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September 27, 2001

KJR

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Dear Mr. McNulty:

In compliance with §44b of the Merger Settlement at Docket No. A-110550-F0147, attached please find the "Requirements for Parallel Operation for Customers with Generation". This document is intended for prospective customers, independent power producers, or other entities planning to operate generation in parallel with the PECO Energy Company transmission or distribution system. Additionally, this document is available online in PDF format at the PECO Energy website at:

http://www.peco.com/corp/corp_rates_fr.html

Would you please acknowledge receipt of the foregoing on the enclosed copy of this letter.

Sincerely,

B D Crowe /ajf

Enclosures
WJP:amm

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REQUIREMENTS FOR PARALLEL OPERATION FOR CUSTOMERS WITH GENERATION

September 2001

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I. INTRODUCTION

A. Purpose of this manual

This document is intended for prospective customers, independent power producers, or other entities planning to operate generation in parallel with the PECO Energy Company ("PECO") transmission or distribution system. This document is intended to complement currently effective PJM procedures. For facilities that are 40kW and below, please refer to the document entitled, "Requirements For Parallel Operations For Customers With Generation Not Exceeding 40kW". A generator satisfying PECO requirements and/or the PJM Interconnection, L.L.C. (PJM) requirements may operate in parallel with PECO transmission and distribution facilities. This includes, but is not limited to, independent power producers (IPP), Exempt Wholesale Generators (EWG), Qualifying Facilities (QF) Deregulated Generators or Distributed Generators.

To help guide the prospective generator to determine which procedures and requirements may be required to interconnect and operate in parallel, a flow diagram of applicable procedures has been prepared (see Figures 1 through 3). These requirements describe interface facilities that the generator must provide on its premises in order to operate in parallel with the PECO system. The primary function of the listed equipment is to preserve and promote safety to human life, to protect property, and to preserve the integrity and quality of service to other customers.

PECO shall be permitted to implement any reasonable modifications to the requirements set forth in this manual, without notice, if these modifications are consistent with the primary function of this manual and with good utility practice. Said modifications can only be implemented after PECO has provided notice to Producers or other parties affected by these modifications. All modifications to these requirements will be applied by PECO to Producers or other parties affected by these requirements on a fair and non-discriminatory basis.

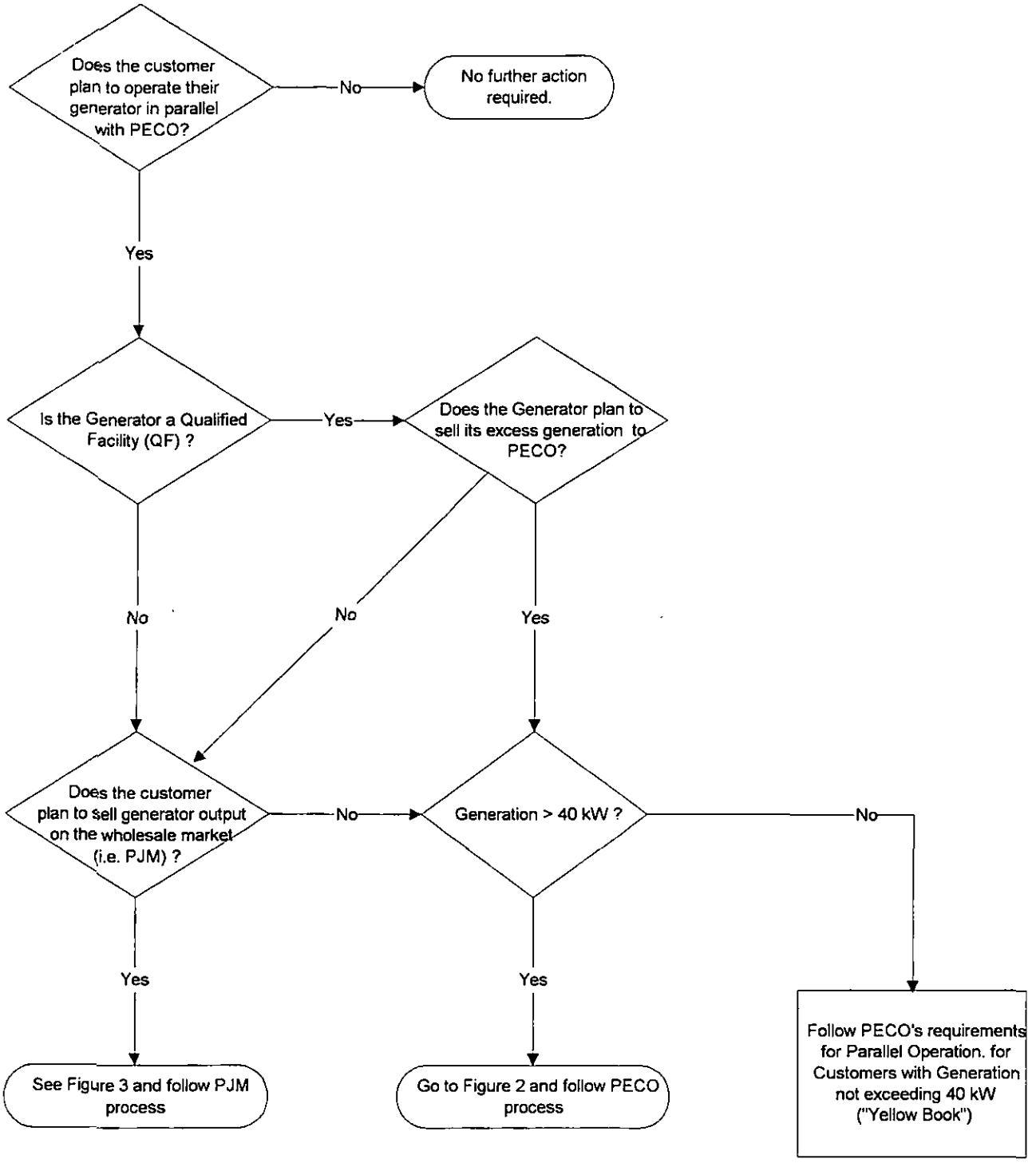


FIGURE 1 – INTERCONNECTION PROCESS OVERVIEW

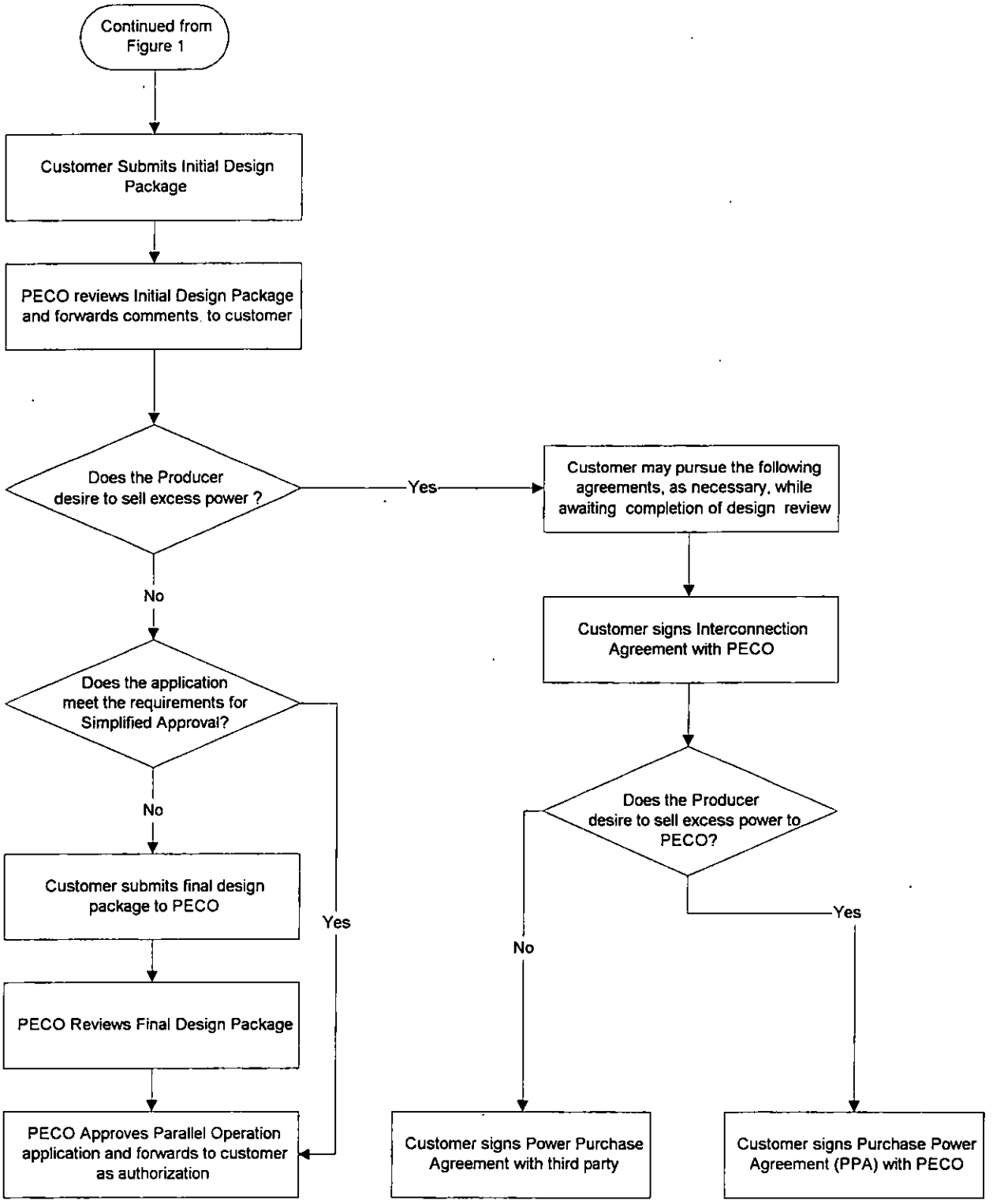


FIGURE 2 – PECO PROCESS OVERVIEW

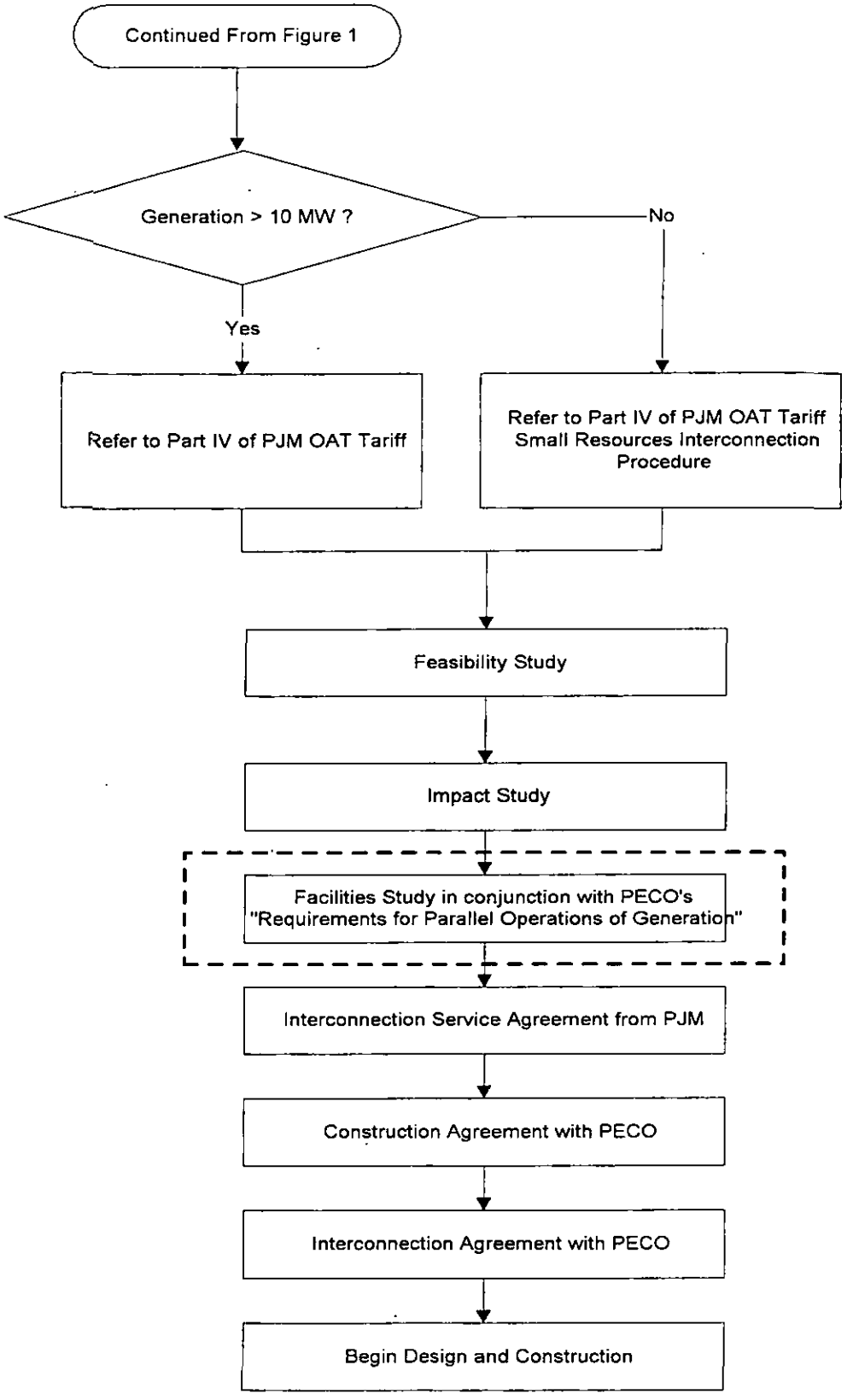


Figure 3 – PJM Process overview

B. Definitions

"CONSTRUCTION AGREEMENT" shall mean that certain agreement between the Producer and PECO Energy Company covering all of the terms, conditions and requirements regarding the design, purchase, construction and installation of those facilities needed to interconnect the generator with the PECO Energy Company transmission or distribution system

"CUSTOMER" is any person, partnership, association or corporation, lawfully receiving service at a single meter location from the Company.

"DEREGULATED GENERATOR" is a generator, which was formerly part of a vertically integrated utility in Pennsylvania and is deregulated as a result of the Electric Generation Competition and Customer Choice Act (66 Pa.§§ C.S. 2801 et seq.).

"EASEMENT AGREEMENT" shall mean, that certain Easement Agreements between PECO Energy Company and the producer, containing grants and reservations of easements and other rights which agreement will be executed by both Parties.

"EXEMPT WHOLESALE GENERATOR" (EWG) shall have the meaning set forth at 15 U.S.C. Section 79z-5a(a)(1).

"GENERATOR" is any electrical generation facility which is or may be in the future interconnected with PECO's transmission and distribution system including: Small Power Producers, Exempt Wholesale Generators, Independent Power Producers, Deregulated Generators, and other generation facilities.

"INDEPENDENT POWER PRODUCER" (IPP) is a generator interconnected with PECO's system that is not owned by PECO, and is not a Qualifying Facility or an Exempt Wholesale Generator.

"**INTERCONNECTION AGREEMENT**" is the contract between the Producer and PECO, or between the Producer and PJM, that define the conditions and requirements under which a generator may export power to the PECO-owned transmission or distribution system.

"**PECO Energy" or "the Company**" – PECO Energy Company, PECO, or PE.

"**PECO ENERGY COMPANY TRANSMISSION & DISTRIBUTION SYSTEM**" shall mean the facilities owned and/or controlled by the Company for the purpose of providing transmission and distribution service.

"**PJM**" shall mean the PJM Interconnection, L.L.C., or its successor or equivalent, an entity to which the PECO Energy Company has transferred responsibility to direct the operation of the PECO Energy Company Transmission System and which administers the PJM Tariff

"**PJM Tariff**" shall mean that certain Open Access Transmission Tariff on file with the Federal Energy Regulatory Commission ("FERC") and designated PJM's FERC Electric Tariff Third Volume No. 1, as it may be amended or superseded from time to time, under which transmission service is provided over the PECO Energy Company Transmission System and elsewhere within the PJM Control Area.

"**PRODUCER**" is a customer that owns or operates parallel generation.

"**QUALIFYING FACILITY**" (QF) shall have the meaning set forth at 18 C.F.R. Section 292.101.

"**SMALL POWER PRODUCER**" (SPP) is a generator of electricity whose primary energy source is waste by-products, solar, water, wind, or other renewable energy sources, generally excluding fossil fuels. A low-head hydro plant is an example of an SPP.

II. INTERCONNECTION PROCESS

This section provides an overview of the processes involved with interconnecting a generator to PECO Energy transmission and distribution system. As depicted in Figures 1 through 3, the process will vary depending on whether the Producer desires to sell the output of the Generator.

A. PJM Process

Referring to Figure 1, if the Producer desires to market the power into the PJM market, the Producer should visit the PJM website (www.pjm.com) and examine three documents:

1. **New Generation Information Kit** located by double clicking on the Generation Interconnections box.
2. **PJM Open Access Transmission Tariff (Part IV)** located by double clicking the "Manuals and Documents" box.
3. **PJM Manual for Generator Interconnections and Operations (Manual M-14)** located by double clicking on the "Manuals and Documents" box and then double clicking on the "Manuals" box.

Entities planning to construct and/or operate generating facilities less than 10MW are directed to use the streamlined process contained in the Small Resources Interconnection Procedure Manual, which can also be found in Part IV of the PJM Open Access Transmission Tariff. For producers selling into the PJM market, PECO's requirements for interconnection will be addressed during the facilities study stage of the PJM process (refer to Figure 3).

B. PECO Energy Company Process

All Producers must comply with the procedures and requirements of this manual, in addition to the PECO Energy's Electric Service Requirements (ESR) manual.

Additionally, the Producer should address the following process issues, where applicable:

1. If the Producer desires to sell power into the PJM market, PECO Energy Company and/or PJM will require an Interconnection Agreement and if needed, a Construction Agreement. PECO's standard Interconnection Agreement and Construction Agreement can be provided upon request.

2. Under the standard Interconnection Agreement and Construction Agreement, the Producer is required to agree to a reasonable creditworthiness, insurance and indemnification provisions. These provisions are designed to protect PECO from any claims against PECO, third party or otherwise, arising from the Producer's ownership, operation and control of the generation facility subject to the agreement.

3. PECO offers transmission and distribution service to Producers that can satisfactorily interconnect with the PECO system and whose output can be safely and reliably transmitted to the intended recipient. Such service shall be rendered under the terms of PECO's Electric Service Tariff and/or interconnection agreement. Additional information about this service can be obtained from PECO's Interconnection Arrangements Division or from PJM's Interconnection Office. Large Account Services' Producers may request this information from their Account Executive.

4. In situations where a transmission level substation is required, the substation shall be constructed in accordance with specifications developed in consultation with Customer Engineering and/or Transmission and Substation Engineering. The substation design should be addressed at the facilities study stage. Appendix V contains miscellaneous information on PECO's transmission system useful for design of substations.

III. INTERCONNECTION RESPONSIBILITIES

A. Customer's Responsibilities

The customer's design shall be approved by PECO before the customer is allowed to connect or commence construction on any necessary interconnection facilities.

1. **Initial Design Package**. The customer is responsible for submitting the initial design package to PECO containing the following:

   - Electric Service and Meter Request
   - Single Line Diagram
   - Application for Parallel Operation Form
   - Initial Fee
   - Pre-certification Documentation (for Simplified Approval only)

   The complete design package should be sent to the following address:

   PECO Energy – Engineering Services

   System Planning and Customer Engineering

   680 Ridge Pike

   Plymouth Meeting, PA 19462-1945

   (a) **ELECTRIC SERVICE & METER REQUEST**. The Producer shall submit a Service and Meter Request (see Appendix VI) to PECO Energy stating the corporate name of facility's owner, its recognized incorporated name, location, capacity of generation, size of expected loads and requested service voltage meeting the requirements of PECO Energy's electric service tariff currently filed with the State of Pennsylvania.

   (b) **SINGLE LINE DIAGRAM**. The Producer shall submit a detailed, single line diagram of its entire facility. Appendix III contains examples of single-line diagrams and Section III contains PECO's technical

standards. If the interconnection application is for a new service, then the Producer is required to include a site plan along with the single line diagram. The diagram line shall include:

i. The PECO service interconnection, connections to generators, and generator facility loads.

ii. Existing relays and their connection points.

iii. Proposed relays and the connection points required by PECO for the Generator. Relays must be of a type acceptable by PECO. (See Appendix 1 Section D)

iv. Voltage transformers, including voltage rating, type of connection.

v. Current transformers, including all tap ratios and taps used.

vi. Power transformer MW ratings, impedance, and connections, including the neutral grounding arrangement.

vii. Generator type (solid state or rotary - synchronous or induction), MW/KW ratings, transient reactance, sub-transient reactance, synchronous reactance, zero sequence impedance, and winding configuration, including the neutral grounding arrangement.

(c) **APPLICATION for PARALLEL OPERATION FORM**. Producers must apply in writing for permission to operate a generating facility in parallel with the Company by completing the required information on the application form in Appendix II. This application is designed to complement any requirement to apply to PJM for the interconnection of generation according to the PJM Open Access Transmission Tariff.

(d) **INITIAL FEES**. The Producer must pay for all costs associated with PECO's review of the design package.

(i) For applications that meet the requirements for simplified approved process (see Section III.A.2) the producer should include an initial fee of $300 to begin the review process.

(ii) For all other applications, a PECO's fee schedule is set forth as follows:

Size of Generating Facility	Required Initial Fee
> 40 kW but less than or equal to 300 kW	$500
> 300 kW up to 4999 kW	$1,000
Greater than or equal to 5000 kW	$5,000

Notes:

(1) Qualified generators <40 kW should refer to the separate document, "Requirements for Parallel Operations for customers with Generation Not Exceeding 40KW ("Yellow Book"), for applicable fees.

(2) No fee is required for interconnection equipment meeting UL1008.

2. **Simplified Approval Process**. Customers must meet the following requirements to be eligible for the simplified approval process for parallel operation:

   a. Aggregate generator capacity at the point of interconnection must be less than 300 kW (three phase).

   b. Generator and interface equipment, including protection system, must be pre-certified by an independent third party laboratory (i.e. UL) acceptable to PECO. Equipment meeting this criterion will not need additional

protective equipment, therefore eliminating PECO's need to test this equipment.

Customers meeting the above requirements who desire approval through the simplified approval process for parallel operation should check the appropriate boxes on the application form (see Appendix II) and include pre-certification paperwork in the initial design package. In cases where the application requires utility construction to the transmission or distribution system or creates distribution system limitations, then the application is not eligible for the simplified approval process and will continue to be processed as a standard application.

3. **Customer Final Design Package**. Generators not meeting the requirements for simplified interconnection will receive PECO's comments from the initial design package and will be required to provide PECO with the following *information upon completion of final design*:

   a. **Detailed A/C schematic**. The Producer must submit an acceptable schematic and connection diagram (AC Three Line and Control Schematic) after the initial plans are accepted by PECO and before equipment manufacture. This information must contain the following:

      i. Relay information including manufacturer, catalog and style numbers, and range of operation.

      ii. Complete power transformer specifications, including MVA rating, voltage rating, impedance values, and tap changer (both load and no load) ranges with the no load fixed tap position.

      iii. Complete generator specification including type (synchronous or induction), voltage rating, synchronous, transient, and sub-transient reactance values, and zero sequence impedance.

      iv. Detailed AC and control schematics showing relay connections and proper polarity marks on all relay related potential transformers and current transformers.

b. **Bill of Material.** The bill of material for the service substation should be provided, if applicable.

c. **Test Data**. Certified test data for the generator(s) and transformer(s) shall be provided to PECO's System Planning and Customer Engineering Branch at least sixty (60) days prior to the desired service date.

4. **Parallel Operation Costs**. The Company will modify its distribution and transmission facilities, including necessary transmission substations as necessary, to interconnect with the Generator. The Producer will be charged for all modifications, additions or retirements made to provide the interconnection.

B. PECO's Responsibilities

1. For an initial design package meeting the requirements for the simplified approval process, PECO will make good faith effort to perform the following activities within 30 days of receipt:

   (a) Review and reply with comments on the initial design package

   (b) If the initial design package is complete and acceptable to PECO and the interconnection will not require any utility construction or create any system limitations, then PECO will complete the Authorization section of the Application for Parallel Operation and return it to the customer.

2. For all other design packages, PECO will make good faith effort to perform the following activities:

   (a) Review and reply with comments on the initial design package within 30 days of receipt.

   (b) Complete the Authorization section of the Application For Parallel Operation when the Company determines that the final design package is acceptable and forward a copy to the customer.

   (c) Provide an estimate of the PECO charges for system upgrades.

IV. TECHNICAL STANDARDS

A. Determination of Interconnection Voltage Level

1. VOLTAGES AVAILABLE FOR GENERATORS. Producers are eligible, under appropriate circumstances, to access the same voltages available to customers listed in the Definitions section of the Rules and Regulations of PECO's Electric Service Tariff. Representative sizes of generators that may be connected to existing Company transmission and distribution circuits are listed in the table below with corresponding minimum service voltages. In some cases, larger generators may be installed after formal review of the Generator's proposed interconnection by PECO. Larger generators will in most cases require PECO to upgrade its facilities. PECO requires the Producer to pay for construction of a dedicated circuit needed for interconnection.

2. Generator Size vs. Available Voltage -

Maximum Generator Size (KW)	Minimum Service Voltage * (Volts)
40	All PECO service voltages
100	All PECO 3-phase service voltages
500	4,160 (3-phase)**
3,500	13,200 (3-phase)
10,000	33,000 (3-phase)
40,000	69,000 (3-phase)
> 40,000	138,000 (3-phase) -or- 230,000 (3-phase) -or- 500,000 (3–phase)

* All voltages are not available in all parts of the system. A generator should contact PECO to obtain voltage available at specific sites. If the desired voltage is not available at a specific location, then the customer will have to move up to the next available voltage level.

** Limited to locations now receiving 4160 volt service.

3. A Producer connecting a Generator to an existing PECO circuit must be compatible to existing and projected requirements for that circuit. Therefore, a Generator meeting the above voltage guidelines may not be allowed to connect to a given circuit if such interconnection is not compatible with future Company system arrangements. In that case the Producer will be required to pay either the cost to connect to a higher voltage circuit or the cost for additional circuit facilities. If additional circuit facilities are required for the Generator, larger generation installations may be possible for a specific service voltage.

B. Applicable Power Quality Requirements

The Producer must design its generation facilities and appurtenant equipment so as to operate within the following specifications. The Producer, at its own expense, must provide voltage regulators or load-ration control transformers, if needed.

1. Harmonic distortion limits (as a percent of distortion of 60 Hz fundamental) for an individual Generator shall conform to the current IEEE 519 revision.
2. Voltage distortion contributed by a Generator may be further restricted so as not to raise the single frequency or total harmonic distortion levels above system limits at the point of delivery or any system point in resonance.
3. PECO will review the effects of current distortions on an individual basis. Where distortion limits are exceeded, the Generator will be required, at its own expense, to make corrections such as adding filters.
4. Flicker, voltage variations, and fluctuations must be controlled as described in Rule 13.2 of the Rules and Regulations of PECO's Electric Tariff.
5. Pennsylvania Public Utility Commission Electric Regulations, 52 Pa. Code §57.14, allow voltage variations from the Company's nominal service voltages. Where service is primarily for lighting, the allowable variation is plus or minus 5%, and where service is primarily for power, the allowable

variation is plus or minus 10%. The Producer must design its equipment so as to operate satisfactorily within these voltage limits and not to subject other Company customers to voltage outside these limits. A Producer, at its own expense, must provide voltage regulators or load-ratio control transformers, if needed.

C. PECO's Design criteria for Generator interface equipment

1. **Producer Service and Interconnection Requirements**- The Producer shall design, provide install, own, operate and maintain all facilities on its property, except the PECO Energy retail meters and metering transformers described in Section V below. The installation shall be in accordance with PECO Energy's Electric Service Requirements (ESR) handbook, the National Electrical Code, National Electrical Safety Code, and any other codes that apply. The installation shall include a service entrance disconnect and over-current protection that meet the requirements of Article 230 of the National Electrical Code. The service entrance circuit breaker or switch and fuse must coordinate with PECO Energy line or circuit protection, protect the Generator's electrical equipment from over-current conditions, and be capable of disconnecting the Generator from PECO Energy's line or circuit in the event of an interruption of service. The Generator's protective system control power source must be reliable and not subject to interruption during fault periods. Storage batteries or capacitor trip devices are examples of equipment that meet this requirement. Where multiple generators are connected in parallel to the PECO system through a single connection point, the rating of the Generator will be the sum of the ratings of the individual generators.

2. **Generator Compatibility** - A Generator connected to PECO Energy's system shall match the voltage, number of phases, wires and grounding of the distribution or transmission system supplying the Generator.

   (a) 3 Phase 4 Wire System Solidly Grounded – Generators connected to 3 phase 4 wire solidly grounded systems shall present a solidly grounded

wye source at the service delivery point. Generators supplied at 4 kV or higher, where the generator does not have a solidly grounded wye connection, shall interconnect to the Company's facilities through an isolation transformer designed to match PECO's distribution or transmission system. A Generator must also supply sufficient ground fault current to stabilize phase to neutral voltages and disconnect the generator from Company lines during phase to ground faults on PECO's system.

3. **Exceptions**

   a. Induction generators rated 250 kW or less for services of 13.2 KV or less, or rated 1,000 KW or less for 33 KV services may be interconnected through delta transformer windings.

   b. Synchronous generators may be interconnected through delta transformer connections where all of the following conditions are met:

      (i) Service voltage is greater than 600 Volts and less than 69,000 Volts

      (ii) The minimum facility internal load is at least twice the rating of the generators being interconnected

      (iii) A zero sequence over-voltage relay and its appropriate voltage transformers are connected to monitor the service voltage and trip the generator(s) upon sensing a supply circuit or line phase to ground fault.

      (iv) A directional power relay will trip the generator(s) in the event that export of power to PECO's service is detected.

4. **Three Phase System With Resistor Neutral Grounding** - Generators connected to 3 phase, resistor grounded systems shall present an un-grounded or impedance grounded wye source at the service delivery point. A zero sequence over-voltage relay and its appropriate voltage transformers shall be connected to monitor the service voltage and trip the generator(s) upon sensing a supply circuit or line phase to ground fault. Transformers with a wye primary connection shall have a primary neutral bushing.

D. Fault Protection in Generator's Interface Equipment.

The general guidelines for fault protection are included below. Generators that will only momentary parallel with the PECO system should review Appendix 1 for different protection requirements that apply. All producers must:

1. Protect PECO's electrical system from the generator's internal phase or ground faults. Protective relay requirements depend on the size and type of Generator and the Generator's transformer connections. (SEE APPENDIX I FOR GENERAL PROTECTION REQUIREMENTS.)
2. Protect its own equipment from faults on the Company system, including phase and ground faults.
3. Protect its generator against ground faults, under-frequency, over-frequency, and re-closing of Company circuits. It is also recommended that Producers should protect against negative phase sequence (single phasing), over-current and motoring.
4. Design the coordination of its internal relays, and submit the proposed settings of service protection relays for PECO Energy's review.
5. Separate its generator from the Company system whenever the Company's service line is de-energized.
6. A generator connected to the Company's secondary system shall, at the Producers own expense, perform tests and maintenance that PECO finds necessary to keep PECO's system in safe operating condition. Protective devices required by PECO will be tested by PECO at Generator's expense on a schedule determined by PECO.
7. At the request of PECO, Producers not selling generation into the market may be asked to supply generator and transformer modeling data for load flow and dynamic studies.

E. Exceptions

Generators on **exclusive** lines (lines serving only one customer because of load limitations) or on **dedicated** lines (lines installed at the expense of the customer or generator) may, at the discretion of the Company, be excused from some of the requirements of this manual. PECO's relaxation of any one requirement

does not relieve the Generator's of its obligation to meet all other requirements of this manual or to meet the requirements of the National Electrical Code, the National Electrical Safety Code and other codes that may apply. The Generator, by taking exception to a requirement, is responsible for all damages or injuries that may be associated with that exception.

V. METERING REQUIREMENTS

A. Metering of Sales and Purchases of Power.

Service connections at 120, 240, or 480 volts, and all services over 600 volts with transformers operating independently from generation, must be metered for power supplied to the customer by PECO or an Advanced Meter Service Provider (AMSP), as appropriate. The metering instruments shall be owned and maintained by PECO, unless the customer has chosen to receive Advanced Meter services from an AMSP. The customer is responsible for meter installations as described in Section 8 of the ESR. PECO or an AMSP will provide, own and maintain the IN meters (sales to customer) and the OUT meters, (deliveries to PECO or alternative EGS) at its expense. For transformer rated meters, the meter transformers will be owned and maintained by PECO. Any additional costs resulting from non-standard work will be charged to the Producer.

Metering/billing arrangements may vary depending upon the parties responsible (e.g. PECO Energy, EGS, AMSP, etc) for the energy supply, metering and/or billing of the customer. For additional details on competitive metering requirements, consult PECO's Electric Service Tariff and also PECO's Electric Generation Supplier Coordination Tariff ("Supplier Tariff").

B. Net Energy Billing.

A QF smaller than 50 kW and not qualified for Tariff Rate RS, may select net energy billing and will be billed on their appropriate retail rate schedule. Net energy billing is available under three options, whereby the QF may request from PECO Energy the installment of:

(1) A ratcheted meter that records energy sales to the QF. No monthly administration charge or meter charge shall apply, but no credit will be given to the QF for energy delivered to PECO.

(2) Two meters -- one records energy sales to the QF, and one records sales toward PECO. Sales toward PECO are subtracted from sales to the QF and a bill is rendered based on the net sales. In the event sales toward PECO exceed sales to the QF, the QF will be credited for the energy according to agreements made with a purchasing entity. A monthly meter charge based on the installed cost of the second meter and a monthly administrative charge shall apply.

(3) Install one meter, which records energy flow in both directions, energy to the customer and energy towards PECO Energy's distribution system. Energy toward PECO Energy will be subtracted from sales to and a bill is rendered based on the net sales. In the event sales toward PECO exceed sales to the QF, the QF will be credited for the energy according to agreements made with a purchasing entity. A monthly meter fee will be charged to the QF based on the installed cost of this meter and a monthly administrative charge shall apply.

For more detail on PECO Energy metering requirements, see PECO's Electric Service Tariff. For more detail on a customer obtaining Advanced Metering Services from an AMSP, see PECO's Electric Service Tariff and PECO's Electric Generation Supplier Tariff.

VI. TELEMETERING REQUIREMENTS

A. Monitoring of Generators.

PECO's System Operation Department will determine the need for installing communications equipment, such as telemetering or telephone connections, at each Generator location. This equipment must allow PECO to monitor the Generator's operation and output, the position of breakers, and any other information needed to ensure the safety, reliability and stability of PECO's electric system. Costs of design, installation, operation, testing and inspection of the communications equipment shall be paid by the Producer. In general, all Generators over 5 MW shall require telemetering but PECO retains the discretion to require small Generators to install such equipment.

VII. REAL ESTATE REQUIREMENTS

If the customer will be constructing a substation to be owned, operated and maintained by PECO, on their property to facilitate interconnection, then the real estate requirements in Appendix 4 apply.

VIII. REQUIREMENTS FOR TESTING AND ACCEPTANCE

A. 34kV and Below – Producer Owned and Operated Facilities

The following typical testing requirements shall be performed on service entrance equipment. Testing is to be performed by the producer, PECO, or an independent testing company. PECO reserves the right to witness and/or repeat required testing. All testing is at the Producers expense.

Current Transformers – perform ratio, polarity, dc resistance, impedance, megger, and hi-pot testing. Primary current tests may be required to verify proper operation of protective relay circuits, particularly when multiple CT's are paralleled and differential circuits. Verify pole placement.

Protective Relays specified as required in other parts of this document are to be calibrated and proper operation verified.

B. 69kV and Above

The following typical testing requirements shall be performed on service entrance equipment and/or any equipment that will have ownership transferred to PECO. Testing is to be performed by PECO, or PECO may agree to accept the results of an independent testing company. In either case the testing is at the Producers expense.

Where the producer built facilities interconnect with the transmission system, PJM testing requirements also apply. Refer to the PJM website at www.pjm.com for additional documentation.

AC Distribution Panels and Transfer Switches – Verify the panel is grounded. Megger the bus, and transfer switch normal and emergency busses. Calibrate and verify proper operation of the transfer switch.

Arresters applied at 69kV and above must be power factor tested.

Batteries, Chargers, DC distribution panels, and Ground Detection Systems – specific gravity, voltage, and polarity of each cell shall be measured prior to energizing the charger. Ductor intercell connections. Energize charger, adjust float voltage and repeat cell voltage measurements. Perform capacity test. Using a fused jumper, apply a ground to the positive bus and verify the ground detection system functions. Repeat for the negative bus. Calibrate DC undervoltage relay. Megger the distribution panel bus.

Circuit Breakers – perform power factor testing, contact resistance, timing, and interrupting medium dielectric testing.

Current Transformers – perform ratio, polarity, dc resistance, impedance, megger, and hi-pot testing. Perform primary current tests when required to verify proper operation of protective relay circuits, particularly when multiple CT's are paralleled and differential circuits. Verify pole placement.

CCVT's and Voltage Transformers – Power factor, DC resistance, Ratio and polarity tests. Megger secondary windings.

Disconnect Switches – verify switch alignment and perform contact resistance measurements.

Miscellaneous Electrical Circuits are usually tested for grounds with a 500 V megger.

Protective Relays specified as required in other parts of this document are to be calibrated and proper operation verified.

Protective Relay Circuits – Visually inspect all terminations. AC and DC control circuits are usually tested for grounds with a 500 V megger CT circuits, PT circuits, and AC and DC power circuits are usually tested for grounds with a 1000 V megger, with the intentional ground temporarily lifted. Hi-pot CT and PT circuits with 1000V for 1 minute. Verify continuity of all CT circuits. Functionally check all operations, including effectiveness of lockouts.

Power Transformers – per manufacturer's recommendations.

Station Grounds – remote earth resistance.

IX. OPERATIONAL REQUIREMENTS

A. Operation of Company Line in Parallel with Generator.

From time to time, PECO must remove its lines from service for maintenance. These planned outages are for purposes such as testing relays, rearranging, modifying or constructing lines, and maintaining lines or station equipment. The Producer must cooperate with these planned outages.

Also, from time to time, a Generator may not be allowed to operate in parallel with the PECO system or, in the case of a Generator with multiple services, maybe permitted to operate only in parallel with specific lines so that PECO can perform "Liveline Maintenance" on the facilities serving the Producer. The Producer must cooperate with these conditions and requests.

1. During planned outages, or if the Producer is not permitted to operate the Generator in parallel with a line while PECO performs "Liveline Maintenance," PECO may lockout the Generator to prevent its closing into the PECO line. A Producer must notify PECO before bringing a Generator on line. PECO may require the Producer to delay synchronizing when the Company is experiencing line trouble or system disturbances. [NOTE: The above requirement does not apply to small commercial and residential applications.]

2. A Producer must not energize supply lines interconnecting with the Company's facilities or continue to maintain supply to Company lines after PECO has deenergized its lines.

3. The Company may discontinue parallel operation during emergencies and under abnormal operating conditions.

4. A Producer is responsible to evaluate the potential effect of the Company's reclosing practices on the Generator and to provide suitable protection

B. **Reactive Requirement**.

When a Generator draws excessive reactive power from the Company (e.g. for synchronous inverters or induction generators), the Producer shall correct the Generator's power factor to values according to the Company's Electric Tariff and or the PJM Operating Agreement.

C. **Preserving the Quality of Electric Service to Other Customers**

A Producer operating a Generator in parallel with PECO may affect the quality of electric service to other customers. PECO may require corrective measures of the Producer beyond the scope of this manual when other customers are adversely affected. Problems, which may occur, include, but are not limited to, spurious tripping of generator or service breakers, over-stressing of equipment, or an inability by PECO or its customers to meet applicable electrical code requirements without electric facility modifications. The costs of such protective measures are the responsibility of the Producer.

D. **Minimum Generation**

During certain low-load periods, PECO, acting in conjunction with PJM, may require a Producer to reduce the output of its Generator so as not to exceed its own internal needs and export power. A Producer must be capable of reducing the output of its Generator so as not to export any energy to PECO during such light load conditions.

E. **Parallel Operation with Dual Or With Dual Or Regular/Reserve Distribution Customers.**

(1) Producers with dual service may be required to operate in a regular/reserve mode if the capacity of the generation exceeds the minimum demand of the bus.

(2) Producers with dual service who must operate in a regular/reserve mode after installing parallel generation may create line capacity problems. All costs to

provide additional capacity for this purpose are the responsibility of the producer.

(3) Producers with lines from different sources may be unable to operate generation in parallel with both lines. The producer is responsible for payment of all costs to provide compatible sources.

APPENDIX I

General Relay And Other Protection Requirements For Parallel Operation Of Generation Facilities

This Appendix provides prospective Producers with a guide on the protection systems required by PECO. PECO's goal is to operate its electric system safely and reliably, while maintaining the quality of service and considering the needs of the Producer, PECO and any other customer whose service might be affected.

The amount and type of relay protection required is normally determined based on generator type, size and service supply line. However, circumstances where another Generator is already on the service supply line could require the Producer to install a higher level of relay protection than the amount specified under the following protection requirements. These situations will be analyzed on a case-by-case basis.

This section is broken down as follows:

A. GENERAL REQUIREMENTS
B. SYNCHRONOUS GENERATOR PROTECTION
    1. Transmission System Protection Requirements
    2. Distribution System Protection - Continuous Parallel
    3. Distribution System Protection - Momentary Parallel
        a. Instantaneous Parallel
        b. Transitional Parallel
C. INDUCTION GENERATOR PROTECTION
D. ACCEPTABLE RELAY TYPES

A. **General Requirements**:

1. Protection relay design must be in accordance with PJM/MAAC requirements.

2. All service entrance protection relays and generation interconnection relays required by PECO must be set and calibrated.

3. All relays noted are in addition to normal service entrance over-current protection relays and the relay protection required for the Producer's equipment.

4. The required protection and list of recommended relay types is included in Section D. If the Producer desires another relay type, it should submit relay specifications and instruction books to PECO for acceptance. All relays must meet the following requirements:

   a. Must use nominal 120 V inputs.
   b. Can accept the required settings within the tolerances specified.
   c. The protective devices shall be connected to a test switch that provides access to each phase and neutral current, voltage (when applicable), control power, and tripping contacts for testing. Acceptable test switches are manufactured by Meter Devices, Superior, and GECO PK test plugs. Relays equipped with internal GECO test plugs or ABB flexi-test switches are exempt from the external test switch requirement (i.e. GECO IAC, IFC, DIAC, MDP; ABB CO; and Basler 50/51B).

   d. **Microprocessor Based Relays** also require the following:
      1. A self-diagnostic failure feature that provides an alarm contact to be used by the customer to annunciate the condition.

2. A reliable power source that is not dependent on the primary service voltage during the time the relay is sensing a fault.
3. Multi-Function, digital and microprocessor based relays with 3 phase and neutral over-current protection in one enclosure are considered one protective device. A redundant relay with the same over-current protective characteristics and settings with separate test switches must be installed to meet PECO reliability requirements
4. The Producer must program and or set all useable and desired functions of the relay. PECO technicians will verify the protection set point and time delays of interest.

B. Synchronous Generator Protection:

1. **Transmission System Transmission Protection**

   Refer to PJM's *Document A-2 MAAC Protective Relaying Philosophy and Design Standards* available from their website.

2. **Distribution System Interconnection Protection – Continuous Parallel.**

   The following generator interconnection relays must provide three-phase sensing and be connected to monitor the PECO Energy service voltage supplying the Producer's facility. The interconnection relays must isolate the generator from PECO Energy's facilities.

   The following relays may monitor the high or low voltage side of the generator transformer:

   - Over-/ Under-frequency relays
   - Over-/ Under-voltage relays, where the generator rating is 250 KW or less

- Over-/ Under-voltage relays, where power export is not expected and the expected Generator facility load is at least twice the generator rating.

a. Over- and Under-Frequency Relays (81 o/u) Settings are as follows:

Over-frequency	- 60.5 Hz (+/-0.1 Hz)
Time Delay	- No Intentional Delay (10 cycles, max)

Under-frequency	- 59.5 Hz (+/-0.1 Hz)
Time Delay	- No Intentional Delay (10 cycles, max)

Synchronous generators rated over 1000 KW connected to a PECO line with no other distribution load will have an under-frequency setting of 57.5 Hz (+/-0.1 Hz) with a time delay of 5 seconds (+/-10% Tolerance). This requires that the generator(s) to be capable of continued operation at frequencies at and above the 57.5 Hz setting. Exceptions may be specified at time of installation.

b. Over- and Under-Voltage Relays (59 and 27) shall provide three phase sensing. Settings are as follows:

Over-voltage (59) - 110% of Nominal Line Voltage (+/-5% Tolerance)
Time Delay - 0.1 seconds delay recommended

Under-voltage (27) - 85% of Nominal Line Voltage (+/-5% Tolerance)
Time Delay - 2 seconds (+/-10% Tolerance)

c. Ground Fault Protection

- (51G), if interconnection transformer has a grounded-wye high side connection.
- Zero sequence over-voltage relay (59G) if Delta high side.

Settings: Specified at time of installation.

d. Voltage Controlled Over-current Relays (51V) on each generator rated above 1,000 KW. The type, setting and calibration of these relays shall be the responsibility of the customer.

3. **Distribution System Interconnection Protection – Momentary Parallel.**

Upon notice to PECO at a time acceptable, a generator may momentarily parallel with the PECO distribution system to provide disturbance free transfer of load to and from a generator for testing, peak shaving, load curtailment, or returning load to a PECO supplied service. Interconnection requirements will be determined by the length of time the generation is paralleled with the PECO distribution or transmission system.

a. Instantaneous Parallel [Less than 10 cycles (0.167 seconds)]. The generation interconnection relays in the above sections of this appendix are not required where the transfer system meets UL1008, and the following conditions apply:

i. The Generator does not have to present a grounded-wye source to the PECO system.

ii. The parallel and disconnecting operation must be automatic, instantaneous (switching time only) and less than 10 cycles (0.167 seconds) duration.

iii. A paralleled transfer must be blocked if the normal PECO source to the load is not within +/- 10% of nominal voltage.

iv. The transfer scheme must be acceptable to PECO.

v. The parallel operation must be monitored by a timing relay that will trip the generator's main breaker if the parallel lasts longer than 0.5 seconds. The tripping voltage must be from a reliable source, i.e. battery or capacitor trip.

vi. The Producer may transfer load to and from generators rated less than 600 volts without notice to PECO.

b. **Distribution System Interconnection Protection – Transitional Parallel**

i. The generator does not have to present a grounded-wye source to the PECO system. If the generator does not present a grounded-wye source, Zero Sequence Over-voltage Relays (59G) must be installed.

ii. The parallel, generator loading and disconnecting operations must be automatic. Parallel time must be kept to a minimum and never exceed five (5) minutes.

iii. A paralleled transfer must be blocked if the normal PECO source to the load is not within +/- 10% of nominal voltage.

iv. The transfer scheme must be acceptable to PECO.

v. The parallel operation must be monitored by a timing relay, which will trip the generator's main breaker if the parallel lasts longer than 5 minutes. The tripping voltage source must be from a reliable source, i.e. battery or capacitor.

vi. Over-/Under-voltage and over/under frequency relays must be installed according to the above sections of this Appendix, based on the size and type of generation being installed.

vii. The Producer must receive permission from the PECO organization having authority over the line, either the System Operations Dispatcher or the Distribution Operation Center, prior to making the parallel.

C. Induction Generator Protection

1. **Distribution System Interconnection Protection – Continuous Parallel.**

The following induction generator interconnection relays shall provide three-phase sensing and be connected to monitor the PECO Energy service voltage supplying the Producer's facility. The interconnection relays must isolate the generator from PECO Energy's service.

The following relays may monitor the high or low voltage side of the generator transformer:

- Over-/ Under- frequency relays
- Over- / Under-voltage relays where the generator rating is 250 KW or less
- Over- / Under-voltage relays where power export is not expected and the expected Generator facility load is at least twice the generator rating

a. Over- and Under- Frequency Relays (81 o/u) Settings are as follows:

Over-frequency 61 Hz (+/-1% Tolerance)
Time Delay - No Intentional Delay (10 cycles max)

Under-frequency 59 Hz (+/-1% Tolerance)
Time Delay - No Intentional Delay (10 cycles max)

b. Over - and Under- Voltage Relays (59 and 27) shall provide three phase sensing. Settings are as follows:

Over-voltage (59) - 110% of Nominal Line Voltage (+/-5% Tolerance)
Time Delay - 0.1 seconds delay recommended

Under-voltage (27) - 85% of Nominal Line Voltage (+/-5% Tolerance)
Time Delay - 2 seconds (+/-10% Tolerance)

D. Acceptable Relay Types:

PECO has accepted the following relays and recognizes that other relay types may be acceptable for use on the PECO transmission and distribution systems. If the Producer desires another relay type, it should submit relay specifications and instruction books to PECO for acceptance. All such relays must meet the requirements noted in Section A (3) of this Appendix. Forward appropriate information to System Planning and Customer Engineering.

NOTE: Relays listed with (*) require installation of an acceptable test switch.

1. **Over-/Under- Frequency Relays:** (81 o/u)
   Some of these relays require timers to provide the 5-second time delay specified.

GE	SFF
ABB	MDF
	KF (Under-frequency only)
	ITE-81 (*)
	DPU200R (*)
Beckwith	PRIDE (*) (below 1000 KW)
Basler	BE-1-81 (o/u)
Schweitzer	SEL351

2. **Over/Under Voltage Relays**: (59/27)

GE	NGV, Multilin SR750 IAV (under-voltage only) ICR (under-voltage only) IFV (under-voltage only)
ABB	SV (under-voltage only) SSVT CV (under-voltage only) CVQ (under-voltage only) ITE-59D (*) (over-voltage only) ITE-27D (*) (under-voltage only) ITE-47D (*) (under-voltage only) ITE-27/59 (*) DPU2000R
Beckwith	PRIDE (*) (below 1000 KW)
Basler	BEI-27/59
Schweitzer	SEL251, SEL351, SEL321, SEL311

3. **Over-current Ground Relay**: (51G)

GE	IFC-VI, IAC-VI, SFC, Multilin SR750
ABB	DPU2000R CO-8 ITE-51Y (*)
Schweitzer	SEL251, SEL351, SEL321, SEL311

4. **Timing (associated with under-voltage relays)**:

GE	SAM
ABB	TD-5

Agastat Timers

5. **Zero Sequence Over-voltage Relay**: **(59G)**

ABB	ITE-59 (*), CV, SV, SSVT, DPU2000R
GE	NGV, IAV, IFV, Multilin SR750
Basler	BEI-59
Schweitzer	SEL321, SEL311 (definite time using timer)

PECO Energy – Application for Parallel Operation of Generation Exceeding 40 kW

Instructions: Please complete this application and return, along with the initial design package, to the following address:

PECO Energy – Engineering Services
System Planning and Customer Engineering
680 Ridge Pike
Plymouth Meeting, PA 19462-1945

Please Provide contact information for the following parties:

Producer	Representative of producer making the application	Person proposed to operate and maintain the Generator
Name - Address - Phone # - PECO Account# -	Name - Address - Phone # -	Name - Address - Phone # -

Is the proposed Producer a QF? ☐ Yes ☐ No

IF Yes, please attach a statement of the proposed Generator's status as a QF as defined in the FERC final rules for PURPA, 18 CFR 292.101, or if the Generator is registered as an EWG.

Please provide the following equipment and interconnection information, prepared and submitted by a Professional Engineer, registered in the Commonwealth of Pennsylvania and competent in power systems applications:

Prime Mover	Generator
Manufacturer: Type: Fuel Source: Mechanical Output:	Manufacturer: Type of Electrical Source (select one of the following): ☐ Synchronous ☐ Induction ☐ Inverter Rated Electrical Output (kW) _____ Volts _____ Phases _____ Amps _____ Power Factor _____ <u>Short Circuit contribution to Company System</u>: 3-phase _____ (Amps Symmetrical) Line to Ground _____ (Amps Symmetrical) Reference Voltage _____ (Volts)

Please select one of the following to designate the type of parallel operation desired:

☐ Continuous (5 minutes or longer)
☐ Momentary (Transitional - < 5 minutes)
☐ Momentary (Instantaneous - < 0.167 seconds meeting UL1008)

How will the kWh output of the generator be used? Please select from the following options:

- ☐ All kWh output to be used internally
- ☐ Sell excess to PECO
- ☐ Sell excess to PJM or EGS

Does the Producer qualify for the simplified approval process?

Is the aggregate generator capacity at the point of interconnection less than 300kW? ☐ Yes ☐ No
Has the generator and interface equipment been pre-certified? ☐ Yes ☐ No

If the answer to both of the above questions is Yes, then the Producer may qualify for simplified approval process. Please include pre-certification documentation along with the initial design package.

Producer Acknowledgement

I understand that this Application and PECO Energy's approval thereof deals solely with the requirements for parallel operation of my generation device and related equipment ("Equipment") to PECO Energy's transmission and distribution system and that PECO Energy provides no representation or warranty of any kind with respect to the Equipment, including but not limited to merchantability, fitness for purpose and safety, and that PECO expressly disclaims any liability for damages of any kind arising out of or relating to the operation of the Equipment. I further acknowledge that any insurance requirements for the Equipment are my sole responsibility.

Signed (Producer) _____ Date _____

PECO Authorization for Parallel Operations

PECO has reviewed the initial and final design packages (if applicable) for parallel operation and is satisfied that the customer has met the Company's Requirements for Parallel operation. The customer, therefore, is authorized to operate in parallel with PECO Energy's transmission/distribution system.

PECO Representative Name (Print) _____
PECO Representative Signature _____ Date: _____

Referenced Drawing Numbers (if applicable)

_____ _____ _____
_____ _____ _____

Appendix III

TYPICAL ONE LINE DIAGRAMS. The following diagrams are included herein as references:

a. Generator service 600 volts and less.
b. Generator service over 600 volts, induction generators.
c. Generator service over 600 volts, synchronous generators.
d. Generator service over 600 volts, 3-Phase 4 Wire System.
e. Generator service over 13 kV, 3-Phase 3 Wire System.
f. Generator Service over 33 kV, 3 Phase 4 Wire System.

DIAGRAM A
SERVICE 600 VOLTS AND LESS

240 Volt 3 Phase 3 Wire
208Y/120 Volt 3 Phase 4 Wire
480Y/277 Volt 3 Phase 4 Wire

CUSTOMER OWNS, OPERATES AND
MAINTAINS ALL EQUIPMENT
EXCEPT PECO TRANSFORMER AND METERING

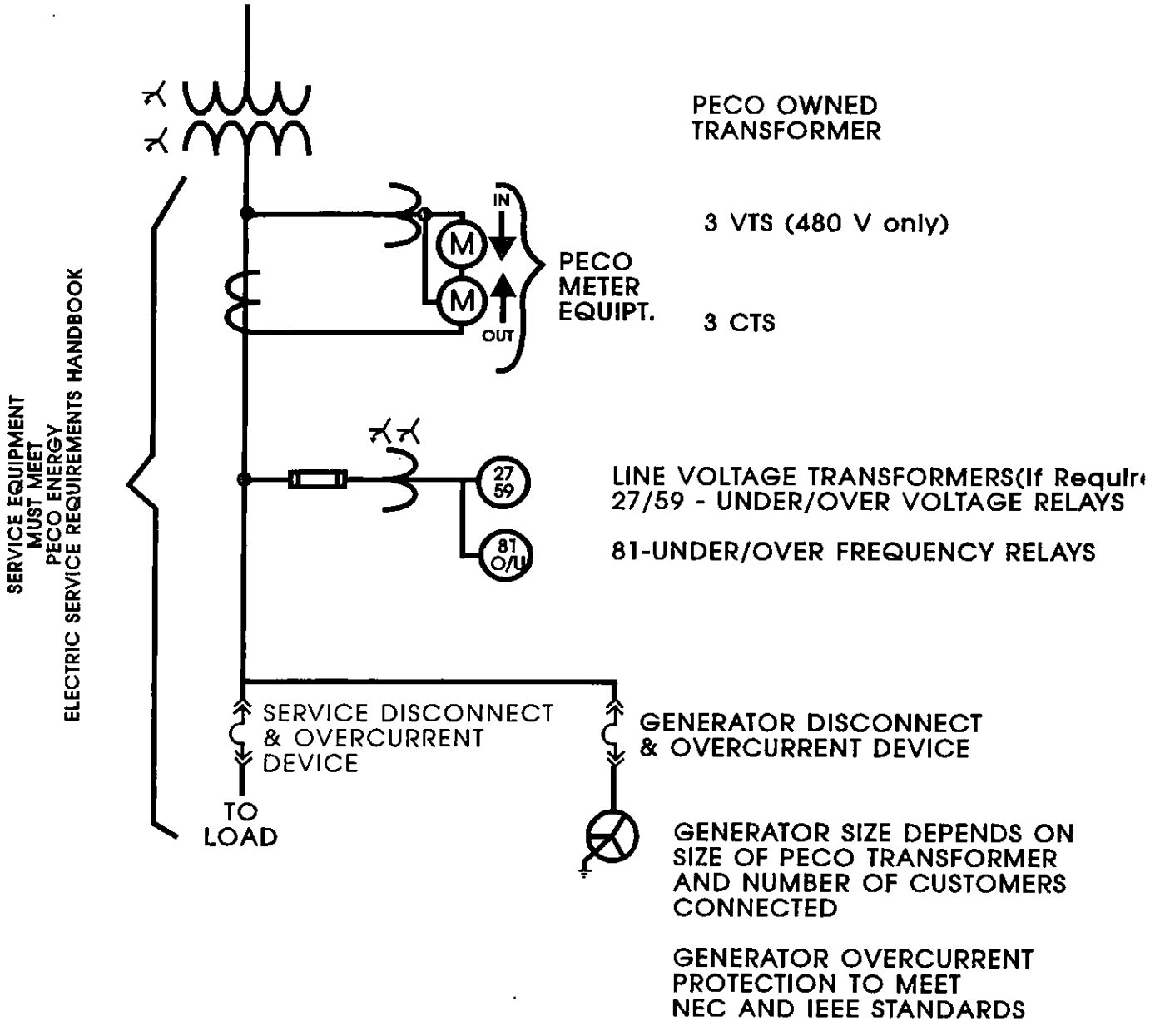
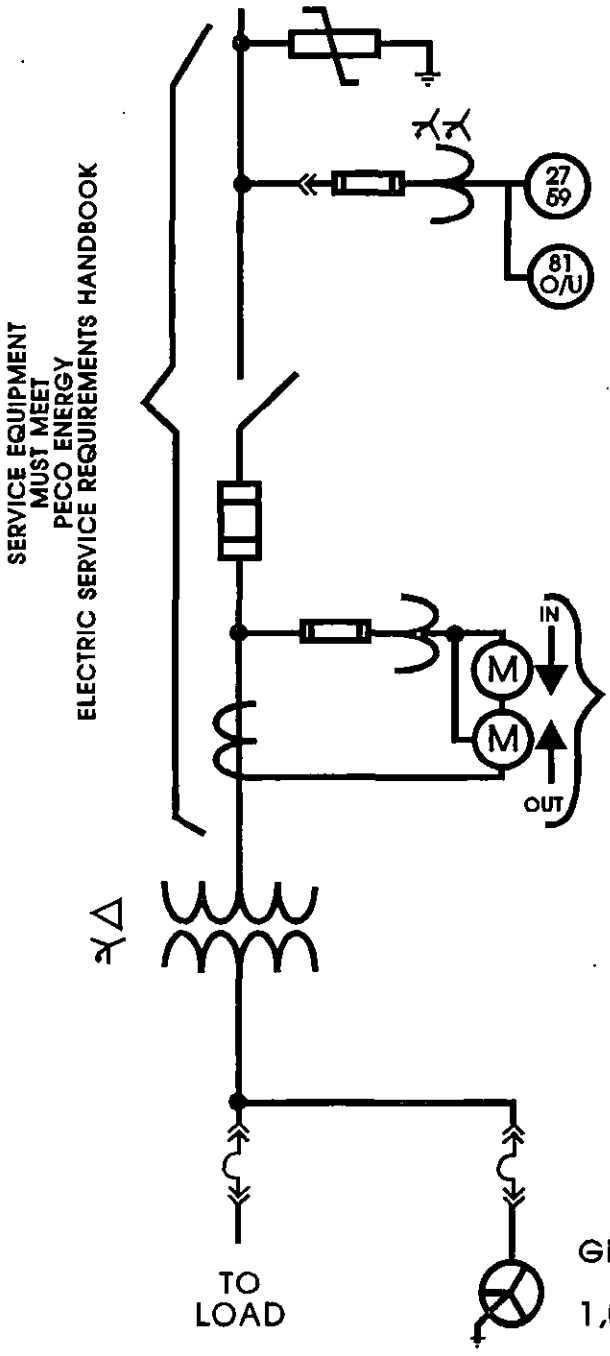


DIAGRAM B
SWITCH/FUSE SERVICES OVER 600 VOLTS
4,160, 13,200, 33,000
3 Phase 4 Wire System
INDUCTION GENERATORS

CUSTOMER OWNS, OPERATES AND MAINTAINS ALL EQUIPMENT EXCEPT PECO METERING



Surge Protection

LINE VOLTAGE TRANSFORMERS
27/59 - UNDER/OVER VOLTAGE RELAYS

81 - UNDER/OVER FREQUENCY RELAYS

Service Disconnect

Service Overcurrent Protection

2 VTS

PECO METER EQUIPT.

2 CTS

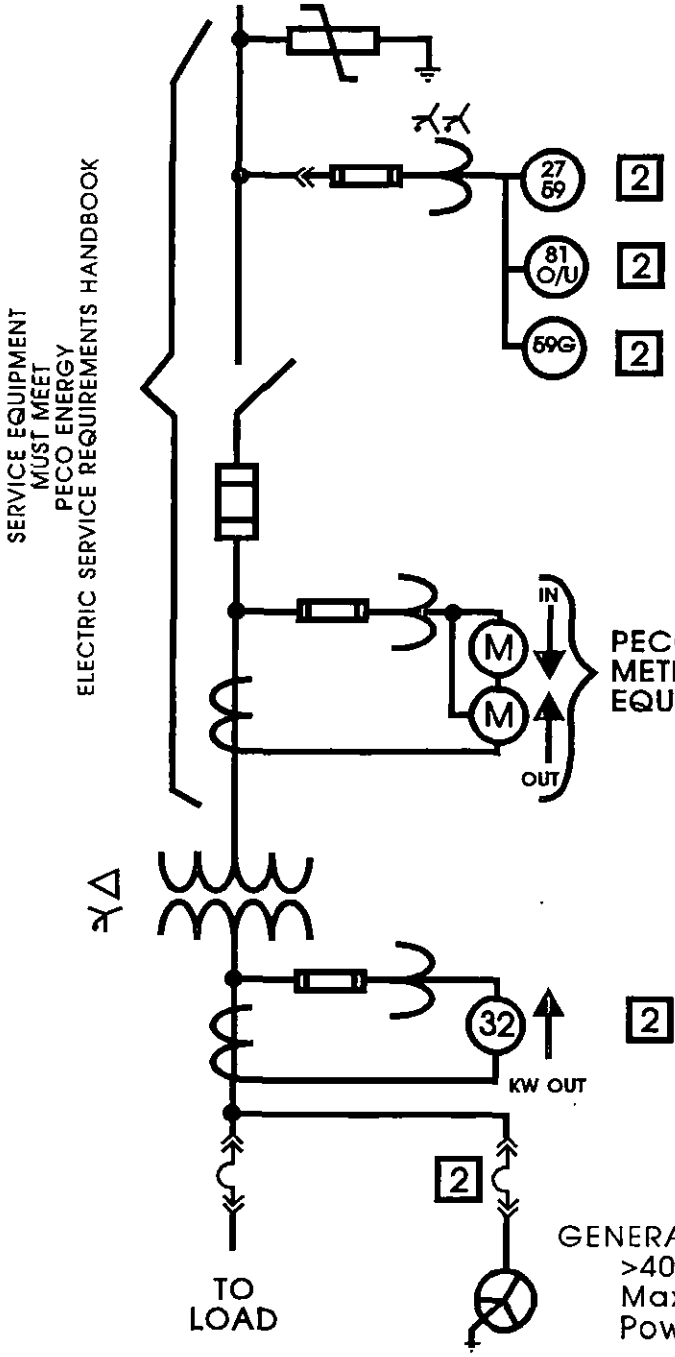
Main Transformer

GENERATOR
250 KW MAX INDUCTION 4.16 & 13.2 KV
1,000 KW MAX INDUCTION 33 KV

GENERATOR OVERCURRENT PROTECTION TO MEET NEC AND IEEE STANDARDS

DIAGRAM C
SWITCH/FUSE SERVICES OVER 600 VOLTS
4,160, 13,200, 33,000
3 Phase 4 Wire System
SYNCHROHOUS GENERATORS

CUSTOMER OWNS, OPERATES AND
MAINTAINS ALL EQUIPMENT
EXCEPT PECO METERING



Surge Protection

LINE VOLTAGE TRANSFORMERS
27/59 - UNDER/OVER VOLTAGE RELAYS

81 - UNDER/OVER FREQUENCY RELAYS

59G - Zero Sequence Over Voltage

Service Disconnect

Service Overcurrent Protection

2 VTS

2 CTS

Main Transformer

2 Directional Power Relay
(VTs required as needed)

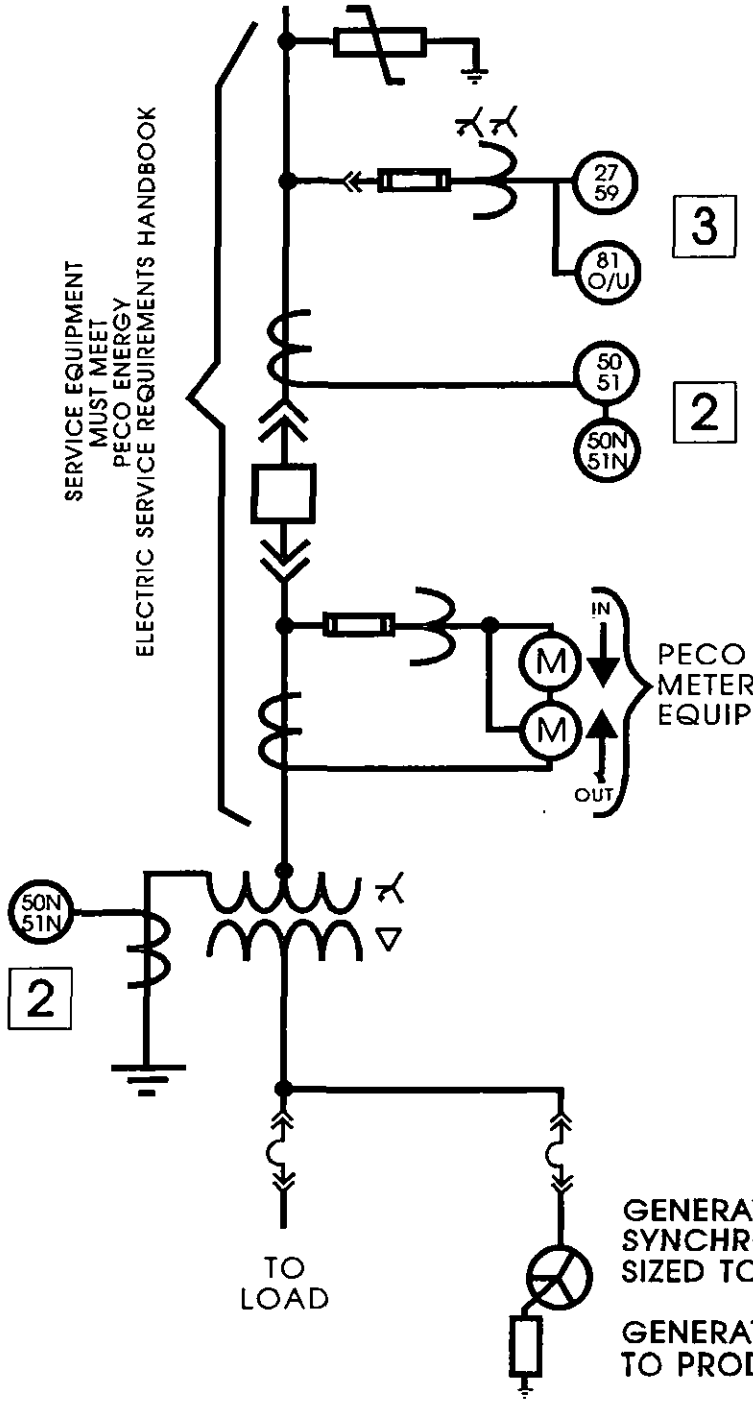
2 **Relays marked with note must trip the generator breaker**

GENERATOR
>40 KW SYNCHRONOUS
Max size restricted to 50% of minimum load
Power export not permitted

GENERATOR OVERCURRENT PROTECTION
TO MEET NEC AND IEEE STANDARDS

DIAGRAM D
BREAKER SERVICES OVER 600 VOLTS
4,160, 13,200, 33,000
3 Phase 4 Wire System

CUSTOMER OWNS, OPERATES AND
MAINTAINS ALL EQUIPMENT
EXCEPT PECO METERING



Surge Protection

LINE VOLTAGE TRANSFORMERS
27/59 - UNDER/OVER VOLTAGE RELAYS

81 - UNDER/OVER FREQUENCY RELAYS

Service Relays
50 /51 - 3 Phase Overcurrent Rela

51N/50N - 1 Neutral Overcurrent Relc

Service Circuit Breaker

3 VTS

3 CTS

Main Transformer

2 RELAYS NOTED MUST TRIP THE SERVICE BREAKER

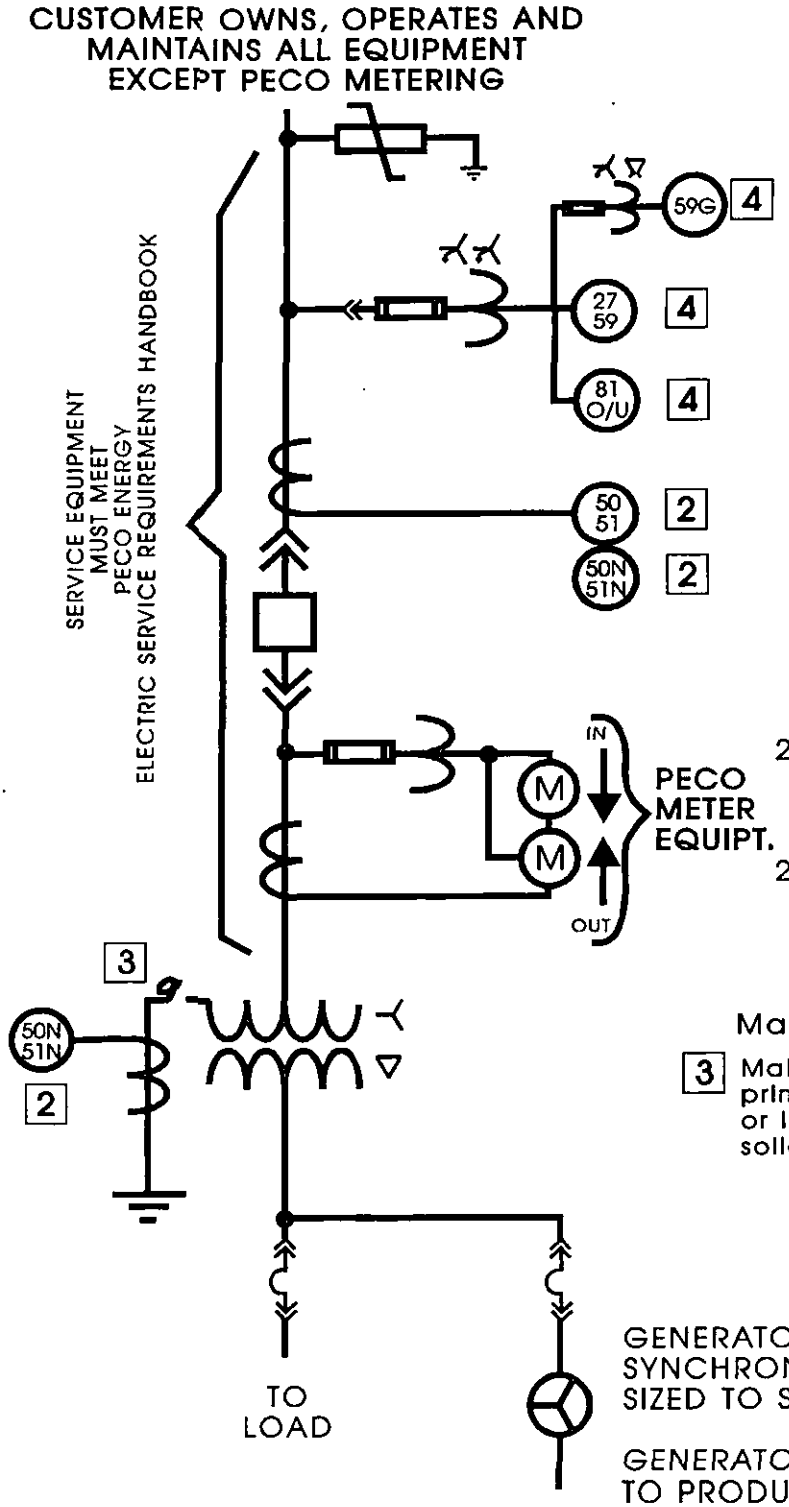
3 RELAYS NOTED MUST TRIP THE GENERATOR

GENERATOR
SYNCHRONOUS OR INDUCTION
SIZED TO SERVICE CAPACITY

GENERATOR VOLTAGE CONVENIENT
TO PRODUCER

GENERATOR OVERCURRENT PROTECTION
TO MEET NEC AND IEEE STANDARDS

DIAGRAM E
BREAKER SERVICES13,200 VOLTS FROM RESISTOR GROUNDED STATIONS
3 Phase 3 Wire System



Surge Protection

59G - ZERO SEQ OVER VOLTAGE

LINE VOLTAGE TRANSFORMERS
27/59 - UNDER/OVER VOLTAGE RELAYS

81 - UNDER/OVER FREQUENCY RELAYS

Service Relays
50 /51 - 3 Phase Overcurrent Rela
50N/51N - 1 Neutral Overcurrent Relc

Service Circuit Breaker

2 RELAYS NOTED MUST TRIP THE SERVICE BREAKER

4 RELAYS NOTED MUST TRIP THE GENERATOR

Main Transformer

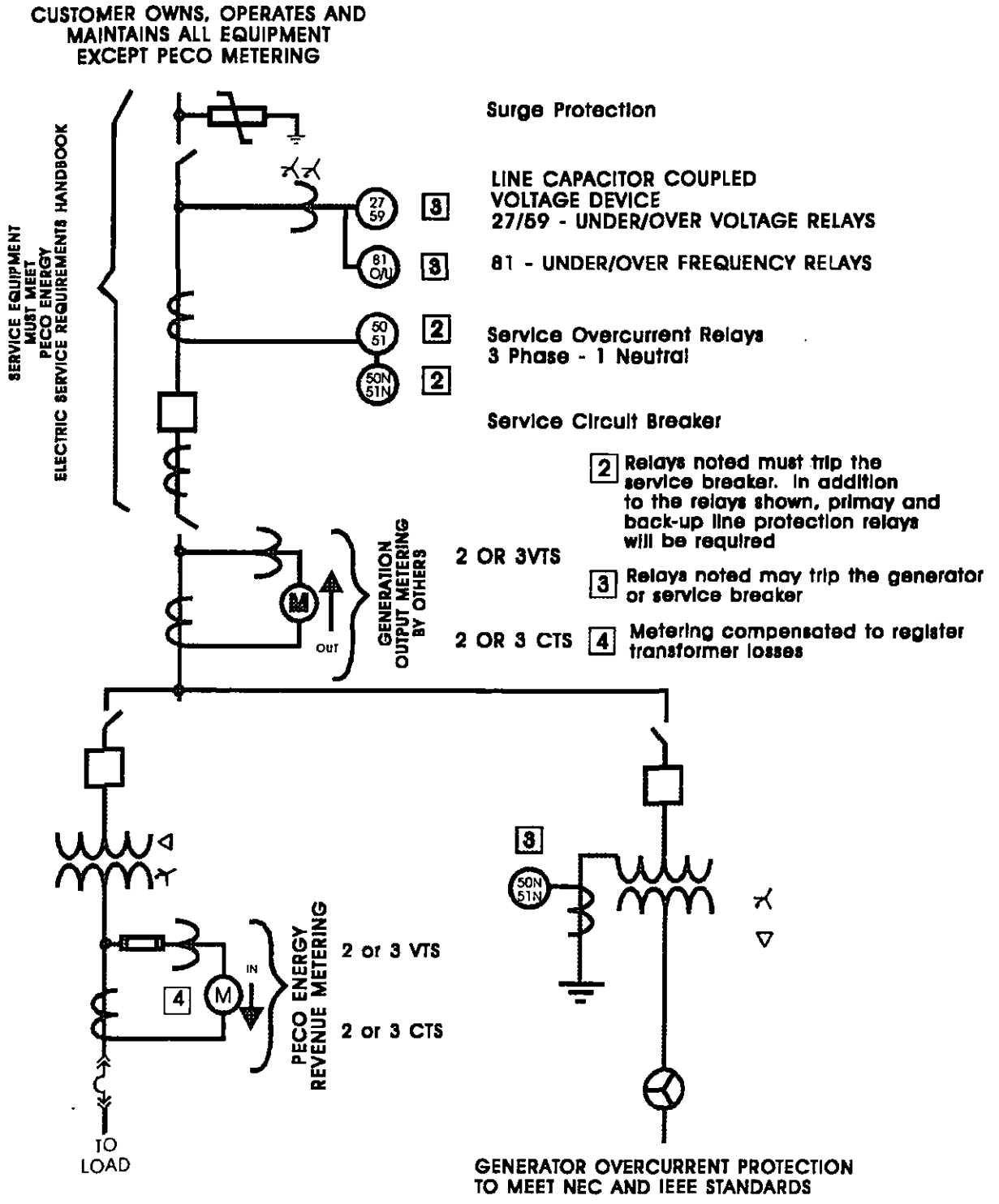
3 Main Transformer must have a grounded wye primary winding with connection for a resistor or impedance, and have provisions for future solid ground connection.

GENERATOR
SYNCHRONOUS OR INDUCTION
SIZED TO SERVICE CAPACITY

GENERATOR VOLTAGE CONVENIENT TO PRODUCER

GENERATOR OVERCURRENT PROTECTION TO MEET NEC AND IEEE STANDARDS

DIAGRAM F
BREAKER SERVICES OVER 33,000 VOLTS
69,000, 138,000, 230,000 & 500,000 VOLTS
3 Phase 4 Wire System



APPENDIX IV– REAL ESTATE REQUIREMENTS

It is the Producer's responsibility to purchase property, acquire rights and obtain any required permits for the transmission lines required to interconnect its generation station and establish the point(s) of demarcation. In addition, the Interconnection Agreement requires that the **Producer grant to PECO Energy** such rights and interests as may be reasonably necessary to interconnect the generation station to the PECO Energy System. Real estate transactions will be determined by the type of interconnection configuration employed, which may include:

- Conveyance of fee simple ownership in land owned by the Producer to PECO Energy for the construction of a switchyard.

- Conveyance of perpetual easements (exclusive and nonexclusive) associated with the switchyard over the generation station site for all purposes related to the interconnection of the generation station with the PECO Energy System, including access, drainage, and such overhead and underground facilities as PECO Energy may reasonably require for the use and operation of the switchyard.

- Conveyance of perpetual transmission and facilities easements or fee simple ownership (exclusive and nonexclusive) over the generation station site for all purposes of interconnecting the generation station with the PECO Energy System, including such overhead and underground electrical and related communications, transmission and distribution facilities.

In each of the three transaction scenarios outlined above, or any combination thereof, the Producer will be responsible for providing a title policy and title insurance and for executing and delivering all Closing documentation requested by PECO Energy, which may include assignments, survey and engineering data, affidavits, certifications, statements and releases, to name several examples.

PECO Energy will review and consider granting, based upon engineering and Real Estate & Facilities approval(s), easement rights or consent, as applicable, for:

- Perpendicular crossings of PECO Energy transmission right of way to accommodate facilities such as roadways and various utilities, including natural gas and water pipelines and storm sewers.

- Longitudinal occupations of PECO Energy transmission right-of-way to accommodate pipeline facilities.

PECO Energy's Scope

PECO Energy will provide the following:

- Real estate forms of agreement, which incorporate terms and conditions that reflect PECO Energy's standard business practices.

- Engineering review of facilities that cross-existing PECO Energy property and/or potentially impact PECO Energy facilities.

Producer's Scope

It is imperative, when the Producer is required by the scope of a project to provide information, that PECO Energy receives the deliverables itemized below as soon as possible. This will facilitate a timely review and will allow PECO Energy to address the real estate aspects of the project in a timely manner.

The Producer is responsible for providing the following:

- Two (2) sets of <u>current</u> information covering the <u>entire</u> generation station site:

    1. Title Policy/Commitment.

2. Copies of all recorded documents listed in above-mentioned Title Policy/Commitment.
3. ALTA/ACSM Land Title Survey, which will include adjoining PECO Energy property, if applicable.
4. Topographic survey at a contour interval appropriate to the relief and size of the property.
5. Phase I Environmental Assessment Report completed in accordance with ASTM standards and any other environmental reports, notifications and documents. A phase II assessment may be required.
6. Wetland Delineation reports.
7. Zoning changes or other governmental agreements or approvals entered into or proposed.
8. All jurisdictional permits, such as building permits, issued for the project or copies of applications pending as they may pertain to, relate to or affect PECO Energy owned or controlled property and associated facilities.
9. Civil engineering drawings showing proposed site plan, layout, drainage, access and improvements.

The following documentation may also be required: Cultural resources surveys or studies, flood plain determination, surveys for rare and endangered species, etc.

Additional information may also be required, depending on special circumstances. Itemized requirements will be transmitted to the Customer as they become apparent.

In addition, items 1 and 3 above will be required to cover/delineate the actual switchyard site and/or easement areas to be conveyed to PECO Energy, if applicable.

- Acquiring all property and property rights for the generation station site and the transmission and distribution right of way, including environmental and

jurisdictional permitting, from the generation station site to the point(s) of demarcation. This includes all necessary zoning and/or special use permits.

- Current information for each perpendicular crossing. Ten (10) full-size sets of engineering plan and profile drawings will be submitted that include, at a minimum, the following information:

    1. Section, township and range of the project and proximity to public roads, railroads and locational features.
    2. Plan details that include: (a) bearing and distance ties from the nearest section corner or other reference point to the entry and exit points of the proposed facility across the right-of-way lines, (b) distance from the proposed facility to PECO Energy's nearest structure(s), (c) location of existing subsurface utilities. **NOTE**: A 50-foot separation is required from transmission tower footings to the proposed facility, and a 15-foot separation is required from distribution poles.
    3. Profile showing: (a) finished grade and (b) cuts and fills relative to the existing grade. **NOTE:** Construction equipment is limited to a height of 14 feet on PECO Energy right-of-way. In addition, appurtenances such as manholes, fire hydrants, catch basins and light standards are not allowed.

- Current information for each proposed pipeline alignment on PECO Energy transmission right of way. Six (6) sets of 24" x 36" drawings and Six (6) sets of 11" x17" drawings will be submitted that include and conform to the following:

Consider using the S7070, S7073 and S7074 Construction Standards

Route Map Format

1. 24" x 36" drawing size (scale: 1" = 100') and 11" x 17" drawing size (reduced: not to scale).
2. The proposed pipeline alignment shall be overlaid onto current aerial photography (scale: 1" = 200'). The photography should have the clarity required to show actual PECO Energy transmission conductors.
3. The recommended horizontal control system is the PA State Plane Coordinate System (NAD 83).
4. The recommended vertical control system is the NAVD 1988 datum.
5. The pipeline stationing shall be shown at the following locations along the proposed route:

    A. Points of entry onto PECO Energy right-of-way.
    B. Points of exit from PECO Energy right-of-way.
    C. All pipeline bend points.
    D. All points where the pipeline crosses under PECO Energy transmission structures.
    E. All PECO Energy transmission structures.

1. Horizontal accuracy shall be 1' ±.
2. Vertical accuracy shall be 0.25' ±.
3. North arrow and bar scale shall be shown on all drawing sheets.

Horizontal Data

The following horizontal data shall be shown on the drawings:

1. Centerline of proposed pipeline and pipeline diameter.
2. PECO Energy right-of-way lines.
3. PECO Energy transmission structures with PECO Energy structure numbers and distribution structures within PECO Energy right-of-way.

4. All known utilities within PECO Energy right-of-way.
5. Horizontal measurements from the proposed pipeline centerline to the nearest transmission conductor. Two conductor measurements are required if the proposed pipeline is between two transmission conductors.
6. Horizontal measurements from the proposed pipeline centerline to the *centerline of the closest PECO Energy transmission structure* foundation. One measurement is required per transmission structure.
7. Horizontal measurements from the proposed pipeline centerline to the nearest PECO Energy right-of-way line.
8. All road and railroad crossings with current names.

Vertical Data

1. Accurate vertical measurement data (height of transmission conductors above ground) shall be collected by the pipeline company and submitted to the PECO Energy Survey Section for review (see the following section).
2. Vertical measurement shall be collected within an error tolerance of 0.25' +/- (distance from ground to bottom of the conductor(s) closest to the proposed pipeline centerline).
    A. All points of attachment at each overhead transmission structure (the point where the conductor is clamped to the insulator string).
    B. All conductor points at mid-span or low point of sag.
    C. All conductor points where the proposed centerline of the pipeline crosses the PECO Energy right-of-way.

Routing of Proposed Pipeline Maps

1. Six (6) sets of the 24" x 36" drawings and Six (6) sets of the 11" x 17" drawings shall be sent to the following PECO Energy locations for review:

Real Estate & Facilities
PECO Energy Company
2301 Market Street
Philadelphia, PA 19103

Fees

The pipeline company shall be responsible for advance payment of all PECO Energy engineering and surveying services required to review the proposed route. Additional surveying review fees may be applied if inaccurate data, provided by the pipeline company, requires extensive checking.

Appendix V – Miscellaneous PECO Transmission System Information

The following general information is listed to address questions that a proposed developer may have concerning PECO Energy transmission system infrastructure.

BIL levels for the PECO transmission system are:

500kV	1550kV
230kV	900kV
138kV	750kV
69kV	350kV

PECO transmission lines occupy private and railroad rights of way. In general, structures along railroad rights of way are owned by the railroad.

Tubular steel structures with concrete foundations are typically used for transmission lines.

The standard transmission conductors are 795kcmil ACSR and 1590kcmil ACSR for 230kV and below. A bundle of two 1590kcmil ACSR conductors are used for high capacity 230kV lines. A bundle of two 2493kcmil ACAR conductors are used for 500kV lines.

Existing transmission lines are strung at maximum tensions of up to 25,000 lbs.

Conductor sag and tensions are calculated at a one-inch radial ice loading with an 8 pounds per square foot transverse wind load.

Transmission lines clearances are established in accordance with the National Electrical Safety Code.

Transmission lines typically use porcelain insulators and standard line hardware for suspension and dead end assemblies.

Underground high voltage transmission lines on the PECO system use high-pressure oil filled pipe type cable systems.

Newer PECO 230kV bus work is designed to withstand an 80,000amp fault.

Fault duties on the PECO 230kV system are in the 25,000 to 55,000amp range. Fault duties at specific locations are calculated as required.

Most of PECO's 500 and 230kV lines use dual pilot protection schemes.

Appendix VI – References

PECO Documents

The following documents are available from PECO's Website at www.peco.com. Select the following icons:

PECO Energy >>>Corporate Information >>> Rates and Tariffs

1. "PECO Energy's Electric Service Tariff"
2. "PECO Energy's Electric Generation Supplier Coordination Tariff
3. "Requirements for Parallel Operations with Generation not Exceeding 40 kW" ("Yellow Book").

The following documents are available from PECO's Website at www.peco.com. Select the following icons:

PECO Energy >>>Energy@Work >>> Other Business Services>>>Contractor and Builder Services>>> Electric and Gas Service Information Resources

4. "PECO Energy's Electric Service Requirements Manual" ("Blue Book")
5. "PECO Energy's Electric Service and Meter Request Form"

PJM Documents

The following PJM Documents referenced in this document are available from the PJM Website (www.pjm.com).

6. "New Generator Information Kit"
7. "PJM Open Access Tariff (Part 4) "
8. "PJM Manual for Generator interface and Operations (Manual M-14)"
9. "Document A-2 MAAC Protective Relaying Philosophy and Design Standards"

The following lists other standards and codes referenced in this document:

10. IEEE 519
11. National Electric Code
12. National Electric Safety Code
13. UL 1008
14. Pennsylvania Code, Title 52, Public Utilities

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Brian D. Crowe
Director
Regulatory &
Governmental Affairs

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brian.crowe@exeloncorp.com

PECO Energy Company
P.O. Box 8699
2301 Market Street
Philadelphia, PA 19101-8699

ORIGINAL

February 28, 2002

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North St.
Harrisburg, PA 17105-3265

RE: Compliance filing associated with the Commission Order at Docket Number A-110550F0147 concerning the employment and staffing levels at 2301 Market Street

Dear Mr. McNulty:

PECO Energy provides the following information concerning the Company's 2001 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the Merger Settlement approved at Docket Number A-110550F0147.

2001 year end employment level at 2301 Market St.: 1,412.

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D. Crowe

cc: David Kleppinger, Esq.
Counsel for City of Philadelphia

100

Brian D. Crowe
Director
Regulatory & Governmental Affairs

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ORIGINAL

BTL

February 21, 2003

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17105-3265

Re: Compliance filing associated with the Commission Order at Docket No. A-110550F0147 concerning the employment and staffing levels at 2301 Market Street

Dear Mr. McNulty:

PECO Energy provides the following information concerning the Company's 2002 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the Merger Settlement approved at Docket No. A-110550F0147.

2002 year end employment level at 2301 Market Street: 1,313

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D. Crowe

cc: David Kleppinger, Esquire
Counsel for City of Philadelphia

122

Brian D. Crowe
Director
Rates & Regulatory Affairs

PECO Energy Company
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ORIGINAL

RECEIVED

FEB 23 2004

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

DOCKETED

APR 14 2004

February 20, 2004

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17105-3265

Re: Compliance filing associated with the Commission Order at Docket No. A-110550F0147 concerning the employment and staffing levels at 2301 Market Street

DOCU.
FOLD...

Dear Mr. McNulty:

PECO Energy provides the following information concerning the Company's 2003 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the Merger Settlement approved at Docket No. A-110550F0147.

2003 year end employment level at 2301 Market Street: 1,286

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D. Crowe

cc: David Kleppinger, Esquire
Counsel for City of Philadelphia

120

Brian D. Crowe
Director
Rates & Regulatory Affairs

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ORIGINAL

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2004 MAR 10 PM 9:14
SECRETARY'S BUREAU

DOCUMENT FOLDER

March 5, 2004

James J. McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

A-110550F0147

RE: PUC Docket A-~~00110550F0147~~

Dear Mr. McNulty:

Enclosed are 2003 Customer Service statistics that we agreed to report as a result of the Merger Settlement.

If you have any questions concerning this information, please contact Mary McFall Hopper at 215-841-3544.

Sincerely,

Brian D. Crowe

Enclosure

49

Quality of Service Statistics
Reported In Compliance With Title 52, Chapter 54.153

Name of Company: PECO Energy Company
Statistics for January - December 2003

Measure	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	12 Mo. Avg.
% of calls answered within 30 seconds	82%	79%	80%	80%	83%	84%	82%	78%	84%	77%	80%	78%	**81%**
Average busyout rate	0.031%	0.011%	0.021%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.108%	0.122%	**0.022%**
Average call abandonment rate	3%	4%	4%	5%	4%	4%	5%	4%	4%	5%	4%	5%	**4%**
Monthly number of residential bills not rendered once every billing period	176	86	26	34	63	66	73	65	72	43	61	161	**77**
Monthly % of residential bills not rendered once every billing period	0.010%	0.005%	0.001%	0.002%	0.004%	0.004%	0.004%	0.004%	0.004%	0.002%	0.003%	0.009%	**0.004%**
Monthly number of bills to small business customers not rendered once every billing period	61	47	51	21	25	48	56	30	24	12	34	37	**37**
Monthly % of bills to small business customers not rendered once every billing period	0.037%	0.028%	0.030%	0.013%	0.015%	0.029%	0.034%	0.018%	0.014%	0.007%	0.020%	0.022%	**0.022%**
Number of residential meters not read as required by 56.12(4)(ii)	6,035	6,346	5,825	5,229	5,302	6,508	8,129	6,965	6,692	6,432	5,224	3,408	**6,008**
% of residential meters not read as required by 56.12(4)(ii)	0.286%	0.335%	0.291%	0.260%	0.264%	0.324%	0.404%	0.346%	0.332%	0.289%	0.288%	0.160%	**0.298%**
Number of residential meters not read as required by 56.12(4)(iii)	6,217	6,273	6,330	6,383	6,384	6,483	6,807	6,878	6,973	7,067	6,891	6,828	**6,626**
% of residential meters not read as required by 56.12(4)(iii)	0.295%	0.331%	0.316%	0.318%	0.318%	0.323%	0.338%	0.341%	0.346%	0.318%	0.380%	0.321%	**0.329%**
Number of residential meters not read as required by 56.12(5)(i)													
% of residential meters not read as required by 56.12(5)(i)													
# of residential customer disputes not issued a company report within 30 days of the initiation of the dispute	8	1	14	2	0	0	0	0	6	5	2	0	**3.2**
Gas Response Time to Safety Calls	99.9%	99.9%	100.0%	100.0%	100.0%	99.9%	100.0%	100.0%	100.0%	100.0%	99.9%	99.9%	100.0%
Worker/Employee Safety - OSHA Lost work Day Cases													0.51
Top % of comparible EEI companies													
2003 EEI Report - Top 10% = 1.12													
2003 EEI Report - Top 25% = 1.86													

Brian D. Crowe
Director
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PECO
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ORIGINAL

March 1, 2005

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Compliance Filing Associated With The Commission Order at Docket No. A-110550F0147 Concerning the Employment And Staffing Levels At 2301 Market Street

Dear Secretary McNulty:

PECO Energy provides the following information concerning the Company's 2004 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the Merger Settlement approved at Docket No. A-110550F0147.

2004 year end employment level at 2301 Market Street: 1,155

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D. Crowe

cc: David Kleppinger, Esquire
Counsel for City of Philadelphia

APA:amm

43

Brian D. Crowe
Director
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May 2, 2005

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Joint Petition for Settlement - Docket No. A-110550F0147 – Paragraph 23 - Reliability and Paragraph 27 – Evaluation of Compliance

Dear Secretary McNulty:

As detailed in the Joint Petition Merger Settlement Agreement, PECO Energy Company agreed to provide a report each year on its performance in achieving the targets for higher levels of service and analyzing its performance in the following identified areas:

- Customer Average Interruption Duration Index (CAIDI)
- System Average Interruption Frequency Index (SAIFI)
- Repeat Outages
- Five Worst Circuits
- System Average Interruption Duration Index (SAIDI)
- Momentary Average Interruption Frequency Index (MAIFI)

Reliability – CAIDI, SAIFI, SAIDI and MAIFI
Listed below are PECO Energy Company's reliability indices for 2004:

CAIDI	106
SAIFI	0.98
SAIDI	104
MAIFI	0.93

CAIDI, SAIFI and SAIDI performance satisfied the 10% higher service level set forth in the PECO Energy Company Merger Settlement Agreement. (Please note that MAIFI is provided as a reporting requirement only.)

13

Repeat Outages and Five Worst Circuits

Under its worst performing 5% of circuits program PECO Energy Company addressed 111 circuits in 2004. The Five Worst Circuits were included in this group. The selection criteria for these circuits included repeat outages. In 2004 remediation was completed on all 111 worst performing circuits. PECO Energy Company is continuing the program in 2005 and continues to report its progress to the Pennsylvania Public Utility Commission on a quarterly and annual basis.

Storm Management

The Company agreed to provide individual storm reports for excludable storms. The Company experienced no excludable storms for 2004 therefore no reports were provided.

Additionally, enclosed is the Quality of Service Statistics reported in compliance with Title 52, Chapter 54.153 indicating that we fulfilled the customer service performance commitment.

Please acknowledge receipt of the foregoing on the enclosed extra copy of this letter.

Sincerely,

Brian D Crowley

enclosure

cc: Office of Consumer Advocate
Office of Trial Staff
Office of Small Business Advocate
City of Philadelphia

WJP:amm

Quality of Service Statistics
Reported in Compliance With Title 52, Chapter 54.153

Name of Company: PECO Energy Company
Statistics for January - December 2004

	Measure	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	12 Mo. Avg.
	% of calls answered within 30 seconds	76.3%	66.1%	68.5%	72.2%	81.3%	76.1%	70.6%	66.0%	63.0%	77.5%	76.5%	85.3%	**73.2%**
	Average busyout rate	0.0%	0.1%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	2.3%	0.4%	0.1%	0.0%	**0.3%**
	Average call abandonment rate	4.4%	11.4%	10.9%	7.5%	4.8%	6.9%	8.6%	15.3%	18.2%	7.4%	5.8%	3.9%	**9.1%**
	Monthly number of residential bills not rendered once every *billing period*	211	27	26	24	0	1	9	1	20	0	0	15	**28**
	Monthly % of residential bills not rendered once every billing period	0.0117%	0.0015%	0.0014%	0.0013%	0.0000%	0.0001%	0.0005%	0.0001%	0.0011%	0.0000%	0.0000%	0.0008%	**0.002%**
	Monthly number of bills to small business customers not rendered once every billing period	27	3	7	8	0	0	0	1	1	1	1	0	**4**
	Monthly % of bills to small business customers not rendered once every billing period	0.0200%	0.0022%	0.0052%	0.0059%	0.0000%	0.0000%	0.0000%	0.0007%	0.0007%	0.0007%	0.0007%	0.0000%	**0.003%**
ELECTRIC	Number of residential meters not read as required by 56.12(4)(ii)	1513	1076	846	731	741	903	795	738	619	621	598	554	**811**
ELECTRIC	% of residential meters not read as required by 56.12(4)(ii)	0.097%	0.069%	0.054%	0.047%	0.047%	0.058%	0.051%	0.047%	0.039%	0.040%	0.038%	0.035%	**0.052%**
ELECTRIC	Number of residential meters not read as required by 56.12(4)(iii)	4985	4124	3677	3122	2550	3342	3008	2688	2,385	2,069	1,727	1,557	**2,936**
ELECTRIC	% of residential meters not read as required by 56.12(4)(iii)	0.319%	0.264%	0.235%	0.199%	0.163%	0.213%	0.192%	0.171%	0.152%	0.132%	0.110%	0.099%	**0.187%**
GAS	Number of residential meters not read as required by 56.12(4)(ii)	919	539	359	279	284	334	459	455	402	409	353	348	**428**
GAS	% of residential meters not read as required by 56.12(4)(ii)	0.215%	0.126%	0.084%	0.065%	0.066%	0.078%	0.107%	0.106%	0.093%	0.095%	0.081%	0.080%	**0.100%**
GAS	Number of residential meters not read as required by 56.12(4)(iii)	1179	911	831	769	724	805	746	727	694	667	451	341	**737**
GAS	% of residential meters not read as required by 56.12(4)(iii)	0.276%	0.213%	0.192%	0.179%	0.169%	0.187%	0.173%	0.169%	0.161%	0.145%	0.104%	0.079%	**0.171%**
	# of residential customer disputes not issued a company report within 30 days of the initiation of the dispute	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Submitted by: Bernadette O. Foisy
Telephone #: 215-841-4835

Brian D. Crowe
Director
Rates & Regulatory Affairs

PECO Energy Company
2301 Market Street
Philadelphia, PA 19103

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PECO
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ORIGINAL

September 8, 2005

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Joint Petition for Settlement – Docket No. A-110550F0147 – Paragraph 23 – Reliability and Paragraph 27 – Evaluation of Compliance

Dear Secretary McNulty:

As detailed in the PECO/Unicom Joint Merger Settlement Agreement of March 24, 2000 and approved by the Commission on June 22, 2000, PECO Energy agreed to provide a report each year on its performance in achieving the targets for higher levels of service. The following data is now available as an update to my May 2, 2005 letter (copy attached), regarding evaluation of PECO Energy's compliance with the Settlement referenced above.

Workers/Employee Safety
PECO Energy's OSHA Lost Workday Case rate for 2004 was 1.03, which places PECO Energy in the top decile (10%) for EEI comparable utilities, therefore achieving its commitment per the Settlement Agreement.

Gas Response Time to Safety Calls
PECO responded to 99.93% of all gas emergency calls received in 2004 within one hour, therefore exceeding its commitment of 99% per the Settlement Agreement.

Please acknowledge receipt of the foregoing on the enclosed extra copy of this letter.

Sincerely,

Brian D. Crowe

Attachment

cc: Office of Consumer Advocate
Office of Trial Staff
Office of Small Business Advocate
City of Philadelphia

Brian D. Crowe
Director
Rates & Regulatory Affairs

PECO Energy Company
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ORIGINAL

March 1, 2006

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Compliance Filing Associated With The Commission Order at Docket No. A-110550F0147 Concerning the Employment And Staffing Levels At 2301 Market Street

Dear Secretary McNulty:

PECO Energy provides the following information concerning the Company's 2005 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the PECO/Unicom Merger Settlement approved at Docket No. A-110550F0147.

2005 year end employment level at 2301 Market Street: 1,131

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D Crowe

cc: David Kleppinger, Esquire
Counsel for City of Philadelphia

/mpb

59

Brian D. Crowe
Director
Rates & Regulatory Affairs

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ORIGINAL

DOCUMENT FOLDER

RECEIVED

MAR 29 2006

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

March 29, 2006

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Joint Petition for Settlement - Docket No. A-110550F0147 – Paragraph 23 - Reliability and Paragraph 27 – Evaluation of Compliance

Dear Secretary McNulty:

As detailed in the above referenced PECO/Unicom Merger Settlement Agreement, PECO Energy Company agreed to provide a report each year on its performance in achieving the targets for higher levels of service for certain reliability and customer service metrics. Reliability metrics include Customer Average Interruption Duration Index (CAIDI), System Average Interruption Frequency Index (SAIFI), Repeat Outages, Five Worst Circuits, System Average Interruption Duration Index (SAIDI) and Momentary Average Interruption Frequency Index (MAIFI). Customer service metrics include various call center, meter reading and billing metrics. Additionally, operational performance metrics for safety and response to gas emergencies are also included in the report.

Please note that this will serve as the final report relating to the above referenced PECO/Unicom merger settlement as the reporting requirements expired December 31, 2005. The Commission will continue to receive much of the information contained in this report from reliability reporting requirements under 52 Pa. Code Chapter 57 and Quality of Service Statistics under 52 Pa. Code Chapter 54.

Reliability – CAIDI, SAIFI, SAIDI and MAIFI
Listed below are PECO Energy Company's reliability indices for 2005:

CAIDI	99
SAIFI	1.02
SAIDI	100
MAIFI	0.87

80

CAIDI, SAIFI and SAIDI performance satisfied the 10% higher service level set forth in the Merger Settlement Agreement. (Please note that MAIFI is provided as a reporting requirement only.)

Repeat Outages & "Five Worst Circuits"
Under its worst performing 5% of circuits program, PECO Energy Company addressed 112 circuits in 2005. The Five Worst Circuits were included in this group. Repeat outages were mitigated under this program. In 2005 remediation was completed on all 112 worst performing circuits. In addition, PECO Energy proactively made improvements where distribution system isolation devices were found to operate repeatedly. PECO Energy Company is continuing these programs in 2006 and continues to report progress to the Pennsylvania Public Utility Commission on a quarterly and annual basis per 52 Pa. Code Chapter 57.

Storm Management
The Company agreed to provide individual storm reports for excludable storms. The Company experienced no excludable storms for 2005 therefore no reports were provided.

Workers/Employee Safety
PECO Energy's OSHA Lost Workday Case rate for 2005 was 0.49, which places PECO Energy in the top decile (10%) for EEI comparable utilities, therefore achieving its commitment per the Settlement Agreement.

Gas Response Time to Safety Calls
PECO Energy responded to 99.9% of all gas emergency calls received in 2005 within one hour, therefore exceeding its commitment of 99% per the Settlement Agreement.

Additionally, enclosed is a table containing the Quality of Service Statistics reported in compliance with 52 Pa. Code Chapter §54.153 indicating that we fulfilled the customer service performance commitment.

Please acknowledge receipt of the foregoing on the enclosed extra copy of this letter.

Sincerely,

Enclosure

cc: Office of Consumer Advocate
Office of Trial Staff
Office of Small Business Advocate
City of Philadelphia

WJP:amm

TELEPHONE DATA	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	12 Mo. Avg/Vol Total.
% of calls answered within 30 seconds	80.39%	77.50%	76.03%	79.44%	72.98%	75.5%	81.54%	73.06%	74.31%	75.00%	70.14%	83.19%	76.32%
Average busy out rate	0.23%	0.18%	0.07%	0.07%	0.11%	0.0%	0.00%	0.07%	0.03%	0.07%	0.19%	0.01%	0.06%
Average call abandonment rate	5.00%	5.83%	8.55%	4.73%	7.08%	6.9%	4.32%	4.90%	4.92%	4.30%	6.42%	3.17%	5.54%
Monthly number of residential bills not rendered once every billing period	182	16	-	5	-	4	2	7	28	1	0	3	21
Monthly % of residential bills not rendered once every billing period	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.00%
Monthly number of bills to small business customers not rendered once every billing period	6	2	4	1	1	-	-	1	12	1	1	0	2
Monthly % of bills to small business customers not rendered once every billing period	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.0%	0.0%	0.00%
# of residential customer disputes not issued a company report within 30 days	5	0	2	3	2	0	0	6	3	2	1	0	2

Brian D. Crowe
Director
Rates & Regulatory Affairs

PECO Energy Company
2301 Market Street
Philadelphia, PA 19103

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

March 1, 2007

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Compliance Filing Associated With The Commission Order at Docket No. A-110550F0147 Concerning the Employment And Staffing Levels At 2301 Market Street

Dear Secretary McNulty:

PECO provides the following information concerning the Company's 2006 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the PECO/Unicom Merger Settlement approved at Docket No. A-110550F0147.

2006 year end employment level at 2301 Market Street: 1,115

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

cc: Kent Miller, Executive Director
Municipal Energy Ofc.

/mpb

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Brian D. Crowe
Director Retail Rates

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Philadelphia, PA 19103

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PECO
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February 29, 2008

Mr. James McNulty, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Compliance Filing Associated With The Commission Order at Docket No. A-110550F0147 Concerning the Employment And Staffing Levels At 2301 Market Street

Dear Secretary McNulty:

PECO provides the following information concerning the Company's 2007 employment and staffing levels per its commitment to the City of Philadelphia pursuant to Paragraph 65 and Appendix G of the PECO/Unicom Merger Settlement approved at Docket No. A-110550F0147.

2007 year end employment level at 2301 Market Street: 1,120

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. A business reply envelope is enclosed for your convenience.

Sincerely,

Brian D. Crowe

cc: Kent Miller, Executive Director
Municipal Energy Ofc.

BN-5660