qualifying Facility" Power Purchase Agreement** that provides for parallel operation of the Generating Facility, and exporting power to SDG&E's Distribution System for sale to SDG&E. This option is available only to "Qualifying Facilities" with a total Nameplate Capacity of 100 kW or less. See Question F for the definition of a Qualifying Facility. (This type of agreement has not yet been developed by SDG&E or approved by the CPUC. Check with SDG&E for availability).
4. **A Generating Facility Interconnection Agreement (Continuous Export) (Form 142-0545)** that provides for parallel operation of the Generating Facility, and, continuous export of power to SDG&E's Distribution System.

Part 3 Cont'd - Describing the Generating Facility and Host Customer's Electrical Facilities

Third Party Owned Generating Facility (not NEM eligible)

5. **A Generating Facility Interconnection Agreement (Form 142-0543)** that provides for parallel operation of the third party owned Generating Facility, but does not provide for exporting power to SDG&E's Distribution System.
6. **A Generating Facility Interconnection Inadvertent Export Agreement (Form 142-0542)** that provides for parallel operation of the third party owned Generating Facility and the occasional, inadvertent, non-compensated, export of power to SDG&E's Distribution System for one second or less.
7. **A "Qualifying Facility" Power Purchase Agreement** that provides for parallel operation of the third party owned Generating Facility, and exporting power to SDG&E's Distribution System for sale to SDG&E. This option is available only to "Qualifying Facilities" with a total Nameplate Capacity of 100 kW or less. See Question F for the definition of a Qualifying Facility (This type of agreement has not yet been developed by SDG&E or approved by the CPUC. Check with SDG&E for availability)
8. **A Customer Generation Agreement (Form 142-0541)** that defines the relationship between the Customer whose name appears on SDG&E's electric service account (this agreement must be executed in addition to 5. 6. or 7)

Net Energy Metering Generating Facility

If Applicant intends to operate the Generating Facility under one of SDG&E's Net Energy Metering tariffs, following a bi-directional metering installation, the meter and disconnect switch must be installed in a location acceptable to SDG&E. Access to the meter and disconnect switch located on Applicant's premises must be in accordance with SDG&E Electric Rule 16, Section A 11.

9. **A Net Energy Metering Agreement (Form 142-02760)** that provides for parallel operation of a qualifying solar and/or wind Generating Facility with a capacity of not more than 1,000 kW, and exporting power to SDG&E's Distribution System for credit under the terms of SDG&E's Net Energy Metering tariffs This option is available only to eligible Generating Facilities as defined in SDG&E's Net Energy Metering tariffs.
10. **A Net Energy Metering Agreement: Biogas Digester** (Form 142-02761) that provides for parallel operation of a qualifying biogas digester Generating Facility with a capacity of not more than 1,000 kW, and exporting power to SDG&E's Distribution System for credit under the terms of SDG&E's Net Energy Metering tariffs This option is available only to eligible Generating Facilities as defined in SDG&E's Net Energy Metering tariffs.
11. **A Net Energy Metering Agreement: Fuel Cell (Form** 142-02762) that provides for parallel operation of a qualifying fuel cell Generating Facility with a capacity of not more than 1,000 kW, and exporting power to SDG&E's Distribution System for credit under the terms of SDG&E's Net Energy Metering tariffs This option is available only to eligible Generating Facilities as defined in SDG&E's Net Energy Metering tariffs
12. **A Net Energy Metering Agreement: Multiple Tariff (Form ...)** that provides for parallel operation of a Generating Facility that consists of generators 1) eligible for service under applicable net energy metering tariffs with a combined capacity of not more than 1,000 kW, and exporting power to SDG&E's Distribution System for credit under the terms of SDG&E's Net Energy Metering tariffs and 2) generators not eligible for net metering tariffs. All Generating Facility Generators are electrically connected behind the same Point of Common Coupling. This option is available only to eligible Generating Facilities as defined in SDG&E's Net Energy Metering and other applicable tariffs
13. **Other, please describe:** _____

C. *Parallel Operation Applications Only*	If the answer to Section B above was agreement option 1 or 5, please indicate the protection option that will be used to prevent energy from being exported to SDG&E's Distribution System. If protection option 3 to this Section C is selected, please provide the continuous current rating of the host Customer facility's service entrance equipment (service panel rating): If protection option 4 to this Section C is selected, please provide the minimum load of the host Customer facility:	protection option: __1 __2 __3 __4 (Choose one) _____ Amps _____ kW

Instructions and Notes

Refer to SDG&E's Rule 21, Section I.2., for additional information as to how to answer this question. If the Generating Facility will never export power to SDG&E's Distribution System, a simpler, lower cost, protection scheme may be used to control the interface between the Generating Facility and SDG&E's Distribution System. Choose from the following four options:

1. A reverse-power protection device will be installed to measure any export of power and trip the Generating Facility or open an intertie breaker to isolate the Generating Facility if limits are exceeded.
2. An under-power protection device will be installed to measure the inflow of power and trip or reduce the output of the Generating Facility if limits are not maintained.
3. The Generating Facility Interconnection Facility equipment has been certified as Non-Islanding and the incidental export of power will be limited by the design of the interconnection. If this option is to be used, the continuous ampere rating of the service entrance equipment (service panel rating) that is used by the host Customer facility must be stated in the space provided above.
4. The Gross Nameplate Rating of the Generating Facility will not exceed 50% of the host Customer facility's minimum electrical load. If this option is to be used, the minimum load of the host Customer facility must be stated in the space provided above.

Note: With the approval of SDG&E, a Producer that wishes to retain the option to export power from a Generating Facility to SDG&E's Distribution System may use a different protection scheme that provides for the detection of faults and other abnormal operating conditions.

Part 3 Cont'd - Describing the Generating Facility and Host Customer's Electrical Facilities

D. *Parallel Operation Applications Only*	What is the maximum 3-phase fault current that will be contributed by the Generating Facility to a 3-phase fault at the Point of Common Coupling (PCC)? (If the Generating Facility is single phase in design, please provide the contribution for a line-to-line fault.) Please indicate the short circuit interrupting rating of the host Customer facility's service panel:	_____ Amps _____ Amps

Instructions and Notes

Refer to SDG&E's Rule 21 Sections D.4.a. and I.3.g. for significance and additional information. To determine this value, any transformers and/or significant lengths of interconnecting conductor used between each of the Generators (if there are more than one) that make up the Generating Facility and the PCC must be taken into account. The details, impedance, and arrangement of such transformers and interconnecting conductors should be shown on the single-line diagram that is provided. Consult an electrical engineer or the equipment supplier if assistance is needed in answering this question.

It is expected that most Applicants will want to reserve the flexibility to operate any or all of their Generators in parallel. If the design of the proposed Generating Facility limits the amount of generation that may be interconnected at any time to SDG&E's Distribution System, please describe the assumptions used in calculating the maximum fault current contribution value.

E. (MP&I)	Please indicate how this Generating Facility will be operated.	__1 __2 __3 __4 __5 __6 (Please choose all options that may apply.)

Instructions and Notes

Choose from the following five operation options:

1. **Combined Heat and Power or Cogeneration** – Where the operation of the Generating Facility will produce thermal energy for a process other than generating electricity.
2. **Peak Shaving/Demand Management –** Where the Generating Facility will be operated primarily to reduce electrical demands of the host Customer facility during SDG&E's "peak pricing periods".
3. **Primary Power Source** – Where the Generating Facility will be used as the primary source of electric power and power supplied by SDG&E to the host Customer's loads will be required for supplemental, standby, or backup power purposes only.
4. **Standby / Emergency / Backup –** Where the Generating Facility will normally be operated only when SDG&E's electric service is not available.
5, **Net Energy Metering** – Where the Generating Facility qualifies and receives service under SDG&E's Net Energy Metering tariffs.
6. **Multiple Tariff** – Generating Facilities that have a combination of generator(s) eligible for service under one or more of SDG&E's NEM tariffs and/or generator(s) eligible to receive service under other, non-NEM eligible SDG&E tariffs. Check one of the following four options:

Part 4 – Describe each of the Generators (See Instructions.) Use additional sheets, if necessary.

☐ New facility installing non-NEM generator(s) and NEM generators at the same time.

☐ Existing facility with non-NEM generator(s) and planning to add NEM generator(s). Please provide data for the table below.

☐ Existing facility with NEM generator(s) and planning to add non-NEM generator(s). Please provide data for the table below.

☐ Existing facility with NEM generator(s) and planning to add NEM generator(s) under a different NEM tariff. Please provide data for the table below.

Instructions	Generator Information	Existing Generator Type	Existing Generator Type	New Generator Type	New Generator Type	Totals For All Generators
#	Please indicate the number of each "type" of Generator being installed: (See instructions)					
A (MP&I)	Gen/Inverter Manufacturer					
B (MP&I)	Generator/Inverter Mode					
C	Gen/Inverter Software Version					
D	Is the Generator Certified	__Yes __No	__Yes __No	__Yes __No	__Yes __No	
E (MP)	Generator Design (Choose One)	__ Synchronous __ Induction __ Inverter	__ Synchronous __ Induction __ Inverter	__ Synchronous __ Induction __ Inverter	__ Synchronous __ Induction __ Inverter	
F (MP&I)	Gross Nameplate Rating (kVA)					
G	Gross Nameplate Rating (kW)					
H	Net Nameplate Rating (kW)					
I (MP)	Operating Voltage (Volts or kV)					
J	Power Factor Rating (%)	Min. _____ Max. _____		Min. _____ Max. _____	Min. _____ Max. _____	
K	PF Adjustment Range (%)					
L (MP)	Wiring Configuration (Choose One)	__Single-Phase __Three-Phase		__Single-Phase __Three-Phase	__Single-Phase __Three-Phase	

Part 4 Cont'd – Describe each of the Generators (See instructions) Use additional sheets if necessary					
Instr.	Generator Information	Existing Generator Type	Existing Generator Type	New Generator Type	New Generator Type
M (MP)	3-Phase Winding Configuration (Choose One)	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye
N (MP)	Neutral Grounding System Used (Choose One)	__Ungrounded __Solidly Grounded __Ground Resistor _____ Ohms	__Ungrounded __Solidly Grounded __Ground Resistor _____ Ohms	__Ungrounded __Solidly Grounded __Ground Resistor _____ Ohms	__Ungrounded __Solidly Grounded __Ground Resistor _____ Ohms
O	*For Synchronous Generators Only:* Synchronous Reactance: Transient Reactance: Subtransient Reactance:	_____ (Xd %) _____(X'd %) _____(X"d %)	_____ (Xd %) _____(X'd %) _____(X"d %)	_____ (Xd %) _____(X'd %) _____(X"d %)	_____ (Xd %) _____(X'd %) _____(X"d %)
P	*For Induction Generators Only:* Locked Rotor Current: *OR* Stator Resistance: Stator Leakage Reactance: Rotor Resistance: Rotor Leakage Reactance:	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)
Q	Short Circuit Current Produced by Generator:	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
R	*For Generators that are Started as a "Motor" Only* 1. In-Rush Current: 2. Host Customer's Service Entrance Panel (Main Panel) Continuous Current Rating:	_____ (Amps) _____ (Amps)	_____ (Amps) _____ (Amps)	_____ (Amps) _____ (Amps)	_____ (Amps) _____ (Amps)
S (MP&I)	Prime Mover Type: (Circle One)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

F. (MP&I)	Please indicate if Qualifying Facility Status will be obtained from the FERC for this Generating Facility.	__Yes __No

Instructions and Notes

Parties operating Generating Facilities complying with all of the requirements for qualification as either a small power production facility or cogeneration facility pursuant to the regulations of the FERC (18 Code of Federal Regulations Part 292, Section 292.203 et seq.) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. Section 796, et seq.), or any successor requirements for "Qualifying Facilities," may seek certification from FERC to have the Generating Facility designated as a Qualifying Facility or "QF." In summary, QF's are Generating Facilities using renewable or alternative fuels as a primary energy source or facilities that utilize the thermal energy given off by the generation process for some other useful purpose. QF's enjoy certain rights and privileges not available to non-QF Generating Facilities.

QF status is not required to interconnect and operate in parallel with SDG&E's Distribution System.

G.	Please indicate if Generating Facility will meet the annual Efficiency and Operating Standards of PUC Code 216.6 (Applicable to Cogeneration Only)	__Yes __No __N/A

Instructions for Part 4 – Describing the Generators		
	Generator Information	**Instructions and Comments**
#	Please indicate the number of each "type" of Generator being installed:	Please provide the following information for each Generator "type". Be sure all Generators classified as one "type" are identical in all respects. If only one type of Generator is to be used, only one column needs to be completed. Please be sure the information in the "Totals" column is correct and reflects the total number of Generator units to be installed.
A	Generator/Inverter Manufacturer	Enter the brand name of the Generator.
B	Generator/Inverter Model	Enter the model name or number assigned by the manufacturer of the Generator.
C	Generator/Inverter Software Version	If this Generator's control and or protective functions are dependent on a "software" program supplied by the manufacturer of the equipment, please provide the version or release number for the software that will be used.
D	Is the Generator Certified by a Nationally Recognized Testing Laboratory (NRTL) according to Rule 21?	Answer "Yes" only if the Generator manufacturer can or has provided certification data. See SDG&E's Rule 21, Section J for additional information regarding Generator certification.
E	Generator Design	Please indicate the design of each Generator. Designate "Inverter" anytime an inverter is used as the interface between the Generator and the electric system regardless of the primary power production/storage device used.
F	Gross Nameplate Rating (kVA)	This is the capacity value normally supplied by the manufacturer and stamped on the Generator's "nameplate". This value is not required where the manufacturer provides only a "kW" rating. However, where both kVA and kW values are available, please indicate both.
G	Gross Nameplate Rating (kW)	This is the capacity value normally supplied by the manufacturer and stamped on the Generator's "nameplate". This value is not required where the manufacturer provides only a "kVA" rating. However, where both kVA and kW values are available, please indicate both.
H	Net Nameplate Rating (kW)	This capacity value is determined by subtracting the "auxiliary" or "station service" loads used to operate the Generator or Generating Facility. Applicants are not required to supply this value but, if it is not supplied, applicable standby charges may be based on the higher "gross" values.
I	Operating Voltage	This value should be the voltage rating designated by the manufacturer and used in this Generating Facility. Please indicate phase-to-phase voltages for 3-phase installations. See SDG&E's Rule 21, Section D.2.b. for additional information.
J	Power Factor Rating	This value should be the nominal power factor rating designated by the manufacturer for the Generator. See SDG&E's Rule 21, Section D.2.i. for additional information.

Instructions for Part 4 Cont'd – Describing the Generators

	Generator Information	Instructions and Comments
K	PF Adjustment Range	Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values. See SDG&E's Rule 21, Section D.2.i.
L	Wiring Configuration	Please indicate whether the Generator is a single-phase or three-phase device. See SDG&E's Rule 21, Section D.3.
M	3-Phase Winding Configuration	For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.
N	Neutral Grounding	Wye connected generating units are often grounded – either through a resistor or directly, depending upon the nature of the electrical system to which the Generator is connected. If the grounding method used at this facility is not listed, please attach additional descriptive information.
O	*For Synchronous Generators Only:*	If the Generator is of a "synchronous" design, please provide the synchronous reactance, transient reactance, and subtransient reactance values supplied by the manufacturer. This information is necessary to determine the short circuit contribution of the Generator and as data in load flow and short circuit computer models of SDG&E's Distribution System. If the Generator's Gross Nameplate Capacity is 10 MW or greater, SDG&E may request additional data to better model the nature and behavior of the Generator with relation to its Distribution System.
P	*For Induction Generators Only:*	If the Generator is of an "induction" design, please provide the "locked rotor current" value supplied by the manufacturer. If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current. If the Generator's Gross Nameplate Capacity is 10 MW or greater, SDG&E may request additional data to better model the nature and behavior of the Generator with relation to its Distribution System.
Q	Short Circuit Current Produced by Generator	Please indicate the current each Generator can supply to a three-phase fault across its output terminals. For single phase Generators, please supply the phase-to-phase fault current.

Instructions for Part 4 Cont'd – Describing the Generators		
	Generator Information	**Instructions and Comments**
R	*For Generators that are Started as a "Motor" Only:* 1. In-Rush Current 2. Host Customer's Service Entrance Panel (Main Panel) Continuous Current Rating	This information is needed only for Generators that are started by "motoring" the generator. See SDG&E's Rule 21, Section I.3.e. for significance and additional information. If this question was answered in Part 3, question C of this Application, it need not be answered here.
S	Prime Mover Type	Please indicate the type and fuel used as the "prime mover" or source of energy for the Generator. 1 = Internal Combustion Engine – Natural Gas 2 = Internal Combustion Engine – Diesel Fueled 3 = Internal Combustion Engine - Other Fuel 4 = Microturbine– Natural Gas 5 = Microturbine – Other Fuel 6 = Combustion Turbine Natural Gas 7 = Combustion Turbine - Other Fuel 8 = Steam Turbine 9 = Photovoltaic Panels 10 = Solar-thermal engine 11 = Fuel Cell– Natural Gas 12 = Fuel Cell– Other Fuel 13 = Hydroelectric Turbine 14 = Wind Turbine 15 = Other (please describe)

Appendix E: San Diego Gas & Electric Interconnection Agreement for Net Metering Solar or Wind Electric Generating Facilities

SDGE

San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 21371-E
Canceling Revised Cal. P.U.C. Sheet No. 16707-E

SAMPLE FORMS
FORM 142-02760

Sheet 1

Interconnection Agreement for Net Energy Metering
Solar or Wind Electric Generating Facilities

(09/09) T

(See Attached Form)

1C13
Advice Ltr. No. 2111-E
Decision No.

Issued by
Lee Schavrien
Senior Vice President
Regulatory Affairs

Date Filed Sep 25, 2009
Effective Oct 25, 2009
Resolution No.

URL: http://sdge.com/tm2/pdf/ELEC_ELEC-SF_142-02760.pdf

A simpler, shorter form is also available for Net Energy Metering Customers with Solar and/or Wind Electric Generating Facilities of 30kW or Less (Form 142-02765). N N

SAN DIEGO GAS & ELECTRIC COMPANY
INTERCONNECTION AGREEMENT FOR NET ENERGY METERING
SOLAR OR WIND ELECTRIC GENERATING FACILITIES

This "Interconnection Agreement for Net Energy Metering ("Agreement") is entered into by and between the Customer Generator ("CG") and San Diego Gas & Electric Company ("SDG&E"). The CG and SDG&E are sometimes also referred to in this Agreement jointly as "Parties" or individually as "Party." In consideration of the mutual promises and obligations stated in this Agreement and its attachments, the Parties agree as follows:

1. SCOPE AND PURPOSE

This Agreement provides for CG to interconnect and operate a Generating Facility in parallel with SDG&E's Distribution System to serve the electrical loads connected to the electric service account that SDG&E uses to interconnect CG's Generating Facility.

Consistent with, and in order to effectuate, the provisions of Section 2827 and 2827.7 of the California Public Utilities Code and SDG&E's electric rate Schedule NEM - Net Energy Metering, Parties enter into this Agreement. This Agreement applies to the CG's Generating Facilities identified below with the specified characteristics and generating capacity, and does not allow interconnection or operation of facilities different than those described.

2. SUMMARY OF GENERATING FACILITY AND CG ACCOUNT

2.1 Generating Facility Identification Number: _____ (Assigned by SDG&E)

2.2 CG Meter Number: _____

2.3 CG Account Number: _____

2.4 Applicable Rate Schedule: _____

2.5 Generating Facility Location:

Name: _____
Address: _____
City / Zip: _____

2.5.1 This Agreement is applicable only to the Generating Facility described below and installed at the above location. The Generating Facility may not be relocated or connected to SDG&E's system at any other location without SDG&E's express written permission.

2.6 Generating Facility Technology: _____ Solar, Wind or Hybrid=(Both).

2.7 Generating Facility Nameplate Rating: _____ kW.

2.8 Expected maximum monthly energy production of Generating Facility: _____ kWh.

2.9 The Generating Facility's expected date of Initial Operation is_____. The expected date of Initial Operation shall be within two years of the date of this Agreement.

3. GENERATING FACILITY INTERCONNECTION AND DESIGN REQUIREMENTS

3.1 CG shall be responsible for the design, installation, operation, and maintenance of the Generating Facility and shall obtain and maintain any required governmental authorizations and/or permits.

3.2 ***CG shall not commence parallel operation of the Generating Facility until written approval has been provided to it by SDG&E.*** (CG's Initials _____) SDG&E shall provide such written approval within thirty (30) working days from SDG&E's receipt of a complete Net Energy Metering Application including all supporting documentation and required payments, a completed and signed Net Energy Metering Interconnection Agreement, and the final inspection clearance of the governmental authority having jurisdiction over the Generating Facility.

Such approval shall not be unreasonably withheld. SDG&E shall have the right to have representatives present at the initial testing of CG's protective apparatus. CG shall notify SDG&E five (5) working days prior to initial testing.

3.3 SDG&E shall have the right to have its representatives present at the final inspection made by the governmental authority having jurisdiction to inspect and approve the installation of the Generating Facility. CG shall notify SDG&E in accordance with the terms of Section 12, herein, at least five (5) days prior to such inspection.

3.4 CG shall not add generation capacity in excess of the Nameplate Rating set forth in Section 2.7 of this Agreement, or otherwise modify the Generating Facility without the prior written permission of SDG&E.

4. METERING AND BILLING

Metering requirements and billing procedures shall be set forth in the rate schedule(s) applicable to the electric service account assigned to the location where the Generating Facility is connected.

5. DISCONNECTION, INTERRUPTION OR REDUCTION OF DELIVERIES

5.1 SDG&E may require CG to interrupt or reduce the output of its Generating Facility under the following circumstances:

(a) Whenever SDG&E deems it necessary in its sole judgment, to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or any part of its electric system; or

(b) Whenever SDG&E determines in its sole judgment, that curtailment, interruption, or reduction of CG's electrical generation is otherwise necessary due to emergencies, forced outages, force majeure, or compliance with prudent electrical practices.

5.2 Notwithstanding any other provision of this Agreement, upon termination of this Agreement or at any time SDG&E determines the continued parallel operation of the Generating Facility may endanger the public or SDG&E personnel, or affect the integrity of SDG&E's electric system or the quality of electric service provided to other customers, SDG&E shall have the right to require the Generating Facility to be immediately disconnected from SDG&E's electric system. The Generating Facility shall remain disconnected until such time as SDG&E is satisfied, in its sole judgment, that the condition(s) causing such disconnection have ended or have been corrected.

5.3 Whenever feasible, SDG&E shall give CG reasonable notice of the possibility that interruption or reduction of deliveries may be required.

5.4 Electrical energy and capacity provided to CG during periods of curtailment or interruption of the output of the Generating Facility shall be provided pursuant to the terms of the rate schedule(s) applicable to the electric service account to which the Generating Facility is connected.

6. ACCESS TO PREMISES

SDG&E may enter CG's premises at all reasonable hours without notice to CG for the following purposes:

(a) To inspect CG's protective devices and read or test meter(s); and

(b) To disconnect the Generating Facility and/or service to CG, whenever in SDG&E's sole opinion, a hazardous condition exists and such immediate action is necessary to protect persons, SDG&E's facilities, or property of others from damage or interference caused by the Generating Facility, or the absence or failure of properly operating protective devices.

7. INDEMNITY AND LIABILITY

7.1 Each Party as indemnitor shall defend, hold harmless, and indemnify the other Party and the directors, officers, employees, and agents of the other Party against and from any and all loss, liability, damage, claim, cost, charge, demand, or expense (including any direct, indirect or consequential loss, liability, damage, claim, cost, charge, demand, or expense, including retained or in-house attorneys' fees) for injury or death to persons, including employees of either Party, and damage to property, including property of either Party, arising out of or in connection with (a) the engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of the indemnitor's facilities, or (b) the making of replacements, additions, betterments to, or reconstruction of the indemnitor's facilities. This indemnity shall apply notwithstanding the active or passive negligence of the indemnitee. However, neither Party shall be indemnified hereunder for its loss, liability, damage, claim, cost, charge, demand, or expense resulting from its sole negligence or willful misconduct.

7.2 The indemnitor shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity and shall pay for all costs, including reasonable attorney fees, which may be incurred by the other Party in enforcing this indemnity.

7.3 The provisions of this Section shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any valid insurance policy.

7.4 Except as otherwise provided in Section 7.1, neither Party shall be liable to the other Party for consequential damages incurred by that Party.

7.5 Nothing in this Agreement shall create any duty, any standard of care with reference to, or any liability to any person who is not a party to it.

7.6 Not withstanding the provisions of Section 7.1, CG shall be responsible for protecting its Generating Facility from damage by reason of the electrical disturbances of faults caused by the operation, faulty operation, or non-operation of SDG&E's facilities, and SDG&E shall not be liable for any such damage so caused.

8. INSURANCE

If CG's generator meets all applicable safety and performance standards established by the National Electrical Code, the Institute of Electrical and Electronics Engineers, and accredited testing laboratories such as Underwriters Laboratories and, where applicable, rules of the Public Utilities Commission regarding safety and reliability, the following insurance provisions in Sections 8.1 – 8.3 apply:

8.1 To the extent that CG has currently in force all risk property insurance and commercial liability insurance, CG agrees that it will maintain such insurance in force for the duration of this Agreement in no less amounts than those currently in effect. SDG&E shall have the right to inspect or obtain a copy of the original policy or policies of insurance prior to commencing operation.

8.2 CG shall meet the standards and rules set forth in Section 13, have the appropriate liability insurance in Section 8.1, and shall not be required to purchase any additional liability insurance.

8.3 Such liability insurance shall, by endorsement to the policy or policies, provide for thirty (30) calendar days written notice to SDG&E prior to cancellation, termination, alteration, or material change of such insurance.

For generators that do not meet the interconnection criteria of this section then the following insurance requirements apply:

8.4 In connection with CG's performance of its duties and obligations under this Agreement, CG shall maintain, during the term of the Agreement, general liability insurance with a combined single limit of not less than:

(a) Two million dollars ($2,000,000) for each occurrence if the Gross Nameplate Rating of Producer's Generating Facility is greater than one hundred (100) kW;

(b) One million dollars ($1,000,000) for each occurrence if the Gross Nameplate Rating of Producer's Generating Facility is greater than twenty (20) kW and less than or equal to one hundred (100) kW; and

(c) Five hundred thousand dollars ($500,000) for each occurrence if the Gross Nameplate Rating of Producer's Generating Facility is twenty (20) kW or less.

(d) Two hundred thousand dollars ($200,000) for each occurrence if the Gross Nameplate Rating of Producer's Generating Facility is ten (10) kW or less and Producer's Generating Facility is connected to an account receiving residential service from SDG&E.

Such insurance shall include coverage for "Premises-Operations, Owners and Contractors Protective, Products/Completed Operations Hazard, Explosion, Collapse, Underground, Contractual Liability, and Broad Form Property Damage including Completed Operations."

8.5 The general liability insurance required in Section 8.4 shall, by endorsement to the policy or policies, (a) include SDG&E as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that SDG&E shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days' written notice to SDG&E prior to cancellation, termination, alteration, or material change of such insurance.

8.6 If CG's Generating Facility is connected to an account receiving residential service from SDG&E and the requirement of Section 8.5 (a) prevents CG from obtaining the insurance required in Section 8.4, then upon CG's written Notice to SDG&E in accordance with Section 12.1, the requirements of Section 8.5 (a) shall be waived.

8.7 Evidence of the insurance required in Section 8.4 shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by SDG&E.

8.8 CG shall furnish the required insurance certificates and endorsements to SDG&E prior to Initial Operation of the Generating Facility. Thereafter, SDG&E shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance.

8.9 If CG is self-insured with an established record of self-insurance, CG may comply with the following in lieu of Sections 8.4 through 8.5:

(a) CG shall provide to SDG&E, at least thirty (30) calendar days prior to the date of Initial Operation, evidence of an acceptable plan to self-insure to a level of coverage equivalent to that required under Section 8.4.

(b) If CG ceases to self-insure to the level required hereunder, or if CG is unable to provide continuing evidence of CG's ability to self-insure, CG agrees to immediately obtain the coverage required under Section 8.4.

8.10 All insurance certificates, statements of self insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

San Diego Gas & Electric Company
Attention: _____
Address: _____
City / Zip: _____

9. REVIEW OF RECORDS AND DATA

9.1 SDG&E shall have the right to review and obtain copies of CG's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to CG's Generating Facility or its Interconnection with SDG&E's Distribution System.

9.2 CG authorizes to release to the California Energy Commission (CEC) information regarding CG's facility, including CG name, location, size, and operational characteristics of the unit, as requested from time to time pursuant to the CEC's rules and regulations.

10. GOVERNING LAW, JURISDICTION OF CPUC, INCLUSION OF SDG&E's RATE SCHEDULES AND RULES

10.1 This Agreement shall be interpreted, governed, and construed under the laws of the State of California as if executed and to be performed wholly within the State of California without giving effect to choice of law provisions that might apply to the law of a different jurisdiction.

10.2 This Agreement shall, at all times, be subject to such changes or modifications by the CPUC as it may from time to time direct in the exercise of its jurisdiction.

10.3 The interconnection and services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the rate schedules and rules applicable to the electric service provided by SDG&E, which rate schedules and rules are hereby incorporated into this Agreement by this reference.

10.4 Notwithstanding any other provisions of this Agreement, SDG&E shall have the right to unilaterally file with the Commission, pursuant to the Commission's rules and regulations, an application for change in rates, charges, classification, service, tariff or rule or any agreement relating thereto.

11. AMENDMENT, MODIFICATIONS, WAIVER OR ASSIGNMENT:

11.1 This Agreement may not be altered or modified by either of the Parties, except by an instrument in writing executed by each of them.

11.2 None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect.

11.3 This Agreement shall supersede any existing agreement under which CG is currently operating the Generating Facility identified in Section 2, herein, and any such agreement shall be deemed terminated as of the date this Agreement becomes effective.

11.4 This Agreement contains the entire agreement and understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement.

11.5 Neither Party shall voluntarily assign this Agreement or any of its rights or duties hereunder without the written consent of the other Party, which consent shall not be unreasonably withheld. Any such assignment or delegation made without such written consent shall be null and void.

12. NOTICES

12.1 Any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person or sent by first class mail, postage prepaid, to the person specified below:

If to SDG&E: San Diego Gas & Electric Company
Attention: _____
Address: _____
City: _____
Phone: ( ) _____
FAX: ( ) _____

If to CG : _____
Attention: _____
Address: _____
City: _____
Phone: ( ) _____
FAX: ( ) _____

12.2 A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 12.1.

13. DOCUMENTS INCLUDED; DEFINED TERMS

13.1 This Agreement includes the following exhibit(s) which are specifically incorporated herein and made a part of this Agreement by this reference:

Appendix A- Description of Generating Facility and Single-Line Diagram

Appendix B- (When applicable) Copy of interconnection facility financing and ownership agreement

In addition, SDG&E Electric Rules and Rates, including but not limited to Electric Rules 2, 14, and 21, Schedule NEM, and CG's otherwise applicable rate schedule, available at SDG&E's web-site at www.sdge.com/regulatory, or by request, are incorporated herein and made part of this Agreement.

13.2 When initially capitalized, whether in the singular or in the plural, the terms used herein shall have the meanings assigned to them either in this Agreement or in SDG&E's electric Rule 21.

14. TERM AND TERMINATION OF AGREEMENT

14.1 This Agreement shall become effective when signed by CG and SDG&E, and shall remain in effect thereafter from month to month unless terminated by either Party on thirty (30) days' prior written notice in accordance with Section 12.

14.2 This Agreement shall terminate, without notice, upon: (a) termination of the electric distribution service provided to CG by SDG&E; or (b) changes to CG's electric load which cause CG to no longer satisfy all requirements of the definition of an Eligible CG set forth in Section 2827(b)(2) of the California Public Utilities Code.

15. ENTIRE AGREEMENT

This Agreement, including any incorporated tariff schedules and rules, contains the entire agreement and understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement or in the incorporated tariff schedules and rules

16. SIGNATURES

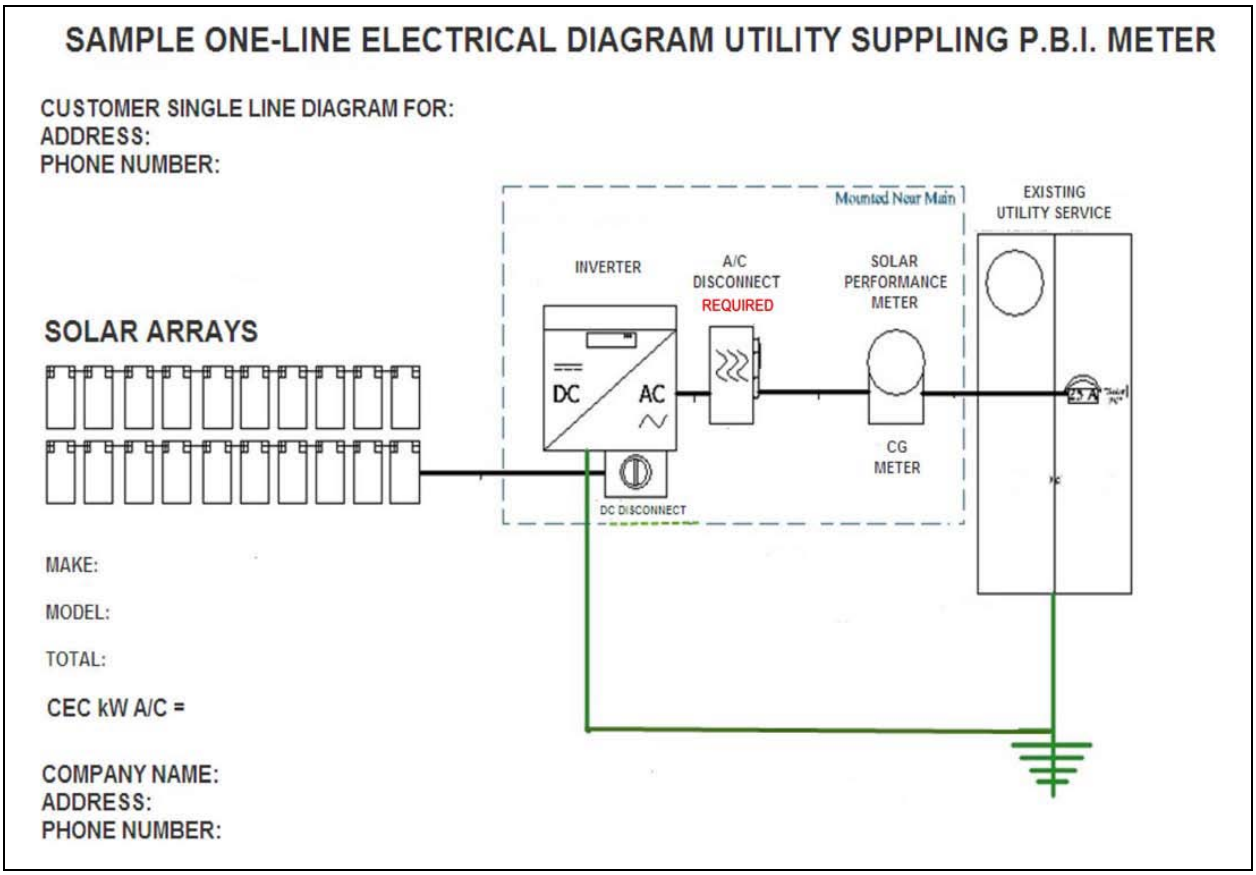
In WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives. This Agreement is effective as of the last date set forth below.

_____ (CG NAME)		SAN DIEGO GAS & ELECTRIC COMPANY	
By:	_____	By:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

APPENDIX A

DESCRIPTION OF GENERATING FACILITY AND SINGLE-LINE DIAGRAM
(Provided by Producer)

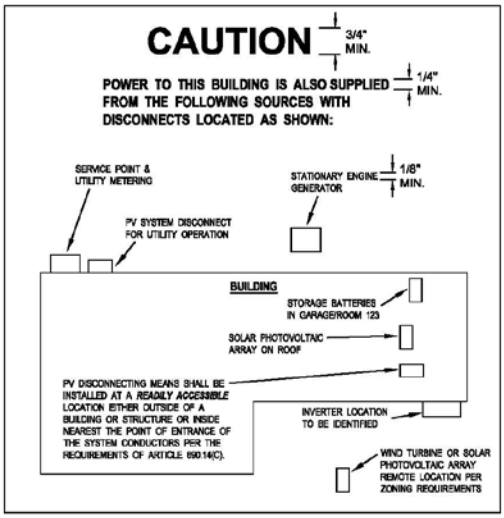
Appendix F: San Diego Gas & Electric Sample One-line Diagram



URL: http://www.sdge.com/documents/nem/OneLineElecDiag_required.pdf

Appendix G: San Diego Gas & Electric Sample Plaque

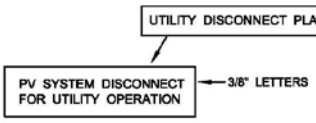
THIS IS A SAMPLE OF THE PLAQUE OR DIRECTORY REQUIRED WHEN THERE IS AN ALTERNATE SOURCE OF POWER CONNECTED TO THE PREMISES WIRING SYSTEM. SPECIFY THE TYPE OF GENERATION, SUCH AS STATIONARY ENGINE GENERATION, PV ARRAY, BATTERIES, MICRO TURBINE, FUEL CELL, ETC.



The plaque shall be metal or plastic, with engraved or machine printed letters in a contrasting color to the plaque, shall include the location of the service point, utility meter, AC and DC disconnects, inverter, PV Array, Generator or other types of generation sources, and a footprint of the entire building and site. The plaque shall be attached to the exterior of the enclosure for the service disconnect with pop-rivets, machine screws, or other fasteners acceptable to the AHJ. Attachment methods must be made watertight and the integrity of the enclosure rating must be maintained. Epoxy or other adhesive is no longer an acceptable method of securing.

PLAQUE FOR UTILITY AC DISCONNET

THIS IS A SAMPLE OF THE PLAQUE TO BE INSTALLED ON THE FACE OF THE UTILITY AC DISCONNECT. IF MULTIPLE UTILITY DISCONNECTS ARE INSTALLED, EACH DISCONNECT SHALL HAVE IT'S OWN PLAQUE ATTACHED.



PLAQUE SPECIFICATIONS

THE PLAQUE SHALL BE METAL OR PLASTIC, WITH ENGRAVED OR MACHINE PRINTED LETTERS, OR ELECTRO-PHOTO PLATING, IN A CONTRASTING COLOR TO THE PLAQUE. PLAQUE SHALL BE ATTACHED TO THE "UTILITY AC DISCONNECT" WITH POP-RIVETS, SCREWS.

URL: http://www.sdge.com/documents/business/warning_plaques.pdf

Appendix H: San Diego Gas & Electric Sample Bill of Materials

"Sample"
Bill of Materials

Customer Name:
Customer Address:
Date:

Item	Description	Vendor	Part Number	Quantity
1	120w photovoltaic module	Kyocera	KC 120-1	24
2	SMA Model Sunny Boy Inverter, Grid Tied String	SMA	SWR 2500 U	1
3	AC Fused Disconnect Switch in NEMA 3R Enclosure 30A, 240Vac	Square D	H221NRB	1
4	15A, 250V fuse, 2000,000 AIR	Gray Bar	FRNR15	2
5	DC Fused Disconnect Switch, 30A, 600VDC, 3-Pole, NEMA 3R	Square D	H3612RB	1
6	8A, 600VDC, 20,000AIR	Electric Sales	IDSR-8	1
7	4-Module Rail Set for four KC1201 PV modules	Power-Fab	Described	6
8	1-1/2 x 7" Steel Stanchions	Power-Fab	8"Stanchinons	24
9	Set of 4 Single Power Clamps	Power-Fab	PWR CLMP S	6
10	Set of 2 Double Power Clamps	Power-Fab	PWR CLMP D	0
11	Misc. Hardware/Supplies (module interconnects/conduit/wire/fittings	IES		1

URL: http://www.sdge.com/documents/business/BillofMaterials.pdf

Appendix I: E.ON Mitte Interconnection Registration Form

① ☐ **Anmeldung zum Netzanschluss (Strom)** | Eingangsvermerk (NB)

☐ **Inbetriebsetzung** ☐ **Teil-Inbetriebsetzung**

Erläuterungen auf der Rückseite

Anschrift des Netzbetreibers (NB) | **Angaben zum Netzanschluss**

② Name des NB | Straße und Haus-Nr. / Etage ggf. Anschlussnutzer

Straße und Haus-Nr. bzw. Postfach | Postleitzahl Ort Ortsteil / Flurstück-Nr.

Postleitzahl Ort | Bei Neubaugebieten Name des Baugebietes / Baufeld

Bei vorhandener Anlage: NB-Kundennummer oder Zählernummer

Angemeldet wird nach TAB:

③ ☐ **Neuanschluss** ☐ **Stilllegung** ☐ **Anschluss-/Anlagenveränderung**

☐ Mitverlegung weiterer Sparten

☐ Austausch von Messeinrichtungen
☐ Anschluss weiterer Anlagen/Leistungserhöhung
☐ Anlagentrennung
☐ Anlagenzusammenlegung
☐ Veränderung Hausanschluss
☐ Wiederinbetriebsetzung

☐ **zeitlich befristeter Anschluss** (Baustrom, Schaustellerbetriebe, ...)
☐ **Erzeugungsanlagen**
☐ Photovoltaik
☐ Windkraft ☐ BHKW
☐ **Notstromanlagen**
☐

☐ **Zustimmungspflichtige Geräte:**

Bezeichnung des Gerätes | Anschlussleistung (kVA) | Bezeichnung des Gerätes | Anschlussleistung (kVA)

Für folgende Anlagen:

④

Art: a) Baustelle (zeitl. befristet) b) Wohnung c) Gewerbe m. Branche d) Gemeinschaftsanlage e) Eigenerzeugungsanlage f)				Messeinrichtung (Art/Anzahl): WS: Wechselstromzähler DS: Drehstromzähler MZ: Mehrtarifzähler LGZ: Lastganzzähler MW: Messwandler SG: Steuergerät				Gleichzeitig benötigte Leistung (kVA)			Zugeordnete Überstromschutzeinrichtung (A) vor Zähler		Benötigte Hausanschlusssicherung (A)	Erwarteter Jahresverbrauch (kWh) je Kundenanlage
				Einbau		Ausbau								
	bisher	neu	im Endausbau	Anzahl	Art	Anzahl	Art	bisher	neu	im Endausbau	bisher	neu		

⑤ **Messstellenbetrieb (MSB):** ☐ MSB durch Netzbetreiber ☐ MSB durch (Name bzw. MSB-ID):

Grundlage für den Netzanschlussvertrag ist die **"Verordnung über Allgemeine Bedingungen für den Netzanschluss und dessen Nutzung für die Elektrizitätsversorgung in Niederspannung (Niederspannungsanschlussverordnung - NAV)"**. Dem Grundstückseigentümer obliegt es nach der NAV u. a. das Anbringen und Verlegen von Leitungen und Leitungsträgern zur Zu- und Fortleitung von Elektrizität und sonstiger Einrichtungen für die Zwecke der örtlichen Versorgung mit elektrischer Energie auf seinem Grundstück zu dulden (§§ 2, 6, 8, 10, 12 NAV). Die NAV ist beim Netzbetreiber (NB) und im Internet auf der Homepage des NB erhältlich. Die elektrische Anlage ist von einem eingetragenen Elektroinstallationsunternehmen unter Beachtung der einschlägigen Bestimmungen zu errichten und in Betrieb zu setzen. Wird kein Stromlieferant benannt, erfolgt die Stromlieferung gemäß § 36, § 38 EnWG durch den Grundversorger. **Datenschutz-Hinweis:** Die in Zusammenhang mit dem Vertragsverhältnis anfallenden Daten werden nach den Vorschriften des Bundesdatenschutzgesetzes (BDSG) zweckbezogen verarbeitet und genutzt.

⑥ **Angebot an:** | **Zustimmung des Grundstückseigentümers:** (wenn der Anschlussnehmer nicht Grundstückseigentümer ist)

Name, Vorname bzw. Firmenname | Name, Vorname bzw. Firmenname

Geburtsdatum bei Privatpersonen bzw. Registergericht / Registernummer bei Firma | Registergericht / Registernummer bei Firma

Straße und Haus-Nr. | Straße und Haus-Nr.

Postleitzahl Ort | Postleitzahl Ort

Telefon, Fax, E-Mail | Telefon, Fax, E-Mail

Datum Unterschrift Name in Druckschrift | Datum Unterschrift Name in Druckschrift

⑦ **Terminwunsch:** **Bemerkungen:**

⑧ **Eingetragenes Elektroinstallationsunternehmen:** Firmenstempel | Eingetragen bei:

Firmenname | NB

Straße und Haus-Nr. | Ausweisnummer

Postleitzahl Ort | Telefon, Fax, E-Mail | Datum Unterschrift

⑨ **Erklärung:** Die aufgeführte(n) Installationsanlage(n) ist/sind unter Beachtung der geltenden Rechtsvorschriften und behördlichen Verfügungen sowie nach den anerkannten Regeln der Technik, insbesondere nach den DIN / DIN VDE Normen, den Technischen Anschlussbedingungen (TAB) und den sonstigen besonderen Vorschriften des oben genannten NB von mir/uns errichtet und fertiggestellt worden. Die Ergebnisse der Prüfung werden dokumentiert. Die Anlage kann gemäß NAV und TAB in Betrieb gesetzt werden. Soweit erforderlich, wird die Inbetriebsetzung im Namen des Anschlussnehmers/-nutzers beantragt.

Ort, Datum | Unterschrift der eingetragenen verantwortlichen Elektrofachkraft | Name in Druckschrift

URL: http://www.eon-mitte.com/admin/userimages/File/netz/elektroinstallateure/2010/anmeldung_anschluss_an_das_niederspannungsnetz_15072010.pdf

Erläuterungen zum Vordruck "Anmeldung zum Netzanschluss (Strom)"

(bei Verwendung für MS-Anmeldungen die entsprechenden Datenerfassungsblätter anfügen)

zu ① • **Bitte einen maßstabsgerechten Lageplan (z. B. 1:500) und Grundrissplan mit Kennzeichnung des Anschlusspunktes sowie weitere nach TAB erforderliche Unterlagen beifügen.**
- Voraussichtlichen Zeitraum bei zeitlich befristeten Anschlüssen oder Termin im vorgesehenen Bereich des Bemerkungsfeldes ⑦ eintragen.
- Detailangaben zur Teil-/Inbetriebsetzung unten auf dieser Seite. Bei Notwendigkeit Verwendung des separaten Vordrucks.

zu ② • Anschrift des Netzbetreibers (NB) und Angaben zum Netzanschluss

zu ③ • Über eine mögliche Mitverlegung anderer Sparten erteilt der jeweilige NB Auskunft.
- Bei Bedarf sind gemäß TAB gesonderte Datenerfassungsblätter beizufügen (z. B. Erzeugungsanlagen).

zu ④ • Für die Branchenangabe bei c) Gewerbe ist das Bemerkungsfeld ⑦ zu verwenden.
- Die beim jeweiligen NB zu verwendende Bauform der zugeordneten Überstromschutzeinrichtungen und deren Anbringungsort ist den entsprechenden TAB zu entnehmen.
- Die Angabe des erwarteten Jahresverbrauchs je Kundenanlage ist aufgrund der Netzzugangsverordnung zur Festlegung der Messeinrichtung notwendig (100.000 kWh Grenze).

zu ⑤ • Angabe des Messstellenbetreibers. Grundmesssstellenbetreiber ist in der Regel der jeweilige Netzbetreiber. Trennung von Messstellenbetrieb und Messstellendienstleistung ist unter Bemerkungen anzuführen.

zu ⑥ • Angaben zum Anschlussnehmer hier einfügen und sofern erforderlich Angaben zum Grundstückseigentümer.

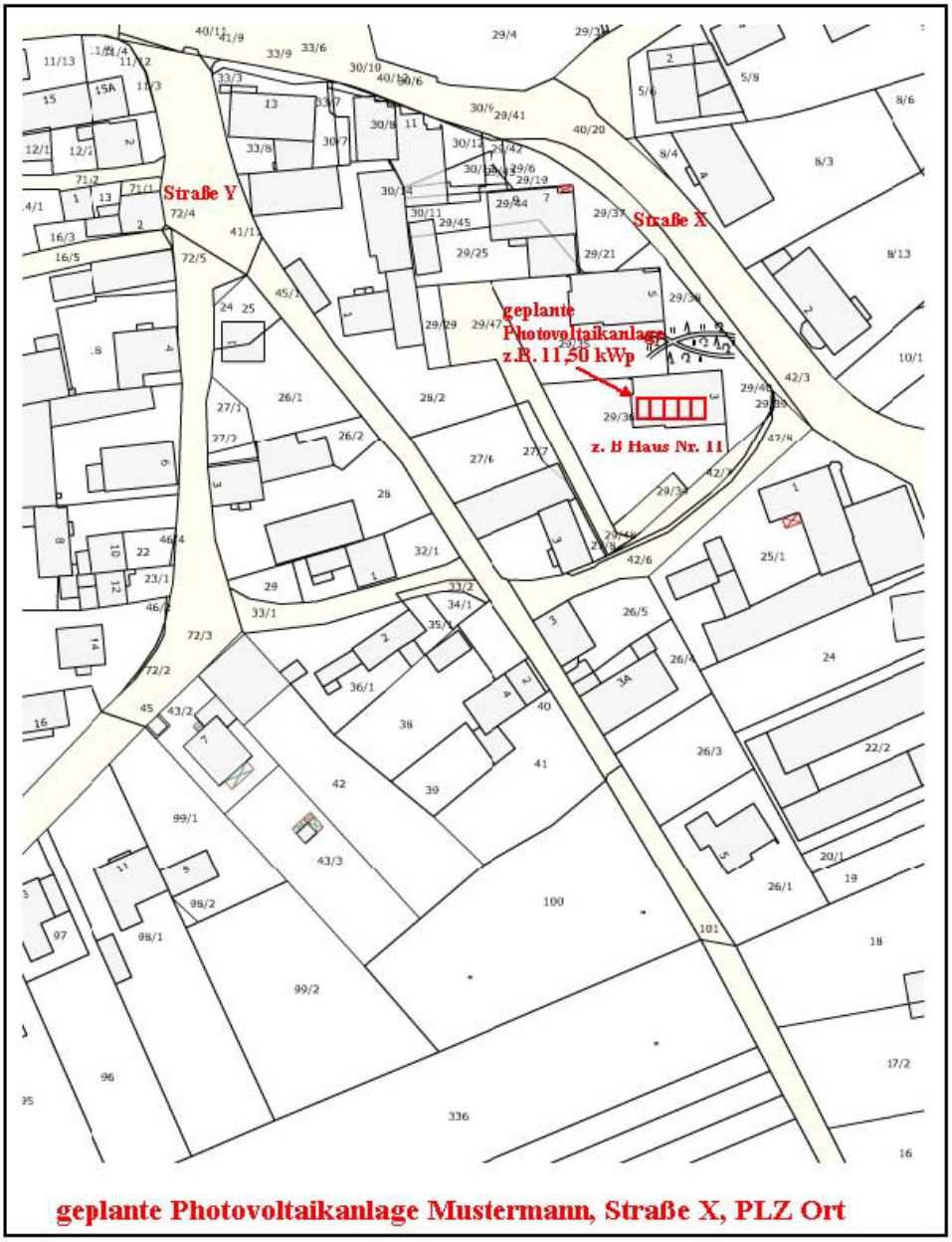
zu ⑦ • Hier sind Eintragungen von Terminen/Zeiträumen im gekennzeichneten Feld, sowie die bevorzugte bauliche Ausführung des Hausanschlusses und weitere Bemerkungen möglich.

zu ⑧ • Im Installateurverzeichnis eines NB eingetragenes Elektroinstallationsunternehmen gemäß NAV §13 (2).

zu ⑨ • Bei Verwendung des Vordrucks als Inbetriebsetzung ist die aufgeführte Haftungserklärung von der verantwortlichen Elektrofachkraft zu unterschreiben.

Bearbeitungsvermerke:

Appendix J: E.ON Mitte Sample Site Plan



URL: http://www.eon-mitte.com/admin/userimages/File/netz/erzeugungsanlagen/musterdokumente/musterlageplan_neuanlage_151209.pdf

Appendix K: E.ON Mitte PV System Data Form

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Datenerfassungsblatt für Photovoltaikanlagen

1.) Anlagenbetreiber

Vorname: _____

Name: _____

Straße/Nr.: _____

Plz/Ort: _____

Tel: _____

Email: _____

2.) Anlagenanschrift (falls abweichend)

Vorname: _____

Name: _____

Straße/Nr.: _____

Plz/Ort: _____

Ggf. Gemarkung/Flur/Flurstück: _____

3.) Anlagenerrichter

Firma: _____

Straße/Nr.: _____

Plz/Ort.: _____

Tel.: _____

Email: _____

4.) Anlagenart

□ Neuanlage

□ Erweiterung (alle weiteren Daten beziehen sich auf die Erweiterung)

□ Eigenverbrauch (gemäß §33 Abs.2 EEG)

□ Kundeneigener Zähler

Seite 1 von 2

URL: http://www.eon-mitte.com/admin/userimages/File/netz2008/Erzeugungsanlagen/Anschluss_Erz_neu/Datenerfassung/100429_formular_datenerfassung_pv.pdf

e·on | Mitte

5.) PV-Module

Neu installierte Leistung: _____ kWp

Anzahl der PV-Module: _____ Hersteller: _____ Typ: _____

Anzahl der PV-Module: _____ Hersteller: _____ Typ: _____

6.) PV-Wechselrichter

AC-Nennleistung (gesamt): _____ kW bereits vorhanden _____ kW

Hersteller : _____ □ einph. WR □ zweiph. WR □ dreiph. WR

Anzahl/Typ:	L1 ___/_____	L2___/_____	L3 ___/_____
AC-Nennleistung:	_____ kW	_____ kW	_____ kW
AC-Maximalleistung:	_____ kW	_____ kW	_____ kW

Hersteller : _____ □ einph. WR □ zweiph. WR □ dreiph. WR

Anzahl/Typ:	L1 ___/_____	L2___/_____	L3 ___/_____
AC-Nennleistung:	_____ kW	_____ kW	_____ kW
AC-Maximalleistung:	_____ kW	_____ kW	_____ kW

7.) Weitere technische Angaben

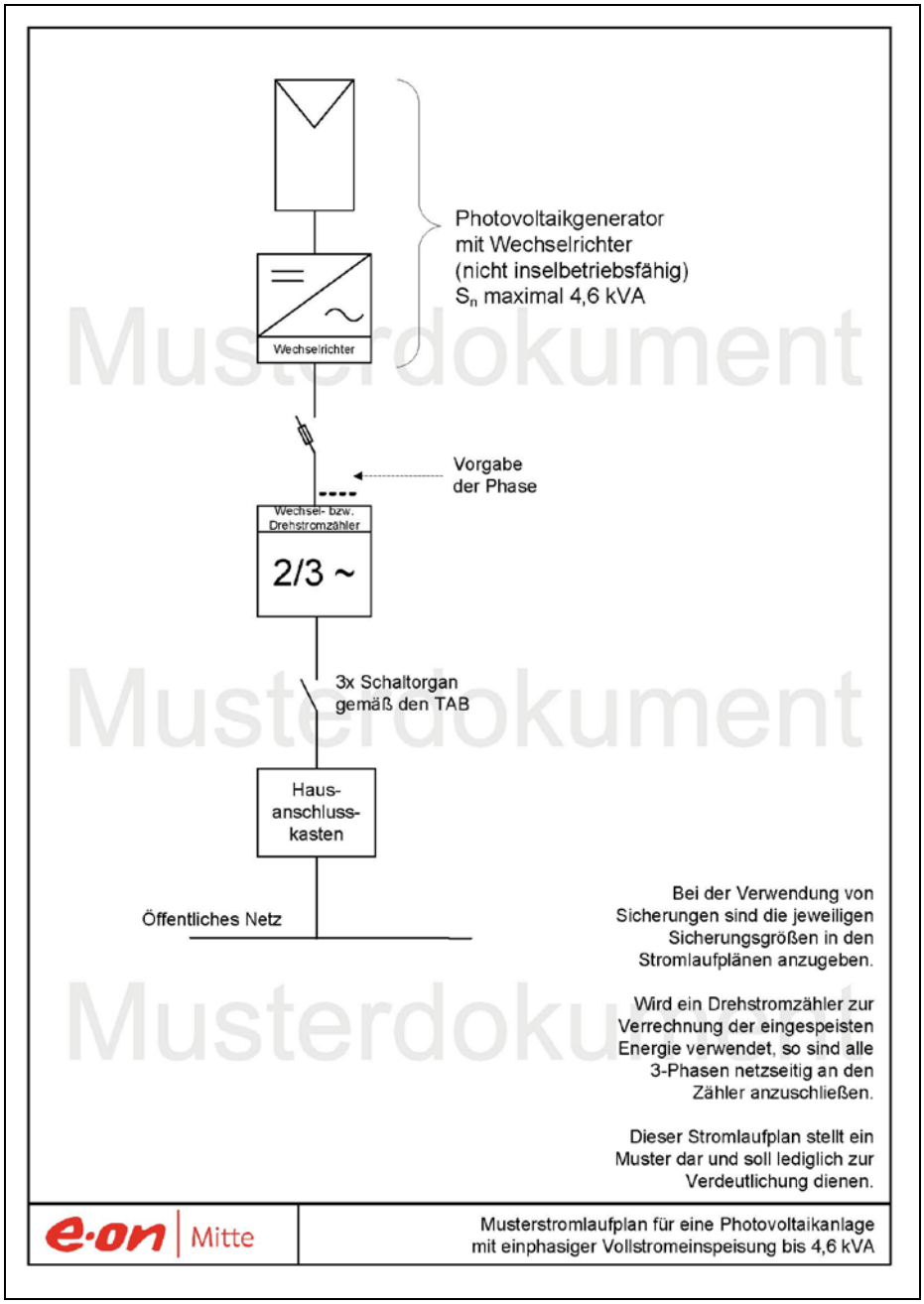
Zählervorsicherung: _____A Hausanschlusssicherung: _____A

Ort, Datum _____

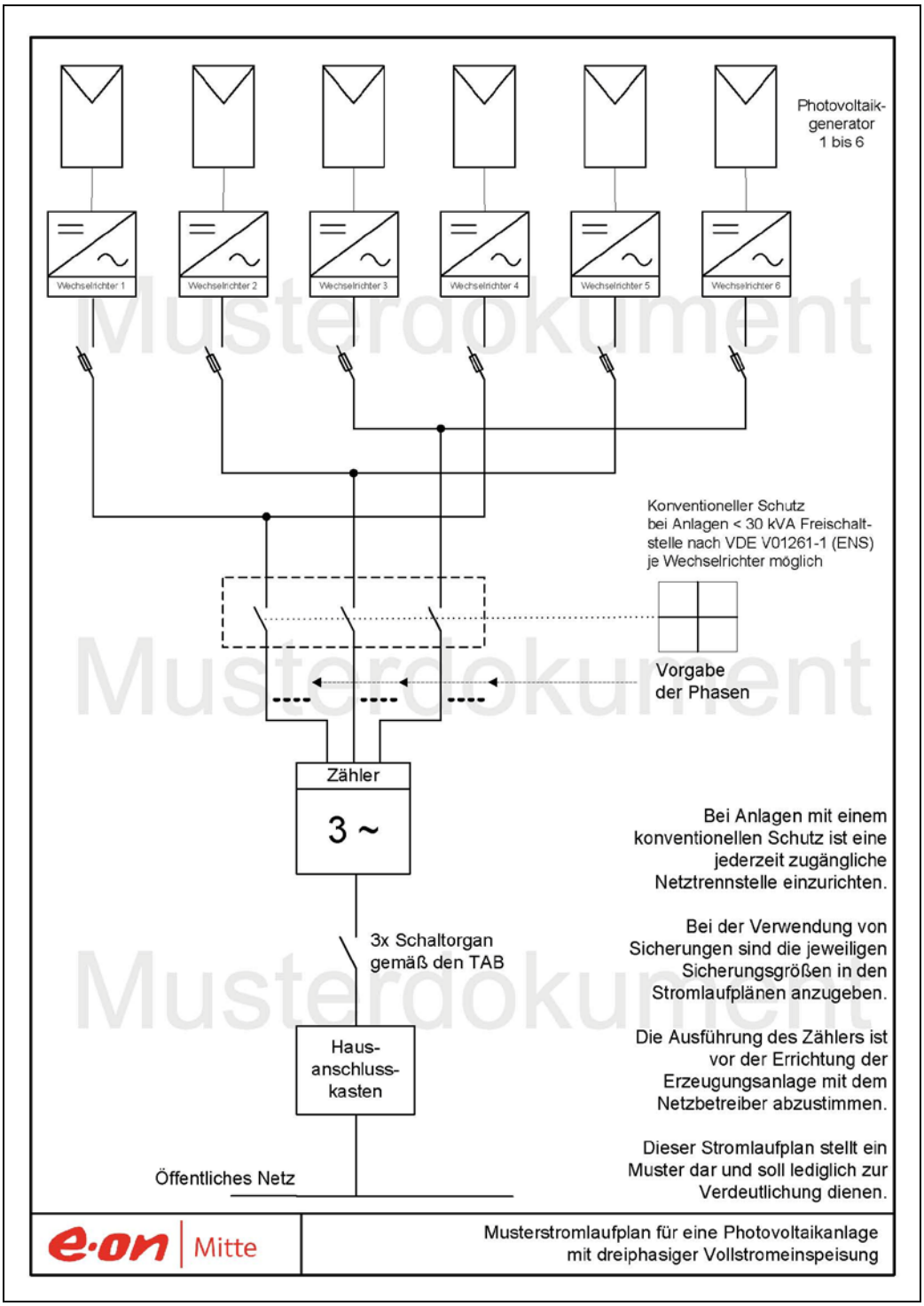
Unterschrift Anlagenbetreiber _____

Seite 2 von 2

Appendix L: E.On Mitte Sample Sing-line Diagrams



URL: http://www.eon-mitte.com/admin/userimages/File/netz/erzeugungsanlagen/musterdokumente/photovoltaikanlage_mit_einphasiger_vollstromeinspeisung_151209.pdf



URL: http://www.eon-mitte.com/admin/userimages/File/netz/erzeugungsanlagen/musterdokumente/photovoltaikanlage_mit_dreiphasiger_vollstromeinspeisung_151209.pdf