

FOR BOARD ACTION

Agenda Item # 5

Meeting Date:

4/26/05

SUBJECT: Rules Covering Cogeneration and Small Power Production Facilities

PREPARED BY: Patty Hanson, Residential Account Representative

ITEM DESCRIPTION:

There are situations in which a customer will produce electricity and want to sell the excess to RPU. In 1985, the RPU Board adopted a variation of the State's rules regarding cogeneration and small power production, and the sale of power by these facilities to RPU. These rules pertain to issues such as:

- 1.) Which customers qualify as a co-generator or a small power producer who can sell power to RPU;
- 2.) Technical requirements for interconnection with RPU's system;
- 3.) A standard contract to be used, and other conditions of service;
- 4.) Reporting and accessibility of information;
- 5.) Methods for calculating costs and rates to pay co-generators and small power producers; and,
- 6.) Billing parameters.

The rules currently in effect for RPU are outdated. You have received the proposed revised rules with all its schedules and attachments, including a new proposed tariff, and a copy of the PowerPoint slides that will be used to further explain these rules. Until recently RPU has not had any qualifying co-generators or small power producers, so the existing rules never had to be used. Now RPU has one such customer, and the rules need to be updated. One of the biggest changes has to do with the fact that RPU is no longer a full-requirements customer of SMMPA; thus, the rules for calculating avoided costs that are used to determine how much to pay the co-generator or small power producer are different.

UTILITY BOARD ACTION REQUESTED:

This is a discussion item. If the Board concurs with staff's recommendation to adopt the updated rules and regulations regarding cogeneration and small power production in accordance with Minnesota Statutes, Section 216B.164, the Board is requested to direct staff to advertise the new rate schedule in the Post-Bulletin to meet the 30 day public notification required in "Board Policy - Rates," and to schedule the new rate for approval at their regularly scheduled May 2005 Board meeting.

Walter Holder

W. General Manager

4-22-05

Date

ROCHESTER PUBLIC UTILITIES

ROCHESTER PUBLIC UTILITIES
CITY OF ROCHESTER, MINNESOTA

RULES COVERING COGENERATION AND SMALL POWER
PRODUCTION FACILITIES

Section I Scope and Purpose

The purpose of these rules covering cogeneration and small power production facilities (the“rules”) is to implement certain provisions of Minnesota Statutes, section 216B.164; the Public Utility Regulatory Policies Act of 1978, United States Code, title 16, section 824a-3 (Supplement III, 1979); and the Federal Energy Regulatory Commission regulations, Code of Federal Regulations, title 18, section 292.101–292.602 (1981). These rules shall at all times be applied in accordance with their intent to give the maximum possible encouragement to cogeneration and small power production consistent with protection of the ratepayers and the public.

Section II Definitions

- A. Applicability. For purposes of these rules the following terms have the meanings given them.
- B. Average annual fuel savings. "Average annual fuel savings" means the annualized difference between the system fuel costs that the utility would have incurred without the additional generation facility and the system fuel costs the utility is expected to incur with the additional generation facility. This savings can be either positive or negative.
- C. Average retail utility energy rate. "Average retail utility energy rate" means, for any class of utility customer, the quotient of the total annual class revenue from sales of electricity minus the annual revenue resulting from fixed customer charges, divided by the annual class kilowatt-hour sales. Data from the most recent 12-month period available prior to each filing made under Section III shall be used in the computation.

- D. Backup power. "Backup power" means electric energy or capacity supplied by RPU to replace energy ordinarily generated by a qualifying facility's own generation equipment during an unscheduled outage of the facility.
- E. Board. "Board" means the Rochester Public Utilities Board.
- F. Capacity. "Capacity" means the capability to produce, transmit, or deliver electric energy.
- G. Capacity costs. "Capacity costs" means the costs associated with providing the capability to produce, transmit, or deliver electric energy. They consist of the capital costs of facilities used to generate, transmit, and distribute electricity and the fixed operating and maintenance costs of these facilities.
- H. Commission. "Commission" means the Minnesota Public Utilities Commission.
- I. Energy. "Energy" means electric energy, measured in kilowatt-hours.
- J. Energy costs. "Energy costs" means the costs paid by RPU for the energy supplied during the most recent calendar year.
- K. Firm power. "Firm power" means energy delivered by the qualifying facility to the utility with at least a 65 percent on-peak capacity factor in the month. The capacity factor is based upon the qualifying facility's maximum on-peak metered capacity delivered to the utility during the month.
- L. Incremental cost of capital. "Incremental cost of capital" means the current weighted cost of the components of RPU's capital structure, each cost weighted by its proportion of the total capitalization.
- M. Interconnection costs. "Interconnection costs" means the reasonable costs of connection, switching, metering, communication, transmission, distribution, protection and safety equipment and provisions, and administrative costs incurred by RPU that are directly related to installing and maintaining the physical facilities necessary to permit interconnected operations with a qualifying facility. Costs are considered interconnection costs only to the extent that they exceed the corresponding costs which

RPU would have incurred if it had not engaged in interconnected operations, but instead generated from its own facilities or purchased from other sources an equivalent amount of electric energy or capacity. Costs are considered interconnection costs only to the extent that they exceed the costs RPU would incur in selling electricity to the qualifying facility as a non-generating customer. Existing customers of RPU who subsequently obtain qualifying status and request service under these rules may also be required to compensate RPU for the unamortized costs of any transmission or distribution facilities (or portions thereof) which become surplus due to changes in the customer's electrical requirements.

- N. Interruptible power. "Interruptible power" means electric energy or capacity supplied by RPU to a qualifying facility subject to interruption under the provisions of the RPU tariff applicable to the retail class of customers to which the qualifying facility would belong irrespective of its ability to generate electricity.
- O. Maintenance power. "Maintenance power" means electric energy or capacity supplied by RPU during scheduled outages of the qualifying facility.
- P. Marginal capital carrying charge rate in the first year of investment. "Marginal capital carrying charge rate in the first year of investment" means the percentage factor by which the amount of a new capital investment in a generating unit would have to be multiplied to obtain an amount equal to the total additional first year amounts for the cost of equity and debt capital, income taxes, property and other taxes, tax credits (amortized over the useful life of the generating unit), depreciation, and insurance which would be associated with the new capital investment and would account for the likely inflationary or deflationary changes in the investment cost due to the one-year delay in building the unit.
- Q. Non-generating utility. "Non-generating utility" means a utility whose electric generating facilities are ordinarily dispatched by another entity.

- R. On-peak hours. "On-peak hours" means either those hours formally designated from time-to-time by RPU as on-peak for ratemaking purposes or those hours for which its typical loads are at least 85 percent of its average maximum monthly loads or other hours designated as "on-peak" by RPU.
- S. Purchase. "Purchase" means the purchase of electric energy or capacity or both from a qualifying facility by RPU.
- T. Qualifying facility. "Qualifying facility" means a cogeneration or small power production facility which satisfies the conditions established in Code of Federal Regulations, title 18, section 292.101 (b) (1) (1981), as applied when interpreted in accordance with the amendments to Code of Federal Regulations, title 18, sections 292.201-292.207 adopted through 46 Federal Register 33025-33027 (1981).
- U. RPU. "RPU" means the Rochester Public Utilities.
- V. Sale. "Sale" means the sale of electric energy or capacity or both by RPU to a qualifying facility.
- W. SMMPA. "SMMPA" means the Southern Minnesota Municipal Power Agency.
- X. Supplementary power. "Supplementary power" means electric energy or capacity supplied by RPU which is regularly used by a qualifying facility in addition to that which the facility generates itself.
- Y. System emergency. "System emergency" means a condition on the RPU system which is imminently likely to result in significant disruption of service to customers or to endanger life or property.
- Z. System incremental energy costs. "System incremental energy costs" means amounts representing the hourly energy costs associated with RPU supplying the next kilowatt-hour of load during each hour.

Section III Filings

- A. Schedules A through J attached hereto are hereby filed by RPU and shall remain in effect until modified or superseded by the Board. RPU will update

these schedules after each calendar year as the required data becomes available.

- B. Schedule A. Schedule A must contain the estimated annual average system incremental energy costs for each of the next five years. The annual average system incremental energy costs must be averaged over all hours in the year. The energy costs must be increased by a factor equal to 50 percent of the line losses shown in Schedule B.
- C. Schedule B. Schedule B will be filed by RPU and will contain the information listed in 1.-5.
 - 1. Schedule B shall contain a description of the generating facility additions anticipated during the next ten years which may be components of RPU's energy costs, including:
 - a. Name of unit (if named);
 - b. Nameplate rating proposed;
 - c. Fuel type proposed;
 - d. Anticipated in-service date;
 - e. Completed cost in dollars per kilowatt in the year in which the plant is expected to be put in service, including allowance for funds used during construction;
 - f. Anticipated average annual fixed operating and maintenance costs in dollars per kilowatt;
 - g. Anticipated average annual energy costs associated with the unit, including fuel costs and variable operating and maintenance costs, in dollars per kilowatt-hour;
 - h. Projected average number of kilowatt-hours per year the plant will generate during its useful life; and
 - i. Average annual fuel savings resulting from the addition of this generating facility, stated in dollars per kilowatt.
 - 2. Schedule B shall contain a description of all planned firm capacity purchases, other than from qualifying facilities, during the next ten years, including:

- a. Year of the purchase;
 - b. Name of the seller (if known);
 - c. Number of kilowatts of capacity to be purchased;
 - d. Capacity cost in dollars per kilowatt; and
 - e. Associated energy cost in cents per kilowatt-hour.
3. Schedule B shall contain RPU's overall average percentage of line losses due to the distribution, transmission and transformation of electric energy.
4. Schedule B shall contain RPU's net annual avoided capacity cost stated in dollars per kilowatt-hour averaged over all hours in the year for generation facilities. This figure shall be calculated as follows:
 - a. The completed cost per kilowatt of the next major generating facility addition which will be a component of RPU's energy cost, as reported in Schedule B, shall be multiplied by RPU's marginal capital carrying charge rate in the first year of investment. If RPU is unable to determine this carrying charge rate as specified, the rate of 15% shall be used.
 - b. The dollar amount resulting from the calculation set forth in a. shall be discounted to present value, as of the midpoint of the reporting year, from the in-service date of the generating unit. The discount rate used shall be the incremental cost of capital.
 - c. The figure for average annual fuel savings per kilowatt described in 1.i. shall be discounted to present value using the procedure of b.
 - d. The number resulting from the calculation in c. whether positive or negative shall be subtracted from the number resulting from the calculation in b. This is the net annual avoided capacity cost stated in dollars per kilowatt at present value.
 - e. The net annual avoided capacity cost calculated in d. shall be multiplied by 1.15 to recognize a reserve margin.

- f. The figure determined from the calculation of e. shall be increased by the present value of the anticipated average annual fixed operating and maintenance costs as report in 1.f. The present value shall be determined using the procedure of b.
 - g. The figure determined from the calculation of f. shall be increased by one-half of the percentage amount of the average system line losses as shown on Schedule B.
 - h. The annual dollar per kilowatt figure resulting from the calculation specified in g. shall be divided by the total number of hours in the year. The resulting figure is RPU's net annual avoided capacity cost in dollars per kilowatt-hour.
5. If RPU has no planned major generating facility additions for the ensuing ten years which will affect its energy cost, but has planned additional capacity purchases, other than from qualifying facilities, during the ensuing ten years, Schedule B shall contain its net annual avoided capacity cost stated in dollars per kilowatt-hour averaged over all hours in the year for a planned capacity purchase. This figure shall be calculated as follows:
- a. The annual capacity purchase amount, in dollars per kilowatt, for RPU's next planned capacity purchase other than from a qualifying facility, shall be discounted to present value as of the midpoint of the reporting year, from the year of the planned capacity purchase. The discount rate used shall be the incremental cost of capital.
 - b. The net annual avoided capacity cost shall be computed by applying the figure determined in a. to the steps enumerated in 4.c.-h. as appropriate, excluding 4.f. Step 4.c. should be based on the annual fuel savings (costs) as described in 1.i., except the fuel savings (costs) would be those that result from the capacity purchase.

6. If RPU has neither planned major generating facility additions nor planned additional capacity purchases, other than from qualifying facilities, during the ensuing ten years, RPU shall be deemed to have no avoidable capacity costs.
7. If during the next ten years the next year in which RPU has any planned capacity additions is a year in which RPU has planned capacity additions from a mix of both planned major generation facility additions and planned capacity purchases under a long term power supply contract or contracts (other than from qualifying facilities), RPU's net annual avoided capacity cost shall be the sum of the costs calculated in 4.h. and 5.b., with the result of 5.b. having been calculated for all the long term power supply contracts from which RPU is planning capacity purchases in the same year as planned major generation facility additions.
8. If during the next ten years RPU's next planned capacity purchase other than from a qualifying facility occurs under the terms of a long term power supply contract or contracts, and occurs in a year prior to when RPU has planned its next major generation facility addition, then RPU's net avoided capacity cost is the net avoided capacity cost of its planned purchases under those long term power supply contracts, as calculated in 5.a. and 5.b.
9. If during the next ten years the next year in which RPU has any planned capacity additions is a year in which RPU has planned capacity additions from a mix of both planned major generation facility additions and only those planned capacity purchases (other than from qualifying facilities) not under a long term power supply contract, RPU's net annual avoided capacity cost shall be the sum of the costs calculated in 4.h. and 5.b., with the result of 5.b. having been calculated for all the planned capacity purchases in the same year as planned major generation facility additions.

10. If during the next ten years RPU's next planned capacity purchase other than from a qualifying facility does not occur under the terms of a long term power supply contract or contracts, and occurs in a year prior to when RPU has planned its next major generation facility addition, then RPU's net avoided capacity cost is the net avoided capacity cost of its planned purchases, as calculated in 5.a. and 5.b.

- D. Schedule C. Schedule C contains the calculation of the average retail utility energy rates.
- E. Schedule D. Schedule D contains all standard contracts to be used with qualifying facilities, containing applicable terms and conditions.
- F. Schedule E. Schedule E contains RPU's safety standards, required operating procedures for interconnected operations, and the functions to be performed by any control and protective apparatus. RPU may include in Schedule E suggested types of equipment to perform the specified functions.
- G. Schedule F. Schedule F contains procedures for notifying affected qualifying facilities of any periods of time when RPU will not purchase electric energy or capacity because of extraordinary operational circumstances which would make the costs of purchases during those periods greater than the costs of internal generation.
- H. Schedule G. Schedule G shall contain and describe all computations used in determining the data for Schedules A and B.
- I. Schedule H. Schedule H lists the rates at which RPU purchases energy and capacity from all its wholesale suppliers.
- J. Schedule I. Schedule I contains RPU's cogeneration and small power production tariff for qualifying facilities having electrical generating capacity of 40 kW or less.
- K. Schedule J. Schedule J contains RPU's notice to customers and contains RPU's contact information.
- L. Availability of filings. All filings required by A.-J. will be maintained at RPU's general office and will be available for public inspection during normal business hours.

Section IV Reporting

- A. General requirements. When RPU has become interconnected with a qualifying facility, RPU will provide the RPU Board with information relative to qualifying facilities as required under state statutes.

Section V Conditions of Service

- A. Requirement to purchase. RPU will purchase energy and capacity from any qualifying facility which offers to sell energy to RPU and agrees to the conditions set forth in these rules. RPU shall make the required purchases.
- B. Written contract. A written contract shall be executed between the qualifying facility and RPU even if the qualifying facility sells its output to SMMPA. The standard contracts contained in Schedule D shall be used for qualifying facilities of 0-40 kW. The written contract for qualifying facilities larger than 40 kW may include items contained in the standard contracts and any other reasonable provisions deemed necessary by RPU and the QF.
- C. Compliance with national electrical safety code. The interconnection between the qualifying facility and RPU shall comply with the requirements of the current edition of the "National Electrical Safety Code issued by the Institute of Electrical and Electronics Engineers as American National Standards Institute Standard C2 (New York, 1980).
- D. Responsibility for apparatus. The qualifying facility, without cost to RPU, shall furnish, install, operate, and maintain in good order and repair any apparatus the qualifying facility needs in order to operate in accordance with Schedule E.
- E. Liability insurance. The Qualifying Facility will maintain insurance as described in RPU's interconnection policy referenced in Schedule E of this agreement. .
- F. Legal status not affected. Nothing in these rules affects the responsibility, liability, or legal rights of any party under applicable law or statutes. No party shall require the execution of an indemnity clause or hold harmless clause in the written contract as a condition of service.

- G. Payments for interconnection costs. The qualifying facility shall be responsible for paying for all interconnection costs. Payments for interconnection costs may:
1. Be made at the time the costs are incurred; or
 2. Be made according to any schedule agreed upon by the qualifying facility and RPU.
- H. Types of power to be offered. RPU will offer maintenance, interruptible, supplementary, and back-up power to the qualifying facility upon request.
- I. Metering. RPU shall meter the qualifying facility to obtain the data necessary to fulfill its reporting requirements to the RPU Board as specified in Section IV, and to its wholesale providers. The qualifying facility shall pay for the requisite metering as an interconnection cost.
- J. Discontinuing sales during emergency. RPU may discontinue sales to the qualifying facility during a system emergency, if the discontinuance and recommencement of service is not discriminatory.
- K. Interconnection plan. RPU may require the qualifying facility to submit an interconnection plan not more than 30 days prior to interconnection in order to facilitate interconnection arrangements. If such a plan is required, it shall include:
1. Technical specifications of equipment;
 2. Proposed date of interconnection;
 3. Projection of net output or consumption by the qualifying facility when available;
 4. Other reasonable information requested by RPU.

Section VI Rates for Sales

- A. Rate to be governed by tariff. Except as otherwise provided in B., rate for sales to a qualifying facility shall be governed by the applicable tariff for the class of electric utility customers to which the qualifying facility would belong were it not a qualifying facility.

- B. Petition for specific rates. Any qualifying facility may petition RPU for establishment of specific rates for supplementary, maintenance, back-up, or interruptible power.

Section VII Standard Rates for Purchase

- A. General. Customers owning qualifying facilities with capacity of more than 40 kilowatts shall negotiate contracts with RPU based on the provisions of state law, the code of Federal Regulations, title 18, Part 292, and Section VIII of these rules. (The negotiated contract may include time-of-use terms if they are acceptable to both RPU and the QF.) For customers owning qualifying facilities with capacity of 40 kilowatts or less, RPU shall make available standard rates with availability as described in B. and C. of this Section VII. The customer owning a qualifying facility with a capacity of 40 kW or less shall choose interconnection under one of these rates, and shall specify its choice in the written contract required under Section V (B). Any net credit to the customer owning a qualifying facility shall, at its option, be credited to its account with RPU or returned by a mutually acceptable payment method within 15 days of the billing date. The option chosen shall be specified in the written contract. Customers owning qualifying facilities remain responsible for any monthly service charges and demand charges specified in the tariff under which they consume electricity from RPU.
- B. Net energy billing rate.
 - 1. The net energy billing rate is available only to customers owning qualifying facilities with capacity of less than 40 kilowatts which choose not to offer electric power for sale on a simultaneous purchase and sale basis.
 - 2. RPU shall bill the customer owning a qualifying facility for the excess of energy supplied by RPU above energy supplied by the qualifying facility during each billing period according to RPU's applicable retail rate schedule.

3. When the energy generated by the qualifying facility exceeds that consumed by the customer, RPU shall compensate the customer owning the qualifying facility for the excess energy at the average retail utility energy rate for the appropriate service class as shown on Schedule C.

C. Simultaneous purchase and sale billing rate.

1. The simultaneous purchase and sale rate is available only to qualifying facilities with capacity of less than 40 kilowatts which choose not to offer electric power for sale under net energy billing.
2. The customer owning the qualifying facility shall be billed for all energy and capacity such customer consumes during a billing period according to RPU's applicable retail rate schedule. Such customer's consumption shall be the energy and capacity generated by the qualifying facility plus energy and capacity supplied by RPU (if any) less the energy and capacity delivered to the RPU electric system (if any).
3. RPU shall purchase all energy and capacity generated by the qualifying facility. Compensation to the qualifying facility shall be the sum of a. and b.
 - a. The energy component shall be:
 - i. The appropriate average system incremental energy cost shown on Schedule A, if data is filed for Schedule A; or
 - ii. The energy rate on Schedule H if data is not filed for Schedule A.
 - b. If the qualifying facility provides firm power to RPU, the capacity component shall be:
 - i. The appropriate net annual avoided capacity cost per kilowatt-hour shown on Schedule B (4. or 5. or 6. or 7. or 8.), if data is filed for Schedule B; or

- ii. If no data is filed for Schedule B, the capacity cost per kilowatt shown on Schedule H, divided by the number of hours in the billing period provided, however, that no capacity component shall be paid for months in which RPU's billing demand is greater than its actual monthly demand due to the ratchet provision of its wholesale contracts.
- iii. (If the qualifying facility does not provide firm power to the utility, no capacity component may be included in the compensation paid to the qualifying facility.)

Section VIII Negotiated Rate for Purchases

- A. Contracts negotiated by customer. Except as provided in D., a qualifying facility with capacity greater than 40 kilowatts shall negotiate a contract with RPU setting the applicable rates for payments to the customer of avoided capacity and energy costs.
- B. Amount of capacity payments; considerations. The qualifying facility which negotiates a contract under this Section VIII shall be entitled to the full avoided capacity costs of RPU subject to a consideration of:
 - 1. The capacity factor of the qualifying facility;
 - 2. The cost of RPU's avoidable capacity;
 - 3. The length of the contract term;
 - 4. Reasonable scheduling of maintenance;
 - 5. The willingness and ability of the qualifying facility to provide firm power during system emergencies;
 - 6. The willingness and ability of the qualifying facility to allow RPU to dispatch its generated energy;
 - 7. The willingness and ability of the qualifying facility to provide firm capacity during system peaks;
 - 8. The sanctions for noncompliance with any contract term; and

9. The smaller capacity increments and the shorter lead times available when capacity is added from the qualifying facilities.
- C. Full avoided energy costs. The qualifying facility which negotiates a contract under this Section VIII shall be entitled to the full avoided energy costs of RPU. The costs shall be adjusted as appropriate to reflect line losses.
- D. Qualifying facilities of greater than 40 kilowatts. Nothing in paragraphs A. through C. of Section VII prevents RPU from connecting qualifying facilities of greater than 40 kilowatts under its standard rates.

Section IX Utility Treatment of Costs

All purchases from qualifying facilities with capacity of 40 kilowatts or less, and purchases of energy from qualifying facilities with capacity of over 40 kilowatts shall be considered an energy cost in calculating RPU's Power Supply Adjustment Clause.

Section X Wheeling and Exchange Agreements

For all qualifying facilities with capacity of 40 kilowatts or greater, RPU shall, at the qualifying facility's request or with its consent, provide wheeling or exchange agreements whenever practical to sell the qualifying facility's output to any other Minnesota utility that anticipates or plans generation expansion in the ensuing ten years. The following provisions apply unless the qualifying facility and RPU agree otherwise.

- A. Inter-utility payment; energy and capacity. Within 30 days of the billing period, the utility ultimately receiving the qualifying facility's output shall pay its resulting full avoided capacity and energy costs by remittance to RPU less any charges for wheeling.
- B. Payment to qualifying facility. Within 15 days of receiving payment under A., RPU shall send the qualifying facility the payment it has received less RPU's own wheeling costs.

Section XI Disputes

- A. In case of a dispute between RPU and an owner of a qualifying facility or an impasse in the negotiations between them, either party may request the commission to determine the issue. When the commission makes the determination, the burden of proof must be on RPU.
- B. In the order resolving the dispute, the commission shall require the prevailing party's reasonable costs, disbursements and attorney's fees to be paid by the party against whom the issue or issues were adversely decided, except that an owner of a qualifying facility will be required to pay the costs, disbursements and attorney fees of RPU if the commission finds that the claims of the owner of the qualifying facility have been made in bad faith or are a sham or frivolous.

Section XII Notification to Customers

- A. Availability of information. RPU shall publish information that shall be available to all interested persons upon request. Such information shall include the following:
 - 1. A statement of rates, terms, and conditions of interconnections;
 - 2. A statement of technical requirements;
 - 3. A sample contract containing the applicable terms and conditions;
 - 4. Pertinent rate schedules;
 - 5. The contact information of the department of the utility to which inquiries should be directed; and
 - 6. The statement: "The Minnesota Public Utilities Commission is available to resolve disputes upon written request." And the contact information of the commission.

Section XIII Interconnection Guidelines

- A. Denial of interconnection application. Except as hereinafter provided, RPU shall interconnect with a qualifying facility that offers to make energy or capacity available to RPU. RPU may refuse to interconnect a qualifying facility with its power system until the qualifying facility has properly applied under Section V (K) and has received approval from

RPU. RPU shall withhold approval only for failure to comply with applicable utility rules or governmental rules or laws. RPU shall be permitted to include in its contract reasonable technical connection and operating specifications for the qualifying facility.

- B. Notification of other utilities. RPU shall notify the appropriate utilities when a qualifying facility is to be interconnected with its system. This notification shall be as early as practicable to permit coordinated analysis and testing before interconnection, if considered necessary.
- C. Separate distribution transformer; when required. RPU may require a separate distribution transformer for the qualifying facility if necessary either to protect the safety of employees or the public or to keep service to other customers within prescribed limits.
- D. Limiting capacity of single-phase generators; when permitted. If necessary, to avoid the likelihood that a qualifying facility will cause problems with the service of other customers, RPU may limit the capacity and operating characteristics of single-phase generators in a way consistent with the RPU's limitations for single-phase motors.
- E. Isolation of generator. Each qualifying facility shall have a lockable, manual disconnect switch capable of isolating the generator from RPU's system readily accessible to RPU.
- F. Discontinuing parallel operation. RPU may require that the qualifying facility discontinue parallel generation operation when necessary for system safety.
- G. Permitting entry. If the particular configuration of the qualifying facility precludes disconnection or testing from the utility side of the interconnection, the qualifying facility shall make equipment available and permit electric and communication utility personnel to enter the property at reasonable times to test isolation and protective equipment, to evaluate the quality of power delivered to RPU's system, and to test to determine whether the qualifying facility's generating system is the source of any electric service or communication problems.

- H. Maintaining power output. The power output of the qualifying facility shall be maintained so that frequency and voltage are compatible with normal utility service and do not cause that service to fall outside the prescribed limits of RPU's rules and other standard limitations.
- I. Varying voltage levels. The qualifying facility shall be operated so that variations from acceptable voltage levels and other service-impairing disturbances do not adversely affect the service or equipment of other customers, and so that the facility does not produce levels of harmonics which exceed the prescribed limits of commission rules or other levels customarily accepted.
- J. Safety. The qualifying facility shall be responsible for providing protection for the installed equipment and shall adhere to all applicable national, state, and local codes.
- K. Right of appeal for excessive technical requirements. The qualifying facility has the right of appeal to the commission when it considers individual technical requirements excessive.

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
AND SMALL POWER PRODUCTION

SCHEDULE A

Estimated average system incremental energy cost per kWh:

2005: \$0.02250

2006: \$0.02246

2007: \$0.02257

2008: \$0.02274

2009: \$0.02289

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
AND SMALL POWER PRODUCTION

SCHEDULE B

1. Major generating facilities added over the next ten years
 - ◆ First unit
 - a. Name: unnamed gas turbine
 - b. Nameplate rating proposed: 50,000 kW
 - c. Fuel type proposed: Natural gas
 - d. Anticipated in-service date: 01/01/2008
 - e. Completed cost in dollars per kilowatt in the year in which the plant is expected to be put in service, including allowance for funds used during construction: \$553.50
 - f. Anticipated average annual fixed operating and maintenance costs in dollars per kilowatt: \$11.33
 - g. Anticipated average annual energy costs associated with the unit, including fuel costs and variable operating and maintenance costs, in dollars per kilowatt-hour: \$0.07576
 - h. Projected average number of kilowatt-hours per year the plant will generate during its useful life: 11,717,396
 - i. Average annual fuel savings (cost) resulting from the addition of this generating facility, stated in dollars per kilowatt: \$1.23

2. Planned firm capacity purchases, other than from qualifying facilities, during the next ten years.

◆ First planned purchase

Year of Purchase	Name of Seller	Number of kilowatts of capacity to be purchased (kW-months)	Capacity cost in dollars per kilowatt	Associated energy cost in cents per kilowatt-hour
2005	SMMPA	2,242,812	\$10.66	\$0.02098
2006	SMMPA	2,240,949	\$10.66	\$0.02096
2007	SMMPA	2,286,247	\$10.66	\$0.02091
2008	SMMPA	2,344,166	\$10.66	\$0.02086
2009	SMMPA	2,400,619	\$10.66	\$0.02085
2010	SMMPA	2,472,647	\$10.66	\$0.02190
2011	SMMPA	2,508,717	\$10.66	\$0.02191
2012	SMMPA	2,541,623	\$10.66	\$0.02192
2013	SMMPA	2,562,759	\$10.66	\$0.02193
2014	SMMPA	2,582,558	\$10.66	\$0.02194

3. Overall percentage of line losses due to the distribution, transmission and transformation of electric energy: 2.5%

4. RPU's net annual avoided capacity cost for its next major generation facility stated in dollars per kilowatt-hour averaged over the total hours in the year: \$0.00948. (This situation does not apply to RPU within the next ten years.) (See Section III C 4.)

5. This situation does not apply to RPU within the next ten years. (See Section III C 5.)

6. This situation does not apply to RPU within the next ten years. (See Section III C 6.)

7. This situation does not apply to RPU within the next ten years. (See Section III C 7.)

8. Because RPU's next planned capacity addition will be under the terms of a long term power supply contract (from SMMPA) in a year prior to RPU's next planned major generation facility addition, RPU's net annual avoided capacity cost in dollars per kilowatt-hours averaged over all the hours in the year is: \$0.009857. (See Section III C 8.)
9. This situation does not apply to RPU within the next ten years. (See Section III C 9.)
10. This situation does not apply to RPU within the next ten years. (See Section III C 10.)

ROCHESTER PUBLIC UTILITIES
 RULES COVERING COGENERATION
 AND SMALL POWER PRODUCTION

SCHEDULE C

Calculation of the Average Retail Utility Energy Rates

	2004
RESIDENTIAL	
Total revenues	\$ 26,391,940.15
Less fixed revenues (customer charge)	3,343,995.20
Net revenues	\$ 23,047,944.95
kWh	300,108,426
Average retail energy rate	\$ 0.0768
COMMERCIAL	
SGS	
Total revenues	\$ 10,484,115.79
Less fixed revenues (customer charge)	591,428.50
Net revenues	\$ 9,892,687.29
kWh	132,800,090
Average retail energy rate	\$ 0.0745
MGS	
Total revenues	\$ 20,624,007.14
Less fixed revenues (customer charge)	-
Net revenues	\$ 20,624,007.14
kWh	295,972,954
Average retail energy rate	\$ 0.0697
LGS	
Total revenues	\$ 10,064,118.89
Less fixed revenues (customer charge)	-
Net revenues	\$ 10,064,118.89
kWh	163,917,314
Average retail energy rate	\$ 0.0614
INDUSTRIAL	
Total revenues	\$ 14,536,252.75
Less fixed revenues (customer charge)	-
Net revenues	\$ 14,536,252.75
kWh	270,939,006
Average retail energy rate	\$ 0.0537

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
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SCHEDULE D

Standard Contract for Qualifying Facilities of 0-40 kW

The Standard Contract for Qualifying Facilities of 0-40 kW is available at RPU's
Service Center.

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
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SCHEDULE E

Interconnection Policy

The State of Minnesota Distributed Generation Interconnection Requirements which includes the Proposed Interconnection Process for Distributed Generation Systems, Generation Interconnection Application, and the Engineering Data Submittal is available at RPU's Service Center.

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
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SCHEDULE F

Procedure for Notification of Qualifying Facilities

This schedule contains procedures for notifying affected qualifying facilities of any periods of time when the utility will not purchase electric energy or capacity because of extraordinary operational circumstances which would make the costs of purchases during those periods greater than the cost of internal generation.

Rochester Public Utilities Notification Procedures:

RPU shall notify by phone, or other appropriate means, all qualifying facilities during any such periods described above.

ROCHESTER PUBLIC UTILITIES
 RULES COVERING COGENERATION
 AND SMALL POWER PRODUCTION

SCHEDULE G

Computations used in Schedule A; and Schedule B, 1(e)–1(i), 4(a)–4(h), 5(a), 5(b), and 6
 - 10:

(See the attached work papers, which come from the Microsoft Excel spreadsheet workbook file *PV Rate-2005.xls*, which is currently located on the RPU network at K:\RPU\GA\RATESTDY\2003 Rate Study\ , and the Cognos datacubes referred to in the Excel file that are in the Cognos library *30 year plan 2004*, which is currently located on the RPU network at \\rpu27\adaytum3\Analyst3\User Areas\.)

Selected data for Schedule B:

Schedule B, section 4

Completed cost/KW of next major generating unit			\$553.50
Marginal capital carrying charge rate		X	14.1%
	4.a		\$77.80
Discount rate			6.5%
Anticipated In-Service Date: 01/01/2008			01/01/2008
Midpoint of reporting year			6/30/2005
Discounted value of completed cost/KW with carrying chg	4.b		\$64.22
Discounted value of fuel savings (cost)	4.c		\$1.01
Annual avoided capacity cost/KW	4.d		\$63.21
Annual avoided capacity cost/KW with reserve margin	4.e		\$72.69
Annual fixed O&M, discounted		+	\$9.35
Sum of cap cost w/reserve % and fixed O&M	4.f		\$82.04
System line loss % = 2.5%	4.g		\$83.07
Average annual hours unit is dispatched			275
Net annual avoided capacity cost/kwh	4.h	\$	0.00948

Schedule B, section 8

First capacity purchase:			
Capacity purchase amount, in dollars per kilowatt per billing period (month)			\$ 10.660000
Annual capacity purchase amount, in dollars per kilowatt of billed capacity (kW-year)			\$ 85.280000
Discounted value of fuel savings (cost)			\$ -
Annual avoided capacity cost/KW			\$ 85.280000
Annual avoided capacity cost/KW with reserve margin			\$ 85.280000
System line loss % = 2.5%			\$ 86.346000
Net annual avoided capacity cost/kwh			\$ 0.009857

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
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SCHEDULE H

Contract rates at which RPU purchases energy and capacity from all its wholesale suppliers:

SMMPA:

Capacity: \$10.66 per billed kW month (74% annual ratchet, maximum take of 216,000kW)

Transmission: \$2.66 per billed kW month (100% annual ratchet, maximum take of 216,000 KW)

Energy: \$0.02344 per billed kWh

SCHEDULE I

ROCHESTER PUBLIC UTILITIES
COGENERATION AND SMALL POWER PRODUCTION TARIFF

AVAILABILITY: By separate written agreement only.

APPLICATION: To residential and general service customers contracting for electric service for one year or more, with all service taken at one point and where part or all of the electrical requirements of the customer can be supplied by customer-owned electrical generating equipment which is connected for operation in parallel with RPU's system.

This rate schedule rider is to be applied in conjunction with the following schedules:

Residential Service	(RES)
General Service	(GS)
Medium General Service	(MGS)
Large General Service	(LGS)
Large Industrial Service	(LIS)
Purchased Power Adjustment Clause	(PPAC)

CHARACTER OF SERVICE: Single or three phase, 60 Hertz alternating current at any one of the standard secondary service voltages as described in RPU's published electric Service Rules and Regulations.

RATE:

Demand Charge: The demand charge shall be determined in accordance with the applicable rate schedule (MGS, LGS and LIS customers only) and shall be applied in accordance with the provisions of Section VII (C) of RPU's Rules Covering Cogeneration and Small Power Production Facilities.

Energy Charge: The energy charge shall be determined in accordance with the applicable rate schedule (RES GS MGS, LGS or LIS customers) and shall be applied in accordance with the provisions of Section VII (B or C as applicable) of RPU's Rules Covering Cogeneration and Small Power Production Facilities.

Minimum Charge: The minimum charge shall be determined in accordance with the applicable rate schedule (RES, GS, MGS, LGS, or LIS customers).

Energy and Capacity Credits: The energy and capacity credits shall be applied in accordance with the provisions of Section VII (B or C as applicable) of RPU's Rules Covering Cogeneration and Small Power Production Facilities.

Purchased Power Adjustment: The energy credit computed under this rate schedule rider is subject to a Purchased Power Adjustment.

PAYMENT: Payments are due on or before the due date.

CONDITIONS OF DELIVERY:

1. Service furnished under this rate schedule rider is subject to applicable provisions of RPU's published Electric Service Rules and Regulations and Rules Covering Cogeneration and Small Power Production.
2. Service under this rate schedule rider will be furnished only to customers whose maximum electrical generating capacity is 40 kW or less; such service may be limited at the sole discretion of RPU, to those customers who obtain "qualifying" status under FERC Regulations (18CFR Part 292) implementing section 201 of the Public Utility Regulatory Policies Act of 1978.
3. Service under this rate schedule rider will be furnished only after the customer and RPU have entered into a separate written agreement which specifies the type of metering and interconnection facilities to be employed, the responsibilities for installation, ownership, and maintenance of these facilities, and the procedures required for safe and technically acceptable operation of parallel electrical generating equipment.
4. RPU shall not be liable for any damage or loss sustained by the customer resulting from the parallel operation of the customer's electrical generating equipment, or resulting from interruptions, deficiencies, or imperfections of service provided under this rate schedule rider.

5. Energy furnished under this rate schedule rider shall not be resold.

Approved by Rochester Public Utility Board: _____

Effective Date: _____

ROCHESTER PUBLIC UTILITIES
RULES COVERING COGENERATION
AND SMALL POWER PRODUCTION

SCHEDULE J

Notice to Customers

1. Rochester Public Utilities is obligated to interconnect with and purchase electricity from qualifying co-generators and small power producers. Qualifying facilities are defined under Section II (Q) of RPU's Rules Covering Cogeneration and Small Power Production Facilities.
2. Rochester Public Utilities is obligated to provide information concerning its rates and interconnection policies relative to qualifying facilities to all interested persons free of charge upon request.
3. Any disputes over interconnection, sales, and purchases relative to qualifying facilities, are subject to resolution by the Minnesota Public Utilities Commission upon complaint.
4. Rochester Public Utilities
4000 East River Rd NE
Rochester, MN 55906-2813

RPU General Information 507-280-1540
www.rpu.org



Cogeneration and Small Power Production

Board Meeting
April 26, 2005

Presented by Patty Hanson



Cogeneration and Small Power Production

Followed State

Minnesota Statutes 216b.164
Minnesota Rules Chapter 7835
State's Interconnection Rules
Standard Contract
Schedules

State's Interconnection Rules

- Grew out of a technical standards group
- 1kW up to and including 10 mW
- lays out the required information to be submitted
- who will pay for potential study work
- protect existing customers

Sec XIII,K – customers right to appeal

Standard Contract

- Federal and State require a contract
- Anything under 40 kW
- Net billing or Simultaneous purchase and sales
- Sale of green tags

Schedules

- Two basic options for prices RPU pays for purchases from QFs:
 - Net Energy Billing Rate
 - Simultaneous Purchase and Sale Billing Rate
- This is the QF's choice
- Anything over 40kW is negotiated

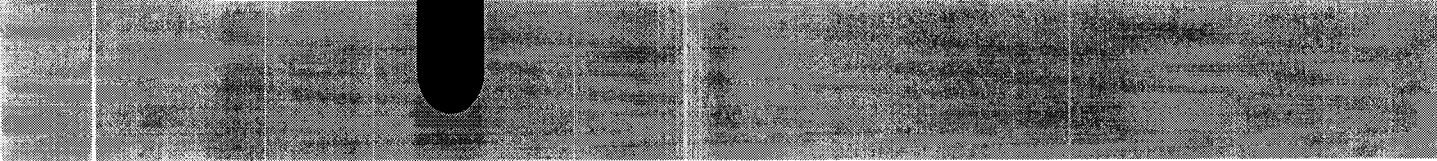
How it Differs from the State's

- No Time of Use Rates in RPU's Rule
- The threshold for negotiations is at 40 kW, instead of at 100 kW



Cogeneration and Small Power Production

Questions?



SMMPA Power Purchase Agreement relating to RPU's Contract – continued

- Anything under 40 kW
- Metering
- Rate structure

Net Energy Billing

Simultaneous Purchase and Sale Billing Rate

SMMPA Power Purchase Agreement relating to RPU's Contract – continued

- **SMMPA buys kWh from the QF via RPU, and pays RPU at SMMPA's purchase power energy rate**
- **SMMPA buys capacity from the QF via RPU, and pays RPU at SMMPA's purchase power capacity rate**
- **SMMPA then sells to RPU the kWh and capacity consumption supplied by the QF's kWh and capacity sold to RPU**

SMMPA Power Purchase Agreement relating to RPU's Contract – continued

- **QFs on the Net Energy Billing Rate**
 - As a matter of practicality, SMMPA will deal with only the net kWh produced by the QF
 - SMMPA will pay RPU whatever RPU pays the QF

SMMPA Power Purchase Agreement relating to RPU's Contract - continued

- QFs on the Simultaneous Purchase and Sale Billing Rate:
 - SMMPA pays RPU for the gross kWh that the QF sells to SMMPA via RPU at SMMPA's energy rate
 - If the QF is selling firm power, SMMPA pays RPU for the capacity that the QF sells to SMMPA via RPU at SMMPA's capacity price

SMMPA Power Purchase Agreement relating to RPU's Contract – continued

- SMMPA will bill RPU on the power bill for all kWh produced by the QFs at SMMPA's standard energy rate, since SMMPA is selling it to us
- SMMPA will bill RPU for all capacity provided by the QFs at SMMPA's standard rate, since SMMPA is selling it to us

What we are asking of you:

- Allow to advertise the new rate schedule
- Next month adopt the revised RPU rules for co-generators and small power producers
- Execute the contract with SMMPA



Questions?

Thank you!