OTTAWA RIVER

POWER CORPORATION

"CONDITIONS OF SERVICE"
2007

283 Pembroke Street West
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APPENDIX A – CONDITIONS OF SERVICE

CONDITIONS OF SERVICE

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***Note**:*

It is the responsibility of the customer to ensure that he/she has secured the most current 'Conditions of Service'. For confirmation, please contact your local utility office.

Pembroke, Beachburg and Killaloe – 613.732.3687
Mississippi Mills (Almonte) – 613.256.3722

OTTAWA RIVER POWER CORPORATION
HEAD OFFICE – 283 PEMBROKE STREET WEST
P.O. BOX 1086
PEMBROKE, ON K8A 6Y6

CONDITIONS OF SERVICE

SECTION 1 - INTRODUCTION

1.1 IDENTIFICATION OF DISTRIBUTOR AND SERVICE AREA

Ottawa River Power Corporation services the City of Pembroke, the Town of Mississippi Mills (Almonte Ward), the former Village of Beachburg (which is part of Whitewater Region) and the Village of Killaloe, within the Township of Killaloe, Hagarty and Richards. Prior to amalgamation, these utilities were serviced by their respective hydro companies (not necessarily municipal boundaries), Pembroke Hydro, Almonte Hydro, Killaloe Hydro and Beachburg Hydro.

1.2 RELATED CODES AND GOVERNING LAWS

Ottawa River Power Corporation is regulated by the laws of Ontario and Canada, including the Ontario Electrical Code, Construction and Industrial Safety Codes, Employment Standards Act, the Affiliate Relationship Code, Freedom of Information and Privacy Act, Distribution System Code, Standard Supply Service Code, Retail Settlement Code, Electricity Retailer Code of Conduct, Transmission Code and all subsequent OEB regulations pertaining to the codes and legislation.

1. *Ontario Energy Board Act, 1998*
2. *Electricity Act, 1998*
3. Distribution Licence ED-1999-0052
4. *Environmental Protection Act*

In the event of a conflict between this document and the Distribution License or regulatory codes issued by the OEB, or the *Electricity Act, 1998,* then the provisions of the Act, the Distribution License and associated regulatory Codes shall prevail.

1.3 INTERPRETATION

- OEB refers to the Ontario Energy Board
- ORPC refers to Ottawa River Power Corporation
- Words referring to the singular include the plural and vice versa
- Words referring to a gender include any gender
- The word person includes a firm, a body corporate, an unincorporated association or an authority
- A reference to a person includes a reference to the person's executors, administrators, successors, substitutes (including, but not limited to, persons taking by novation) and assigns

1.4 AMENDMENTS AND CHANGES

Ottawa River Power Corporation reserves the right to review, update, alter and amend these Conditions of Service as may be required from time to time to maintain a high level of safety and efficiency in the Corporation.

Any changes that are made to this document will be published on the Web site. ORPC may publish a notice in local print media or in billing stuffers.

The customer is responsible for contacting ORPC to ensure that they have the current version of the Conditions of Service. One copy per revision of the Conditions of Service will be provided to each person that requires it. ORPC may charge a reasonable fee for providing additional copies of this document.

1.5 CONTACT INFORMATION

Ottawa River Power Corporation (Head Office)
283 Pembroke Street West
P.O. Box 1087
Pembroke, ON K8A 6Y6

Telephone: (613) 732-3687
Fax: (613) 732-9838
Emergency: (613) 735-0014

Office Hours: 8:30 a.m. to 4:30 p.m. (Winter hours, October to May)
8:00 a.m. to 4:00 p.m. (Summer hours, May to October)

Ottawa River Power Corporation (Mississippi Mills Office)
28 Mill Street
P.O. Box 179
Almonte, ON K0A 1A0

Telephone: (613) 256-3722
Fax: (613) 256-3994
Emergency: (613) 256-3191

Office Hours: 8:30 a.m. to 4:30 p.m. (Winter hours, October to May)
8:00 a.m. to 4:00 p.m. (Summer hours, May to October)

1.6 CUSTOMER RIGHTS

Customers have the right to expect connection and service promptly and efficiently at all times.

The customer has the right to have the electric service disconnected, for the purpose of maintenance of the service, through a written request with sufficient notice, stating both the date and time the service is to be disconnected.

The customer will be provided with one free disconnect/reconnect for "maintenance" on the existing service for each property (one service per property) each year (rolling year) without charge during regular business hours. A charge will otherwise apply (see Appendix A).

ORPC shall only be liable to a Customer and a Customer shall only be liable to ORPC for any damages that arise directly out of the willful misconduct or negligence:

a) of ORPC in providing Distribution Services to the Customer;
b) of the Customer in being connected to its Distribution System; or
c) of ORPC or the Customer in meeting their respective obligations or exercising their respective rights under these Conditions of Service, their Licences and any other applicable laws.

Notwithstanding the above, neither ORPC nor the Customer shall be liable under any circumstances whatsoever for any loss of profits or revenues, business interruption losses, loss of contract or loss of goodwill, or for any indirect, consequential, incidental or special damages, including but not limited to punitive or exemplary damages, whether any of the said liability, loss or damages arise in contract, tort or otherwise.

The Customer shall indemnify and hold harmless ORPC, its directors, officers, employees and authorized agents from any claims made by any third parties related to the construction, installation, or connection of a Generation Facility by or on behalf of the Customer.

1.7 DISTRIBUTOR RIGHTS

ORPC has the right to enforce this Conditions of Service Agreement.

1.7.1 ORPC's Automatic Reclosing Facilities

In order to safeguard and protect the Distribution System, ORPC installs facilities for automatic reclosing of circuit breakers, reclosing facilities and from time to time may change the reclosing time of any such reclosing facilities. The Customer shall be responsible for providing at this own expense:

a) adequate protective equipment for any electrical apparatus which might be adversely affected by Reclosing Facilities; and
b) such equipment as may be required for the proper reconnection of any apparatus or equipment of the Customer, without adversely affecting the proper functioning of the Reclosing Facilities.

1.7.2 Force Majeure

Other than for any amounts due and payable by the Customer to ORPC or by ORPC to the Customer, neither ORPC nor the Customer shall be held to have committed an event of default in respect of any obligation under these Conditions of Service if prevented from performing that obligation, in whole or in part, because of a Force Majeure Event.

If a Force Majeure Event prevents either party from performing any of its obligations under these Conditions of Service, that party shall:

a) other than Force Majeure Events related to acts of God, promptly notify the other party of the Force Majeure Event and its assessment in good faith of the effect that the event will have on its ability to perform any of its obligations. If the immediate notice is not in writing, it shall be confirmed in writing as soon as reasonably practical;
b) not be entitled to suspend performance of any of its obligations under these Conditions of Service to any greater extent or for any longer time than the Force Majeure Event requires it to do;
c) use its best efforts to mitigate the effects of the Force Majeure Event, remedy its inability to perform, and resume full performance of its obligations;
d) keep the other party continually informed of its efforts; and
e) other than for Force Majeure Events related to acts of God, provide written notice to the other party when it resumes performance of any obligations affected by the Force Majeure Event;
f) if the Force Majeure Event is a strike or a lock out of ORPC's employees or authorized agents, ORPC shall be entitled to discharge its obligations to notify its Customers in writing by means of placing an ad in the local newspaper.

1.8 DISPUTES

Any dispute between the customer and/or retailer and the distributor shall be settled according the Dispute Resolution Process specified in Section 27 of the Distribution License.

1.8.1 Customers or Consumers

The customer or consumer shall submit their disputes to ORPC in writing via fax, email, or mail.

Each inquiry shall be date stamped and recorded.

ORPC shall investigate the cause of the complaint and attempt in good faith to resolve the dispute within 10 business days of receipt.

SECTION 2 – DISTRIBUTION ACTIVITIES (GENERAL)

2.1 CONNECTIONS

Under the terms of the Distribution System Code, ORPC has the obligation to connect or make an "Offer to Connect", any customer that lies within the service area. The customer (or representative) shall consult with ORPC in regard to the availability and type of supply that is available at the customer's location. Details of the size of load, site layout, timing, etc. may be required to allow ORPC to assess the provision of service.

ORPC requirements are separate and in addition to those of the ESA (Electrical Safety Authority.

ORPC shall make every reasonable effort to provide connection information in a timely manner to meet the customer's requirements, assuming complete and final information from the customer and the availability and delivery times of material.

This section is applicable to all customer classes of ORPC. Items that are applicable to a specific customer class are covered in Section 3 (Customer Specific).

2.1.1 Building that Lies Along

The Distribution System Code requires that ORPC connect a building that "lies along" its distribution line provided the building can be connected without an extension or expansion and the service meets the requirement of this Condition of Service. In cases of insufficient capacity, ORPC will provide alternate supply options to the customer.

The final supply point will be the decision of ORPC.

2.1.1.1 Overhead Single-Phase Services on Existing Streets with Plant

ORPC will provide a "basic connection" at no charge to a residential customer or business.

The "Basic Connection" is defined as supply and installation of up to 30 m of overhead triplex, transformation and metering for up to a 200 amp, 120/240 volt service. Any additional costs related to providing service (additional wire, easements, etc) will be invoiced to the customer (contractor).

The meter base is to be outside at a location approved by ORPC.

The demarcation point between ORPC plant and customer plant will be at the top of the service mast.

2.1.1.2 Underground Customer – Single Phase on Existing Streets with Plant

The customer will be pay the additional cost beyond that of a Basic Connection for an underground service (usually a minimal cost for the underground conductor as well as the customer is responsible for acquiring all municipal permits and providing all civil work excavation (as per ORPC layout and civil specification), supplying and installing 3" (75mm) Type II PVC duct. Trench to be a minimum of 30" (75cm) in depth.

All services are to be installed 2' (60cm) off the lot line with perpendicular runs to the customer meter. (See Appendix I for details).
Residential customer meters shall be located outdoors as follows:

a) Service locations are to be on the driveway side of the premises and must be located two meters from the front of the premises.
b) All service locations are to be approved by ORPC prior to contractor performing any work. Locations should be requested one week in advance of work. ORPC shall designate the supply point.

2.1.1.3 Transformation

Utility will supply overhead transformation on the street at no charge to the customer for 120/240 volt supply as part of the basic connection.
In the event that the customer requires a pad mount single phase transformer specifically, the installation shall be completed at customer cost. Transformer cost adjustment to be provided, based on the difference between equivalent pole mount transformer and padmount. The customer is responsible for all civil work, ducts, pad and ground rods in accordance with ORPC specifications. ORPC shall provide a written offer to supply services complete with terms and price.

2.1.1.4 Three-Phase Services

The customer will be responsible for the cost of three phase services (primary and secondary). ORPC will provide an allowance for the transformation (using standard sizes and voltages) based on an economic evaluation per Appendix B.

The customer may have an option of carrying out the construction and/or owning the plant depending on its proximity to the ORPC system. The customer is responsible for contacting our service or lines department to discuss options. ORPC will supply specifications and minimum requirements for all installations if the customer chooses to carry out part or all of the installation

No PCB transformers are used by ORPC or will be permitted on the system.

Normally the demarcation point for ownership will be the secondary lugs of the transformer for underground installations and the connection to the bus or transformer lugs in the case of overhead installations.

2.1.1.5 Operating Control

Ottawa River Power Corporation shall be the operating control authority over all primary supply, regardless of ownership with the exception, where the customer elects to own their own primary system and a ESA approved disconnect switch is installed to separate the owners system from the ORPC supply.

2.1.1.6 Transfer of Alternate Bid Work

Where the customer chooses to install the system under terms of the alternate bid the customer may transfer by written agreement primary ownership to ORPC, when installed by or in accordance with ORPC requirements, in lieu of future maintenance.

2.1.1.7 Pad Mount Transformer Installation

All civil work, ducts, ground rods, pads to be installed by the customer at customer cost to ORPC and ESA specifications. The customer will continue to own and be responsible for civil works installed on their property. The utility reserves the right to install all primary and complete connections at a utility cost determined by the EDA formula (Appendix B).

In accordance with the Electrical Distribution Code and OEB regulations, the customer may own and supply their transformation, if desired. In this event, all future maintenance remains the responsibility of the owner.

2.1.1.10 Transformation

ORPC will supply and own transformers sizes as follows:
4160/2400 Volts: Up to 500 KVA 12,400/7200 Volts: Up to 1000 KVA

Loads in excess of the above will require that the customer supply their own 44 KV transformer and station.

2.1.1.11 Maintenance of Customer Installed Equipment

Maintenance (including wires) installed by others that is not installed by ORPC or installed in accordance with ORPC specifications staff shall be the responsibility of the customer or developer.

Electrical systems owned by ORPC will be maintained and renewed as required.

2.1.1.12 Standard Charges for Miscellaneous Services

Primary Maintenance Shutdown Charges

A Primary Maintenance Shutdown shall be considered as the electrical isolation from ORPC's primary (high voltage) supply for the purpose of customers performing maintenance to their electrical apparatus. Typical primary customer owned enclosures and devices that ORPC would isolate are vaults, padmounted switching centres, unit substations and padmounted transformers.

Customers are allowed one free primary maintenance shutdown per year (rolling year). Free shutdowns must be executed (isolation and re-energization) during normal business hours.

If a customer requires that their one free maintenance shutdown per year (rolling year) be performed outside regular business hours, the customer shall pay the difference between the labour rate for normal working hours and overtime.
Any other customer requests for primary isolation from ORPC's distribution system will be dealt with on a case by case basis and an individualized cost estimate shall be provided.

To arrange for shut downs, contact ORPC at (613) 732-3687.

Deliberate Unauthorized Energy Usage Disconnection/Reconnection

As per Section 2.2 of ORPC's Conditions of Service, ORPC reserves the right to disconnect the supply of electricity to a customer for causes not limited to energy diversion, fraud or abuse on the part of the customer.

The customer shall pay the cost for disconnection and reconnection initiated by deliberate unauthorized energy usage of $2,935.95 (includes GST).

The customer shall also pay for all unauthorized energy usage (with late payment interest as per Section 2.4.5.2 of the Conditions of Service) calculated by ORPC and any costs to repair ORPC damaged distribution equipment.

Re-inspection by ESA shall be completed and ORPC will receive full payment before reconnection of service.

2.1.2 Expansions/Offer to Connect

The DSC requires that a Distributor make an Offer to Connect any building that does not "lies along" an existing distribution plant that has the capacity to serve the proposed load without an expansion or enhancement of ORPC facilities.

ORPC agrees to offer to connect any customer under the following conditions:

- Provided there is a customer deposit for service
- Premises and facilities have been approved by Ontario Electrical Safety Authority (ESA)
- Has met connection standards and specifications of ORPC
- Has no outstanding account payable with ORPC
- Is located in ORPC service area
- Has met all financial and legal requirements (easements, etc.) of ORPC

ORPC is required by the Distribution System Code to allow customers to seek an alternative bid, by ORPC pre-qualified contractors. This applies for construction of new distribution facilities if any capital contribution is required and the construction does not involve existing circuits. In the offer to connect, ORPC will detail the scope of the work, what portion is subject to alternative bid and the requirements if a customer proceeds with an alternate bid to undertake the work related to the expansion. ORPC will continue to be responsible, upon formal acceptance, for the maintenance and reliability of the system and as such will carry out planning, preliminary design and verification that the installed system meets ORPC standards.

The customer is required to pay the cost of system expansion or reinforcement that is required to supply their loads. A credit will be allowed which will offset the cost in whole or in part based on an economic evaluation (for details, see Appendix B). An economic evaluation, based on ORPC forecast of the customer's load, will determine whether the future net revenue of ORPC will pay for the capital and ongoing maintenance costs of the expansion project. The cost will include both the expansion of the system attributable

directly to the customer's project as well the cost for the general enhancement of the system to supply the ongoing load increases created by the development.

ORPC shall extend the system to provide for a standard, single-phase, secondary residential service within its service territory for development on opened road allowances. The associated primary voltage, upstream enhancement cost (see Appendix B) is part of the basic residential infill service (see Appendix G).

Secondary services greater than 200 A single-phase may not be available in all areas due to technical constraints.

2.1.3 Offer to Connect and Alternative Bid Work

ORPC will provide an Offer to Connect for any expansion required to connect a customer to the ORPC system at no cost upon receipt of full information from the customer or their delegate. If the customer changes their plans requiring an revised Offer to Connect there may be a charge. An offer to connect may not be provided if the expansion work for the connection does not require a capital contribution from the customer.

The Offer to Connect will include:

- Advice to the customer that they have the choice of obtaining an alternate bid from a contractor qualified by ORPC
- The firm or estimated cost for expansion work required for the connection and the allowance based on the NPV evaluation
- Capital contribution required from the customer and the assumptions and inputs used for the calculation
- That portion that is subject to alternative bid, a description and costs of the work, broken down by labour, material, equipment and overhead
- amount of additional costs due the alternative bid included but not limited to inspection and connection costs
- amount of deposit
- warrantee requirements

Upon a decision to accept the Offer to Connect or the option of Alterative Bid, ORPC and the customer will enter into an agreement to clarify the responsibilities of both parties related to the expansion.

2.1.4 Transfer Price for Alternative Bid Work

The transfer price will be the lower of the cost to the Customer to construct the expansion or the amount set out in the Offer to Connect less the additional costs.

2.1.5 Final Economic Evaluation

If the Offer to Connect is an estimated price, a final economic evaluation will be done upon completion of the project using actual costs and estimated loads. A true up will be done with the customer.

If the load projection used for the economic evaluation cannot be agreed upon, the final economic evaluation will be delayed for up to two years to allow for the load to be established.

2.1.6 Rebates of Expansion Costs

In the event that subsequent customers connect to facilities paid for under the terms of the expansion within five years of the signing of the agreement, ORPC will arrange for a rebate to earlier customers determined by the NPV of the combined projects.

In the case of expansions for the connection of embedded generators the cost for connection will be the PV of the capital costs for the expansion and the on-going maintenance cost. The projected revenue and avoided cost will be assumed to be zero unless otherwise directed by the OEB.

Expansions:

The customer shall request, in writing, what their requirements are stating (complete Appendix J).

- Name of project
- Location
- Nature of project (single family, multi-family, commercial or industrial)
- Number of units or anticipated load
- Duration of the completion of the project
- Any proposed phases
- Plot plans illustrating adjacent streets, boundaries, etc.
- Anticipated customer loads in kW.

ORPC, in turn, will make an offer to connect, based on information supplied by the customer. The offer to connect may be in one of two forms:

- A proposal for services (Appendix C)
- Subdivision or Development Agreement (Appendix H)

In either case, costs and responsibilities will be outlined.

2.1.7 Connection Denial

ORPC reserves the right to not make a connection if any of the following are not in order:

- Easements registered
- 100% complete payment
- All inspection complete, tested and acceptance granted
- No outstanding balance on the customer account
- Unsafe site condition
- Contravention of existing laws of Canada, the Province of Ontario, and municipal bylaws including the Electrical Safety Code
- Violations of the conditions in ORPC's licenses
- Adverse effect on the reliability and safety of the distribution system as determined by ORPC
- A detrimental impact on public safety, as determined by ORPC
- Adverse effect on the quality of distribution services received by an existing connection
- Violation of any conditions documented in the ORPC Conditions of Service document

- Electrical connection to our distribution system that does not meet ORPC's design requirements.

2.1.8 Inspections Before Connection

All customer electrical installations shall be inspected and approved by the Electrical Safety Authority and must also meet ORPC requirements.

For work done by others, ORPC requires that arrangements be made with ORPC to have all ducts checked prior to backfill and must have an ORPC inspector on hand during backfill. All ducts are to be swabbed to ensure they are 100% clear prior to cable installation. Inspection cost to be born by the customer or developer. All cables and terminations must be installed only in the presence of an ORPC inspector or completed by ORPC staff at customer cost. Hi-Pot tests results to be provided to ORPC, prior to connection.

ORPC will not connect a customer until the customer has obtained the approval of the Electrical Safety Authority for all customer owned electrical facilities.

For services that have been disconnected for a period of six months or more they must be re-inspected by the Electrical Safety Authority prior to reconnection.

2.1.9 Relocation of Plant

When requested to relocate ORPC plant an estimate and proposal of work shall be submitted to the requesting party. The requesting party shall agree and be responsible for 100% of the cost of relocation of the plant. ORPC agrees to try and accommodate and will exercise its rights and discharge its obligations in accordance with existing acts, by-laws and regulations include the *Public Service Works on Highways Act* (MTO&C clarification of October 1974) for road authorities, formal agreements, easements and law. In the absence of existing agreements, ORPC is not obligated to relocate the plant.

2.1.10 Easements

In the event that an easement is required from the customer or developer, this easement shall be granted at no cost to ORPC, including all legal and survey costs, by the customer or developer.

The customer shall grant, at no cost to ORPC, easements as required to permit installation, operation and maintenance of distribution plant. ORPC shall determine the width and extent of the easement. The easement shall be registered on title prior to energizing of the service, re-arrangement and/or relocation of distribution plant.

2.1.11 Contracts

Contracts between ORPC and the customer (developer) for proposed chargeable work shall be signed, complete with any deposits or monies that are payable, prior to the commencement of any work.

2.1.7.1 Contract for New or Upgraded Service

Upon completion of a signed Agreement, receipt of any applicable connection charges, and approval by the ESA, ORPC will connect the new or upgraded service (See attached Appendix C for sample agreement).

ORPC requires that all customers who require a MIST (interval) metering installation, sign a standard application and contract for electrical service (See attached Appendix D).

2.1.7.2 Implied Contract

In all cases, notwithstanding the absence of a formal contract, ORPC has an implied contract with any customer or consumer who is connected to ORPC's distribution system and receives distribution services or uses electrical energy. The terms of the implied contract are embedded in ORPC's Conditions of Service, the Rate Handbook, ORPC's rate schedules and the Distribution System Code.

The use of ORPC's distribution system by any person or persons constitutes acceptance of a binding contract with ORPC. The person so accepting shall be liable for payment for such electricity. The contract shall be binding upon the person's heirs, administrators, executors, successors or assigns.

2.1.7.3 Special Contracts

Special contracts that are customized in accordance with the service requested by the customer normally include, but are not necessarily limited to, the following examples:

- Construction sites
- Mobile facilities
- Operating and Maintenance
- Non-permanent structures
- Special occasions, seasonal connections, chip trucks, etc. (Appendix K)
- Generation

Connection Agreements

ORPC requires all Embedded Generators, Embedded Distributors, Subtransmission Customers, large load Standard Customers and Customers wishing to connect a Subdivision or Development to execute a Connection Agreement.

The Connection Agreement with an Embedded Generator who is not a Market Participant will also contain the terms under which ORPC purchases power from that Embedded Generator.

Where an Embedded Generator, Embedded Distributor, Subtransmission Customer or large load Standard Customer has not executed a Connection Agreement with ORPC by the time that Section 26(1) of the Electricity Act is proclaimed, and the aforementioned customer's Customer Equipment is already connected to ORPC's Distribution System, provision of Distribution Services to such customer by ORPC shall imply acceptance of all

terms of the Connection Agreement by the customer until such time that ORPC and such customer execute a Connection Agreement.

2.1.12 Temporary Connections

Temporary connections identified as construction trailers, portable trailers, chip wagons, temporary buildings, etc. that are connected for less than two calendar years shall pay 100% of the cost of connection and disconnection, including any applicable transformer costs, in advance of connection.

2.2 DISCONNECTION

ORPC reserves the right to disconnect electrical service to the premises based on:

- Any safety or fire hazards;
- Non payment of accounts;
- Electrical disturbance propagation caused by customer equipment that is not corrected in a timely fashion;
- Energy Diversion, fraud or abuse on the part of the customer;
- When ORPC is denied access to electrical system and/or service (eg. transformers, switches, meters, etc);
- When ordered by law;
- When the requirements of ORPC's Conditions of Service are not satisfied;
- Failure to pay any connection costs due and payable;
- Non-payment of account security identified as a condition of service;
- A material adverse effect on the quality of Distribution Services received by an existing connection;
- Inability of ORPC to perform meter reading, planned inspections or maintenance;
- Failure of the Customer to comply with a directive of ORPC that ORPC makes for the purposes of meeting its License obligations;
- Failure of the Customer to enter into a Connection Agreement required by these Conditions of Service;
- In compliance with a court order;
- By order of the Electrical Safety Authority; or
- By order of the IESO.

ORPC may disconnect the supply of electricity to a customer without notice in accordance with a court order, or for emergency, safety or system reliability reasons.

2.2.1 Disconnection for Non-Payment of Overdue Accounts

Bills are normally due 16 days following the billing date. Collection actions may commence on the next business day following the due date if an outstanding balance remains. These actions would include one or all of the following: the issuance of a reminder notice, a telephone call to the customer or a collection call at the premises. If these actions do not elicit payment, a disconnect notice will be issued no sooner than 7 days following the due date.

If a satisfactory payment arrangement has not been made 7 days following the delivery of disconnect notice, the service may be disconnected.

A reconnection or service charge shall be applied for services disconnected for non-payment.

ORPC shall not be liable for any damage on the consumer's or customer's premises resulting from such discontinuance of service.

2.2.2 Reconnection

All costs associated with the disconnection, payment of account and reconnection shall be paid for by the Customer prior to reconnection of the service.

Under any of the following circumstances, ORPC requires that the Customer obtain the approval of the Electrical Safety Authority prior to ORPC reconnecting the service:

- Where ORPC has reason to believe that the wiring may have been damaged or altered;
- Where service was disconnected for modification of Customer wiring;
- Where service has been disconnected for a period of six months or longer;
- Where the service was disconnected as a result of an adverse effect on the reliability and safety of the Distribution System; or
- Where it is a requirement of the Ontario Electrical Safety Code.

2.2.3 Disconnection and Reconnection Related Charges

A collection charge shall apply in cases where it is necessary for ORPC to make a trip to the Customer's premises to collect payment for an overdue account, disconnect service, install a load limiter or reconnect service.

2.2.4 Unauthorized Energy Use

ORPC reserves the right to disconnect the Distribution of electricity to a Customer, without notice, for causes not limited to energy diversion, fraud or abuse on the part of the Customer. Such service shall not be reconnected until the Customer rectifies the condition and provides full payment to ORPC of all uncollected charges and costs incurred by ORPC arising from unauthorized energy use, including inspections and repair costs, and the cost of disconnection and reconnection.

2.3 CONVEYANCE OF ELECTRICITY

2.3.1 Limitations on the Guarantee of Supply

ORPC will endeavour to supply our customers with uninterrupted power with our Standard Voltage Offerings within our Voltage Guidelines (see Section 2.3.5).

ORPC does not guarantee a constant power supply or assurance that voltages and frequency will be unvaried. Furthermore, we will not be liable for damages to the customer's equipment by reason of any failure in respect thereof.

Neither ORPC nor the customer shall be liable under any circumstances whatsoever for any loss of profits or revenues, business interruption losses, loss of contract or loss of goodwill, or for any indirect, consequential, incidental or special damages, including but not limited

to punitive or exemplary damages, whether any of the said liability, loss or damages arise in contract, tort or otherwise.

ORPC will practice reasonable diligence in maintaining power levels but will not be responsible for any variations caused by external forces, such as operating contingencies, exceptionally high loads, or low voltage supply from the transmitter or distributor.

ORPC will not be held responsible for failure of any of its obligations as outlined in these Conditions of Service to supply power due to any events beyond the reasonable control of ORPC including, without limitation, severe weather, flood, fire, lightning, other forces of nature, acts of animals, epidemic, quarantine restriction, war, sabotage, act of a public enemy, earthquake, insurrection, riot, civil disturbance, strike, third party accident, restraint by court or public authority, or action or non-action by or inability to obtain authorization or approval from any governmental authority, or any combination of these causes ("Force Majeure").

Customers will be responsible for providing their own back-up or standby facilities, if normal supply limitations are not acceptable. Customers requiring a three-phase supply should install protective apparatus to avoid damage to their equipment, which may be caused by the interruption of one phase, or non-simultaneous switching of phases of ORPC's supply.

ORPC will occasionally be required to interrupt the power supply to customers, typically during emergency repairs, or while performing construction and maintenance duties. Power interruptions initiated by ORPC, shall be based on practical and cost effective considerations as well as the extent of inconvenience to customers. ORPC will aim to provide the customer with reasonable advance notice of planned power interruptions, except in cases of emergency.

ORPC shall have the right to access a property, in accordance with Section 40 of the *Electricity Act, 1998* and any successor acts thereto. ORPC may require a customer to provide us with emergency access to their premises in order to operate distribution equipment under ORPC's operating control.

Customers requiring a higher degree of security than that of normal supply are responsible to provide their own back-up or standby facilities and/or pay all associated incremental costs. Customers may require special protective equipment, which is subject to the approval of ORPC, at their premises to minimize the effect of momentary power interruptions.

2.3.2 Power Quality

2.3.2.1 Power Quality Investigations

ORPC or its agents will respond to all power quality concerns and verify the power supply at the service entrance. There is no fee for this initial service. If the cause of the concern is deemed to be ORPC's power supply, ORPC will proceed to rectify the problem at their expense. ORPC will use appropriate industry standards such as (IEC, IEEE, CAN3-C235-83) and good utility practice as guidelines while maintaining their power quality on their distribution system.

If the power quality problem is suspected to be on the customer's side, the customer will be responsible for rectification. The customer will be provided with the option to have ORPC pursue an investigation/rectification process, for a fee.

The customer will not be charged for the initial verification; however, customers will be charged for subsequent site visits when the problem is on the customer side.

2.3.2.2 Power Quality Customer Obligations

It is the responsibility of the customer to ensure that their electrical usage does not have an adverse affect on the distribution system. Customers with large non-linear loads must install proper corrective measures, such as filtering and/or grounding techniques. ORPC follows the industry standard, IEEE 519-1992. The harmonic voltage distortion limits are 3% on any individual frequency, and 5% on the total.

It is the responsibility of the customer to ensure that their motor's starting current shall not exceed their associated supply circuit limitations (see Appendix F). Reduced voltage starting may be required if satisfactory transformer fusing cannot be obtained due to excessive starting current or a relatively long starting cycle. It should be noted that objectionable voltage flicker on the customer's secondary system may be experienced if the motor(s) are supplied from a transformer bank which also supplies lighting or other sensitive equipment in the building.

Voltage	Phase	Manual Starting	Auto Starting
120	1	75	60
240	1	75	75
208	3	75	60

Three-phase customers shall ensure their load is balanced between the three phases within 15% of each phase, unless specific unbalancing is approved by ORPC.

With respect to older services with ground fault detection for 3-phase, 3 wire, delta services: ground fault detection, (phase indication lights) are required on the load side of the revenue metering for each individual service, and if more than one individual meter is required off a splitter trough, then ground fault detection (phase indication lights) are required on the load side of each revenue meter. In case of bulk metering, ground fault detection would be required on the load side of the bulk metering.

If ORPC determines that the customer's equipment is the source causing unacceptable power quality on ORPC's distribution system, the customer will be required to cease operation of the equipment until such time that the problem is rectified at the customer's cost. If the customer does not comply and remedy the situation within a reasonable time, ORPC may disconnect the supply of power.

Customers are obligated to assist ORPC with power quality investigations by providing the required equipment information, relevant data and necessary access for the installation of monitoring equipment.

2.3.3 Electrical Interruptions

ORPC will attempt to provide customers and consumers with reasonable notice of any planned power interruptions.

ORPC will endeavour to communicate outage information during unplanned and storm related outages. Depending on the outage duration and the number of customers affected, ORPC may issue a news release to advise the general public of the outage.

Notice may not be given when work is of an emergency nature involving the possibility of injury to persons or damage to property. Service interruptions without prior notice may take place if an unsafe or hazardous condition is found to exist at a customer's premise.

Consumers who require an uninterrupted source of power for life support equipment must provide their own equipment for these purposes. Consumers using a life support system are encouraged to inform ORPC of their medical needs and their available backup power. These customers are responsible for ensuring that the information they provide ORPC is accurate and up-to-date.

2.3.3.1 Radio/TV Interference

Occasionally a customer's equipment may be affected by electrical noise interference generated by various sources, including power lines.

Should a customer contact ORPC about interference, ORPC will provide assistance pamphlets that instruct the customer on how to determine if the interference is the result of their own equipment. Should the customer follow the prescribed steps and still believe that the interference is due to the electricity distribution system, ORPC shall work with the customer to determine the cause. ORPC shall verify if the source of the interference is from utility owned equipment, and if so remove the noise interference source. If the problem is with the customer's equipment, a service charge may apply.

2.3.4 Standard Voltage Offerings

1) Depending on the type of distribution plant that the customer "lies along", the preferred secondary voltage may be:

   120/240V, single-phase, 120/208V, three-phase, 4 wire; or,
   347/600V, three-phase, 4 wire

2) The following primary services may be made available:

   4,160/2,400V Wye, 12,400/7,200 Wye; or,
   44,000V Wye

2.3.5 Voltage Guidelines

Standard operating conditions are:

CSA Standard CAN3-235-83 Table 3

Nominal System Voltages	Recommended Voltage Variation Limits for Circuits up to 1000 volts, at the Service Entrance			
	Extreme Operating Conditions	Normal Operating Conditions		Extreme Operating Conditions
Single Phase 120/240	106/212	110/220	125/250	127/254
240	212	220	250	254
480	424	440	500	508
600	530	550	625	635
Three Phase 4-Wire 120/208Y	110/190	112/194	125/216	127/220
240/416Y	220/380	224/388	250/432	254/440
277/480Y	245/424	254/440	288/500	293/508
346/600Y	306/530	318/550	360/625	367/635
Three Phase 3-Wire 240	212	220	250	254
480	424	440	500	508
600	530	550	625	635

Note: These voltage guidelines relate to long term steady state levels and do not include short term or transient disturbances.

2.3.6 Back-up Generators

Customers with portable or permanently connected Emergency generation capability shall comply with all the applicable criteria of the Ontario Electrical Safety Code and in particular, shall ensure that the Customer Emergency generation does not back feed (parallel) on the Distribution System.

Customers with permanently connected Emergency generation equipment shall notify ORPC regarding the presence of such equipment.

2.3.7 Metering

For Retail settlement and billing purposes, ORPC shall provide, install, own and maintain a Meter Installation for all Standard Customers or Embedded Distributor which does not elect to be a Wholesale Market Participant or is an Embedded Generator.

The type of metering will be based on the Standard Customer's Rate class, energy consumption and peak load. The security and accuracy of metering will be maintained under Regulations and standards established by Measurement Canada and ORPC.

Meter Base Requirement

Standard meter base for a 100 amp and 200 amp shall be a Cutler Hammer LM2-200 amp combination meter base or equivalent.

When a Customer's power factor is known to be less than 90%, a kVA meter, or other equivalent electronic meter shall be used for measuring and billing.

If deemed appropriate by ORPC, the Customer shall permit ORPC to connect a revenue meter through the Customer's phone line or a line provided by the customer for data transfer. ORPC will make reasonable effort to minimize the adverse impacts of the revenue meter connection on the Customer's use of the phone line.

Single Phase – Secondary Metered

Secondary Metered service, metering shall be based on estimated load. Standard Customers who are estimated to have an average monthly peak load under 50 kW shall be metered on kilowatt-hours ("kWh") only. Standard Customers estimated to have an average monthly peak load over 50 kW shall require that demand (kW) as well as energy kW-hr).

Three Phase – Secondary Metered

All Three Phase Standard Customers will be metered for energy usage in kWh and for peak monthly kW demand and/or monthly peak kVA depending on the peak load and power factor. An interval meter is a customer option with a customer interval meter contract.

Primary Metered

Where a Primary Metered Service is used, the Standard Customer shall own and maintain the entire Distribution System beyond the metering point, which will include poles, conductors and transformers, unless established prior to February 1, 2003.

Totalized Metering

When a Standard Customer requests totalizing in order to consolidate two or more services or points of delivery at separate locations on one property, the following condition shall apply:

Totalizing will be accomplished by either primary or secondary metering, through the use of Remote Interrogation Metering, or other similar units. The Standard Customer shall be required to pay the incremental costs of providing totalizing metering.

Central Metering

ORPC may, at its discretion, request that a Standard Customer with two or more buildings be metered by means of a central metering service. The Standard Customer shall be required to pay ORPC the following labour and material charges:

For existing service less than 45 kW the Standard Customer shall pay any incremental labour and material costs, including meters;

Metering Pulses

When Standard Customers request metering pulses or signals for load management purposes, two options exist:

a) the Standard Customer provides their own instrument transformers and signal control equipment in a separate cabinet on the load side of ORPC's metering;

or

b) ORPC will supply the pulses or signals on these terms:

1. the Standard Customer pays all costs to provide pulses and signals; and
2. the control for pulse or signal will be brought to an ORPC terminal block remote from the revenue metering. Consequently, the Standard Customer will not have access to ORPC's metering equipment.
3. the Standard Customer shall sign a contract as per Appendix J and D.

Multiple Residential Properties

Where the owner of an existing bulk metered Multiple Residential Property chooses to convert to individual metered dwelling units, the cost of conversion, including meters, will be the owner's responsibility.

For individually metered multi residential meters, the common facilities such as elevators, hall lights, exterior lighting, laundry equipment, central electric water heating, etc., shall be combined on a separate service and billed at the general rate with demand metering as appropriate.

New apartment building will require individual meters to allow for smart metering.

Location of Metering

As determined by the layout, the Ontario Electrical Safety Code, the Ontario Building Code and ORPC, the meter(s) will be located on the exterior of the building:

On the side of the building, not more than 3 metres from the front facing the street or roadway.

For metering installed on poles (other than existing installations), the pole will be owned and installed by the Standard Customer.

Current and Potential Transformer Cabinets

Standard customers are responsible for supplying, owning and maintaining meter cabinets as approved by ESA and ORPC.

The sizes of the cabinets are as follows:

DIMENSIONS OF CABINETS FOR INSTALLATION

OF INSTRUMENT TRANSFORMERS, METERS AND ASSOCIATED EQUIPMENT

PHASE	WIRE	SERVICE SIZE IN AMPERES		CABINET SIZES (Width X Height X Depth)	
		Over	Up	36″X36″X12″	48″X48″X12″
1	3	200	400	X	
1,2	3	400	800		X
3	4	200	400	X	
3	4	400	800		X
3	3	100	400	X	

Notes:

i. When a cable size exceeds main switch capacity, a larger cabinet size may be required.
ii. When more than two conductors per phase are used, a larger cabinet size may be required.
iii. When service capacity exceeds 900 amperes, the Supply Authority shall be consulted regarding cabinet size.
iv. Remote cabinet containing test switch and meter outside the building (instrument transformers inside) shall be 24″x24″ weatherproof and lockable.

2.3.7.1 General

ORPC shall, at all reasonable hours, have the right to inspect, read, repair, replace and remove any part of the metering installation and have free access to the premises for that purpose.

For shopping centers, apartment and condominium buildings, or other large General Service class services, meters may be placed in dedicated metering rooms provided that keyed access is provided to ORPC.

2.3.7.2 Interval Metering

Note: Standard three-phase meter installation will include (600 volt and below) three-phase C.T.'s, P.T.'s, conventional phase meters.

Conditions for Supplying Interval Metering

ORPC shall install a MIST Meter on any new installation that is forecast by ORPC to have an average monthly peak demand greater than 500 kW, at incremental costs. *

Existing Standard Customers who are below the 1000 kW threshold may request an Interval Meter, by submitting a written request. ORPC shall at its discretion determine whether this is a MIST Meter or MOST Meter. A Standard Customer who does not qualify for an Interval Meter, as noted above *, (shall pay ORPC for the difference between the incremental cost of a standard Meter Installation and the cost of the Interval Meter installation, including but not limited to the cost of equipment, labour and telecommunications).

Interval-Metering Data (effective as of Open Access)

While the meter data belongs to the Standard Customer, ORPC requires the information to settle the Standard Customer's electricity bill. ORPC will maintain the usage profile of all Standard Customers and shall make this information available to Standard Customers provided that the Standard Customer executes the Right of Access Agreement attached to these Conditions of Service in Appendix D.

The Standard Customer has the following three options to obtain Interval Meter data, for read only:

a) direct access – The Standard Customer can elect to access the MIST Meter data directly using Standard Customer purchased software. ORPC will provide the information required to access and use the meter data;
b) web access provided by ORES – when available, Standard Customers will have access to their own Interval Meter data on the Internet using their own account specific password for a fee;
c) information provided by ORPC – Standard Customer may request interval data to be forwarded by ORPC or its authorized agent, for a fee.

If a Standard Customer request real-time information from a MIST Meter, the Standard Customer shall be responsible for installing and maintaining a telecommunications line at its own expense.

2.3.7.3 Meter Reading

ORPC, or an authorized agent, shall, at all reasonable hours, have the right to read, inspect, repair, replace and remove any part of the metering installation and have free access to the premises for that purpose.

If unable to access the premises, ORPC shall attempt to arrange access to the premises at a time convenient for both ORPC and the Customer. At its discretion, ORPC may elect to have the meter read by the Customer, and the results provided to ORPC.

If the Customer does not accommodate ORPC's request for meter reading or access, the Customer shall be informed in writing of their obligation to contact ORPC and arrange appropriate access to the meters, or provide ORPC with the requested meter readings.

In order to ensure accurate billing and proper operation, ORPC needs to read and visually inspect the meter annually. In the event that ORPC cannot access the meter for this purpose after the Customer has been contacted several times, ORPC reserves the right to demand a relocation of the meter at the Customer's expense. If the situation is not rectified, ORPC may ultimately disconnect the Customer.

2.3.7.4 Final Meter Reading

When a service is no longer required, the consumer shall provide ORPC sufficient notice of the termination date so that a final meter reading can be obtained (minimum 5 working days). The customer shall provide access to ORPC or its agents for this purpose.

2.3.7.5 Faulty Registration of Meters or Billing Errors

Metering electricity usage for the purpose of billing is governed by the federal *Electricity and Gas Inspection Act* and associated regulations, under the jurisdiction of Measurement Canada, a division of Industry Canada. ORPC's revenue meters are required to comply with the accuracy specifications established by the regulations under the said Act. When a measurement dispute arises, the consumer and/or ORPC may request intervention by Measurement Canada.

In the event of incorrect electricity usage registration, ORPC will determine the correction factors based on the specific cause of the metering error and the consumer's electricity usage history. The consumer shall pay a reasonable sum for all of the energy supplied based, on the reading of any meter formerly or subsequently installed on the premises by ORPC. Due regard shall be given to any change in the character of the installation and/or the demand.

When a billing error has resulted in over billing and Measurement Canada is not involved, the consumer will be credited with the erroneously paid amount for a period not exceeding six years.

When a billing error has resulted in under billing and Measurement Canada is not involved, the consumer will normally be charged with the amount erroneously not billed for a period not exceeding:

1. two years, in the case of an individual residential consumer who was not responsible for the error, or the duration of the defect for any proven cases of willful damage or power diversion; or

2. the duration of the defect, for non-residential consumers.

In the case of under billing, the consumer, upon request, will be permitted to re-pay the amount over a period of time mutually agreed by both ORPC and the consumer but no longer then the duration of the error. In cases of over billing, ORPC will refund the amount owed to the consumer upon the completion of the investigation and over a period of time mutually agreed by both ORPC and the consumer but no longer then the duration of the error.

In cases in which Measurement Canada is involved, Measurement Canada will act as an arbitrator and shall determine the appropriate time period for adjustment.

Billing errors will be calculated using the actual rates in place at the time of the error.

2.3.7.6 Meter Dispute Testing

Metering inaccuracy is an extremely rare occurrence. Most billing inquires can be resolved between the consumer and ORPC without resorting to the meter dispute process. Initially, ORPC will review the account to look for possible meter reading or billing errors. To assist the consumer with energy management, written fact sheets and pamphlets can be sent to the consumer.

If the consumer remains unsatisfied, an initial site visit will be provided free of cost to determine if the meter and billing is accurate within acceptable limits. If the accuracy is acceptable and the consumer is still not satisfied, further investigation may be offered for a fee. This fee will include all labour costs. ORPC will also inform the consumer of the assistance provided by Measurement Canada in dispute resolutions. If initiated by the consumer, Measurement Canada will typically verify the accuracy of the meter and/or metering installation including billing multipliers and the application of approved rate structures. A dispute involvement charge will apply to the consumer if Measurement Canada dismisses the dispute. If ORPC initiates an investigation, dispute charges will not apply to the consumer.

2.4 Tariffs and Charges

2.4.1 Service Connections

The rates established for providing the Customer with a connection to the Distribution System and all services provided by ORPC are set out in the Schedule of Rates available from ORPC upon request. Notice of Rate revisions shall be published in major local newspapers. Information about changes will also be mailed to all Customers.

2.4.2 Energy Supply

Customers may purchase their supply of electricity under contract from an electricity retailer or from ORPC under the Regulated Price Plan (RPP) rate set by the OEB. ORPC will supply and deliver electricity to all connected customers according rates approved by the OEB.

2.4.3 Customer Deposits

When ever required by ORPC, including, but not limited to, as a condition of supplying or continuing to supply distribution service , customers shall provide and maintain security in an amount that ORPC deems necessary and reasonable.

Definition

An **existing customer** is a customer that has an existing contract on ORPC lines for a residence or a business and they are moving the location of the residence or business.

A **new customer** is a customer that is new to ORPC lines or, in the event of a business, it is a new business venture or an affiliate of an existing business.

Security Calculation

The security deposit for bi-monthly customers is 1.75 times the customer's **average** monthly load during the most recent 12 consecutive months within the past two years. If this is not available then the deposit shall be based on a reasonable estimate made by the distributor.

The security deposit for monthly customers is 2.5 times the customer's average monthly load during the most recent 12 consecutive months within the past two years. If this is not available then the deposit shall be based on a reasonable estimate made by the distributor.

Where a customer has a payment history which discloses more than one disconnection notice in a relevant 12 month period, the distributor may use that customer's **highest** actual or estimated monthly load for the most recent 12 consecutive months.

Types of Security Accepted

- Cash, cheque or Interac
- Irrevocable letter of credit from a chartered bank or trust company
- Performance bond

Payment of Deposit

A customer may provide the security deposit in equal installments over a maximum of four months.

Waiver and/or Returning of a Customer Security Deposit

The security deposit will be waived if the customer has a good payment history of 1 year in the case of a residential customer, 5 years in the case of a <50 KW and 7 years in the case of a customer who is >50 KW.

A Customer is deemed to have a good payment history unless, during the relevant time period as stated above, the customer has received more than one disconnection notice, more than one cheque or preauthorized payment has been returned for reason of insufficient funds, or a disconnect/collect trip has occurred, or

A security deposit will be waived if a customer provides a letter from another electricity or gas distributor in Canada confirming a good payment history for the most recent relevant time period as stated above, or

A security deposit will be waived if the customer provides a satisfactory credit check made at the customer's expense. The acceptable Equifax Credit score are 700 or greater for residential or 20 or less for commercial.

The security deposit shall be used to offset the customer's final bill upon closure of account. Any remaining funds shall be returned to the customers within 6 weeks.

In the case of a non residential customer where the customer has a credit rating from a recognized rating agency the maximum amount of the security deposit will be reduced in accordance with the following table:

Credit Rating (Standard and Poor's rating System)	Allowable Reduction in Security Deposit
AAA- and above or equivalent	100%
AA-, AA, AA+ or equivalent	95%
A- from A, A= to below AA or equivalent	85%
BBB-, from BBB, BBB+ to below A or equivalent	75%
Below BBB- or equivalent	0%

Interest on Deposits

Interest will accrue monthly on security deposits made by cash or cheque. The interest will be at the Prime Business Rate less 2% updated quarterly. This interest will be applied to the customers account as a credit at least once every 12 months or on return of the deposit or closure of the account.

Updating of the Security Deposit

The security deposit will be reviewed at least once every calendar year to determine whether the entire amount of the security deposit is to be returned to the customer (if that customer now has a good payment history) or whether the amount of the security deposit is to be adjusted based on a re-calculation.

A customer may, no earlier than 12 months after the payment of a security deposit, demand in writing that the security deposit be reviewed.

After determining that a deposit shall be refunded the distributor shall return this money to the customer by crediting the customer's account.

If after reviewing a security deposit it is determined that the deposit should be adjusted upward, the customer is required to pay this additional amount at the same time as that customer's next regular bill comes due.

Methods of Enforcement Where a Security Deposit is Not Paid

Disconnection will take place upon failure to pay the security deposit and/or any of the monthly arrangements. All services disconnected may be reconnected only after payment of the deposit has occurred as well as payment of the disconnection charge.

2.4.4 Billing

2.4.4.1 Prorating Bills and Service Charges

Service and demand charges will be prorated for first and final bills only. Charges are based on a straight ratio calculation of the number of days of occupancy by the customer to a standard 30 day month.

2.4.4.2 Estimating Bills

Reasonable attempts will be made to obtain a meter reading for all regular electricity bills. Bills will only be estimated when ORPC has been unsuccessful in obtaining a meter reading. If a bill is estimated, it will be based on the consumption history for the consumer, whenever possible.

Demand will only be estimated after current practices for retrieving a reading have been exhausted. When a demand reading cannot be obtained, the demand will be estimated by reviewing the demand history for consistency and selecting an appropriate demand reading to use. This does not apply to interval metering.

2.4.4.3 Account Set-Up Charge

With the exception of landlords, there is an account set-up charge.

2.4.4.4 Arrears Certificate

A charge is levied to provide a certificate of arrears per service address. This is typically provided to lawyers during a property purchase. Lawyers are requested to submit payment with their request. ORPC does not invoice for such accounts and requests are only honoured on receipt of payment.

2.4.4.5 Transformer Ownership Credit

A credit will be provided for all customers owning their own distribution transformer as approved by the Ontario Energy Board.

2.4.4.6 Power Factor Adjustment

A consumer will be billed for demand based on the measured kilowatts or 90% of the measured kilovolt-amperes, whichever is greater. This provides an adjustment for a consumer with a power factor that is less than 90% lagging.

2.4.5 Payments

2.4.5.1 Payment Plans

ORPC shall offer the following payment plans*:

Pre-Authorized Payment (PAP)*

A monthly, estimated amount shall be withdraw, automatically, from the customer's bank account on either the 1st or 15th of the month. Throughout the 12-month period, the estimated withdrawal amount may be adjusted upwards or downwards, as actual billings warrant. Customers shall be notified, in advance of any required adjustments.

The monthly payment plan shall be reconciled annually at which time any residual amounts owning to ORPC or the customer shall be paid, in full. Written notification of the outstanding balance shall be provided, in advance.

If monthly payments are not maintained, customers shall be automatically removed from the plan by the subsequent withdrawal date, if payment remains outstanding.

Upon request, customers may opt out of this plan at any time, at which point, standard billing and collection timelines shall apply.

Further terms and conditions are provided on the payment plan application, which must be authorized and returned with a void cheque.

* This plan is available to Residential and small Commercial customers (less than 50kW) on Standard Supply Service, only.

Pre-authorized Net (PAN)

A pre-authorized bank debit of the net billed amount shall be withdrawn from the customer's bank account on the due date of the bill, according to the billing cycle.

If payments are not maintained or remain outstanding, customers shall be automatically removed from the plan within thirty (30) days of the due date.

Upon request, customers may opt out of this plan, at any time.

This plan is available to all customers except those with retailer consolidated billing.

Further terms and conditions are provided on the payment plan application, which must be authorized and returned with a void cheque.

Customers who default on their payments shall be required to restore payment by the next month's withdrawal date, in addition to the monthly payment. If the customer cannot update their payments, the plan will be suspended until the balance is cleared. If a security deposit is not already applied to the customer account, a request will be initiated at that time.

2.4.5.2 Payments and Late Payment Charges

A late payment charge of 1.5% per month (19.56% annually) is applied to all accounts not paid by the due date. Bills are due and payable 16 days from the mailing date. This charge is levied on any bill, including final bills, without a minimum Account Receivable amount set. Where a partial payment has been made by the consumer on or before the due date, the late payment penalty will apply only to the outstanding amount of the bill at the due date, inclusive of arrears from previous billings.

2.4.5.3 Collections Charge

A collections charge will be applied when a collection is made at a consumer's premises. This charge is not applied if the collections trip is unsuccessful. Only one Collections Charge will be applied per month unless a partial payment has been made. A Collections Charge will not be applied if a Reconnection Charge is applied in the same month following a service disconnect for non-payment. *An unsuccessful trip is defined as an inability to make customer contact*.

2.4.5.4 Returned Payment Charge *(i.e. NSF cheques)*

A charge, approved by the OEB, is applied for each payment that cannot be processed.

2.4.5.5 Reconnection Charge

A reconnection charge is included in the miscellaneous rates section. (see Appendix A)

2.4.5.6 Credit Refunds

A refund for final accounts will be issued no sooner than 10 days after the final payment has been received, to allow sufficient time for clearing.

2.5 Customer Information

ORPC will communicate general market and educational information to customers connected to its distribution system as required.

Upon a customer's written authorization, ORPC will make the customer's information available to the customer, or third party, as stated in chapter 11 of the Retail Settlement Code.

2.6 Service Charges

In the event a customer is disconnected for non-payment, monthly service charges will continue to be applied to the bill, regardless of whether energy has been consumed or not. It is only a suspended supply of energy. Charges will continue to be applied until the account is paid or another customer assumes the account.

SECTION 3 CUSTOMER CLASS SPECIFIC

3.0 Common Installation, Maintenance and Ownership Conditions

3.0.1 The following are other ORPC documents which define conditions between ORPC and the customer.

- Residential Underground Distribution in Subdivisions (***Note***: some municipalities stipulate U/G)
- Customer-Owned Switch Gear
- Metering Specifications

For the latest in specifications, please contact our main office:

Ottawa River Power Corporation (Head Office)
283 Pembroke Street West
P.O. Box 1087
Pembroke, ON K8A 6Y6

Telephone: (613) 732-3687
Fax: (613) 732-9838

3.0.2 Padmount transformers on public property are located as stipulated by the municipality.

3.0.3 In no case shall a customer or contractor work in an active ORPC manhole or handhole. ORPC will have ducts stubbed out of its underground chamber so that the customer's ducts can be connected without entering the ORPC manholes or handholes.

3.0.4 Contractors shall not carry out work on/in ORPC support structures (eg. poles, manholes, handholes) without the approval of ORPC, and they shall notify ORPC of the time and date on which it is proposed to work on/in a ORPC support structure. In no case shall a contractor work on an ORPC pole above any live conductor or install an underground service on a pole or in a manhole/handhole where there is an ORPC cable. Moreover, Safe Limits of Approach as specified in the Occupational Health and Act and Regulations as well as the E&USA Rulebook shall apply.

3.0.5 For an underground service on an ORPC pole, the service head shall not be less than 1020 mm (40 in.) above telecommunication equipment. The service head will usually be required approximately 7.3 m (24 ft.) above ground, but in every case the contractor shall obtain instructions from ORPC before installing the cable on the pole. All underground services on poles, designated by ORPC, shall have a reinforced, poured concrete curb, fibreglass or steel guard for protection.

3.0.6 If any repair of the service conductor on the customer's property is required and ORPC is responsible for such repair, ORPC shall only re-instate with and, gravel, and/or soil. It shall be the customer's responsibility to repair/replace vegetation (eg. shrubs, trees, lawn, gardens . . .), hard surface, obstacles (eg. desks, fences, patios, sheds, pools, play structures . . .), foundations, and shallow utility service drops such as telephone or cablevision disrupted by the repair.

3.0.7 For underground services, the customer will be required to provide trenching and re-instatement in a location approved by and in accordance with ORPC requirements to accommodate service conductors. The service trench shall be inspected by ORPC prior to the backfilling or pouring of concrete.

3.0.8 The customer will provide unimpeded, safe, secure access to ORPC employees or its contractors at all times for the purpose of installing, removing, maintaining, operating or changing metering and distribution equipment. When access is impeded, ORPC shall not be held liable for damages to customer property incurred while obtaining safe access to metering or distribution equipment.

3.0.9 At all times (including construction), the civic address should be provided to ORPC and must be clearly visible from the public roadway.

3.0.10 On each ESA wiring permit and ORPC Service Agreement and Contract, the civic address must be clearly indicated before the service will be energized.

3.0.11 No electrical contractor or other person shall tamper with ORPC meters, its seals, or make connections or disconnections on ORPC secondary conductors or service loops. In cases where the work to be carried out necessitates disconnection of a service or removal of a meter, the contractor or electrician shall obtain a work permit from ESA and shall then notify ORPC. ORPC shall make arrangements for the disconnection or meter removal. The contractor or electrician who does not comply with these regulations shall be held responsible for damage or loss and may be subject to charges under the *Electricity and Gas Inspection Act.*

3.0.12 The service entrance equipment and metering provision shall be inspected and accepted by ORPC prior to energization.

3.0.13 Only standard ORPC approved conductors shall connect on/into ORPC owned support structures except for approved utilities that have a Joint Use Agreement with ORPC and a Municipal Access Agreement (if required).

3.0.14 Service locations requiring access to adjacent properties (mutual drives, narrow side set-backs, etc.) will require the completion, by the customer, of an easement or written consent from the property owner(s) involved.

3.0.15 Reference is made in this specification to 60 A, 100 A, etc. services. This refers to the rating of the service entrance switch and not to the size of the wire or fuses.

3.0.16 Although the Ontario Electrical Safety Code allows electrical conductors to be located at an adequate height, ORPC will not allow electrical conductors to be located above swimming pools. For new swimming pool installations, it will be necessary to relocate, at the property owner's expense, any electrical conductors directly over the proposed pool location. Where overhead service conductors are in place over an existing swimming pool, ORPC will provide up to 30 metres of overhead service conductors, at no charge, to allow rerouting of the service. The property owner will pay any other costs.

3.0.17 For overhead services, the customer shall supply and maintain in good order a solidly mounted service bracket and insulator(s), to ESA requirements, of sufficient height to maintain proper minimum clearance in accordance with the Electrical Safety Code between ORPC service conductors and finished grades. If required to obtain adequate height, this mounting may be in the form of a CSA approved 64 mm (2-1/2in.) minimum pipe mast or other approved support of equal strength.

3.0.18 If the overhead standpipe is on the side of the building, the service bracket and insulator(s) shall be located within 1830 mm (6 ft.) of the corner of the building nearest to the pole from which electricity will be supplied. Particular attention should be taken in establishing the correct standpipe location for buildings on corner lots.

3.0.19 The service should not be located where an accumulation of ice may form across the service wires and/or meter base. ORPC will not be responsible for removing such ice formation.

3.0.20 The maximum length of service from the supply pole to the service attachment shall be 33m. Over and above this, the customer may be required to provide an additional support and pay for the excess length of wiring.

3.0.21 ORPC shall not be held responsible for or accept work performed by others until 'as built' drawings and inspection certificates are supplied, required tests are performed and all work and material is in compliance with ORPC standards. In the interim, the contractor shall be responsible for and perform all maintenance. There shall be a standard legal agreement signed by the parties involved.

3.1 Residential

This section refers to the supply of electrical energy to residential customers residing in detached, semi-detached or townhouse dwelling units, as defined in the following sections. Residential services will be offered at 120/240V, 1 phase, 3 wire, 60 Hz only.

3.1.1 Point of Demarcation

For residential secondary overhead services, the line of ownership demarcation between ORPC and the customer is the connection at the standpipe or 33m from the pole.

For all other former customers and new customers with residential underground secondary services with a standard ORPC service conductor, the point of ownership demarcation is the line side of first device (eg. meter base, switch, splitter) on the customer's property unless there is a specific written agreement between ORPC and the customer. For underground secondary services with non-standard service conductor, the line of ownership demarcation is ORPC's supply point.

For overhead primary services, the line of ownership demarcation is ORPC's supply point. For underground primary services, the line of ownership demarcation is the first device on the customer's property, (eg. the transformer, primary switchgear, pole fused disconnect). For primary residential services, the point of ownership demarcation does not reflect the financial responsibilities between ORPC and the customer.

For residential services, the point of demarcation for operational control is the first switching device on the customer's property (eg. the meter).

The ownership demarcation point may be different than stated above by a specific written agreement between ORPC and the customer.

3.1.2 Residential Single Family Homes

This section pertains to the supply of electrical energy to detached and semi-detached, single-family homes. A single family home is a permanent structure or structures located on a single parcel of land and approved by the Building Department as a dwelling and occupied for domestic or household purposes by a single customer.

3.1.2.1 Service Entrance Equipment

Residential Single Phase

Residential metering shall be outdoors and of 'S' type. Service location from the utility is imperative. Location of the meters in apartments shall be at the discretion of the utility as to the acceptability of inside metering. In the event of indoor metering in an apartment dwelling, the utility shall receive a key to the room for meter reading purposes, prior to the hook-up. All new installations for apartments may be bulk or singularly metered.

Meters shall be located no less than 4' from the floor or ground and no more than 6' in height. ORPC suggests a mounting height of 5'6" from the finished grade. For bottom connected meters, we require a space of 12" wide by 22" high for mounting of the meter. Meters shall be so located to be free of vibration.

Common sense is a key factor. All meters must be located in a suitable manner and location to permit reading. The utility reserves the right to refuse connection if it is felt reading of the meter is such that the meter reader's efficiency may be affected.

Service Requirements

- One service will be installed for each home.

  In circumstances where two services are installed to a single dwelling, and one service is set to be upgraded, the upgraded service will replace both of the existing services.

- The maximum service size is typically limited to 200A, 120/240V. Due to technical constraints, single-phase secondary services greater than 200 A may not be available in all areas. For services in excess of 200 amp, the customer is responsible for service conductors and wire.

- The location of the service entrance point and the meter base will be established through consultation with ORPC for both new and upgraded electrical services. Failure to comply may result in relocation of the service at the customer's expense.

- Where revenue metering is located inside a residence, the customer will be required to relocate the meter to the exterior of the building when upgrading the electrical service, working on service conductors within standpipes, or relocating the service entrance.

3.1.2.2 Overhead Service (where permitted by bylaw)

ORPC shall designate the pole from which the service will be supplied and the location of the standpipe.

ORPC will provide up to 33 metres of service conductor from the service pole to the demarcation point. The customer will contribute to the cost of services that exceed 30 metres in length, and in some circumstances may be required to construct a private pole line.

The maximum capacity of secondary overhead service is 400 A. Larger capacity services will be installed underground. The customer is responsible for all material costs (wire and connections, not labour) for 400 amp overhead/underground services.

Location of Service Entrance Equipment

The location of service to a building shall be within 2 metres of the closest corner of the building to the utility pole. Where customers require the entrance to be other than mentioned, then the customer is responsible for the additional cost involved. ***In all cases, the utility must approve the service location before the contractor commences work.***

ORPC shall supply the underground service wires up to a maximum distance of 33m at ' at $12.50 per meter (subject to market price)) for residential customers. The contractor is responsible for excavation and back-filling of the trenches in accordance with Inspection Bulletin 12-2-2. Customer to install 3" (75mm) type DBII duct the entire length of the cable, utilizing long sweep or 45 degree elbows.

3.1.2.3 Underground Service (Overhead or Underground Distribution System)

ORPC will specify the location of the meter base.

ORPC will install secondary service conductors on street allowance.

Customer to be billed for additional length of conductor @ $12.50 per meter.

Underground Wire-Road Crossing Policy

The customer is responsible for all civil costs incurred in an underground crossing (utility pays wire cost). This charge will be in addition to the charge of underground works for customer service of $12.50 per meter on customer property. The customer is also responsible for the trenching on his/her property as well as obtaining any applicable municipal permits.

3.1.2.4 Site Information

Prior to establishing service details, ORPC will require the following information from the customer:

- a site plan, to scale, showing the building in relation to existing and proposed property lines, other buildings, streets and driveways, and the location of other services, gas, telephone, water and cablevision. In certain situations, a grading plan may be required;
- civic address;
- customer billing information such as customer name, billing address, telephone number;
- requested energization date;
- amperage of the service;
- a completed Load Summary form may be required, as per Appendix J.

3.1.2.5 Metering

The customer will supply and install an approved meter socket in accordance with ORPC Metering Specifications.

3.1.2.6 Inspection

- The electrical installation inside the home and out to the demarcation point must be inspected and approved by ESA. ORPC requires notification from the ESA indicating that an inspection has been conducted prior to energization.

- The service entry components to, and including the meter base, shall be inspected and approved by ORPC prior to energization.

3.1.2.7 Servicing Cost

For residential infill, ORPC has defined a **basic connection** for residential customers and will recover the cost of this basic connection as part of its revenue requirement. This new residential basic connection is defined as a 200 amp overhead, single-phase, secondary service including transformation capacity, standard metering, and 33 metres of overhead (or an equivalent credit for new underground services).

For rural residential secondary customers only, ORPC shall supply a clearance service pole within the road right-of-way at no cost (to the initially agreed location) and the customers shall pay for securing any third party land rights. For installation of larger service sizes, customer is responsible for all material. The actual cost beyond the basic connection rate will be recovered from the customer for primary residential services.

For residential infill, the customer shall be responsible for the cost of civil works from the meter base to the supply point.

3.1.3 Residential Townhouses and Apartments

This section pertains to the supply of electrical energy to row housing.

3.1.3.1 Apartment Services

Where an apartment is fed from more than one meter, main switches and meter sockets shall be meggered and identified with permanent markings as to the respective apartments and areas metered. This is to be done prior to meter installation. All disconnects must be so designed as to permit scaling in the off position. Hall lights, common heating, hot water heating, etc. must be metered independently of any one apartment. Meter rooms shall be approved for use by the supply authority.

A townhouse development is a structure or complex of structures each containing more than two residential units. Each unit should be occupied by at lease one residential customer and have direct outside access at ground level.

3.1.3.2 Service Information

- Each townhouse block may be provided with one 400 A, single-phase, three wire service to the end wall of the building that will supply a maximum of 6-100 A subservices. Townhouses exceeding six units will be provided with a second 400 A service (maximum 6-100 A sub-services) that generally will be attached to the same end wall of the structure and supplied by the same transformer. The splitting of services between two 400 A services shall be determined by ORPC. Customers are responsible for 100% of all secondary costs.
- If a revenue meter is located inside a townhouse, the customer will be advised to relocate the meter to the exterior of the building at the time of upgrading the electrical service or relocating the service entrance.

- The customer will enter into a Service Agreement with ORPC, governed by the terms and conditions under which the electrical distribution system and services will be designed and installed.
- The customer will provide all civil works to accommodate the ORPC plant.
- The distribution system and services shall be underground.

3.1.3.3 Site Information

Prior to preparing a design for services to the building, the customer must provide the following information to ORPC:

- A grading and site plan showing the building(s) in relation to existing and proposed property lines, other buildings, streets and driveways, and the location of other services such as gas, telephone, water and cablevision;
- Civic addresses;
- Customer billing information such as customer name, billing address, telephone number;
- A legal reference plan by a land surveyor;
- A municipal servicing plan showing the location of water and sewer services;
- A layout showing the number of units and the size of electrical services required;
- A completed Load Summary form may be required. A copy is attached (see Appendix I);
- Preferred energizing date.

3.1.3.4 Metering

The customer will supply and install meter sockets in accordance with ORPC Metering Specifications.

3.1.3.5 Inspection

- Prior to the energization of each service, the ESA is required to notify ORPC that the electrical installation inside the buildings and out to the demarcation point has been inspected and approved by the ESA.
- The service entry components to, and including the meter bases, shall be inspected and approved by ORPC prior to energization.

3.1.3.6 Servicing Cost

Service costs will be handled in a similar manner similar to the single-family residential connections as per section 3.1.2.7.

3.2 General Services (Below 50 KV)

This section shall include small apartment buildings, stacked townhouses, and smaller commercial, industrial and institutional developments supplied from the road right-of-way or ORPC easement. Larger services may require a primary supply (see Section 3.3).

3.2.1 Point of Demarcation

The point of ownership demarcation between ORPC and the customer varies depending on the overhead or underground supply configuration. The customer will own and maintain the electrical service equipment up to the point of ownership demarcation. This point of ownership demarcation does not reflect the financial responsibilities between ORPC and the customer. The financial responsibilities are determined by Service Costing (see Section 3.2.6), easements and any specific maintenance agreements between ORPC and the customer.

The point of demarcation for operational control is the first device (e.g. meter base, switch, circuit breaker, splitter, etc.) on the customer's property.

3.2.2 Service Requirements

- One service will be provided for each property.
- The service voltage will be established by ORPC depending upon the location of the building and will be one of the following:
    - 120/240 volts, 1 phase, 3 wire-up to 200A overhead (subject to municipal bylaw) or underground
    - 120/240 volts, 1 phase, 3 wire-400A underground in designated areas
    - 347/600 volts, 3 phase, 4 wire-up to 200A overhead or underground in designated areas
    - 347/600 volts, 3 phase, 4 wire-400A underground in designated areas
- ORPC will establish the location of the service entrance to the property and to the building.

3.2.3 Site Information

Prior to preparing a design for service to the building, the customer must provide the following information to ORPC:

- A grading plan and site plan, to scale, showing the building in relation to existing and proposed property lines, other buildings, streets and driveways and the location of other services such as gas, telephone, water and cablevision;
- Civic address;
- Customer billing information such as customer name, billing address, telephone number;

- Requested energizing date;
- Amperage of service;
- Preferred voltage;
- Preferred location of service entrance;
- Estimated initial kilowatt demand and ultimate maximum demand;
- A single-line diagram showing the provision for metering facilities and a listing of all significant loads such as lighting, motors, cooling, heating, welders, etc.;
- A completed Load Summary form may be required;
- In the event that an electrical room is to be installed, a plan to scale showing this room and provision for metering equipment must be provided.

3.2.4 Metering

The customer will supply and install a meter socket or cabinet in accordance with ORPC Metering Specifications.

Commercial Services

Meter locations shall be at the discretion of the utility and work on such services should not be quoted on by the contractor until the power authority (ORPC) has made a ruling as to the location and type of metering required. Consulting engineers, owners or contractors shall provide the supply authority with a total load breakdown as well as anticipated loads, prior to the service location.

Requirements for socket based (self contained) meters are:

a) 200 amp residential and 200 amp general service- outside meter where possible. Meter socket permissible, complete with automatic by-pass meter (Commander #TCC-4-0).
b) Three-phase service up to 200 amp – 120/208 – 7 jaw sockets.
c) Three-phase 100 amp network – 120/208 – 5 jaw sockets.

Cold metering (connected on load side of switch) will be required for 600/347 volt metering.

Where metering transformers are required, the following metering cabinets are required:

a) 400 amp single phase – 120/240 – 20″ X 30″ X 10″ – general service (refer to 2.3.3.2.8 – Current and Potential Transformer Cabinets).
b) Three-phase service – 36″ X 26″ X 12″ where current transformers are not located remotely, outside meter cabinet (EUROBEL Class 5300-MC-30 2010).

Primary metering of larger installations is at the discretion of the utility. The customer will supply approved solderless lugs on the current transformers.

Polyphase Metering

All polyphase metering and equipment shall comply with the requirements of the supply authority. The supply authority will provide and install all meters and instrument transformers used for metering purposes.

For all new services the supply authority should be supplied with a proposed site plan and layout designating the type and size of load (KW), voltage and size of service required, so that the supply authority's requirements may be established during the planning stage.

Location and type of metering shall be decided by the supply authority (primary or secondary). Polyphase services used for either commercial or industrial purposes will be supplied at voltage consistent with the supply authority's facilities.

Interval meters are an option to the customer at a cost to the customer.

3.2.5 Inspection

- The electrical installation inside the building and out to the demarcation point must be inspected and approved by the ESA. ORPC requires notification from the ESA that this has been done prior to energization.
- The service entry components to, and including the meter base, shall be inspected and approved by ORPC prior to energization.

3.2.6 Servicing Cost

Refer to the Service Charge Schedule in Appendix G. For expansion/enhancement of the system, the actual cost will be recovered from the customer with a credit for the future revenue from the service (see Appendix B).

3.2.7 Motors

ORPC reserves the right to stipulate the maximum motor H.P. that may be started across the line. Please consult with ORPC prior to hook-up.

3.2.8 Interval Metering

Any customer requesting interval metering will be responsible for any cost incurred to install such.

3.2.9 Overhead Services

The service entrance equipment from the point of termination of the supply authority's conductors on the building to the main switch or the metering cabinet is the responsibility of the customer. It must be installed to meet the requirements of the Ontario Electrical Code and the specifications of the supply authority with regard to:

a) Location of service

As specified by ORPC.

b) Voltage and phase available

This information is available on request by voltage presently common to our system supply is 44 KV Wye; 12.4 KV Wye; 4.16 KV Wye; 120/240 single phase. Voltages such as three-phase 600 volts; 347 volts, three-phase 120/208 volts and 440 volts may be supplied by transformation, with the ownership to be discussed. Maximum ORPC transformation is 500 KVA @ 4.16 KV and 1000 KVA @ 12.4 KV, unless special approvals are given. Customer is responsible for transformation of demands less than 45 KW.

c) Maximum number of hydro ducts up a pole is three (3).

d) Services, vault and transformer station shall be approved by ORPC.

3.2.10 General Service – Underground Services

The consulting engineer or contractor is requested to consult the supply authority regarding the cost of supply, location, size and type required for underground services which shall be supplied by the supply authority, at customer cost. Where special material, transformers, etc., are to be supplied by the utility on a contributed capital basis, payment (deposit) in the form of a certified cheque must be received by ORPC prior to placing the order. The supply authority will then resume responsibility for repair and maintenance of the cable after installation when installed by ORPC.

Transformation

ORPC will supply transformers for 120/240, 120/208 and 347/600 volt voltages from our primary voltage of 4.16 KV or 12.4 KV (oil-filled only), for loads in excess of 40 KW and with the following regulations:

- Three-pole, three-phase structure – 300 KVA maximum (industrial)
- 500 KVA, three-phase or 3 X 167 KVA, padmount (industrial)
- 100 KVA, single-phase installation, kiosk or overhead
- 500 KVA, maximum size of pad, three-phase (industrial) @ 4.16 KV
- 1000 KVA, maximum size of pad, three-phase (industrial) @ 12.4 KV

The above sizing is in accordance with Inspection Bulletin 36-6-2. For loads in excess of 500 KVA, ORPC reserves the right to stipulate the supply voltage (likely 44 KV) with the utility supplying power up to the customer's dead-end insulators on the customer switching structure.

3.2.11 Three Phase Vaults

Note: for economic reasons, this is usually not an accepted practice.

Shall be equipped with a three-phase gang operated visual disconnect switch, as well as the breaker or fused disconnect. It shall be located on the utility side of the main breaker or transformer fusing. Minimum short circuiting for vaults or switch gear supplied on ORPC system:

- 4 KV – 150 MVA
- 12 KV – 500 MVA
- 27.6 KV – 800 MVA
- 44 KV – 1500 MVA

General

In general, electrical equipment vaults will be constructed to our specifications by the customer complete with conduit risers, mounting racks, protection, fences, warning signs, fuses, etc., in which ORPC will install their transformers. Access to the vault will be completely restricted to ORPC personnel who will retain all keys for locked or pad-locked access doors.

Vault Sizes

Vaults shall be of such dimensions as to adequately accommodate the installed equipment and provide minimum working clearances as specified in the pertinent sections of the Ontario Electrical Code and ESA Inspection Bulletins.

Walls, Roofs and Doors

The vault shall be of fire-proof construction and conform to the minimum requirements of Appendix E of the Ontario Electrical Code and E.I.D. Bulletin 26-1-0.

Walls shall consist of:

- Reinforced concrete not less than 6" thick.
- Hard burned clay brick or solid concrete block not less than 8" thick.
- Hollow concrete block of cinder, clay haydite or calcareous aggregate type, all not less than 12" thick with a very decided preference for reinforced concrete.

Roofs and ceilings shall consist of reinforced concrete of adequate strength for the conditions, but in no case shall they be less than 6" thick.

Floors shall consist of reinforced concrete of adequate strength for the conditions, but in no case shall they be less than 6" thick, except where they are at excavation level, they may be of reinforced concrete not less than 4" thick.

Walls, roofs, ceilings and floors shall be adequately anchored together in a manner designed to resist dislodgement by explosion.

Walls, roofs, ceilings and floors, which properly form part of the building and comply with the foregoing requirements shall be acceptable, all or in part, for standard vault construction.

Load bearing partitions shall not form part of a vault.

Finish

The walls and ceilings are to be surfaced with cement plaster which is to be trowelled smooth and level, after which they are to be finished with two coats of a light coloured cement paint (i.e. 'Bondex Colour #106 Buff' or equivalent).

Depending on the particular installation, there may be one, two or three levels of duct below the floor. To prevent excessive floor thickness, the ducts should be arranged in concrete encased banks, providing 2" of concrete over and around the ducts. Spaces to be filled with sand and finished with a standard 6" reinforced slab, except where the floor is at excavation level, it may be of reinforced concrete, as previously mentioned.

Pipes and Ducts

Any pipes or ducts not necessary for fire protection or proper operation of the electrical installation shall not enter in, or pass through a vault. All pipes shall be equipped with drip trays, etc., as required by inspection.

Ventilation

In a vault where self-cooled transformers or other equipment is installed, the ventilation shall be proportioned to the KVA capacity of the electrical equipment installed therein so as to prevent the air temperature exceeding 40 degrees celsius (104 degrees farenheit).

In the case of transformer vaults ventilated directly to the outside area by natural ventilation without the use of ducts, the combined net area of inlet and outlet openings shall not be less than 3 square inches per KVA of transformer capacity with a minimum area of 1 square foot or 4 C.F.M. per KVA.

Ventilating flues, ducts or openings for illumination, etc., shall be constructed, installed and protected in accordance with Appendix E of the Ontario Electrical Code and E.I.D. Bulletin 26-1-2.

Drainage

A vault shall be provided with a drain or other means which will carry off an accumulation of oil or water in the vault.

Local bylaws prohibit the draining of oil into the public sewage system; thus, the drain may empty into a covered sump or pit, provided the cover is non-combustible and a trap is provided between the drain and the sump or pit to prevent flame travel to the latter.

The floor shall slope downwards towards the drain with a minimum pitch of ¼" per foot.

Doors

Each doorway giving access to a vault shall be 4'6" X 7'0" and be provided with a tight fitting frame and fire door with a three-point latching approved for Class A locations, as defined in CUA Pamphlet No. 80, Installation of Fire Doors and Windows.

The use of a fire door in openings giving access to a vault from an outdoor area may be waived at the discretion of the Inspection Department.

All doorways communicating with the building properly or which may communicate fire to other property shall be provided with a concrete sill of sufficient height to confine within the vault all the oil from the largest transformer or other piece of equipment installed therein and, in no case, shall it be less than 4" in height.

Doors shall open outward from the vault.

Each door shall be provided with a substantial lock or padlock and shall be kept locked so that unauthorized persons will not have access to the vault.

Illumination

Each vault shall be provided with an adequate lighting system controlled by one or more switches located near the entrance.

Lighting fixtures shall be located so that they may be relamped when the vault is energized without danger to personnel.

Each vault shall have a grounding type receptacle, installed in accordance with Rule 26-122 and located in a convenient location inside the vault and near the entrance.

Primary Conduit Runs

The conduit runs shown on mechanical drawings are to be thick wall transite, fibre duct or steel conduit throughout. (***Note:*** if the steel conduit is used, all bends will have to be field fabricated as manufactured bends do not conform to the minimum bending radius of the cable). The exit from the building to be either concrete encased duct with ¾" reinforcing rods in the bottom or steel conduit; in either case, extending out from the foundation to firm soil. The area next to the foundation should be compacted or back-filled with sand before the conduit or duct bank is installed.

Grounding

The builder is responsible for notifying the electrical contractor before the vault floor is poured so that ground rods may be installed. Three rods are to be driven, one in each of three corners and a 2/0 copper lead brought up from each for the grounding bus, before the floor is poured.

Inspection

A permit shall be obtained from the Electrical Inspection Department of Hydro One for regular inspection of vault design and duct work during construction.

Interlocking

Vaults containing customer's equipment must be equipped with mechanical interlocks to forbid anyone from entering within the fenced-in area. Vaults containing utility equipment only shall be equipped with locking facilities to accommodate the supply authority's locks.

Vaults

Shall be equipped with a three-phase load interruption device approved by the supply authority and the ESA Inspection Department. The contractor shall supply and install this equipment, as well as all primary and secondary and associated equipment.

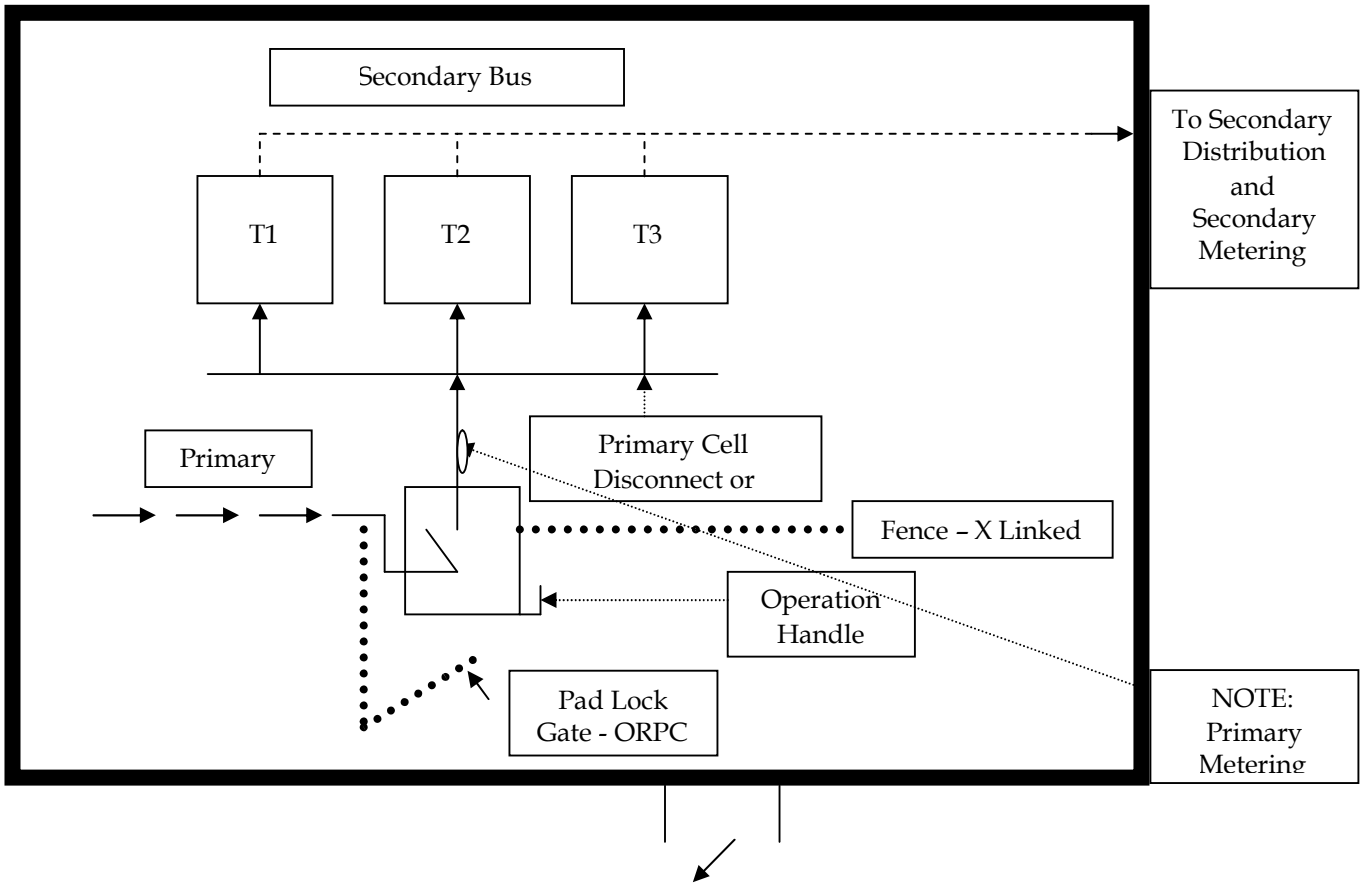
Drawings

ORPC shall have vault, etc. drawings for approval prior to commencement of work. ORPC shall be provided with one copy for their files.

TYPICAL TRANSFORMER VAULTS

THREE OR MORE INDIVIDUAL TRANSFORMERS

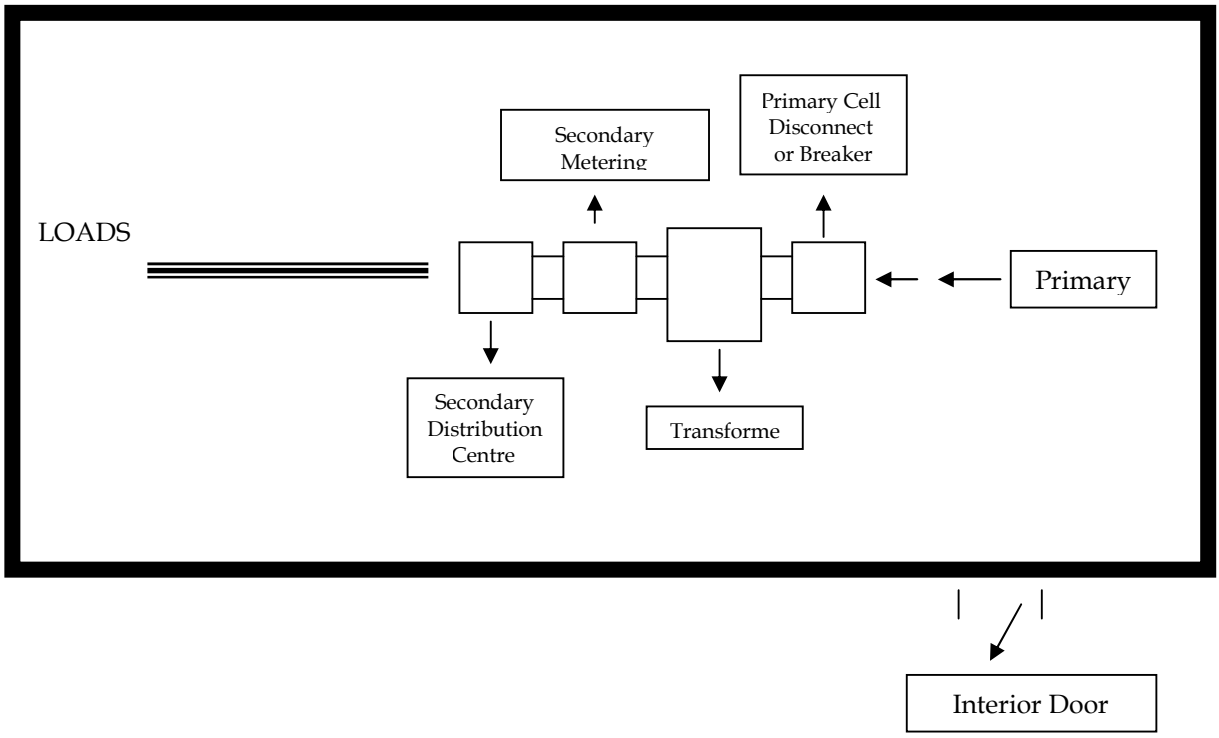
EXTERNAL DOOR PAD LOCKED – ORPC



NO SCALE

SINGLE TRANSFORMERS ENCLOSED BUSHING

INTERNAL VAULT



DIMENSIONS OF COMPARTMENTS

FOR INSTRUMENT TRANSFORMERS

IN SWITCHGEAR

Voltage	Phase	Wire	Service Size (in amperes)	Compartment Sizes (W x H x D)				Number of Instrument Transformers		
				30″x30″x12″	30″x30″x15″	30″x36″x15″	Consult Utility re Size	Current: Wound	Current: Window	Voltage
120/240	1	3	Up to 800	X				1 or 2		
			Over 800		X				2	
120/208 120/240 240/416 277/480 347/600	3	4	Up to 800	X				3		2 or 3
			Over 800 to 3000			X			3	
			Over 3000				X		3	
240	3	3	Up to 800	X				2		2
480			Over 800 to 3000		X				2	
600			Over 3000				X		2	

w = width, h = height, d = depth

***Note*:** Where required, provision must be made for potential transformers within the above compartments in an accessible location and arrangement acceptable to the Supply Authority

3.3 General Service (Above 50 KW)

This section shall include apartment buildings as well as commercial, industrial and institutional developments, where a primary voltage service is required.

The decision as to whether or not a transformer vault or padmount transformer is required rests solely with ORPC and, under no circumstances are customers to be advised in this regard without consultation with ORPC.

3.3.1 Point of Demarcation

For all general service with a standard primary connection, the line of ownership demarcation as utility transformer unless there is specific written agreement between ORPC and the customer. For complex primary electrical distribution systems for general service customers, consult ORPC for ownership demarcation points.

The customer shall own and maintain the electrical service equipment up to the point of ownership demarcation. This point of ownership demarcation does not reflect the financial responsibilities between ORPC and the customer. The financial responsibilities are determined by Service Costing (see Section 3.3.6), easements and any specific maintenance agreements between ORPC and the customer.

ORPC shall maintain operating control of the customer owned high voltage disconnect switch.

3.3.2 Service Requirements

- One primary supply will be provided for each property.
- The service voltage will be established by ORPC depending upon the location of the building and will be as described in section 2.3.5.
- ORPC will establish the point of supply to the property.

3.3.3 Site Information

Prior to the preparation of a design for a service to a building, the following information is to be provided by the customer to ORPC:

- a grading plan and site plan, to scale, showing the building in relation to the existing and proposed property lines, other buildings, streets and driveways and the location of other services such as gas, telephone, water and cablevision;
- a civic address;
- customer billing information such as customer name, billing address, telephone number;
- requested energizing date;

- amperage of service;
- preferred voltage;
- preferred location of service entrance;
- estimated initial kilowatt demand and ultimate maximum demand;
- a single-line diagram showing the provision for metering facilities and a listing of all significant loads such as lighting, motors, cooling, heating, welders, etc.;
- a completed Load Summary form may be required as per Appendix J;
- a plan to scale showing the electrical room and provision for metering equipment shall be provided.

3.3.4 Metering

The customer shall supply metering equipment in accordance with ORPC Metering Specifications.

3.3.5 Inspection

- The electrical installation inside the building and out to the demarcation point must be inspected and approved by the ESA. ORPC requires notification from the ESA that this has been done prior to energization.

- The service entry components to and including the meter base shall be inspected and approved by ORPC prior to energization.

3.3.6 Servicing Cost

The costs within the development property that benefits only the developer will be paid entirely by the developer. When ORPC carries out work, the utility will own and operate the system to the demarcation point. Otherwise the customer-developer may own the system from a switching point at the property limit.

In addition, the developer will contribute to the cost of the actual expansion cost of the system costs to bring the service to the property line of the development plus the system enhancement cost based on diversified load.

The expansion and enhancement cost will be reduced in whole or in part by a credit based on the future net revenue of ORPC. The normal net revenue horizon of ORPC will be based 25 years subject to change depending on the type of development.

The load used for calculating the credit will be based on typical diversified demand based on the service entrance size on load projections provided by the customer. An agreement with the developer/owner may be required guaranteeing the load for the development. The agreement will be reviewed every three years for a period of 15 years and the security will be reduced based on the actual load experience.

3.5 Embedded Generation

All embedded generators shall execute a Connection Agreement. Embedded generators connected to the distribution system prior to the date of these conditions of service shall, subject to any agreement between the embedded generator and ORPC otherwise, execute a connection agreement with ORPC within the following time frames:

a) Micro Generators <10 kW , for customers use
b) Small Generators < 500kW connected to 12 kV system
c) Mid-Size Generators < 2 MW connected on 12 KV system
d) Large Generator >2MW connected on 44 kV system

In accordance with Section 2.1.7 of these Conditions of Service, ORPC may disconnect any embedded generator that does not execute a Connection Agreement.

ORPC shall not allow generator connections directly to the Distribution System in a manner that may adversely impact power quality, reliability or the safety of ORPC's personnel or customers.

When technical alternatives to connecting the ORPC distribution system do not exist and the connection of the generation facility will not materially adversely impact the safety of the ORPC's customers or personnel or the reliability of the distribution system, ORPC may at its sole discretion consider the connection of the generation facility. The embedded generator shall be responsible for all costs associated with ORPC performing studies and developing plans for risk mitigation that are to the satisfaction of ORPC.

3.5.1 General Technical Information Requirements

For micro generators an application shall submit an application to ORPC proving information as follows:

a) name plate rating of each generator, type of technology , fuel source and total capacity
b) location of proposed generator, account number

ORPC will provide an offer to connect detailing the requirement and cost for time frame for connection or if a connection is not possible an explanation.

A connection will be made following receipt of ESA inspection, a completed agreement and payment for ORPC work (including metering changes).

In the case of small, mid size and large generators a more extensive review will be required.

All embedded generators shall provide ORPC with the following documentation to ensure that the distribution system is adequately protected from potential damage or increased operating costs resulting from the connection of the embedded generation facility:

a) electrical submissions signed and stamped by a licensed professional engineer; detailed single line and three line diagrams showing all electrical devices associated with the embedded generation facility such as generators, isolating devices, breakers,
b) protection relays, in inverter systems, instrument transformers, lightning arrestors, fuses and metering;
c) evidence of approval of the Electrical Safety Authority for all the embedded generator's owned electrical facilities;
d) a copy of the report of the most recent re-verification of protections signed and stamped by a licensed professional engineer; and
e) any other documentation reasonably related to ORPC's obligations.
Embedded generators connected to the distribution system prior to the date of these Conditions of Service shall submit the above-referenced technical information to ORPC within the following time frames:
f) Embedded generators 1 MW and over – within four months after issuance of these Conditions of Service;
g) Embedded generators between 100 kW and 1 MW – within 10 months after issuance of these Conditions of Service; and
h) Embedded generators under 100 kW – within 16 months after issuance of these Conditions of Service.

3.5.2 Interface Protection and Isolating Devices

The embedded generator shall provide an interface protection that minimizes the frequency and severity of disturbances on the distribution system and the impact on other customers. The embedded generation facilities must also meet the technical requirements as identified in the Connection Agreement. The interface protection shall be capable of automatically isolating the generator(s) from the distribution system in the following situations:

a) internal faults within the generation facility;
b) external faults in the distribution system; and
c) abnormal system conditions, including, but not limited to open phase and islanding, over/under voltage and over/under frequency.

The embedded generator shall provide, install and maintain a disconnecting device at the connection point with distribution system for the purpose of isolating the embedded generation facility in case of emergency and for work protection. The disconnecting device shall:

a) be located at or near to the demarcation point of connection of the embedded generation facility to the distribution system, and must be readily accessible;
b) provide a visible indication of the open main current-carrying path that isolates the embedded generation facility from the distribution system;
c) have a three-pole gang operated switch mechanism suitable for load break operations at rates load. (Subject to ORPC's prior written approval, single phase customers may use single pole switches or openers);
d) meet Ontario Electrical Safety Code requirements;
e) be rated for maximum fault current available at that location on the distribution system;

f) be lockable in the open position;
g) be suitable for safe operation under the conditions of use; and
h) have an interlock, which will prevent back-feed in the event of an outage on the distribution system.

These devices must be operated at least once a year, unless specified otherwise in the connection agreement, and the verification report of the operation of the devices shall be retained by the embedded generator and shall be provided to ORPC upon request.

3.5.3 Metering for Embedded Generation Facilities

Metering Installations – Installed after July 14, 2000

The metering shall be installed at the demarcation point of connection of the embedded generation facility to the distribution system. The point of demarcation for an embedded generation facility is the primary live line clamp or lines switch that is installed on or at ORPC's distribution line. If this is not practical, ORPC shall apply loss factors to the generation output in accordance with the loss factors applied for retail settlements and billing.

The embedded generator or OEFC (if applicable) shall install four-quadrant interval meter in accordance with the distribution system code and ORPC's standard metering requirements. The embedded generator shall provide ORPC with the technical details of the meter installation.

An embedded generator that may, at any time, delivery power to the distribution system shall be responsible for the ownership, installation and maintenance (using a registered meter service provider), of an approved meter. This excludes net metering customer's installation connected prior to July 14, 2000.

3.5.4 Transformers

Any step-up transformation equipment required to step-up the embedded generation facility's output voltage to primary voltage of ORPC's distribution line shall be supplied, installed, owned and maintained by the embedded generator.

For customers connected to the distribution system that wish to install an embedded generation facility with a total installed generation capacity of less than 10 kW, ORPC may, at its sole discretion, permit the embedded generation facility to be connected through ORPC's existing transformer. In such cases, the embedded generator shall be responsible for any and all damage to the ORPC facilities and equipment caused by the operation of the embedded generation facility.

3.5.5 Maintenance Schedules

The embedded generator must implement and adhere to a regular scheduled maintenance plan to assure both ORPC and the embedded generator that the connection devices, protection and control systems are maintained in good working order. The provisions of said maintenance plan are to be listed in the Connection Agreement. The embedded generator must conduct a re-verification at least every

48 months (or as specified in the Connection Agreement) and provide a written report to ORPC signed by professional licensed engineer).

ORPC, in its sole discretion, may request to witness the re-verification of any protections that could adversely impact the distribution system. The embedded generator shall pay for the re-verification and provide ORPC a copy of the report giving the results of the re-verification of the protections.

3.5.6 Reporting Requirements

All embedded generators over 100kVA shall report any significant event to ORPC within five (5) business days. The Connection Agreement may include a list of events deemed significant and provide a standard report format.

The embedded generator shall keep a written log of the operation of its protections that result in the tripping of its interrupting devices. On request, the embedded generator must provide a copy of the log to ORPC. The log shall contain, at a minimum, the following information:

a) date and time of event/operation of protections;
b) which relay or protection feature of the relay initiating the trip;
c) conditions and unit output at the time of the trip that may be related to the operation (e.g. lightning, outage of feeder, etc.).

3.5.7 Capital Contribution

When ORPC is required to add new ORPC facilities and equipment, alter existing ORPC facilities and equipment, or increase the capacity of the distribution system to connect a new embedded generation facility (an "expansion"), ORPC will perform an economic evaluation to determine the embedded generator's capital contribution for the equipment, labour and ongoing maintenance costs of the expansion (the "expansion costs"). ORPC will use the Discounted Cash Flow Model and assume that future revenue will be zero.

3.5.8 Compliance

All equipment of embedded generators connected, operating or procured before July 14, 2000 is deemed to be in compliance with ORPC's performance requirements except for the requirements of the Electrical Safety Authority and isolating device requirements identified in Section 3.5.2.

ORPC may require that the equipment deemed compliant above be brought into actual compliance with ORPC's performance requirements within a timeframe established by ORPC, but not to exceed 12 months, where, at ORPC's sole opinion, there is:

a) a material deterioration of the distribution system reliability resulting from the performance of the embedded generator's equipment; or

b) a material negative impacts on the power quality of an existing or a new customer resulting from the performance of the equipment at the embedded generation facility; or
c) a material increase in generating capacity at the site where the equipment deemed compliant is located.

3.5.9 Disconnection of Embedded Generation Facility

ORPC has the right to disconnect an embedded generation facility from its distribution system where, in the sole opinion of ORPC, any of the following conditions, exist:

a) there is a material deterioration of the distribution system reliability resulting from the performance of the embedded generator's equipment;
b) there is a material negative impact on the quality of power of an existing or a new customer resulting from the performance of the equipment at the embedded generation facility;
c) the embedded generator has failed to re-verify the protection and control systems every 48 months or as specified in the Connection Agreement or failed to submit the report within 30 days; or the embedded generator's report of the re-verification of the protection and control systems shows unacceptable deficiencies.

3.6 Embedded Market Participant (effective as of Open Access)

An Embedded Market Participant is a Customer who is registered as a Market Participant with the IMO and whose facility is not directly connected to the IMO Controlled Grid but is connected to the Distribution System. All Embedded Market Participants within the service jurisdiction of Hydro One, once approved by the IMO are required to inform ORPC of their approved status, in writing, 60 days prior to their participation in the IMO administered market.

A Connection Agreement will be required between an Embedded Market Participant and ORPC which will also include an operating schedule.

An Embedded Market Participant will be responsible for the ownership, installation and maintenance of the meter and contracting the services of a Registered Meter Service Provider. Responsibility for an existing Meter Installation will transfer from ORPC to the Embedded Market Participant on the meter seal expiry date.

3.6.1 Temporary Services

This section pertains to the supply of electrical energy on a temporary basis.

Services for temporary accommodation such as portable school rooms are not permitted. The customer must pay all temporary service costs and a transformer rental charge will apply for temporary services other than the default temporary service.

Customers who install and maintain load equipment are also responsible for installing and maintaining the service conductors from the supply point to the load.

If for some reason a supply point is relocated, the customer must be contacted and informed that the service conductors must be extended at a cost to the customer to the new supply point.

If any personnel, including contractor or sub-contractor (such as floor sander or terrazzo grinder) takes supply from the line side of the meter or jumps the fuse, the service to the shack or building will be disconnected immediately.

3.6.2 Service Requirements

The service voltage will be established by ORPC depending upon the location of the building/construction site and will be one of the following:

- 120/240 volts, 1 phase, 3 wire – up to 200A overhead (subject to municipal bylaw) or underground;
- 120/240 volts, 1 phase, 3 wire – 400A underground in designated areas;
- 347/600 volts, 3 phase, 4 wire – up to 200A overhead or underground in designated areas;
- 347/600 volts, 3 phase, 4 wire – 400A underground in designated areas.

Larger power requirements may require a temporary primary service (see Section 3.3).

ORPC will establish the location of the service entrance to the property and to the building.

3.6.3 Service Information

At the discretion of ORPC, one or more temporary services may be provided for a site, subject to the requirements of the ESA.

The location of the service entrance point and details of metering will be established through consultation with ORPC. Failure to comply may result in modifications at the customer's expense.

3.6.4 Supply from Pole Line (where permitted by bylaw)

The customer will provide the secondary overhead conductor to the supply point. ORPC will install and connect the service conductor at the supply point. The customer will supply any anchoring, as required.

Pole mounted services require a weatherproof cabinet at a size sufficient to house the service and meter equipment. The cabinet shall have provision for padlocking. No metering or service equipment may be attached on the ORPC poles.

An overhead primary service for large projects may be provided by ORPC, at the customer's expense. Line poles provided for utility equipment shall be a minimum of Class 3.

3.6.5 Supply from Underground Distribution System

There are areas where only an underground system has been installed. It will be necessary to consult with ORPC to establish the method and cost of obtaining temporary construction service.

Due to the wide variation in these services, the customer will pay the costs incurred by ORPC.

3.6.6 Site Information

The customer is to provide the following information to ORPC:

- Civic address;
- Customer billing information such as customer name, billing address, telephone number;
- Requested energization and removal dates;
- Amperage of service
- Preferred voltage;
- Preferred point of service entrance;
- Estimated kilowatt demand;
- A listing of all significant loads such as large motors.
- A site plan showing the location of the delivery point relative to lot lines and the street;
- A completed load summary form may be required (see Appendix A).

3.6.7 Metering

The customer will supply metering equipment in accordance with ORPC metering specifications.

3.7 Embedded Distributor *(not applicable)*

3.8 Unmetered Connections

There are instances where connections can be provided without metering. These loads are generally small in size and consistent in magnitude of load. ORPC reserves the right to review all cases and may request a meter be installed at its sole discretion.

Services that can be connected unmetered include, but are not limited to, cable TV amplifiers, telephone switching devices, phone booths, bus shelters, railway crossing signals, traffic signals or other small fixed loads. The method of billing will be based on estimated usage.

All unmetered connections fall under the General Service or Lights Rate classifications.

Unmetered connections may include the following:

3.8.1 Street Lighting

a) The energy consumption for street lights is estimated based on Network's profile for street lighting load, which provides the amount of time each month that the street lights are operating. The energy charge is based on installed load.

ORPC must approve the location of new lighting installations on its line poles and the streetlight owner must enter into an agreement to use such poles. ORPC will make the electrical service connection of all streetlights to the distribution system.

Decorative Lighting

Charges for part time or decorative seasonal lighting include an energy charge calculated at dollars/kWh/month. Minimum billing will be for one month (Dollars per kWh x # of fixtures x billing).

Service Information

- The normal service voltage will be 120/240 volts, single-phase, three wire.
- The method and location of supply will vary and will be established for each application through consultation with ORPC.
- The service will be un-metered for small loads while larger loads will be metered. Energy consumption will be based on the connected wattage and the load profile for street lighting filed with the OEB.
- The customer will provide the secondary conductor to the supply point. ORPC will install and connect the service conductor at the supply point.

3.8.2 Traffic Signals

This section pertains to the supply of electrical energy for traffic signals and crosswalks. These are the devices owned and maintained by the road authority and/or the municipal corporation. All installation shall receive ESA approvals.

3.8.2.1 Service Information

- The service voltage will be 120/240 volts, single-phase, three wire.
- The method and location of supply will vary and will be established for each application through consultation with ORPC.
- The service will be un-metered for small intersections while larger loads will be metered. Energy Consumption will be based on the connected wattage and the calculated hours of use.
- The customer will provide the secondary conductor to the supply point. ORPC will install and connect the service conductor at the supply point.

3.8.3 Decorative Lighting

This section pertains to the supply of electrical energy for decorative street lighting installations. Such installations could be lighting for festive occasions or "neighbourhood character" streetscaping. These are privately owned and maintained and subject to the ESA and ORPC service conditions.

This section does not apply to street lighting that is owned by or operated by the road authority and/or the municipal corporation.

ORPC shall determine if metering is required on a case-by-case basis with respect to the demand, load profile, location, accessibility, duration of connection and municipal agreement.

3.8.3.1 Service Information

The service voltage will be 120/240 volts, single-phase.

The method and location of the supply will vary and will be established for each application through consultation with ORPC.

The customer will provide the secondary conductor to the supply point. ORPC will install and connect the service conductor at the supply point.

Underground ducts, when required, will be provided by the customer and must meet ORPC requirements.

3.8.4 Billboards

To be metered with customer paying for service conductors – material.

3.8.5 Other Small Services

This section pertains to the supply of un-metered electrical services for telephone booths, cablevision, small amplifiers, MTO cathodic protection, railway signals, flasher beacons and similar small loads.

3.8.5.1 Service Information

- The service voltage will be 120 volts, single-phase, two wire, maximum 15 A.
- The method and location of supply will vary and will be established for each application through consultation with ORPC.
- The service will be un-metered. Energy consumption will be based on the connected wattage and the calculated hours of use. The customer is responsible to notify ORPC of any changes to the load.
- The customer will provide the secondary conductor to the supply point. ORPC will install and connect the service conductor at the supply point.

SECTION 4 GLOSSARY OF TERMS

"apartment building" means a structure containing four or more dwelling units having access form a interior corridor or common entrance

"betterment" see "enhancement" definition;

"billing demand" means the metered demand or connected load after necessary adjustments have been made for power factor, intermittent rating, transformer losses and minimum billing. A measurement in kilowatts (kW) of the maximum rate at which electricity is consumed during a billing period.

"Board" means the Ontario Energy Board (OEB);

"Board of Directors" means the Board of Directors of Ottawa River Power Corporation;

"Building that Lies Along" means a customer property or parcel of land that is directly adjacent to or abuts onto the public road allowance where ORPC has ORPC facilities and equipment of the appropriate voltage and capacity;

"circuit breaker" means a device designed to open and close a circuit by non-automatic means and to open the circuit automatically no a predetermined overcurrent without damage to itself when properly applied within its ratings;

"Code" means the Distribution System Code;

"cold metering" means 'Cold' Sub service circuit breakers that are connected to the line side of the meter socket;

"Common Line" means that portion of a line or private property that is owned by ORPC and issued to serve more than one customer;

"Complex Metering Installation" means a metering installation where instrument transformers, test blocks, recorders, pulse duplicators and multiple meters may be employed;

"Conditions of Service" means the document as developed by Ottawa River Power Corporation in accordance with subsection 2.3 of the Distribution System Code that describes Ottawa River Power Corporation's operating practices and connection rules;

"Connection" means the process of installing and activating connection asset sin order to distribute electricity to a customer;

"Connection Agreement" means the agreement entered into between Ottawa River Power Corporation and a person whose customer equipment is or is to be connected to Ottawa River Power Corporation's distribution system that delineates the conditions of the connection and delivery of electricity to that connection which will substantially be in the form of the Connection Agreement attached to these Conditions of Service as Table 2;

"Connection Cost Recovery Agreement" means an agreement entered into between ORPC and a person connected to its Distribution System that describes the work to be performed by ORPC in connecting the customer, the cost of same, any required capital contribution and/or revenue guarantees;

"Customer" means a person who is connected to the Distribution System and includes Standard Customers, Embedded Generators, Embedded Distributors. If an account is opened in more than one person's name, all such persons are customers and are jointly and severally responsible for compliance with these Conditions of Service and to pay the rates and charges in accordance with these Conditions of Service.

"Customer Equipment" means all electrical and mechanical equipment used by the customer and does not include any Ottawa River Power Corporation facilities and equipment;

"Demand" means the average value of power measured over a specified interval of time, usually expressed in kilowatts (kW). Typical demand intervals are 15, 30 and 60 minutes;

"Demand Billed Customer" means a demand metered customer with average monthly peak demand greater than 50 kWs over 12-months that is read monthly and billed on kW demand as well as kWh-hour energy.

"Demand Meter" means a meter that measures a customer's peak usage during specified period of time;

"Demarcation Point" means the physical location at which Ottawa River Power Corporation's responsibility for operational control and ownership of distribution equipment including connection assets ends at the customer;

"Disconnect" or "Disconnection" means a deactivation of connection assets that results in cessation of distribution services to a customer;

"Distribute" or "Distribution" with respect to electricity, means to convey electricity at voltages of 50 kV or less;

"Distribution Losses" means energy losses that result from the interaction of intrinsic characteristics of the distribution network such as electrical resistance with network voltages and current flows;

"Distribution Loss Factor" means the factor(s) by which metered loads must be multiplied such that when summed it equals the total measured load at the supply point(s) to the distribution system;

"Distribution Services" means services related to the distribution of electricity and the services the Board has required distributors to carry out, for which a charge or rate has been approved by the Board under Section 78 of the Act.

"Distribution System" means Ottawa River Power Corporation's system for distributing electricity and includes any structures, equipment or other things used for that purpose. The distribution system is composed of the main system capable of distributing electricity to many customers and the connection assets used to connect a customer to the main distribution system;

"Distribution System Code" means the code, approved by the OEB, and in effect at the relevant time which, among other things, establishes the obligations of a distributor with respect to the services and terms to be offered to customers and retailers and provides minimum technical operating standards of distribution systems;

"Distributor" means Ottawa River Power Corporation;

"EDA Formula" is an approved OEB economic evaluating formula that takes into account the customer's growth and forecasted loads over 25 years. The effect being it decreases developers up-front capital cost while place an equitable cost on the customer.

"Electrical Safety Authority" (ESA) means the person or body designated under the *Electricity Act, 1998* regulations as the Electrical Safety Authority;

"Embedded Distributor" means a distributor who is connected to the distribution system;

"Embedded Generator" or "Embedded Generation Facility" means a Generator whose generation facility is connected to the distribution system;

"Emergency" means any abnormal system condition that requires remedial action to prevent or limit loss of a distribution system or the supply of electricity that could adversely affect the reliability of the electricity system. In addition to the electrical context of emergency, emergency also includes prevention of loss of life or property;

"Emergency Backup" means a generation facility that has a transfer switch which isolates it from the distribution system such that "emergency backup" cannot be parallel to the distribution system for safety, metering and equipment damage reasons;

"Energy" means the product of power multiplied by time, usually expressed in kilowatt-hours (kWh);

"Energy Diversion" means the electricity consumption unaccounted for but that can be quantified through various measures upon review of the meter mechanism, such as unbilled meter readings, tap off load(s) before the revenue meter or meter tampering;

"Energy Only Customer" means any Customer with average monthly peak demand of 50 kW or less over 12 months that is billed for electricity service on kWh energy only;

"Enhancement" means a modification to an existing distribution system that is made for purposes of improving system operating characteristics such as safety, reliability or power quality or for relieving system capacity constraints resulting, for example, from general load growth;

"ESA" means the Electric Safety Authority (formerly Ontario Hydro Inspection Department);

"Expansion" means an addition to a distribution system in response to a request for additional customer connections which otherwise could not be made. For example, by increasing the length of the distribution system;

"Force Majeure Event" shall be deemed to be a cause reasonably beyond the control of the party whose inability as aforesaid is involved such as, but without limitation to, strike of that party's employees, damage or destruction by the elements, accident to the works of that party, fire explosion, war on the Queen's enemies, legal act of the public authorities, insurrection, act of God or inability to obtain essential services or to transport materials, products or equipment because of the effect of similar causes on that party's suppliers or carriers;

"Four-Quadrant Interval Meter" means an interval meter that records power injected into the distribution system and the amount of electricity consumed by the customer;

"General Service" means the rate classification applicable to any service that does not fit the description of the residential or farm classes. Generally, it includes commercial, industrial, educational, administrative, auxiliary and government-type services. It includes combination-type services where the owner of one property makes a variety of uses of the service, and all multiple services, including residential bulk metered units;

"Generate" or "Generating", with respect to electricity, means to produce electricity or provide ancillary services, other than ancillary services provided by a transmitter or distributor through the operation of a transmission or distribution system;

"Generation Facility" means a facility for generating electricity or providing ancillary services, other than ancillary services provided by a transmitter or distributor through the operation of a transmission or distribution system, and includes any structures, equipment or other things used for that purposes;

"Generator" means a person who owns or operates a generation facility;

"Good Utility Practice" means any of the practices, methods or acts engaged in or approved by a significant portion of the electrical utility industries North America or any of the practices, methods and acts which, in the exercise of reasonable judgement in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good practices, reliability, safety and expedition. Good utility practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to promote acceptable practices, methods or acts generally accepted in North America;

"holiday" means a Saturday, Sunday, statutory holiday or any day legally defined in the Province of Ontario;

"house service or public service" means that portion of the electrical service in a multiple occupancy facility which is comment to all occupants (i.e. parking lot lighting, sign service, corridor and walkway, etc.);

"IMO" means the Independent Electricity Market Operator established under the Electricity Act;

"IMO Controlled Grid" means the transmission systems with respect to which, pursuant to agreements, the IMO has authority to direct operation;

"infill service" means any service installed which was not part of a pre-planned subdivision or a service which was installed five years or more after the pre-planned subdivision was substantially completed;

"Interval Meter" means a meter that measures and records electricity use on an hourly or sub-hourly basis;

"Lies Along" means a customer property or service point that is directly adjacent to or abuts onto a public road allowance where ORPC has distribution facilities of the appropriate voltage and capacity

"Load Transfer" means a network supply point of one distributor that is supplied through the distribution network of another distributor and where this supply point is not considered a wholesale supply or bulk sale point;

"Load Transfer Customer" means a customer that is provided distribution services through a load transfer;

"Maintenance" means any inspection, testing, cleaning, torquing, adjusting and calibrating electrical equipment, or replace support structures associated with the electrical system but no electrical betterments;

"Market Participant" means a person who is authorized by the Market Rules to participate in the IMO-administered markets or to cause or permit electricity to be conveyed into, through or out of the IMO-controlled grid;

"Market Rules" means the rules made under Section 32 of the Electricity Act;

"Measurement Canada" means the Special Operating Agency established in August 1996 by the *Electricity and Gas Inspection Act,* 1980-81-82-83, c. 87., and Electricity and Gas Inspection Regulations (SOR/86-131);

"Meter Installation" means the meter and, if so equipped, the instrument transformers, wiring, test links, fuses, lamps, loss of potential alarms, data recorders, telecommunication equipment and spin-off data facilities installed to measure power past a meter point, provide remote access to the metered data and monitor the condition of the installed equipment.

"Meter Socket" means the mounting device for accommodating a socket type revenue meter;

"MIST Meter" means an interval meter from which data is obtained and validated within a designated settlement timeframe. MIST refers to "metering inside the settlement timeframe";

"MOST Meter" means an interval meter from which data is only available outside of the designated settlement timeframe. MOST refers to "metering outside the settlement timeframe";

"Open Access" means the date that Ottawa River Power Corporation must provide non-discriminatory access to the distribution system;

"operational demarcation point" means the physical location in which a distributor takes responsibility from the customer for operational control of distribution equipment ends at the customer;

"Ownership Demarcation Point" means the physical location in which a distributor takes ownership of distribution equipment from the customer including connection assets ends at the customer. Specific equipment belonging to the distributor may be within the customer's ownership side of the demarcation point as defined by the Ontario Electrical Distribution Safety Code;

"Point of Supply", with respect to an embedded generation facility, means the connection point where electricity produced by the embedded generation facility is injected into a distribution system;

"Present Value" means the current value of a future amount of money;

"Primary Service" means any service which is supplied with a nominal voltage > 750 volts;

"Public Holidays" mean the days designed by ORPC from time to time. Until otherwise designated, the public holidays are: New Year's Day, Labour Day, Good Friday, Thanksgiving Day, Easter Monday, Christmas Day, Victoria Day, Boxing Day, Canada (Dominion) Day and the Civic Holiday (as celebrated in Metropolitan Toronto);

"Rate" means any rate, charge or other consideration, and includes a penalty for late payment;

"Regulations" means the regulations made under the Act or the *Electricity Act, 1998;*

"Retail", with respect to electricity means,

1) Sell or offer electricity to a customer
2) Act as agent or broker for a retailer with respect to the sale or offering for sale of electricity, or
3) Act or offer to act as an agent or broker for a customer with respect to the sale or offering for sale of electricity;

"Retail Settlement Code" means the code approved by the Board which establishes a distributor's obligations and responsibilities associated with financial settlement among retailers and customers. It also provides for tracking and facilitating customer transfers among competitive retailers;

"Retailer" means a person or a party who retails electricity;

"Secondary Metered Service" means a connection whose meter point is located on the secondary side of a distribution transformer;

"Secondary Service" means any service which is supplied with a nominal voltage $\leq$ 750 volts;

"Service Area", with respect to a distributor, means the area in which the distributor is authorized by its license to distribute electricity;

"Service Date" means the date that the customer/consumer and ORPC mutually agree upon the permanent energization by ORPC for billing purposes;

"Standard Supply Service Code" (SSS) means the code approved by the Board. This code establishes the minimum conditions that a distributor must meet in carrying out its obligations to sell electricity under section 29 of the *Electricity Act, 1998;*

"Sub-service" means a separately metered service that is taken from the main building service;

"Subtransmission Customer" (or T-Class Customer) comprises that group of large users that are typically served from ORPC's subtransmission system, and whose demand requirements are generally less than 5 MW;

"Subtransmission Service" means a service related to the distribution of electricity supplied at voltages above 13 kV but less than 50 kV for which a charge or rate has been approved by the Board;

"Subtransmission System" means a system elated to the distribution of electricity supplied at voltages above 13 kV but less than 50 kV;

"Supply Point" means the customer connection point, for both primary and secondary services, to the ORPC distribution system. This might be located at a manhole, handhole, vault, pole or padmounted device. This electrical supply location might be located on an adjacent property from which ORPC has land access rights. With respect to an embedded generator, "supply point" means the connection point where electricity produced by the generator is injected into a distribution system. In all cases, the final supply point will be designated by ORPC;

"Support Structure" means any equipment that physically supports and routes the distribution system between the substation and the customer. This would include poles, overhead platforms, towers, anchors, guy wires, lashing messengers, manholes, handholes, transformer and switch bases and ducts;

"Temporary Service" has two meanings with ORPC. For the Conditions of Service, it means an ESA inspected electrical service granted temporarily for a period of less than (1) year for purposes such as pole mounted service equipment, construction sites, trailers, cranes, boat houses or special events. The default temporary service is defined as single phase, $\leq$ A service which lies along an existing electrical distribution system and existing required transformation. The second meaning of "temporary service", and outside the context of the Conditions of Service, is when a temporary service conductor is provided by ORPC for a faulted underground secondary conductor. This temporary service conductor will be removed by ORPC as soon as seasonably possible to effect repairs or replacement to the normal permanent service conductor;

"Unaccounted for Energy" means all energy losses that cannot be attributed to distribution losses. These include measurement error, errors in estimates of distribution losses and unmetered loads, energy theft and non-attributable billing errors;

"Unmetered Loads" means electricity consumption that is not metered and is billed based on estimated usage and its load profile if it can be determined. These small services are 120 volts and $\leq$ 15 A. The specific service is for publicly owned utility plant, other utilities that are licensed for their plant access with the road authority, government agencies and temporary community events. These services normally do not require system enhancements or expansions for connection. Any system enhancements or expansions for un-metered services but can be done via the economic evaluation model (see Appendix B).

"Wholesale Market Participant" means a party that sells or purchases electricity or ancillary services through the IMO administered markets.

APPENDIX A

OTTAWA RIVER POWER CORPORATION

Schedule of Rates and Charges

For distribution rates and ORPC charges approved by the Ontario Energy Board, see the ORPC web site at www.orpowercorp.com.

APPENDIX B

OTTAWA RIVER POWER CORPORATION

Contributed Capital

This costing method applies to all new servicing requiring an expansion and/or enhancement of the ORPC system.

To support the costs of supplying the additional load, capital contributions will be required from new customers who connect to the system. This model follows the requirements of chapter three (3) and the suggested formula from Appendix "B" of the OEB's Distribution System Code.

"Present Value" of Annual Wires Revenue and Annual Incremental O & M (including all applicable taxes and third party costs) is typically taken over 25 years for residential and 15 years (subject to review depending on nature of development) for general service.

The Customer shall pay any additional costs beyond what is expected for a specific expansion or enhancement project under normal circumstances and supply conditions.

For primary serviced commercial projects, the servicing costs beyond the supply point specific to the project are recovered at 100% and not considered in the Economic Evaluation Model with an allowance made for transformation based on the Economic Evaluation Model.

APPENDIX C – SCHEDULE A

OTTAWA RIVER POWER CORPORATION

SAMPLE AGREEMENT TO DO WORK

(Short Agreement)

This Agreement made this __ day of _____.

BETWEEN:

AND: **Ottawa River Power Corporation hereafter called "ORPC"**

1. **Description of Project –**

2. **ORPC Work** - ORPC will plan, design, construct and commission the electrical distribution system based on the information provided by the developer.

3. **Developer's Work –** The Developer will be responsible for provision of site plans showing all existing and proposed utilities, lot lines, proposed development, grading information and construction schedule in a form acceptable to ORPC. The Developer will be responsible for arranging and maintaining survey bars, and civil works including road crossings, duct installation, trenching and transformer and switch gear bases in accordance to ORPC specifications.

4. **Capital Contribution for ORPC Work –** The Developer shall provide a capital contribution to ORPC to supply all the labour, material, products, tools, construction machinery, equipment necessary to perform the work for a total contract price of $ ($, plus GST), hereinafter referred to as the "Contract Price", payable as follows:

   a) A deposit of 50% shall be payable by the Developer to ORPC upon signing of the agreement;

   b) The balance of the Contract Price prior to construction of the system.

   The contract price is subject to change if the project installation is not completed with six (6) months from the date of the agreement.

5. **Changes During Construction** - In the event that the Developer requires any changes to the work, there will be a cost plus 10%, and any change order must be signed in writing.

6. **Easements** - The Developer is to provide all easements as required and provide the following work and services and allow the following matters to be completed before commencement of work by ORPC.

7. **Notice -** ORPC normally requires notice of 12 weeks for delivery of equipment and for commencement of work.

8. **Winter Works** - ORPC's proposal is made on the basis of current material and labour costs with non-frost conditions. ORPC reserves the right to charge a premium for winter construction.

9. **Liability** - The Developer agrees to indemnify ORPC against all damages, loss, actions, causes of action, suites, claims or demands whatsoever against ORPC arising directly or indirectly as a result of the Developer carrying out, or permitting to be carried out, by its express or implied consent, any work whatsoever pursuant to, or purportedly pursuant to, the terms of this Agreement. Notwithstanding the foregoing, the Developer shall not be required to indemnify ORPC with respect to damages, loss, actions, cause of action, suits, claims or demands arising out of ORPC's Work. The Developer shall be liable for all damage to the System caused by the Developer, its employees, representatives, contractors, subcontractors or agents. The Developer shall provide a certified copy of an insurance policy to ORPC prior to the initiation of any Work in a form and in an amount and with an insurance company satisfactory to ORPC. Said policy of insurance shall insure against all damages or claims of damage arising of the Developer's Work and the Developer agrees that it shall be responsible for all premiums due with respect to the said policy of insurance. ORPC retains the right to require the Developer to provide proof that all premiums of the aforesaid policy or policies of insurance has been paid and that said insurance is in full force and effect, said proof to be to the satisfaction of ORPC.

10. **Damages to Other Services** - The Developer shall be responsible for repairing any damages caused to any other service or utility by any activities arising directly or indirectly out of this Agreement which are undertaken by the Developer. The obligation of the Developer hereunder shall continue until a Certificate of Acceptance has been issued for the whole System.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seal or affixed their corporate seals under the hands of their proper signing officers authorized in that behalf, as the case may be.

Developer	Ottawa River Power Corporation
Per: _____	Per: _____
Date: _____	Date: _____

APPENDIX C – SCHEDULE B

INSTALLATION AND MAINTENANCE AGREEMENT

For the construction and connection of larger services onto ORPC's distribution system (typically those projects not covered in Appendix ____, ORPC will enter an agreement with the customer to clarify specific details associated with these larger services. Normally, ORPC will use the short "Installation and Maintenance Agreement" (see below). For more complex services, ORPC may use a more comprehensive agreement (to be filed on title) with the specific property.

INSTALLATION AND MAINTENANCE AGREEMENT

THIS AGREEMENT made this _____ day of _____.

BETWEEN: _____, hereinafter called the "DEVELOPER"

AND: OTTAWA RIVER POWER CORPORATION, hereinafter called "ORPC"

1. **DESCRIPTION OF THE PROJECT –** ORPC will design and collaborate in the installation of the electrical system for the Developer's project described as:

2. **ORPC's WORK –** ORPC shall design, construct and inspect the Developer's Work and commission a system based on the information to be provided by the Developer, ORPC's Conditions of Service and shall produce plans and specifications suitable for the purpose of constructing the system.

3. **DEVELOPER'S WORK –** The Developer shall provide reasonable advanced notice to ORPC as to the timing of the project. The Developer shall arrange for the installation of civil works (trenching, concrete encased duct banks, transformer foundations, pad mounted switch foundations) in compliance with ORPC's plans, specifications and Conditions of Service. ORPC's decision on compliance shall be final.

4. **PLANS, DRAWINGS –** The Developer shall submit plans in a format acceptable to ORPC showing all existing and planned rights of way, water mains, gas mains, telephone cables, cablevision cables and other buried facilities with respect to the lands. The Developer shall further provide ORPC with copies of a plan showing the location of all dwellings and non-residential developments on the lands, to the satisfaction of ORPC. The Developer shall provide ORPC with soil surveys, grading plans and any other information pertaining to the work if so requested by ORPC. The Developer shall be responsible for providing to ORPC written confirmation of the necessary approvals by the municipality and any other branch or agency of the federal, provincial or municipal government or other utility whose approval or co-operation is required.

5. **CHANGES DURING CONSTRUCTION –** The Developer shall not vary the design of the system subsequent to the commencement of construction of the system, without first submitting such variation in writing to ORPC for approval. The Developer shall not implement any such variation unless approval in writing has been received from ORPC.

   ORPC reserves the right to modify, by written direction, upon reasonable notice to the Developer, at any time and as circumstances require, the plans and specifications, ORPC's work, or the Developer's work, to accommodate the requirements of ORPC or the Developer, the existing or changing regulations, standards, specifications or technical requirements of the system. The Developer shall perform, or pay, the cost of such changes without accounting or compensation from ORPC.

6. **SURVEY –** The Developer shall place and maintain in place, during the construction of the system, such survey markers as may be required by ORPC to properly locate the various components of the system. The Developer shall be liable for any loss, damage or additional expenditure occasioned to ORPC as a result of said grades and survey markers not being maintained as required.

7. **CHARGES FOR ORPC'S WORK**

7.1 The estimated cost for providing service to the proposed development is as follows:

- A capital contribution in the amount of $ _____ for those works installed and owned by ORPC *(add description of works).*

- A cost of $_____ for those work designed and installed by ORPC, which will remain the property of the Developer *(add description of works).*

The actual costs will be billed at the completion of the project. A deposit in the amount of 50% of the estimate will be required prior to ORPC commencing the detailed design and ordering of material. The remaining part of the deposit will be due 30 days prior to construction. The Developer shall pay ORPC interest at the rate of 1 ½ % per month on overdue accounts. The Developer acknowledges that the various payments hereby required to be made are collectively and individually, a consideration without which ORPC would not have executed this Agreement, nor extended the electrical facilities herein contemplated to service the lands. The Developer hereby relinquishes any right it may have to demand the provision of energy from ORPC until all payments required herein have been made, whether such right is given by common law or statute.

7.2 The Developer will be charged the cost of any additional designs of the system which are necessitated by changes from the Developer.

8. **LIABILITY –** The Developer agrees to indemnify ORPC against all damages, loss, actions, causes of action, suits, claims or demands whatsoever against ORPC arising directly or indirectly as a result of the Developer carrying out, or permitting to be carried out, by its express or implied consent, any work whatsoever pursuant to, or purportedly pursuant to, the terms of this Agreement. Notwithstanding the foregoing, the Developer shall not be required to indemnify ORPC with respect to damages, loss, actions, causes of action, suits, claims or demands arising out of ORPC's work. The Developer shall be liable for all damage to the system caused by the Developer, its employees, representatives, contractors, subcontractors or agents. The Developer shall provide a certified copy of an insurance policy to ORPC prior to the initiation of any work in a form and in the amount of $5 million and with an insurance company satisfactory to ORPC. Said policy of instance shall insure against all damages, or claims, of damage arising of the Developer's work and the Developer agrees that it shall be responsible for all premiums due with respect to the said policy of insurance. ORPC retains the right to require the Developer to provide proof that all premiums of the aforesaid policy or policies of insurance have been paid and that said insurance is in full force and effect, said proof to be to the satisfaction of ORPC.

9. **DAMAGES TO OTHER SERVICES –** The Developer shall be responsible for repairing any damages caused to any other service or utility by any activities arising directly, or indirectly, out of this Agreement, which are undertaken by the Developer. The obligation of the Developer herein shall continue until a Certificate of Acceptance has been issued for the whole system.

10. **CONVEYANCING OF EASEMENTS –** The Developer shall grant to ORPC, at the Developer's expense, and in a form acceptable to ORPC, such Transfer of Easement as ORPC deems necessary. The legal description of the lands to be encumbered by the easement described therein and the documents formally granting same to ORPC shall be prepared by the Developer to the satisfaction of ORPC and shall be registered by the Developer at the expense of the Developer. A copy of the registered Transfer of Easement document, and all associated registered plans, shall be submitted to ORPC for its records. Said easements shall be granted to ORPC for the sum of ONE ($1.00) DOLLAR. The Developer shall also obtain written consent, which acknowledges the existence of a postponement of interest in favour of ORPC, from any mortgagee, or chargee, or other encumbrancer of the lands described herein and of lands over which the easement is to be granted, who has a registered interest in the said lands described herein and of lands over which the easement is to be granted, who has a registered interest in the said lands described herein or lands over which the easement is to be granted, which might rank priority to that of ORPC, and shall affix same to all copies of this Agreement and/or related Transfer of Easement which are to be registered in the applicable Land Registry Office.

11. **TITLE TO THE SYSTEM –** The Developer shall retain full title to the system until a Certificate of Acceptance has been issued in respect of the system, at which time all title to the system shall be deemed transferred to ORPC. Upon issuance of a Certificate of Acceptance for the system, ORPC shall assume ownership and the responsibility for operating and maintaining those parts of the system for which it has agreed to be responsible in accordance with Section 7.

12. **TERM –** This Agreement shall commence at the time of execution by all parties thereto and shall remain in full force and effect until ORPC has delivered to the Developer a Certificate of Acceptance for the entirety of the System, or until this Agreement is terminated in accordance with its provisions, whichever occurs first or in the event that construction has not commenced within one year of the time of execution of this agreement, this agreement will terminate.

IN WITNESS WHEREOF the parties hereto bind their corporation under the hands of their proper signing officers authorized in that behalf, as the case may be.

"Developer" - **Ottawa River Power Corporation**

Per: _____ Per: _____

Date: _____ Date: _____

APPENDIX D

MIST METER AGREEMENT

RETAIL READ ONLY ACCESS AGREEMENT TO INTERVAL METERS

THIS AGREEMENT FOR ACCESS TO OTTAWA RIVER POWER CORPORATION RETAIL INTERVAL METERING DATA is made this _____ day of _____, 2003.

BETWEEN:

OTTAWA RIVER POWER CORPORATION, a corporation incorporated pursuant to the laws of the Province of Ontario and licensed by the Ontario Energy Board (hereinafter referred to as "ORPC")

PARTY OF THE FIRST PART:

-and-

_____

(insert legal corporate name of customer) (hereinafter referred to as the "customer")

PARTY OF THE SECOND PART

ORPC agrees to provide the Customer with electronic and/or physical access to the interval meter recorders detailed in Schedule A hereto (the "Meters") for the purpose of obtaining kilowatt hour and kilovar hour billing meter quantities from the recorder channels assigned in Schedule A (the "Metering Information"), subject to the following terms and conditions:

1. The term of this Agreement shall commence on the date first written above and shall remain in full force and effect unless terminated by either party in accordance with the provisions of this agreement.

2. ORPC will own the meters and all related equipment including revenue meters, recorders and transformers (the "Equipment") and shall have control access to this Equipment at any reasonable time for the purposes of installation, maintenance and repair.

3. The Customer shall only use software and communications protocols specifically approved by ORPC for accessing the Meters and electronic access thereto shall be limited to the communication line and channel designated in Schedule A. Customer access is limited to daily interrogations.

4. ORPC qualified personnel must accompany the Customer if the Customer wants physical access to meter faceplate for viewing. Any associated cost will be borne by the Customer at ORPC's discretion.

5. The Customer shall not open, change, alter, tamper with the Meters or Metering Information in any way, whether physically or electronically, nor attempt to access the Meters except as permitted by this Agreement.

6. ORPC cannot guarantee access to the Meters by the Customer or support the Customer in resolving problems specific to the Customer's software or equipment.

7. ORPC will not provide assistance for reading or interpretation of Metering Information and ORPC will not be responsible for any problems arising out of the use thereof.

8. The Customer shall advise ORPC of any failure of the Meters or its ability to access the Meters as soon as possible.

9. ORPC may, at its option, discontinue or alter the supply of access to Meters or Metering Information and/or remove the Meters in order to test, repair, replace, relocate, modify or upgrade the Equipment.

10. The Customer may request that Equipment be modified, upgraded, replaced or new metering equipment be installed, provided that same are on terms and conditions satisfactory to ORPC, and at the sole expense of the Customer.

11. The parties herby expressly agree that ORPC, its employees, officers, directors and affiliates shall not be liable for any damage, loss or injury of any kind whatsoever, whether to person or property, or whether in contract or tort (including negligence) including, without limitation, any director or consequential damages which may be suffered, or which arise out of, or which are in any way connected with or related to the subject matter of this agreement, including the discontinuity of, or use or interpretation of Metering Information.

12. Notwithstanding Section 1, this agreement:

    a) May be terminated by either party upon not less than 120 days written notice; and
    b) Shall be terminated if it contravenes the Market Rules or other statutes, regulations or orders of regulatory bodies with authority over the parties which come into effect during the term hereof.

13. All Metering Information, telephone numbers and passwords, MV90 master file data and any other information provided to the Customer pursuant to this agreement (the "Confidential Information") shall be kept confidential. The Customer agrees not to disclose or permit access to the Confidential Information to any third party, except to those of its employees, agents or subcontractors who have a need-to-know such information. Customer shall maintain the confidentiality of Confidential Information accessed pursuant to this agreement by exercising security measures no less stringent than it normally exercises with respect to its own confidential information. Customer further agrees to take appropriate action by way of instruction or agreement with its employees, consultants or agents who are permitted access to the Confidential Information, to ensure that such employees, consultants and other agents understand their obligations hereunder.

14. Any notice required to be given under this agreement shall be given in writing, by facsimile, registered mail or hand delivered, in the case of notice to the Customer, to:

(Customer to Complete Blanks as Required)

_____
(Customer contact – name and title)

_____
(Company name)

_____
(Company mailing address)

_____
(Street location address if different from mailing address)

_____
(City) (Province) (Postal Code)

_____
(Company phone number) (Company fax number)

and in the case of notice to ORPC, to:

(Name)
Ottawa River Power Corporation
283 Pembroke Street West
P.O. Box 1087
Pembroke, ON K8A 6Y6

Such notice shall conclusively deemed to be given:

a) By means of facsimile if during business hours when receipt is confirmed or the next business day if after business hours;
b) On the third business day after the day of such mailing by mail;
c) If personally delivered, at the time of such delivery if during business hours or the next business day if after business hours.

Each party shall notify the others in writing of any change in address or facsimile number for the purpose of this section, whereafter all notices shall be given at such new address.

15. Except as otherwise stipulated in this Agreement, the Customer shall not have the right to grant to third parties the right to access the Metering Equipment or the Metering Data.

16. Except as otherwise stipulated in this Agreement, the Customer shall neither appoint or retain an agent to perform all or any part of the Customer's rights and/or obligations under this Agreement, nor sub-contract or sub-delegate all or any part of its rights and/or obligations under this Agreement.

AGENT/CONTRACTOR

17. Subject to the terms, conditions covenants and provisions of this Agreement, a maximum of one approved agent may act as agent for the Customer in respect of the rights and obligations of the Customer under this Agreement.

18. ORPC may not unreasonably withhold its consent to the Customer's appointment of any agent selected by the Customer to exercise the Customer's rights and obligations under this Agreement.

19. The Customer shall be fully liable and responsible for all of the acts and omissions of the approved agent as though such acts and omissions were those of the Customer itself.

20. ORPC shall be permitted to treat the approved agent as the sole and exclusive agent for the Customer until such time as ORPC receives notice in writing from the Customer that the appointment of the approved agent has been terminated.

21. If the appointment of the approved agent has been terminated, the Customer shall, within 24 hours of such termination, provide to ORPC written notice of such termination ("Notice of Termination of Agent"). The Notice of Termination of Agent shall be deemed to be conclusive evidence of the termination of the appointment of the approved agent, and ORPC shall be entitled to rely on the Notice of Termination of Agent with complete impunity. As of the date of ORPC's receipt of the Notice of Termination of Agent, the approved agent shall no longer be deemed to be an approved agent under this Agreement.

22. ORPC may, with just reason, at any time, and despite its prior written consent to the appointment of the approved agent, retract its consent to the appointment of the approved agent or retract either temporarily or permanently all or some of the approved agent's rights as agent under this Agreement, including, without limitation, the approved agent's right to access, on behalf of the Customer, the Metering Data.

23. Any agreement by and between the Customer and the approved agent governing the subject matter of this Agreement shall incorporate by reference this Agreement and shall place an obligation on the approved agent to abide by the terms, conditions, covenants and provisions of this Agreement.

24. Immediately upon termination of this Agreement, regardless of the reasons for such termination, the approved agent shall cease to the be approved agent under this Agreement and shall cease to act on behalf of the Customer in the exercise of the Customer's rights and obligations under this Agreement.

The parties to this Agreement, having read the terms and being in agreement with them, hereby acknowledge their acceptance.

_____ _____
(Signature of Company executive and title) (Name) Ottawa River Power Corporation

_____
(Company legal name)

_____ _____
Date Date

Approved agent (Contractor) (If customer using an agent)
(Customer to fill in agent company name and arrange signature of agent/contractor)

ORPC, by its duly authorized signatory, hereby consents to the Customer's appointment of an agent for the Customer in respect of the Customer's rights and obligations under this Agreement.

_____
(Agent Company Name)

_____ _____
(Name) Ottawa River Power Corporation Date

_____
(Agent Company Name)

as agent for the Customer in respect of the Customer's rights and obligations under this Agreement, hereby agrees, by its duly authorized signatory, to be bound by the terms, conditions, covenants and provisions of this Agreement.

_____
(Agent's signature) Date

Name:
Title:
Mailing Address: _____

_____
(City) (Province) (Postal Code)

APPENDIX D

Schedule 'A'

IDENTIFICATION OF CUSTOMER METERING LOCATION

(To be completed by Ottawa River Power Corporation)

MV 90 ID #	Power Delivered Received	Meter or Recorder Ch # KW/Kvar	Customer Name and Address

APPENDIX D

Schedule 'B'

KEY CONTACTS

Subject	Networks	Customer (to be completed by customer)	Agent/Contractor (to be completed by agent/contractor)
Metering Information	Appropriate ORPC representative		
Termination of Agreement and any other matters requiring notice under the Agreement, provided the subject matter of such notice is not otherwise addressed in this Schedule 'B'	Appropriate ORPC representative		

APPENDIX G

Ottawa River Power Corporation

General Technical Requirements for Embedded Generators

This schedule provides the general technical and functional requirements for Embedded Generators. Embedded Generator includes any Embedded Generator or Load Customer with generation equipment that will, at any time, be electrically connected to or paralleled with the Distribution System.

Load Customers with generation equipment for load displacement which do not meet requirements to sell power should not export power to the Distribution System to which it is connected. Load Customers shall provide necessary control, protection and metering equipment to check and prevent such situations.

1. General Requirements

1.1 The Embedded Generator is responsible for designing, constructing and maintaining its Generation Facilities in accordance with Good Utility Practice so as not to cause a negative impact on the Distribution System or other customers at ORPC. The negative impacts can include, but are not limited to the impacts on safety, reliability, efficiency, power factor and power quality (voltage disturbances, voltage flicker, or objectionable harmonics on the Distribution System or on the other customer's electrical and communication systems). A list of some of the references that may be helpful to the Embedded Generator in designing, testing and commissioning its Generation Facility is included in Section 13 of this Schedule.

1.2 The Embedded Generator shall meet all ORPC design requirements, Code requirements and comply with the Ontario Electrical Safety Code (as administered by the Electrical Safety Authority). The Embedded Generator shall also meet the requirements mentioned in 'Appendix F.2 Protection Requirements Guide' of the Code.

1.3 If the Embedded Generation Facilities cause an unacceptable impact on ORPC Facilities and Equipment or the facilities of other customers, the Embedded Generator shall be responsible to design and implement modifications to correct the problem to the satisfaction of ORPC in accordance with Good Utility Practice. ORPC shall have the right to require the Embedded Generator to address any deficiency (ies) noted during operation of the Embedded Generation Facility.

1.4 For designing its Generation Facilities, the Embedded Generator shall obtain the services of experts in the relevant fields. ORPC will require that the Embedded Generator submit the descriptions of electrical and protection package signed and stamped by a Professional Engineer (Licenced in Ontario). As a minimum the package signed by the Professional Engineer shall include the single line diagram showing the key electrical components and protection relays, a description of the relay protection philosophy, proposed settings, testing and commissioning plan. The commissioning plan must describe the tests to be done to demonstrate the protection's effectiveness to trip for internal faults (within the Embedded Generation Facility), external faults on the Hydro One feeder, islanding, and other abnormal Distribution System conditions. Hydro One reserves the right to witness any or all the commissioning tests and future periodic tests. The testing and commissioning report of the Embedded Generation Facility and the final relay settings shall also be signed and stamped by the Embedded Generator's Professional Engineer.

1.5 The Embedded Generator is required to re-verify/test its protections, especially those impacting ORPC, on a regular basis, to verify that the system operates as designed:

1.6 every 4 years for microprocessor based systems and every 2 years for electro-mechanical based system. The re-verification/test report for the electrical and protection facilities shall be signed by a Professional Engineer. Embedded Generators already connected to ORPC shall provide proof to ORPC to establish the most recent date that the protections affecting ORPC were recalibrated and reverified.

1.7 The Embedded Generator is further responsible to ensure that:

- appropriately certified and rated equipment are correctly installed,
- personnel involved in operation and maintenance are properly trained in operation and safe working procedures;
- maintenance is carried out on a regular basis by qualified personnel;
- the installation, connections and operations is in compliance with all applicable laws.

1.8 As each Embedded Generation Facility will be unique (physical location, generator size, type, characteristics, etc.), ORPC will further review the requirements on a case-by-case basis.

1.9 Consideration will be given to small single phase and solar photo voltaic generation that may be used to displace building/residential loads, for which case the methods employed to meet the technical and functional requirements may be different.

1.10 The purpose of ORPC's review of the Embedded Generator's single line diagrams, protection and metering diagrams and other technical data is to establish that the Embedded Generator's electrical interface design meets the minimum ORPC requirements to permit the initial connection. It is the Embedded Generator's responsibility to ensure that its Generation Facility cause no negative impacts to the Distribution System or other customers of ORPC.

1.11 ORPC will not normally permit a wind generator to connect to the Distribution System neutral.

2. Disconnecting Device

2.1 The Embedded Generator shall provide, install and maintain (unless other arrangements are made and accepted by ORPC), suitable disconnecting devices(s) at the Point of Supply. The use of this device(s) will be to isolate the Embedded Generator in case of Emergency and for Work Protection. The disconnecting devices(s) shall:

2.1.1 be located at or near to the point of interface of the Embedded Generation Facilities to the Distribution System, and must be readily accessible;

2.1.2 provide a visible break in the main current-carrying path and isolate the Embedded Generation Facility from the Distribution System;

2.1.3 three-phase Embedded Generation Facilities shall have three-pole gang operated switch mechanisms suitable for load break operations at rated load (single-phase Embedded Generators may use single-pole devices subject to ORPC's acceptance);

2.1.4 be lockable in the open position;

2.1.5 be suitable for safe operation under the conditions of use;

2.1.6 be capable of being energized from both sides;

2.1.7 meet all other Ontario Electrical Safety Code requirements.

3. Step-Up Interface Transformer

The preferred type of step-up transformer depends on many factors including the size of the Embedded Generation Facility, the characteristics and grounding method of the specific distribution feeder that the Embedded Generator proposes to connect to. Prior to selecting the type of transformer, winding configuration and type of grounding the Embedded Generator
must submit the proposed single line diagram and other electrical information to ORPC for a technical review. The Embedded Generator must also ensure that the impact of the different core types is considered as well as the winding configuration and potential for unacceptable transformer backfeeds. The selection of transformer connection by the Embedded Generator will be a determining factor in establishing the connection and protection requirements.

4. Instrument Transformers

4.1 Instrument transformers (current & voltage transformers) shall be provided as required and in necessary quantities for proper protection, metering and synchronizing of the Embedded Generation Facility. Their ratings, burdens, accuracy classifications and connections shall be suitable for the intended use.

4.2 The location of metering instrument transformers is critical and must be accepted by ORPC. All revenue metering equipment that is part of the instrument transformer circuits must have Measurement Canada approval for billing, and must be inspected in accordance with Measurement Canada regulations.

5. Protection System Requirements

5.1 General

5.1.1 The Embedded Generator is responsible for providing suitable equipment (depending on the generator type chosen viz. synchronous, induction or static power inverter/converter), to protect its Generation Facility from internal faults and any conditions imposed by the Distribution System such as: reclosing, faults (short circuits and open phases), negative sequence currents, voltage unbalances, etc.

5.1.2 Protection relaying and systems must be designed to provide required safety, selectivity, reliability and speed of operation. In some cases redundancy in protection schemes/relays may be required. The Embedded Generator should consider these requirements in the design of its Generation Facility.

5.1.3 The Embedded Generator's protective relays at the interface point must coordinate with the existing ORPC protective devices for feeder protection. The Embedded Generator's protective system shall be capable of automatically isolating the Embedded Generator or its components from the Distribution System in the following situations:

- Internal faults within the Embedded Generator Facilities involving various electrical components, e.g. generators, transformers, bus bars, cables, motors;
- External faults in the Distribution System, such as phase and ground faults;
- Certain abnormal system conditions such as over/under voltage, over/under frequency, open phase(s);
- Islanding.

Description of the relay application and protection philosophy addressing the above requirements must be provided for ORPC's review and acceptance.

5.1.4 For the Embedded Generator connected to ORPC distribution feeders that are protected by single phase fault interrupting devices, necessary protections must be provided to reliably trip the Embedded Generator under any loading condition when a single phase device operates. This may require the Embedded Generator to provide additional protections to detect current and voltage unbalances.

5.1.5 To incorporate the connection of the Embedded Generator to the Distribution System, the feeder protection including settings and breaker reclosing scheme must be reviewed and modified, if necessary, by ORPC. Additional protection features such as 'remote/transfer trip', 'Embedded Generator end open' signals or voltage supervision to permit autoreclosing of the feeder breaker may be required in some applications. The Embedded Generator must be aware that protective equipment used by ORPC is solely for the purpose of the protection of the Distribution System. Additional protection/features/upgrades may be required for satisfactorily incorporating the generation to the Distribution System. The Embedded Generator is responsible to pay the cost of modifying ORPC facilities and equipment, as required, to permit the connection of the Generation Facility.

5.1.6 All interface protective relays shall be utility grade, meet ORPC requirements, IEEE/ANSI C37.90 design standards and shall be of the type generally used in utility systems. Adequate facilities for testing and maintenance shall be provided. Microprocessor based relays shall be equipped with self-checking/diagnostic features. The relays shall have sealable covers or other means to prevent tampering or unauthorized setting adjustments. The types and settings of the protective relays shall be submitted to ORPC for review and acceptance.

5.2 Interface Protection and Other Technical and Functional Requirements

Given below are the minimum technical and functional requirements that shall be met at the Point of Supply of the Embedded Generation Facility and the Distribution System. The devices used to meet these requirements can, however, be located elsewhere in the system.

5.2.1 Voltage Regulation: The Embedded Generator shall not degrade the voltage provided to the Customers outside the range given in CSA C235.

5.2.2 Integration with the Distribution System grounding and with grounding protection: The grounding scheme and the grounding fault protection of the Embedded Generator shall be coordinated with those of the Distribution System.

5.2.3 Synchronization: During synchronization, the Embedded Generator shall not cause a voltage fluctuation at the interface point of more than + or – 5% of the operating voltage.

5.2.4 Inadvertent Energization: The Embedded Generator shall not energize the interface point when the Distribution System has been de-energized for any reason.

5.2.5 Reconnection after ORPC System Outage: No reconnection shall take place until ORPC's supply voltage and frequency are within operating limits. The Embedded Generator shall be a suitable adjustable delay feature (typically 5 minutes) or as specified by ORPC.

5.2.6 Monitoring: ORPC may require that the Embedded Generator unit(s) be monitored for availability, connection status, real power output, imaginary power output, etc. at the point of connection. The Embedded Generator will be required to cover all costs associated with the installation of a Remote Terminal Unit (RTU) and associated hardware compatible with the SCADA system of ORPC.

5.2.7 Response to Voltage Disturbances: The protection functions of the interface protection system shall measure the effective (RMS) or fundamental frequency value of each phase-to-neutral or phase-to-phase voltage as required. The Embedded Generator unit shall disconnect from the Distribution System when any of the measured voltages are outside the permissible range. The range(s) and the clearing time(s) shall be determined by ORPC.

5.2.8 Response to Frequency Disturbances: The Embedded Generator unit shall follow the ORPC frequency within the range of 59.3 Hz to 60.5 Hz (on a 60 Hz base). The Embedded Generator unit shall disconnect from the Distribution System if the frequency goes outside the range above. The frequency limits and the corresponding clearing times shall be determined by ORPC.

5.2.9 Disconnection for Faults: The Embedded Generator shall disconnect from the Distribution System for faults on the feeder to which it is connected.

5.2.10 Loss of Synchronism: Embedded Generation Facilities with synchronous generators shall have necessary protective functions to trip the Embedded Generator from the Distribution System without any intentional delay in case of loss of synchronism.

5.2.11 Feeder Reclosing Co-ordination: The Embedded Generation Facility shall be designed to co-ordinate with ORPC feeder reclosing practice. ORPC is not liable for the damage to the Embedded Generator Facility due to the reclosure of a feeder breaker.

5.2.12 Limitation of DC Injection: The DC injection shall be limited as per item 4.3.1 of IEEE P1547/D08 or the latest revision of the draft standard, as applicable.

5.2.13 Limitation of Voltage Flicker Induced by the Embedded Generator: The Embedded Generator shall not create objectionable flicker for other customers on ORPC feeder.

5.2.14 Harmonics: The maximum harmonic current distortions shall be limited as per the values given in Table 2 of IEEE P1547/D08 or the latest revision of the draft standard, as applicable.

5.2.15 Immunity Protection: The influence of electromagnetic interference (EMI) shall not result in a change of state or mis-operation of the interface system.

5.2.16 Surge Capability: The interface system shall have the capability to withstand voltage and current surges in accordance with the environments defined in IEEE/ANSI C 62.41 or IEEE C 37.90.1 as applicable.

5.2.17 Unintentional Islanding: Islanding is a condition in which a portion of the Distribution System may be energized solely by the Embedded Generator while that portion of the system is electrically separated from the rest of the Distribution System. If such a situation is created, the Embedded Generator shall disconnect from the ORPC feeder within a time period that shall be specified by ORPC depending upon the site specific requirements.

5.3 Remote/Transfer Trip/ "Embedded Generator End Open" Status

Depending on the type and rating of generation connected to the distribution feeder and minimum feeder load, remove/transfer trip feature between the feeder breaker at the distribution/transformer station and Embedded Generation Facilities may be required. The main purpose of the remote/transfer trip signal, when used, will be to 'speed up' the tripping at the Embedded Generation Facility following the tripping of the feeder breaker to prevent an islanding situation. Necessary protection at the Embedded Generation Facility must be provided in all cases to independently detect and trip for islanding situations (should the communication channel fail).

If the Embedded Generation Facility can operate successfully in an island mode, i.e. it can maintain normal voltage and frequency, then a remove/transfer trip must be provided to isolate the Embedded Generation Facility.

If the Generation Facility connected to the feeder is less than 50 percent of the minimum feeder loading, a remove/transfer trip may not be required. However, the Embedded Generator is required to provide redundant islanding protection timed to ensure that the interface breaker is tripped prior to the feeder breaker reclosing. The remove/transfer trip protection may be required if the autoreclose time setting on the feeder breaker is less than 1 second.

A confirmation signal: 'Embedded Generator end open' or a voltage supervision scheme may be required to be implemented in the reclosing scheme of the feeder breaker at the distribution/transformer station. ORPC will determine the requirements of remove/transfer trip, Embedded Generator end open status, voltage supervision, etc. for the particular Embedded Generation Facility on a case-by-case basis.

If communication is required, the Embedded Generator will be responsible to provide a reliable communication channel between its Generation Facility and the distribution station. A ground potential rise study may also be required for Embedded Generation Facilities for the installation of telephone wires as the communication channel between the distribution station and Embedded Generator. The study is to ensure that the Embedded Generation Facilities do not present a safety hazard or adversely affect telecom and protection systems.

5.4 Protection System Failure

If at any time, the protection system or the communication channel for remove/transfer trip is not functioning or out of service, or the DC supply is lost, the generator/interface breaker must be opened to isolate the Embedded Generator from the Distribution System and ORPC informed accordingly. The breaker(s) must remain open until the affected system is returned to normal service condition.

Site specific requirements will be specified by ORPC.

6. Fault Levels and Protection Co-ordination

Upon request from the Embedded Generator, ORPC will provide information on three-phase and single-phase-to-ground fault levels, associated X/R ratios at the interface point, breaker/recloser operation time and any other relevant information needed by the Embedded Generator to work out and propose interface protection relay settings.

The Embedded Generator shall provide interface protection relay settings to ORPC for review and acceptance.

The additional fault current contribution from the generator will result in an increase in fault levels that may have an impact on the Distribution System. ORPC may require the Embedded Generator to limit the generator fault current contribution to protect the ORPC facilities and equipment (such as breaker), if the fault current is expected to be greater than its design limits.

7. Telecommunications

The telecommunication facilities, used for protection purposes, shall have a level of reliability consistent with the required performance of the protection system.

ORPC shall review telecommunication channel media.

Telecommunication circuits used for the protection and control of the Distribution System shall be dedicated to that purpose.

Telecommunication systems shall be:

- designed to prevent unwanted operations such as those caused by equipment or personnel;
- powered by the station's batteries or other sources independent from the power system; and
- monitored in order to assess equipment and channel readiness.

8. Metering Requirements

Refer to 3.5 – Embedded Generation.

9. Grounding

The Embedded Generator shall design a proper grounding system for the Generation Facility in accordance with all Applicable Laws. Grounding installations shall be capable of carrying the maximum foreseeable fault current, for the duration of such fault, without risking safety to the public or other personnel that may be present on site when a fault occurs. The grounding system design shall prevent equipment damage and interference with the operation of the Distribution System and any communication system that may be present.

The Embedded Generator shall provide grounding system design and ground potential rise (GPR) study if requested by ORPC.

10. Commissioning and Verification of the Embedded Generation Facilities

The Embedded Generator shall submit a proposed commissioning plan to ORPC for any Generation Facility connecting to the Distribution system for ORPC's review. ORPC reserves the right to witness any or all commissioning tests and request additional tests that it deems necessary to be performed. The Embedded Generator is responsible for providing qualified personnel who will complete all required tests.

The commissioning plan must be signed by a Professional Engineer and must detail how the Embedded Generator will demonstrate that the protections and fault interrupting devices will detect and clear the required conditions and automatically separate the Generation Facility from the Distribution System. ORPC may also require that tests be carried out to screen for possible power quality problems caused by the operation of the Embedded Generation Facility.

Before parallel operation with Distribution System is allowed, field verification may be required by ORPC.

Pre-parallel inspection and testing shall include but not be limited to:

- CT and VT ratio tests
- CT and VT secondary circuit tests to verify phasing, polarity, continuity and single ground reference
- Completion of relay manufacturer's recommended acceptance tests as listed in instruction manuals
- Witnessing the testing of relays and their settings as per ORPC's accepted settings (Embedded Generator's and ORPC's testing personnel must have copies of the accepted settings before testing begins)
- Tests to verify that relays trip breakers according to ORPC's accepted Embedded Generator's schematic diagram/tripping matrix
- Tests of phasing between ORPC and Embedded Generation Facilities (primary voltage)
- Directionality test on distance, reverse power and any other directional relays used for interface protection
- Final synchronization tests, before paralleling the two systems, to verify that the generator(s) in the Embedded Generation Facility are in phase with the Distribution System
- Checking remove/transfer trips and Embedded Generator end open signals, where applicable
- Tests to prove the interface protection and functional requirements
- Other tests, as required

11. As-Built Drawings

As built drawings (single line diagram showing protection and metering, AC and DC schematics, final relay settings, testing and commissioning results for interface protection, etc.) shall be submitted to ORPC within sixty business days after the connection. ORPC may retain these for future reference.

12. Hydro One Access

Immediate access to the interface switch (es) must be provided on a 24 hour, 7 days a week basis for ORPC personnel or its agents. The Embedded Generator shall also provide access to the rest of the Generation Facility if requested by ORPC.

13. References

- IEEE P 1547/D08 – Draft Standard for Interconnecting Distributed Resources with Electric Power Systems
- CEA No. 128 D 767 – Connecting Small Generators to Utility Distribution Systems
- ANSI/IEEE C37.95 – IEEE Guide for Protective Relaying of Utility-Consumer Interconnections
- Technical Requirements to Connect Parallel Generators to the Ontario Hydro Distribution Electricity System by D. Kundu, IEEE Transactions on Energy Conversion, Vol. 7, No. 1, March 1992
- ANSI/IEEE Std. 1001 – Guide for Interfacing Dispersed Storage and Generation Facilities with Electric Utility Systems

APPENDIX H

OTTAWA RIVER POWER CORPORATION

Standard Subdivision Agreement

THIS AGREEMENT made in duplicate this day of , 200 .

BETWEEN:

*

hereinafter called the "Developer"

OF THE FIRST PART

-and-

OTTAWA RIVER POWER CORPORATION

hereinafter called "Power"

OF THE SECOND PART

WHEREAS the Developer is a limited company incorporated pursuant to the laws of the Province of Ontario, and has its head office located in

AND WHEREAS the Developer has represented to Power that it is the Developer of the lands as shown on Schedule "*" hereto) hereinafter called the said "lands").

AND WHEREAS Power is the sole authority, duly constituted for the distribution of electrical power in and for the Corporation of the City of Pembroke.

AND WHEREAS the Developer has requested Power to install the several works for the installation of hydro services and perform the work required to ensure that those services are supplied to the said lands (hereinafter called the said "works").

AND WHEREAS Power has agreed to the registration of the Plan of Subdivision for the lands as described in Schedule "*" to install the said works on the terms and conditions hereinafter set forth.

AND WHEREAS the Developer shall pay to Power the costs for the said works.

AND WHEREAS it is agreed that this agreement shall form part of the Subdivision Agreement between the Developer and the Corporation of the City of Pembroke.

NOW THEREFORE THIS INDENTURE witnesseth that in consideration of the mutual covenants and agreements hereinafter contained, and the sum of One ($1.00) Dollar of lawful money of Canada, now paid by Power to the Developer (the receipt whereof is hereby acknowledged), the parties agree as follows:

SUPPLY & INSTALLATION OF THE WORKS

1. Subsequent to the registration of the proposed Plan of Subdivision of the said lands as set out in Schedule 'A' and the execution of the Subdivision Agreement between the Developer and the Corporation of the City of Pembroke, and subject to the other terms of this agreement, Power shall supply and install the works set out in Schedule 'C' attached hereto.

2. The said works shall be supplied and installed on the request of the Developer, provided that the Developer is not in default under any of the terms of this agreement, or the Subdivision Agreement between the Developer and the Corporation of the City of Pembroke.

PAYMENT OF THE WORKS

3. The Developer shall pay to Power for the supply and installation of the works the sum of $ to be paid to Power as follows:

   a) The sum of $….. on the execution of this Agreement by the parties.
   b) The sum of $….. within fifteen days of the invoice of Power following completion of Power's work to install the works.
   c) Payment by the Developer in advance of the fee of $3.82 per foot in supply of any individual customer services on private property with payment in advance before the work is undertaken by Power.

TITLE TO ELECTRICAL DISTRIBUTION SYSTEM

4. Notwithstanding anything contained herein to the contrary the title to the electrical distribution system pursuant to this agreement shall at all times remain in Power.

EASEMENTS

5. The Developer shall grant at its expense such easements, free of encumbrances, as may be required to effect a proper and adequate installation of the electrical works and such other easements determined by power that may be necessary for future electrical needs. The location of the easements is to be determined in consultation with Power. The Developer shall prepare all necessary documents and survey plans for registration. Power may require that the grants of easements include grants to Bell Canada and any keyhole operator or other licensed communications operator whose cables are involved in all or any part of the installation of the works.

LIABILITY

6. The Developer shall be responsible for the total cost associated with repair of any damage to the works owned by power, excepting damage caused by faulty electrical installation, no matter how caused, until such time as roads, streets, or highways as set out in the Plan of Subdivision (hereinafter referred to as the "roads") have been assumed by The Corporation of the City of Pembroke under by-law.

SCHEDULE OF COMPLETION

7. Power shall complete the works pursuant to the Schedule 'D' attached hereto, which schedule shall form part of this agreement.

8. If for any reason, Power is delayed in performing any of its works herein and including delivery or installation of materials, or in the supervision of the Developer's work, then it shall not be subject to the payment of any additional costs incurred by the Developer as a result of such delay.

INSURANCE

9. The Developer, as a condition precedent to this agreement, shall at its own expense, obtain and lodge with power and with the Corporation of the City of Pembroke a policy or policies of insurance satisfactory to Power indemnifying Power and the Corporation of the City of Pembroke by the Developer with cost liability endorsement against any claim for public liability, personal injury including death or property damages to a limit of $5 million for any one accident arising in any way out of the construction and installation, repair or maintenance of the works and services to be done hereunder.

10. The said policy of insurance shall be maintained in full force and effect at the expense of the Developer until the termination of this agreement.

11. The Developer is responsible to notify Power immediately in the event that the insurance coverage required to be provided hereunder is to be lowered or terminated.

12. The Developer shall provide a copy of the said policy of insurance to Power for the commencement of the works by Power.

ARBITRATION

13. All matters in difference between the parties in relation to this agreement shall be referred to the arbitration of a single arbitrator, if the parties agree upon one, otherwise to three arbitrators, one to be appointed by each party and a third to be chosen by the first two named before they enter upon the business of arbitration. The award and determination of the arbitrator or arbitrators or any two of the three arbitrators shall be binding upon the parties and their respective heirs, executors, administrators or assigns.

WORKS TO BE PERFORMED BY DEVELOPER

14. The Developer shall complete all works as set out in Schedule ">>", such work to be performed to the satisfaction of Power.

LANDS CHARGED

15. The Developer agrees that this agreement, in conjunction with any Subdivision Agreement between the Developer and the Corporation of the City of Pembroke, shall be a first charge upon the lands.

16. The Developer agrees that if at the time of registration of this agreement there are any encumbrances, other than the said subdivision agreement referred to herein, the Developer will arrange for the discharge of the encumbrances from title, or in the alternative, shall obtain postponement agreements from each of the encumbrances in favour of Power, such postponement to be in priority to any encumbrances of this agreement.

MAINTENANCE

17. The Developer agrees to maintain the works for a period of two (2) years after completion and to be responsible for the said maintenance and to rectify and cure any problems associated with the works done by the Developer to the satisfaction of Power.

RELEASE

18. Power agrees to provide a release and discharge, at the expense of the Developer, of any charges created by this agreement upon the performance by the Developer of all terms and conditions which are outstanding at the time of discharge or release as requested by the Developer.

NOTICE TO PURCHASERS

19. The Developer shall advise purchasers of the lands by including in all agreements of purchase and sale a paragraph to the effect that arrangements must be made with Power for the supply and installation of underground electrical services including transformation from the electrical plant to the consumer's delivery point.

20. The details of and charges for these electrical services shall be in accordance with power standards policies and procedures as well as powers regulations respecting electrical equipment and conditions of services and supply of electrical energy.

REGISTRATION

21. The Developer and Power agree that this agreement shall be registered on title to the lands, either as part of the subdivision agreement, or separately at the discretion of Power.

FEEDER LINE COSTS

22. The Developer shall pay to Power at the time of submission of this agreement to Power the Developer's portion of the costs as calculated by Power of those electrical feeder lines in the general planning area in which the lands are situated, which Power determines benefit the lands.

23. The Developer's portion of the costs of the feeder line shall be calculated by Power to the extent possible on the basis that all lands deemed by the Power to benefit from the feeder lines shall be a fair and reasonable portion of the total costs.

STREET LIGHTING

24. In addition to the works referred to herein, Power shall supply the equipment necessary to install street lighting and shall recover from the Developer the total costs of street lighting in the amount of $

25. The cost of street lighting shall be paid as follows:

    a) $ when the work is commenced by the Developer; and
    b) $ within fifteen days of the completion of the work by the Developer after invoice.

MISCELLANEOUS

26. This Agreement shall enure to the benefit of and be binding upon the parties hereof and their respective heirs, administrators, successors and assigns.

27. This Agreement shall not be assigned without the written consent of Power and shall be registered on the title of the property as set out in Schedule 'A'.

28. Schedules ' . . . . .', if applicable, shall be read with and form part of this Agreement.

29. Invoices or notices given pursuant to this Agreement, if required to be given to Power, shall be delivered or mailed by prepaid post to:

    Ottawa River Power Corporation
    P.O. Box 1087
    Pembroke, ON K8A 6Y6

    and if required to be given to the Developer, shall be delivered or mailed by prepaid post to:

    *

    Each party has the right to change its address for the purpose of notices hereunder by a notice to the other at the address then in force hereunder. All invoices or notices shall be deemed to have been received on the date of delivery where the notice or invoice is in fact delivered, or on the second day following the day on which the invoice or notice was mailed.

    IN WITNESS WHEREOF of parties hereto have hereunto set their corporate seals attested by the hands of its proper officers duly authorized in that behalf.

    SIGNED, SEALED AND DELIVERED
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) OTTAWA RIVER POWER CORPORATION
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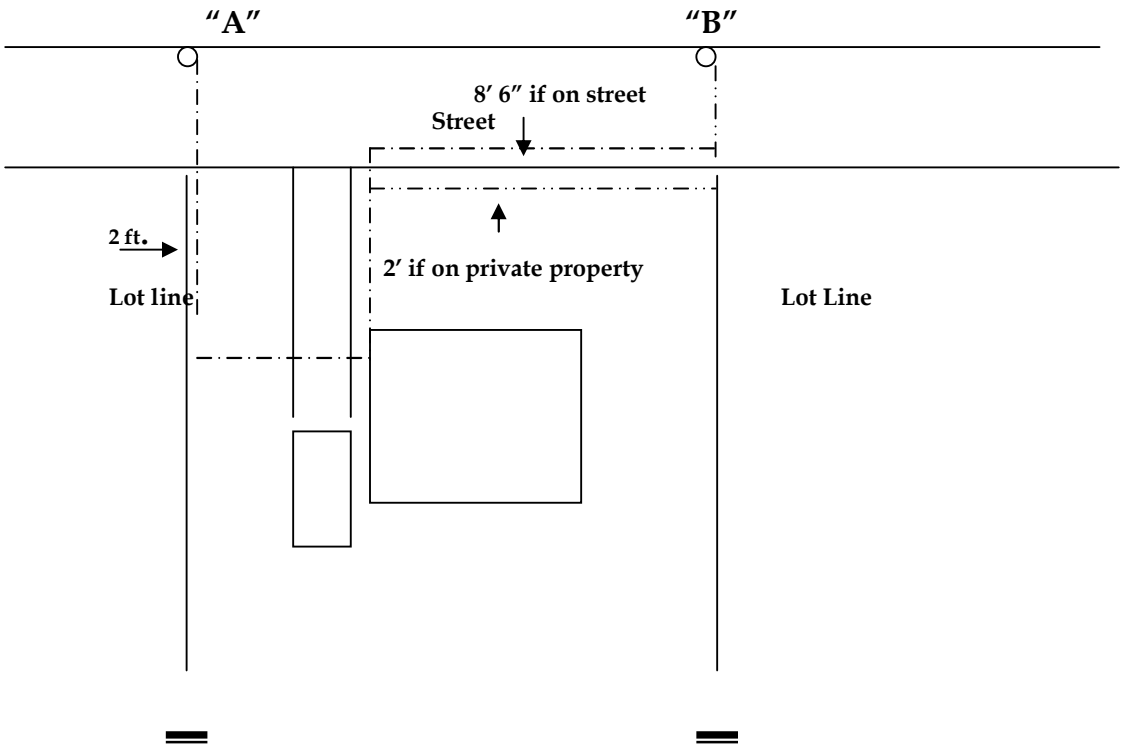
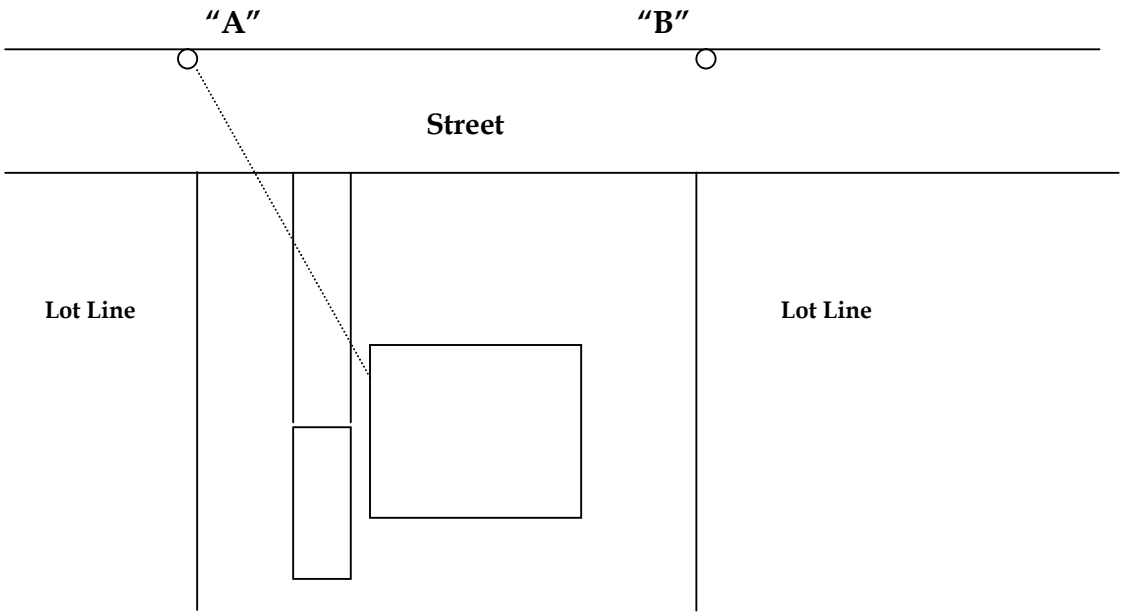
APPENDIX I

Underground 120/240 Standard Service Lay Out Location



Overhead 120/240 Residential Service



APPENDIX J

OTTAWA RIVER POWER CORPORATION

Information Sheet for Development

Name and Location of Project: _____

Project Principals: _____

Telephone: _____ Fax: _____ Email: _____

Nature/Type of Project:
(i.e. *Industrial, Commercial, Residential, Town Houses, Apartments, etc.*)

_____

Underground or Overhead: _____

General Description of Project: _____

_____

_____

Requested Energized Date: _____

Date of Project Commencement: _____

Duration and Completion Date of Project: _____

Preferred Service Entrance Location (*Industrial*): _____

Listing of Large Motors/Loads (*please attach*) _____

Number of Units or Estimated Load: _____

Load Summary Attached: _____

Project Phases, By Year: _____

Scaled Plot Plans Indicating Adjacent Streets and Buildings: _____

Anticipated Customer Loads by Development Phase: _____

Temporary Power Requirement:
Single phase: _____ Three phase: Voltage/capacity required: _____

Consultant Contact: _____

Telephone: _____ Fax: _____

Address: _____ Email: _____

APPENDIX L

Primary Service Supply – Overhead Primary line – Transformation – Table A

Distribution Voltage (kV)

	4.16	**8.32**	**12.4**
Maximum Primary Circuit Supply (kVA)	300	750	1000
Type of Supply (radial/looped)	radial	radial	radial
Type of Transformer (Padmount or Vault)	Pad/Vault	Pad/Vault	Pad/Vault
Maximum size of ORPC supplied transformer per customer per primary circuit (kVA)	300	750 (note 4)	1000 (note 4)
Maximum motor size for starting current	¨4 starts/hour = 100 HP max > 4 starts/hour = 50 HP max	U/C	¨ 4 starts/hour = 100 HP max > 4 starts/hour = 50 HP max

Notes:

1. The maximum size of a transformer is 1500 kVA. For installations greater than 4500 kVA, multiple banks are required.

2. The provision of three-phase service from an underground feeder will only be allowed in areas where the distribution system can accommodate the proposed service. Contact ORPC to discuss your requirements.

3. A loop is defined as two supplies to one or more devices.

4. Maximum padmount transformer size @ 120/208 volts is 500 kVA.

5. Availability of padmount transformers is restricted within specific areas of the urban core.

6. Customer owned transformer.

7. When Customer supplies equipment, it must be to ORPC specifications, c/w performance guarantee.

APPENDIX L

Primary Service Supply – Underground Feeder – Transformation – Table B

Distribution Voltage (kV)

	4.16	**8.32**	**12.4**
Maximum Primary Circuit Supply (kVA)	300 (note 2)	750 (note 2)	4000 (note 2)
Type of Supply (radial/looped)	loop (note 3)	loop (note 3)	loop (note 3)
Type of Transformer (Padmount or Vault)	Vault	Pad/Vault	Pad/Vault
Maximum size of ORPC supplied transformer per customer per primary circuit (kVA)	300	750	1500
Maximum motor size for starting current	¨4 starts/hour = 100 HP max > 4 starts/hour = 50 HP max	U/C	¨ 4 starts/hour = 100 HP max > 4 starts/hour = 50 HP max

Notes:

1. The maximum size of a transformer is 1500 kVA. For installations greater than 4500 kVA, multiple banks are required.

2. The provision of three-phase service from an underground feeder will only be allowed in areas where the distribution system can accommodate the proposed service. Contact ORPC to discuss your requirements.

3. A loop is defined as two supplies to one or more devices.

4. Maximum padmount transformer size @ 120/208 volts is 500 kVA.

5. Availability of padmount transformers is restricted within specific areas of the urban core.

6. Customer owned transformer.

7. When Customer supplies equipment, it must be to ORPC specifications, c/w performance guarantee.