



MEETING AGENDA – MAY 26, 2015

BOARD ROOM
4000 EAST RIVER ROAD NE
ROCHESTER, MN 55906

4:00 PM

Call to Order

1. **Approval of Agenda**
2. **Approval of Minutes**

Public Utility Board - Regular Meeting - Apr 28, 2015 4:00 PM

3. **Approval of Accounts Payable**

A/P Board Listing

NEW BUSINESS

Open Comment Period

(This agenda section is for the purpose of allowing citizens to address the Utility Board. Comments are limited to 4 minutes, total comment period limited to 15 minutes. Any speakers not having the opportunity to be heard will be the first to present at the next Board meeting.)

4. **Consideration Of Bids**

1. St. Bridget's Intermediate Level Water Tower
Resolution: St. Bridget's Intermediate Level Water Tower
2. System Operations Control Room Consoles
Resolution: System Operations Control Room Consoles

5. **Regular Agenda**

1. 2015 Electric Service Rules & Regulations
Resolution: 2015 Electric Service Rules & Regulations
2. Solar Request for Proposal

6. **Informational**

1. 2014 Electric Engineering & Operations Report
2. 2014 Renewable Energy Objective

7. **General Managers Report**

8. **Division Reports & Metrics**

1. Division Reports & Metrics

9. **Other Business**

10. **Adjourn**

The agenda and board packet for Utility Board meetings are available on-line at www.rpu.org and <http://rochestercitymn.igq2.com/Citizens/Default.aspx>



MEETING MINUTES – APRIL 28, 2015

COMMUNITY ROOM
 4000 EAST RIVER ROAD NE
 ROCHESTER, MN 55906

4:00 PM

Call to Order

Attendee Name	Title	Status	Arrived
Michael Wojcik	Board Member	Present	
Jerry Williams	Board President	Present	
Dave Reichert	Board Member	Present	
Roger Stahl	Board Member	Absent	
Mark Browning	Board Member	Present	
Terry Adkins	City Attorney	Present	

1. Approval of Agenda

Motion to: approve the agenda as presented.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dave Reichert, Board Member
SECONDER:	Mark Browning, Board Member
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

2. Approval of Minutes

Public Utility Board - Regular Meeting - Mar 31, 2015 4:00 PM

RESULT:	ACCEPTED [UNANIMOUS]
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

3. Approval of Accounts Payable

A/P Board Listing

RESULT:	APPROVED [UNANIMOUS]
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

NEW BUSINESS

Open Comment Period

(This agenda section is for the purpose of allowing citizens to address the Utility Board. Comments are limited to 4 minutes, total comment period limited to 15 minutes. Any speakers not having the opportunity to be heard will be the first to present at the next Board meeting.)

Jerry Williams opened the public comment period. No one from the public came forward to speak.

4. Regular Agenda

Minutes Acceptance: Minutes of Apr 28, 2015 4:00 PM (Approval of Minutes)

1. Annual Update of Cost and Rate Schedules for Cogeneration & Small Power Production Rate (SPP) Tariff

Mike Heppleman, Senior Financial Analyst, gave the annual update of Cost and Rate schedules for Cogeneration & Small Power Production Rate (SPP) Tariff.

Resolution: Annual Update of Cost & Rate schedules for Cogeneration & Small Power Production Rate (SPP) Tariff

The Board approved the resolution reading as follows:

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota, to approve the updated Schedule C, to be attached to the previously approved Rules Covering Cogeneration and Small Power Production Facilities which is updated annually after each calendar year by RPU. This is required by Section III, paragraph A of the Rules Covering Cogeneration and Small Power Production Facilities (Minnesota Statutes Section 216B.164 Subdivision 9).

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dave Reichert, Board Member
SECONDER:	Mark Browning, Board Member
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

5. Informational

1. Audit Presentation-2014 Annual Audit Results

Peter Hogan, Director of Corporate Services thanked the accounting staff and introduced Aaron Worthman from Baker Tilly who gave the annual Audit presentation.

The Audit Committee met prior to the board meeting with a full overview. A clean audit opinion was given to the committee.

- *RPU received the highest level of assurance during the audit.*

Mark Kotschevar, General Manager also thanked Baker Tilly and the accounting staff for all of their hard work.

The Board accepted the financial audit report and placed it on file.

RESULT:	NO ACTION
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Motion to: accept the financial audit report and place on file

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dave Reichert, Board Member
SECONDER:	Michael Wojcik, Board Member
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

2. Municipal Water Supply Source Sustainability Evaluation

Todd Osweiler, Environmental and Regulatory Affairs Coordinator, introduced Brian LeMon and John Greer from Barr Engineering to present the results of the Municipal Water Source Sustainability Study.

RESULT: NO ACTION

3. Water Engineering & Operations Report

Cary Johnson, Manager of Maintenance and Construction and Todd Osweiler, Environmental and Regulatory Affairs Coordinator, presented the annual Water Engineering & Operations Report.

It is also national drinking water week next week.

RESULT: NO ACTION

4. Review of the Energy Action Plan Proposal

Mark Kotschevar, General Manager, reviewed the results from the April 20 City Council Meeting and what Rochester Public Utilities would like to see regarding the proposed Energy Action Plan.

Wally Schlink, Director of Power Resources, and Michael Wojcik, RPU Board member and Rochester City Council Liaison both represent RPU and have seats on the Rochester Energy Commission.

Mark Browning wanted to make sure the governance is clear and the approach is coordinated as to what the impacts to our stakeholders might be. This will all need to be worked out between all groups involved. Dave Reichert and Jerry Williams agreed this needs to be clarified as well.

There were concerns about the Wenk proposal that went before the City Council and how the proposal was handled. The proposal implies that the Council automatically plans to accept the Energy Action Plan. Jerry Williams finds the proposal unacceptable as presented and missing some things that are important to RPU. Some of the items needing future clarification:

- An acknowledgement of the SMMPA contract*
- Community engagement- a more extensive stakeholder list to include the business community*
- More clearly defined role of RPU in the Plan*

- Michael Wojcik confirmed with Terry Adkins, City Attorney that nothing goes into the comprehensive plan without City Council approval.*
- Dave Reichert stated he had to read into the report quite a ways before he found the opportunities for improvement.*
- Jerry Williams wants to make sure the RPU board is able to fulfil its charter responsibilities.*
- Michael Wojcik stated he will create a memo and relay the comments at the May 4th City Council meeting.*
- Wally Schlink said Wenk is more than happy to sit down and help us revise the proposal and recommended the board be able to review the final Energy Action Plan before it is presented to the Council.*
- Mark Kotschevar was asked if he was comfortable with this going back to the*

council May 4th? Wally Schlink stated he would like more time with staff to review before going back to council. He would work with Wenk and would like the utility to have 3-4 weeks to review and bring back to Council.

- Jeff Ellerbusch from Planning commented regarding the Comprehensive Plan timeline. He would like to see the public involved and find out what they want.
- Jerry Williams commented that the timeline seems a little tight to get this done by the next Council meeting. He would like some changes to the proposal before it goes back to Council.
- Michael Wojick commented that the Council's only obligation is to hold the public hearing.
- Jerry Williams commented that what we do up front determines what we get in the end and would like the Council to know that he thinks the plan needs to be cleaned up before presenting. There is 2 weeks until the next council meeting would that give us enough time? Mark Kotschevar would like to see this wait until the May 18th Council meeting.
- Ray Schmitz, Energy Commission vice chair would like to sit down with RPU to go through the document.
- Michael will summarize some of the comments and relay the message to Council. RPU will contact Wenk with any proposed changes. Wally Schlink will set up a meeting with Wenk and asked the board to recommend staff to review the document.
- Jerry Williams stated that the board will not take any formal action.
- Wally Schlink commented that he would like the board to review the final document before it goes before the Council.
- Jeff Ellerbusch would like to also be involved in the conversation of reviewing the proposal.

RESULT:	NO ACTION
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6. General Managers Report

Mark Kotschevar, General Manager gave his report to the Board.

- Ratings update call with Fitch.
- Customer survey with Great Blue
- Thank you to Marketing and staff for another successful Arbor Day Celebration that was held indoors at RCTC due to weather this year.

7. Division Reports & Metrics

8. Other Business

9. Adjourn

Motion to: adjourn at 6:20 PM

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Mark Browning, Board Member
SECONDER:	Dave Reichert, Board Member
AYES:	Michael Wojcik, Jerry Williams, Dave Reichert, Mark Browning
ABSENT:	Roger Stahl

The agenda and board packet for Utility Board meetings are available on-line at www.rpu.org and <http://rochestercitymn.iqm2.com/Citizens/Default.aspx>

Submitted by:

Secretary

Approved by the Board

Board President

Date

Minutes Acceptance: Minutes of Apr 28, 2015 4:00 PM (Approval of Minutes)

ACCOUNTS PAYABLE

Meeting Date: 5/26/2015

SUBJECT: A/P Board Listing

PREPARED BY: Terri Engle

Please approve

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

Greater than 50,000 :

1			
2			
3	SOUTHERN MN MUNICIPAL POWER A	Monthly Billing	6,477,892.62
4	MN DEPT OF REVENUE	March Sales and Use Tax	508,595.35
5	XCEL ENERGY CORP	CapX - LaCrosse Project CMA	376,597.11
6	CONSTELLATION NEWENERGY-GAS D	SLP Pilot and Boiler Gas	227,888.62
7	MN POLLUTION CONTROL AGENCY	2015 SLP Annual Air Emissions Fee	87,706.38
8	FRANKLIN ENERGY SERVICES LLC	DSM / CIP Services 2015	61,303.91
9			
10		Price Range Total:	7,739,983.99
11			

5,000 to 50,000 :

12			
13			
14	BORDER STATES ELECTRIC SUPPLY	Meter, FM12S CL200 120V NET AMR	48,735.00
15	MAYO FOUNDATION	CIP Conserve & Save Rebates	47,808.90
16	DAKOTA SUPPLY GROUP	CIP Conserve & Save Rebates	41,530.00
17	BILLTRUST dba	Credit Card/Billing/Mailing/IVR Services	40,186.86
18	BORDER STATES ELECTRIC SUPPLY	Meter, FM8/9S CL20 MRV REACT AMR MEM T	40,014.00
19	MCR PERFORMANCE SOLUTIONS INC	Economic Analysis Badger Coulee Project	39,046.88
20	CONSTELLATION NEWENERGY-GAS D	Cascade Creek Gas	38,398.84
21	TELVENT USA LLC	ArcFM GIS Software Maint & Support	34,013.11
22	PEOPLES ENERGY COOPERATIVE (P	Services Compensable to PCPA, 4/1/2015 -	31,673.55
23	WESCO DISTRIBUTION INC	Trans, PM, 3ph, 300kVA, 13.8/8, 480/277	29,826.62
24	WRIGHT TREE SERVICE INC	2015 Hourly Tree Contract~	28,901.69
25	STUART C IRBY CO INC	SL Pole, 25', Residential, 21' Mtg Ht	28,138.05
26	WRIGHT TREE SERVICE INC	Hourly Tree Removal~	26,681.83
27	METROPOLITAN MARKET PLACE LLC	* Customer Refund - CCS 300000658104	24,996.95
28	WORKS COMPUTING INC	HP Renew RAM upgrade	24,606.05
29	OULDAL ENTERPRISES INC	CIP Conserve & Save Rebates	24,210.56
30	OPOWER INC	2015-2016 Home Energy Reports	24,000.00
31	BLUESPIRE STRATEGIC MARKETING	2015 RPU Plugged In Contract	23,964.78
32	CITY OF ROCHESTER	* Customer Refund - CCS 300000513075	23,193.38
33	BURNS & MCDONNELL INC	Infrastructure Plan Review & Upgrade	22,218.70
34	JOHNSON PRINTING	CIP Conserve & Save Rebates	21,467.76
35	AMER PUBLIC POWER ASSN	APPA Annual Dues, 2015 1st Half	20,084.42
36	BARR ENGINEERING COMPANY (P)	Silver Lake Dam Rehabilitation Design	20,008.00
37	DOYLE CONNER CO INC (P)	Concrete st repair from water main break	18,820.00
38	MERIT CONTRACTING INC (P)	Haz Mat Building Roof Replacement	18,684.00
39	NEW YORK LIFE INSURANCE CO	CIP Conserve & Save Rebates	18,390.00
40	WESCO DISTRIBUTION INC	Trans, PM, 1ph, 25kVA, 13.8/8, 240/120	18,287.49
41	EMERGENT NETWORKS LLC	CommVault Licensing	18,238.68
42	MINNESOTA ENERGY RESOURCES CO	SLP Pilot and Boiler Gas	17,626.87
43	WESCO DISTRIBUTION INC	Trans, PM, 3ph, 750kVA, 13.8/8, 480/277	17,606.66
44	WESCO DISTRIBUTION INC	Trans, PM, 1ph, 15kVA, 13.8/8, 240/120	17,054.79
45	ENVENTIS dba	Catalyst 3850 48 Port Full PoE IP Base	15,820.00
46	VISION COMPANIES LLC (P)	Org Strategy	15,600.00
47	WESCO DISTRIBUTION INC	Trans, PM, 3ph, 112.5kVA,13.8/8,208/120	15,057.49
48	TRUCKIN' AMERICA	Truck Body / box	14,425.01

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

49	SCHWEITZER ENGINEERING LAB IN	Relay, SEL 311L, 48v DC	14,200.00
50	MASTEC NORTH AMERICA INC	2015 Directional Boring/Misc Excavation	13,952.00
51	U S ALLIANCE GROUP	Credit Card Processing Fees, April 2015	13,926.13
52	WESCO DISTRIBUTION INC	Trans, PM, 1ph, 37.5kVA,13.8/8,240/120	13,862.09
53	WESCO DISTRIBUTION INC	Trans, PM, 3ph, 45kVA,13.8/8,208/120 Sml	13,713.92
54	BURNS & MCDONNELL INC	Chester Eng Svs - Sub & Trans Line	13,489.84
55	McGRANN SHEA CARNIVAL STRAUGH	Legal Services, 1st Qtr	12,500.00
56	MONTANA & ASSOCIATES INC	Records Retention Schedule & Policies	11,800.00
57	MASTEC NORTH AMERICA INC	Directional Bore - Valleyhigh Road proje	11,764.10
58	PRATT & WHITNEY POWER SYSTEMS	Pump, AC Lube Oil, VQCT116911 GT2	11,272.32
59	WORKS COMPUTING INC	HP Renew Hardware	11,250.03
60	XYLO TECHNOLOGIES INC	David McCollister - Field Svcs/GIS	11,200.00
61	XYLO TECHNOLOGIES INC	2015 Dominic Avila - Corp Svcs/IS	11,052.00
62	TSP INC	Design for System Operations Renovations	10,944.16
63	HY VEE	Arbor Day Event	10,536.54
64	THE ENERGY AUTHORITY INC	TEA Monthly Resouce Fee, April	10,517.35
65	PRATT & WHITNEY POWER SYSTEMS	Pump, DC Lube Oil, CT116914 GT2	9,728.86
66	KWIK TRIP	CIP Conserve & Save Rebates	9,495.19
67	WESCO DISTRIBUTION INC	Trans, PM, 1ph, 25kVA, 13.8/8, 240/120	9,143.74
68	MN PIPE & EQUIPMENT	fire hyd	8,658.02
69	WORKS COMPUTING INC	Server Equipment	8,644.48
70	GL NOBLE DENTON INC	DataPrep Migration Services	8,600.00
71	CORPORATE RISK SOLUTIONS INC	NERC CIP 5 Gap Analysis	8,382.20
72	WENCK ASSOCIATES INC	Air Quality Consulting Services	8,050.40
73	AMER PUBLIC POWER ASSN	2015 DEED Annual Dues	8,033.77
74	VIKING ELECTRIC SUPPLY INC	Conduit, PVC Sch 40, 5.00, 10' length	7,961.34
75	BORDER STATES ELECTRIC SUPPLY	Term, Exp, 4" AL Bus, 4Hole Weld 90	7,771.26
76	BADGER METER INC (P)	Meter, Bare 3" Badger Compound Round Flg	7,630.88
77	WELLS FARGO BANK ACCT ANALYSI	2015 Banking Services	7,599.73
78	CHS ROCHESTER	Monthly Fuel, March	7,000.40
79	CHARTER MEDIA	Arbor Day Ad	6,927.00
80	BAKER TILLY VIRCHOW KRAUSE LL	2014 Audit Fees	6,654.00
81	PRATT & WHITNEY POWER SYSTEMS	Filter, Prefilter	6,381.72
82	D P C INDUSTRIES INC	2015 Hydrofluorosilicic Acid - Delivered	6,199.16
83	STUART C IRBY CO INC	Metal Sec. Encl, 3ph, 30" x 67" x 22"	6,166.69
84	ARNOLDS SUPPLY & KLEENIT CO (2014-2015 SC Monthly Cleaning Services	5,887.74
85	DELL MARKETING LP	OptiPlex 9020 Mini tower, 8GB memory	5,787.35
86	VIKING ELECTRIC SUPPLY INC	Wire, 12 ga, 600V 7/C Control CB EPR	5,723.16
87	TWIN CITY SECURITY INC	Security Services April-Oct 2015	5,364.37
88	EXPRESS SERVICES INC	2015 Fred Rahn - Field Svcs	5,337.86
89	HEARTMAN INSURANCE	CIP Conserve & Save Rebates	5,200.00
90	PITNEY BOWES PURCHASE POWER	postage meter refill 4/09	5,045.00
91	ROYAL SWITCHGEAR MANU CO	Vertical break switch, 3ph, 161kV	5,023.12
92			
93		Price Range Total:	1,297,694.84
94			
95	<u>1,000 to 5,000 :</u>		
96			
97	CASCON INC	Pump inpection fee/repair	4,853.00

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

98	SHI INTERNATIONAL CORP (P)	Symantec Additional Licenses	4,809.38
99	EMERGENT NETWORKS LLC	Support and Upgrades	4,805.94
100	KAHLER HOSPITALITY GROUP	CIP Conserve & Save Rebates	4,665.00
101	ZUMBRO LUTHERAN CHURCH	CIP Conserve & Save Rebates	4,620.00
102	PAKS PROPERTIES	CIP Conserve & Save Rebates	4,577.02
103	ENVENTIS dba	Catalyst 3850 4 x 10GE Network Mod	4,520.00
104	MASTEC NORTH AMERICA INC	Directional for new service Verizon	4,455.00
105	NORTHGATE CHIROPRACTIC CLINIC	CIP Conserve & Save Rebates	4,366.00
106	D P C INDUSTRIES INC	2015 Carus 8500 Aqua Mag Kjell F35	4,336.20
107	BORDER STATES ELECTRIC SUPPLY	Elbow, 15kV, 200A, LB, 1/0 Sol, 175-220Mil	4,329.00
108	ZOHO CORPORATION	ManageEngine Firewall Analyzer Subscript	4,323.09
109	VERIZON WIRELESS	2015 Cell & iPad Monthly Service	4,307.28
110	FIRST STUDENT INC	2015 Arbor Day - School Busing	3,957.32
111	BORDER STATES ELECTRIC SUPPLY	Grd Sleeve, 3ph Sect. Encl, 18 x 67 x 23	3,879.56
112	TRI STATE DRILLING INC	Contract Retention	3,850.00
113	JIM WHITING NURSERY/GARDEN CT	2015 Right Tree Right Place Planting	3,676.50
114	CRESCENT ELECTRIC SUPPLY CO	Elbow, Steel, 36.0 R, 5.00	3,665.81
115	MASTEC NORTH AMERICA INC	2014 Directional Boring/Misc Excavation	3,642.50
116	VIKING ELECTRIC SUPPLY INC	Wire, 10 ga, 600V 4/C Control CB EPR	3,616.65
117	BORDER STATES ELECTRIC SUPPLY	Insul, Post, TR295, 5"BCD/5"BCD 161KV	3,605.42
118	WESCO DISTRIBUTION INC	Wire, Copper, #6 SD Solid, Bare	3,467.56
119	ALTERNATIVE TECHNOLOGIES INC	Trf oil samples	3,380.00
120	VIKING ELECTRIC SUPPLY INC	Conduit, PVC Sch 40, 4.00	3,333.11
121	CHS ROCHESTER	Monthly Fuel, March	3,321.49
122	WORKS COMPUTING INC	Hardware Maint 3 yr	3,318.47
123	CRESCENT ELECTRIC SUPPLY CO	Thermal imaging camera	3,266.34
124	ELECTRICAL CONSULTANTS INC (P	Engineering analysis of Q3 for fiber UB	3,263.00
125	MN PIPE & EQUIPMENT	Valve, Gate, MJ, 12.0	3,250.00
126	TAILGATER INC	Truck Body / box	3,242.32
127	KATS COMPANY LLC	Water SA service repair, 2996 Monroe Dr	3,200.00
128	CLEAN HARBORS ENVIRONMENTAL S	Transformer Disposal	3,162.93
129	JOHNSON PRINTING CO INC	2014 Annual Report	3,101.51
130	D P C INDUSTRIES INC	2015 Chlorine, 150 lb Cyl	3,082.50
131	MN SAFETY COUNCIL INC	In house OSHA 10 Class	2,935.00
132	SILVER LAKE CENTER LLC	CIP Conserve & Save Rebates	2,912.00
133	SYSTEM OPERATIONS SUCCESS INT	Online Training, Sam Blackburn	2,875.00
134	KATS COMPANY LLC	Water SA service repair - 824 21 ST SE	2,850.00
135	MADSEN BRIAN	2014-2015 Printer Maintenance contract	2,838.60
136	MINNESOTA ENERGY RESOURCES CO	Gas at Cascade Creek	2,758.83
137	HEWLETT PACKARD CO INC	HP Server Equipment	2,756.37
138	GRAYBAR ELECTRIC COMPANY INC	Wall mount enclosure	2,715.00
139	USIC LOCATING SERVICES INC	2014-2015 Locating Services	2,702.00
140	VIKING ELECTRIC SUPPLY INC	Wire, 12 ga, 600V 4/C Control CB EPR	2,666.53
141	IHEART MEDIA dba	Arbor Day radio spots	2,510.00
142	VIKING ELECTRIC SUPPLY INC	Wire, 14 ga, 600V 7/C Control CB EPR	2,482.17
143	BADGER METER INC (P)	Meter, Bare 3" Badger T-450 Round Flange	2,468.81
144	GRAINGER INC	Safety cabinet	2,455.56
145	WRIGHT TREE SERVICE INC	402C Line Clearance~	2,371.58
146	PRATT & WHITNEY POWER SYSTEMS	140-General Administration	2,351.25

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

147	STEEL IN THE AIR INC	St.Mary's Antenna Val. Wireless&Paging	2,250.00
148	SOMA CONSTRUCTION INC	Crushed concrete for excavation backfill	2,231.36
149	FAIRWAY OUTDOOR FUNDING LLC	2015 Digital Billboard Contract	2,200.00
150	BORDER STATES ELECTRIC SUPPLY	Junction, NLB, 600A, 2 Pos, w/Straps	2,195.64
151	GARCIA GRAPHICS INC	2014 Annual Report	2,125.00
152	ADVANCED DISPOSAL SVC SOLID W	2015 Waste Removal Services - SC	2,037.21
153	ENVIRONMENTAL INITIATIVE	2015 annual membership for Env. Initiati	2,000.00
154	CLOWN ROUNDUP LLC	Clowns fpr 2015 Arbor Day	2,000.00
155	U S POSTMASTER	Replenish postage due account	2,000.00
156	DUMITRASCU IONEL	CIP Conserve & Save Rebates	2,000.00
157	GL NOBLE DENTON INC	2015 MiddleLink Software License	1,996.85
158	PAYMENT REMITTANCE CENTER	Travel, Utility Acctng, Heppelman, regis	1,995.00
159	STUART C IRBY CO INC	Arrester, 10kV, Dist, Elbow MOV	1,987.88
160	SHORT ELLIOTT HENDRICKSON INC	Verizon CCM Standpipe ROC012 Site Rev~	1,983.25
161	MAJESTIC TENTS AND EVENTS dba	2015 Arbor Day Expense	1,951.54
162	MINNESOTA ENERGY RESOURCES CO	Monthly billing - Natural Gas SC	1,847.86
163	NEVILLE SAMEER	CIP Conserve & Save Rebates	1,838.45
164	DAKOTA SUPPLY GROUP	Bronze Swivel Connection, .750, 3/4	1,830.00
165	USA BLUE BOOK DBA	Double check valve, 3/4"	1,806.35
166	MASTEC NORTH AMERICA INC	depth verification	1,782.00
167	STEEL IN THE AIR INC	SE Tower Antenna Valuation Wireless	1,750.00
168	STEEL IN THE AIR INC	Willow Antenna Valuation Wireless	1,750.00
169	STEEL IN THE AIR INC	Apache Antenna Valuation Wireless	1,750.00
170	STEEL IN THE AIR INC	Airport Antenna Valuation Wireless	1,750.00
171	WESCO DISTRIBUTION INC	Term, Stress C. 15kV, 500-750 MCM, C.S	1,730.41
172	ENVENTIS dba	1100W AC Config 1 Secondary Power Supply	1,695.00
173	G A ERNST & ASSOCIATES INC	NEC Audits	1,664.50
174	MN PIPE & EQUIPMENT	Valve, Gate, MJ, 12.0	1,625.00
175	PAYMENT REMITTANCE CENTER	Travel, APPA Spring Inst, J Anderson, re	1,615.00
176	DAKOTA SUPPLY GROUP	Junction, NLB, 600A, 2 Pos, w/Straps	1,608.47
177	WESCO DISTRIBUTION INC	CT, XL Window 2000/5 600V High Accuracy	1,586.13
178	BARR ENGINEERING COMPANY (P)	Water Sustainability Study Services	1,585.50
179	TWO SOCKETS - TWO METERS INC	Wire Harness, 6' Custom	1,558.24
180	INNOVATIVE OFFICE SOLUTIONS L	Paper, Copier, 8-1/2 x 11 White 20# Bond	1,556.10
181	WESCO DISTRIBUTION INC	Arrester, 10kV, Dist, OH MOV	1,539.00
182	CRESCENT ELECTRIC SUPPLY CO	Elbow, Steel, 36.0 R, 5.00	1,466.33
183	NOVASPECT INC	Software Support for Data Aggregation	1,455.40
184	CITY OF ROCHESTER	Medical	1,435.88
185	GOPHER STATE ONE CALL	Electric	1,360.15
186	GOPHER STATE ONE CALL	Water	1,360.15
187	ENVENTIS dba	SMARTNET 8X5XNBD Cisco Catalyst 3850 48	1,344.00
188	ENVENTIS	2014-2017 Monthly Data Services	1,304.56
189	CITY OF ROCHESTER	Berkley WC Admin Fees March	1,282.00
190	USA BLUE BOOK DBA	Hydrant backflow preventer, 2"	1,279.90
191	CITRIX ONLINE LLC	2015 Go To Meetings Online Meetings	1,250.44
192	WIESER PRECAST STEPS INC (P)	Grd Sleeve, Switch Basement, PME	1,250.00
193	HODGE, JAMES	*Customer Refund - CCS#300000514412	1,241.41
194	CRW ARCHITECTURE PLUS DESIGN	CIP Conserve & Save Rebates	1,238.71
195	TEREX UTILITIES INC	Fleet Repair Parts	1,232.65

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

196	MN PIPE & EQUIPMENT	Flange Adapter, DI, 10.0 w/PVC Acc.	1,187.24
197	ENVENTIS	2014-2017 Collocation Agreement	1,169.07
198	CULVER COMPANY INC	Electric safety workbooks	1,154.25
199	STUART C IRBY CO INC	Wire, Copper, #6 SD Solid, Bare	1,148.91
200	LEE HON-CHI	CIP Conserve & Save Rebates	1,148.75
201	ENVENTIS dba	2014-2017 Total Care Support	1,135.00
202	ONLINE INFORMATION SERVICES I	2015 Utility Exchange Report	1,120.50
203	WORKS COMPUTING INC	Hardware Maintenance	1,114.28
204	SHORT ELLIOTT HENDRICKSON INC	Verizon Airport ROC023 Site Review~	1,108.40
205	STUART C IRBY CO INC	Condux mini-cobra duct rodder w/24" cage	1,075.00
206	SMS SYSTEMS MAINTENANCE SERVI	2015 Server Maintenance	1,072.99
207	KORTERRA INC	Locating Services-Electric	1,072.44
208	KORTERRA INC	Locating Services-Water	1,072.44
209	GREAT RIVER ENERGY	CapX Vision Team - O&M	1,066.16
210	ARNOLDS SUPPLY & KLEENIT CO (2015 SLP Alternates	1,063.41
211	HEWLETT PACKARD CO INC	HP Hardware Maintenance	1,046.52
212	ROCHESTER ARMORED CAR CO INC	2014/15 Pick Up Services May-April	1,041.89
213	STUART C IRBY CO INC	Leather Mitt Protector 10	1,031.13
214	USA BLUE BOOK DBA	Rubber covered hose, 2-1/2" NST	1,031.10
215	STEVE BENNING ELECTRIC	Replace and wire VFD - well 19	1,028.00
216	PAYMENT REMITTANCE CENTER	Travel, CS Week, P Teng, registration	1,025.00
217	PAYMENT REMITTANCE CENTER	Travel, CS Week, P Hanson, registration	1,025.00
218	VISION COMPANIES LLC (P)	Risk Review	1,012.50
219	ANDERSON LANA	Travel, HR2015 Conference, hotel	1,003.52
220			
221		Price Range Total:	283,175.42
222			
223	<u>0 to 1,000 :</u>		
224			
225	REBATES	Summarized transactions: 193	27,149.71
226	EXPRESS SERVICES INC	Summarized transactions: 38	23,892.56
227	MN PIPE & EQUIPMENT	Summarized transactions: 41	13,642.84
228	Customer Refunds (CIS)	Summarized transactions: 79	9,743.25
229	BORDER STATES ELECTRIC SUPPLY	Summarized transactions: 46	9,285.61
230	PAYMENT REMITTANCE CENTER	Summarized transactions: 39	7,118.75
231	VIKING ELECTRIC SUPPLY INC	Summarized transactions: 47	6,261.25
232	TEREX UTILITIES INC	Summarized transactions: 18	5,370.40
233	ARNOLDS SUPPLY & KLEENIT CO (Summarized transactions: 10	4,114.40
234	CINTAS CORP	Summarized transactions: 92	3,932.40
235	SHORT ELLIOTT HENDRICKSON INC	Summarized transactions: 8	3,385.36
236	WESCO DISTRIBUTION INC	Summarized transactions: 12	3,234.11
237	USA BLUE BOOK DBA	Summarized transactions: 22	3,152.73
238	STEVE BENNING ELECTRIC	Summarized transactions: 7	3,003.00
239	CITY OF ROCHESTER	Summarized transactions: 10	2,977.98
240	STUART C IRBY CO INC	Summarized transactions: 13	2,860.20
241	NAPA AUTO PARTS (P)	Summarized transactions: 48	2,756.95
242	CRESCENT ELECTRIC SUPPLY CO	Summarized transactions: 31	2,294.28
243	INNOVATIVE OFFICE SOLUTIONS L	Summarized transactions: 65	2,288.55
244	DAKOTA SUPPLY GROUP	Summarized transactions: 19	2,240.95

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

245	CDW GOVERNMENT INC	Summarized transactions: 8	2,236.14
246	BADGER METER INC (P)	Summarized transactions: 19	2,224.21
247	DELL MARKETING LP	Summarized transactions: 7	2,039.64
248	GRAYBAR ELECTRIC COMPANY INC	Summarized transactions: 8	1,999.08
249	FIRST CLASS PLUMBING & HEATIN	Summarized transactions: 12	1,946.61
250	METRO SALES INC	Summarized transactions: 4	1,882.73
251	MCMASTER CARR SUPPLY COMPANY	Summarized transactions: 37	1,789.53
252	JACKSON SIDNEY	Summarized transactions: 8	1,767.54
253	GRAINGER INC	Summarized transactions: 23	1,712.50
254	GARCIA GRAPHICS INC	Summarized transactions: 13	1,667.76
255	REBATES	Summarized transactions: 30	1,631.00
256	WORKS COMPUTING INC	Summarized transactions: 4	1,511.95
257	WHITEWATER WIRELESS INC	Summarized transactions: 26	1,495.09
258	MONSON STEVE	Summarized transactions: 6	1,439.99
259	LAWSON PRODUCTS INC (P)	Summarized transactions: 6	1,294.02
260	ENVENTIS dba	Summarized transactions: 8	1,281.85
261	SUTTON JEREMY	Summarized transactions: 4	1,266.75
262	SCHWEITZER ENGINEERING LAB IN	Summarized transactions: 2	1,254.13
263	MINNESOTA ENERGY RESOURCES CO	Summarized transactions: 4	1,248.68
264	JOHN HENRY FOSTER MN INC	Summarized transactions: 4	1,205.28
265	MISSISSIPPI WELDERS SUPPLY CO	Summarized transactions: 14	1,187.24
266	HACH COMPANY	Summarized transactions: 10	1,166.89
267	DAKOTA SUPPLY GROUP	Summarized transactions: 6	1,141.78
268	ELECTROREP ENERGY PRODUCTS IN	Summarized transactions: 2	1,027.73
269	HY VEE	Summarized transactions: 2	976.92
270	BENSON ANTHONY	Summarized transactions: 3	952.22
271	HAASE MITCH	Summarized transactions: 4	949.69
272	SUPERIOR SCREENERES INC	Summarized transactions: 2	943.40
273	HEWLETT PACKARD CO INC	Summarized transactions: 2	930.02
274	CENTURYLINK	Summarized transactions: 6	920.37
275	REINDERS INC	Summarized transactions: 5	888.23
276	OPEN ACCESS TECHNOLOGY	Summarized transactions: 1	881.70
277	FIRST SUPPLY (P)	Summarized transactions: 4	870.91
278	FCX PERFORMANCE INC	Summarized transactions: 2	860.66
279	LOCATORS AND SUPPLIES	Summarized transactions: 2	846.19
280	PEPSI COLA BOTTLING CO	Summarized transactions: 1	836.60
281	HALL NICK	Summarized transactions: 10	816.20
282	CINTAS CORP	Summarized transactions: 5	809.80
283	MUELLER ANTHONY	Summarized transactions: 4	800.41
284	CLAREY'S SAFETY EQUIPMENT dba	Summarized transactions: 1	791.94
285	MCDOWELL SEAN W	Summarized transactions: 5	787.44
286	CONNEY SAFETY PRODUCTS LLC	Summarized transactions: 4	786.49
287	HACH COMPANY	Summarized transactions: 5	785.86
288	CUSTOM TRUCK BODY & EQ CO INC	Summarized transactions: 4	770.47
289	U S A SAFETY SUPPLY	Summarized transactions: 5	761.31
290	PYCO INC	Summarized transactions: 3	754.05
291	ERC WIPING PRODUCTS INC	Summarized transactions: 3	747.91
292	NGK LOCKE INC	Summarized transactions: 3	746.82
293	ZEE MEDICAL SERVICE INC (P)	Summarized transactions: 5	739.95

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

294	CLEMENTS CHEVROLET CADILLAC S	Summarized transactions: 9	734.06
295	HEIMER WILLIAM T	Summarized transactions: 3	725.56
296	KELLER TOM A JR	Summarized transactions: 3	721.53
297	PRATT & WHITNEY POWER SYSTEMS	Summarized transactions: 3	680.36
298	FORBROOK LANDSCAPING SERVICES	Summarized transactions: 2	665.56
299	AUTHORIZE.NET	Summarized transactions: 1	661.45
300	HAWKINS INC	Summarized transactions: 4	646.96
301	GOSSMAN JOSEPH	Summarized transactions: 2	641.70
302	MAYASICH PAUL	Summarized transactions: 1	625.00
303	ANDERSON LANA	Summarized transactions: 2	614.55
304	MIDCONTINENT ISO INC	Summarized transactions: 1	604.88
305	AMER POWER DISPATCHERS ASSN I	Summarized transactions: 2	600.00
306	TMS JOHNSON INC	Summarized transactions: 4	600.00
307	BOWMANS SAFE & LOCK SHOP LTD	Summarized transactions: 3	584.07
308	RESCO	Summarized transactions: 1	541.05
309	ALL SYSTEMS INSTALLATION INC	Summarized transactions: 1	540.19
310	MN SAFETY COUNCIL INC	Summarized transactions: 2	537.87
311	DOBLE ENGINEERING COMPANY	Summarized transactions: 4	526.92
312	CASCON INC	Summarized transactions: 2	515.92
313	SUMMIT FIRE PROTECTION INC	Summarized transactions: 1	515.00
314	COOKE ROBERT	Summarized transactions: 4	505.85
315	HUDSON WORKWEAR CO INC	Summarized transactions: 7	497.66
316	MCMASTER CARR SUPPLY COMPANY	Summarized transactions: 12	493.23
317	BLUESPIRE STRATEGIC MARKETING	Summarized transactions: 2	491.23
318	MOORE RYAN	Summarized transactions: 3	490.19
319	SCHMIDT GOODMAN OFFICE PRODUC	Summarized transactions: 5	473.07
320	FLUKE ELECTRONICS INC	Summarized transactions: 4	470.25
321	ROYAL SWITCHGEAR MANU CO	Summarized transactions: 2	468.04
322	HINCE SEAMLESS GUTTERS LLC	Summarized transactions: 2	462.25
323	HALO BRANDED SOLUTIONS	Summarized transactions: 3	460.43
324	GLOBAL EQUIPMENT COMPANY	Summarized transactions: 10	456.74
325	AMER PUBLIC POWER ASSN	Summarized transactions: 1	445.00
326	T E C INDUSTRIAL INC	Summarized transactions: 5	436.97
327	A T & T	Summarized transactions: 1	435.62
328	MN GROUND WATER ASSOC	Summarized transactions: 2	420.00
329	NARDINI FIRE EQUIPMENT CO INC	Summarized transactions: 2	417.02
330	FREDRICKSON & BYRON PA	Summarized transactions: 1	416.50
331	K A A L TV LLC	Summarized transactions: 1	415.00
332	KOTSCHVAR MARK	Summarized transactions: 4	412.73
333	WINKELS ELECTRIC INC	Summarized transactions: 3	412.50
334	ARROW ACE HARDWARE-ST PETER	Summarized transactions: 8	411.86
335	VERIFIED CREDENTIALS INC	Summarized transactions: 1	409.00
336	SNAP ON INDUSTRIAL	Summarized transactions: 1	400.98
337	RIESS CHAD	Summarized transactions: 1	400.00
338	SHERWIN WILLIAMS CO	Summarized transactions: 8	395.63
339	ROCH PLUMBING & HEATING CO IN	Summarized transactions: 1	395.38
340	MENARDS ROCHESTER NORTH	Summarized transactions: 6	392.80
341	NOVASPECT INC	Summarized transactions: 1	388.86
342	FRONTIER	Summarized transactions: 1	388.08

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

343	PAPER & GRAPHICS INC	Summarized transactions: 1	378.34
344	ST MARIE THOMAS	Summarized transactions: 2	376.40
345	ALL SEASONS POWER & SPORT INC	Summarized transactions: 1	373.68
346	ROCH LANDSCAPING SERVICES INC	Summarized transactions: 1	362.80
347	NORTHERN / BLUETARP FINANCIAL	Summarized transactions: 3	362.77
348	TOTAL RESTAURANT SUPPLY	Summarized transactions: 4	362.53
349	ALTEC INDUSTRIES INC	Summarized transactions: 4	359.16
350	MILESTONE MATERIALS	Summarized transactions: 2	347.54
351	MSC INDUSTRIAL SUPPLY CO INC	Summarized transactions: 7	347.34
352	LUHMANN ABE	Summarized transactions: 1	345.56
353	PROGRESSIVE TRUCK BODY REPAIR	Summarized transactions: 1	332.74
354	BEST BUY BUSINESS ADVANTAGE d	Summarized transactions: 4	329.22
355	CENTURYLINK	Summarized transactions: 1	325.95
356	STEVE BENNING ELECTRIC	Summarized transactions: 1	322.00
357	FORSTNER JAY	Summarized transactions: 2	316.54
358	JOHNSON PRINTING CO INC	Summarized transactions: 3	313.14
359	NU-TELECOM dba	Summarized transactions: 1	306.42
360	MN DEPT OF HEALTH - ENVIRO HE	Summarized transactions: 1	300.00
361	SIREK HYDRAULIC SERVICE INC	Summarized transactions: 3	297.96
362	INDOVANCE INC	Summarized transactions: 2	288.00
363	PIONEER RIM & WHEEL	Summarized transactions: 2	284.14
364	MN GROUND WATER ASSOC	Summarized transactions: 2	280.00
365	FEDEX	Summarized transactions: 12	275.02
366	POST BULLETIN CO	Summarized transactions: 2	272.36
367	KEEPRS INC	Summarized transactions: 3	270.38
368	ALS LABORATORY GROUP TRIBOLOG	Summarized transactions: 1	267.50
369	THOMAS TOOL & SUPPLY INC	Summarized transactions: 10	266.07
370	BATTERIES PLUS	Summarized transactions: 2	245.70
371	ON SITE SANITATION INC	Summarized transactions: 4	243.56
372	OLSEN CHAIN & CABLE CO INC	Summarized transactions: 3	239.95
373	CENTER FOR ENERGY AND ENVIRON	Summarized transactions: 1	230.86
374	ADVANCED DISPOSAL SVC SOLID W	Summarized transactions: 1	225.81
375	SWAGELOK MN INC (P)	Summarized transactions: 3	222.26
376	PAYMENT REMITTANCE CENTER	Summarized transactions: 9	214.30
377	ADVANTAGE DIST LLC (P)	Summarized transactions: 3	212.62
378	KRUSE LUMBER	Summarized transactions: 2	211.40
379	HANSON PATRICIA S	Summarized transactions: 2	199.00
380	RONCO ENGINEERING SALES INC	Summarized transactions: 3	194.59
381	NALCO COMPANY	Summarized transactions: 5	194.36
382	DENBOER MITCH	Summarized transactions: 1	182.00
383	KEACH TODD	Summarized transactions: 1	182.00
384	FASTENAL COMPANY	Summarized transactions: 5	171.30
385	BLACKBURN MANUFACTURING CO	Summarized transactions: 2	170.40
386	REINDERS INC	Summarized transactions: 1	167.48
387	WILLIS OF MINNESOTA INC	Summarized transactions: 1	164.00
388	MASTEC NORTH AMERICA INC	Summarized transactions: 1	160.00
389	GOVERNMENT FINANCE OFFICERS A	Summarized transactions: 1	150.00
390	MN DEPT OF NATURAL RESOURCES	Summarized transactions: 1	150.00
391	LOGANS TREE SERVICE & RECYCLI	Summarized transactions: 1	150.00

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

Consolidated & Summarized Below 1,000

392	SECURITY IMAGING CORP	Summarized transactions: 2	147.00
393	SHERWIN WILLIAMS CO	Summarized transactions: 3	141.94
394	SCHLINK WALTER	Summarized transactions: 1	140.00
395	VANCO SERVICES LLC	Summarized transactions: 1	140.00
396	BAUER BUILT INC (P)	Summarized transactions: 1	135.90
397	ALTERNATIVE TECHNOLOGIES INC	Summarized transactions: 1	130.00
398	CARQUEST AUTO PARTS	Summarized transactions: 4	128.12
399	FEDEX	Summarized transactions: 4	120.30
400	POWER PROCESS EQUIPMENT INC (Summarized transactions: 1	117.59
401	RONCO ENGINEERING SALES INC	Summarized transactions: 4	117.54
402	CUSTOM COMMUNICATIONS INC	Summarized transactions: 2	116.38
403	AGRICULTURAL WEATHER INFO SER	Summarized transactions: 2	115.00
404	WRIGHTS SMALL ENGINE SERVICE	Summarized transactions: 2	113.16
405	NORTHERN / BLUETARP FINANCIAL	Summarized transactions: 1	106.83
406	R D O - POWERPLAN OIB	Summarized transactions: 1	106.77
407	BUSCH SYSTEMS INTERNATIONAL I	Summarized transactions: 2	104.33
408	DEX MEDIA	Summarized transactions: 1	99.00
409	HUMPHREY STEPHANIE	Summarized transactions: 1	96.37
410	OLM COUNTY PROPERTY RECORDS	Summarized transactions: 2	96.00
411	MENARDS ROCHESTER SOUTH	Summarized transactions: 3	93.33
412	ULTEIG ENGINEERS INC	Summarized transactions: 1	91.00
413	MEYERS KEVIN	Summarized transactions: 1	85.45
414	CULVER COMPANY INC	Summarized transactions: 1	80.80
415	ARROW ACE HARDWARE-ST PETER	Summarized transactions: 2	79.94
416	JOHN DEERE LANDSCAPES	Summarized transactions: 5	79.88
417	INTERSTATE MOTOR TRUCKS INC	Summarized transactions: 1	76.18
418	ZIEGLER INC	Summarized transactions: 1	76.08
419	A T & T	Summarized transactions: 2	73.93
420	VIKING ELECTRIC SUPPLY INC	Summarized transactions: 3	72.58
421	NATL RURAL ELECTRIC COOP ASSN	Summarized transactions: 1	72.00
422	ADLERS SPORTING GOODS INC	Summarized transactions: 1	70.00
423	FASTENAL COMPANY	Summarized transactions: 3	69.57
424	POST BULLETIN CO	Summarized transactions: 1	69.12
425	U S BANK	Summarized transactions: 1	68.89
426	G & K SERVICES	Summarized transactions: 1	68.85
427	AFFILIATED GROUP INC	Summarized transactions: 1	65.40
428	ROCHESTERFEST/CELEBRATION OF	Summarized transactions: 1	65.00
429	ANDERTON RANDY	Summarized transactions: 1	60.00
430	MAJESTIC TENTS AND EVENTS dba	Summarized transactions: 1	52.37
431	CLEMENTS CHEV-CAD-GEO-SUB	Summarized transactions: 1	51.10
432	T E C INDUSTRIAL INC	Summarized transactions: 1	50.58
433	ROCH RESTAURANT SUPPLY	Summarized transactions: 1	47.94
434	TWO SOCKETS - TWO METERS INC	Summarized transactions: 2	45.48
435	G A ERNST & ASSOCIATES INC	Summarized transactions: 1	43.00
436	WIESER PRECAST STEPS INC (P)	Summarized transactions: 1	42.75
437	GARCIA GRAPHICS INC	Summarized transactions: 2	37.50
438	O'REILLY AUTO PARTS	Summarized transactions: 1	30.98
439	OLM COUNTY CENTRAL FINANCE	Summarized transactions: 1	28.80
440	PAULS LOCK & KEY SHOP INC	Summarized transactions: 1	27.60

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

ROCHESTER PUBLIC UTILITIES

A/P Board Listing By Dollar Range

For 04/15/2015 To 05/13/2015

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441	MINNESOTA ENERGY RESOURCES CO	Summarized transactions: 1	24.00
442	OLM COUNTY AUDITOR/TREASURER	Summarized transactions: 1	21.20
443	CHS ROCHESTER	Summarized transactions: 1	20.32
444	DOUBLETREE HOTEL - BGDS HOTEL	Summarized transactions: 1	20.00
445	BIERBAUM DIRK	Summarized transactions: 1	17.00
446	BLEVINS JAN	Summarized transactions: 1	17.00
447	LARSON DRU	Summarized transactions: 1	17.00
448	HD SUPPLY FACILITIES MAINTENA	Summarized transactions: 6	16.34
449	NETWORK SERVICES COMPANY	Summarized transactions: 1	13.34
450	MUELLER MATTHEW	Summarized transactions: 1	10.00
451	ATKINSON JEFF	Summarized transactions: 1	10.00
452	THRONDSOIN OIL & LP GAS CO	Summarized transactions: 3	7.92
453	MENARDS ROCHESTER NORTH	Summarized transactions: 1	7.52
454			
455		Price Range Total:	239,319.58
456			
457		Grand Total:	9,560,173.83

Attachment: AP Board List Current Month (3906 : A/P Board Listing)

FOR BOARD ACTION

Agenda Item # (ID # 3882)

Meeting Date: 5/26/2015

SUBJECT: FBA: Intermediate Level Water Tower - St. Bridget's

PREPARED BY: Mona Hoeft

ITEM DESCRIPTION:

Sealed bids were opened on May 20, 2015 for the installation of 500,000 gallon welded steel, single pedestal elevated spheroid water storage tank to be installed on the Olmsted County Public Works site.

A breakdown of the bids is as follows:

Contractor	Bid Amount
CB&I, Inc.	\$1,139,000
Maguire Iron, Inc.	\$1,147,000
Phoenix Fabricators	\$1,170,420
Caldwell Tanks, Inc.	\$1,309,000

CB&I, Inc. submitted a responsive and responsible bid and they have performed well on past projects.

Unit pricing of additional materials has been obtained through the bidding process should it be needed. Additional materials have the potential of increasing the contract amount which will be managed by internal authorization procedures.

The storage tank is expected to be complete by July 14, 2016.

The 2015 Water Maintenance and Construction budget includes \$1.3 million for this project.

UTILITY BOARD ACTION REQUESTED:

FOR BOARD ACTION

Agenda Item # (ID # 3882)

Meeting Date: 5/26/2015

Approve a resolution to enter into a contract with CB&I, Inc. in the amount of \$1,139,000 and authorize the Mayor and City Clerk to execute the agreement.



CONTRACT

St. Bridget's Intermediate Level Water Tower

THIS CONTRACT made this _____ day of _____, 2015, by and between the City of Rochester, Minnesota, a Minnesota municipal corporation, acting through its Public Utility Board, hereinafter called "City", and CB&I, Inc., a Texas corporation, hereinafter called "Contractor".

WHEREAS, the City has solicited a proposal from the Contractor for the construction of the St. Bridget's Intermediate Level Water Tower described in the specifications and contract documents.

WHEREAS, the City desires to engage the services of the Contractor according to the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the above premises and of the terms and conditions contained herein, the parties hereto agree as follows.

Article I. Scope of Services. The Contractor shall furnish all labor, materials, equipment and supervision for the work described in the specifications and contract documents.

Article II. Payment. The City agrees to pay the Contractor the sum of \$1,139,000 for the services described herein, subject to the terms and conditions of payment described in the Contract Documents.

Article III. Term. The term of this agreement shall commence on the date of this Contract and shall continue until completion and acceptance of the work by the City.

CB&I, INC.

CITY OF ROCHESTER

By: _____
Michael Allison,
Business Development Manager

By: _____
Mayor

By: _____
Its:

Attest: _____
City Clerk

Approved
as to Form: _____
City Attorney

ROCHESTER PUBLIC UTILITIES

By: _____
General Manager

OFFICIAL NOTIFICATION METHOD:

Name of project mgr
Email address of Project Mgr
14109 South Route 59
Plainfield, IL 60544

Doug Klamerus
dklamerus@rpu.org
4000 East River Road NE
Rochester, MN 55906-2813

Attachment: 03 Contract (3882 : FBA: Intermediate Level Water Tower - St. Bridget's)



RESOLUTION

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota, to approve a contract with CB&I, Inc. and authorize the Mayor and the City Clerk to execute the contract for:

St. Bridget's Intermediate Level

Water Tower

and allow for change orders to be managed by internal authorization procedures.

The amount of the agreement to be ONE MILLION, ONE HUNDRED THIRTY NINE THOUSAND AND 00/100 DOLLARS (\$1,139,000).

Passed by the Public Utility Board of the City of Rochester, Minnesota, this 26th day of May, 2015.

President

Secretary

FOR BOARD ACTION

Agenda Item # (ID # 3887)

Meeting Date: 5/26/2015

SUBJECT: FBA: System Operations Control Room Consoles

PREPARED BY: Steve Monson

ITEM DESCRIPTION:

Sealed bids were opened on May 12, 2015 for the purchase of three adjustable height control consoles and one control desk as part of the system operations remodeling project expected to begin this summer. Bids were originally expected to exceed \$100,000 which is what prompts the requirement for competitive bidding. Due to marketing the solicitation, other vendors were located and encouraged to submit bids resulting in significant savings, in essence, eliminating the need for competitive bids.

This console system was difficult to evaluate and spec due to the varying options and proprietary properties of console components. Since this purchase now falls below the competitive bidding threshold, staff is seeking to reject all bids allowing greater flexibility to negotiate a purchase that better meets the needs of staff. The competitive bidding law and the solicitation documents reserve the right to reject any and all bids considered in the best interest of the City.

Bids seeking rejection were received from:

Adaptaspace Inc.

Schmidt-Goodman/Evans Consoles, Inc.

The Winsted Corporation

UTILITY BOARD ACTION REQUESTED:

Reject all bids received for system operations control room desks and authorize a resolution approving the rejection.



RESOLUTION

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota, to reject all bids for the purchase of:

System Operations Control Room Consoles

Passed by the Public Utility Board of the City of Rochester, Minnesota, this 26th day of May, 2015.

President

Secretary

FOR BOARD ACTION

Agenda Item # (ID # 3898)

Meeting Date: 5/26/2015

SUBJECT: 2015 Electric Service Rules & Regulations

PREPARED BY: Randy Anderton

ITEM DESCRIPTION:

RPU has had written and published Electric Service Rules & Regulations since the early 1980's. These rules and regulations have been used by staff as a reference to provide consistent guidance to customers and contractors in regards to establishing new electric service or making revisions to an existing electrical installation.

The current version of the Electric Rules & Regulations was published in August 2011. Historically, RPU staff has attempted to revise this document approximately every 3 years. Staff began the revision process for this document in 2014 and just recently completed the review process of the proposed changes. Many changes in the proposed 2015 Electric Rules & Regulations involve documenting standard past practices and procedures or adding clarity to existing rules.

Historically the Electric Service Rules & Regulations has been presented to the Board as an informational item, but they have not been officially approved by the Board. RPU staff believes that going forward, it is important that the Electric Rules & regulations be officially approved by the Board similar to that of the Water Rules & regulations.

One major visual change to the document has been the reformatting from a booklet size document to an 8 ½ x 11 sized document. There are many minor changes throughout the document, but the below list is intended to highlight some of the more significant changes to the document:

- 1) Moved the Contact Information Page to the second page of the document and removed contact phone numbers from the rest of the document.
- 2) Definitions:
Added several new definitions, changed some, and removed ones that were not being used.
- 3) Section: 202:
This is a completely new section and deals with multi-tenant buildings, improper

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wiring, and de-minimus use.

4) **Section 207 and various other locations within the document:**

RPU now requires a minimum of two business day notice and all required paperwork filed prior to service connections, disconnections, and reconnections.

5) Section 403.2:

For customers requesting a three phase service with RPU projected demands of 75 KVA or less, there will be charges for providing the service.

6) Section 503 and 504:

RPU will normally charge for the cost of installing Excess and Redundant facilities. RPU will typically require a written agreement between the owner and RPU prior to agreeing to install Excess and/or Redundant facilities.

7) Section 506:

When a customer upgrades an existing electrical service that is currently RPU owned, the ownership of the service lateral will be transferred to the customer. This will result in the requirement that the service lateral be adequately sized to meet the NEC requirements.

Upgrade Service: An electric service is considered upgraded if the rating of the customer disconnect is increased or if either the conductors between the meter socket and the customer disconnect or the conductors on the supply side of the meter are changed.

Under Section 600 all new or upgraded services must have an approved meter socket.

8) Section 600:

All new or upgraded residential or commercial services must have an approved meter socket; see Section 613 for a list of approved meter sockets.

See Definition of Upgrade Service in Electric Service Rules:

9) Section 602.5:

Existing residential customers where the meter is located inside shall relocate the meter to the outside if the service is upgraded or the main disconnect is

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changed.

See Definition of Upgrade Service in Electric Service Rules:

10) Section 602.6 and 602.8:

RPU may allow multiple metering locations on a case by case basis for buildings where there are over three finished stories fully above grade.

11) Section 604:

Meter identification: If more than one meter is required for a building, each meter socket must be permanently identified per the requirements of this section prior to RPU energizing the services. RPU will not install meters until these requirements are met.

12) Section 610:

RPU no longer furnishes instrument rated meter sockets. They are available from the local electrical distributors. If an 8 terminal meter socket is required, contact RPU's Electric Meter Department for prior approval.

13) Section 618:

Proper Grounding/Bonding of Meter Sockets and Services. Review this section for proper requirements for CT cabinets and multi meter\installations.

UTILITY BOARD ACTION REQUESTED:

Staff requests the Utility Board approve the proposed Electric Rules and Regulations to become effective June 1, 2015.

ROCHESTER PUBLIC UTILITIES

ELECTRIC SERVICE RULES AND REGULATIONS

Revised August 2011

INTRODUCTION

Rochester Public Utilities (hereafter referred to as RPU) has assembled this booklet to assist its customers and their architects, engineers, or electrical contractors to plan for and obtain prompt and satisfactory electric service. Reviews will be made every other year with publication of revisions, if required, scheduled for April.

The information presented here is intended to supplement the requirements of the National Electrical Code and all other applicable federal, or state, and municipal codes, regulations, laws and ordinances. It is always necessary to refer to and comply with such other codes, regulations, laws, and ordinances when planning, designing, and installing a new electrical service. Specific requirements of RPU do not intentionally conflict with any other requirements known to be in effect as of the publication date of this booklet. Any apparent conflicts of this nature should be brought to the attention of RPU for interpretation.

RPU wishes to serve its customers promptly and satisfactorily. It will endeavor to cooperate with customers and their authorized representatives to the fullest extent in completing service connections with as little delay and inconvenience as possible, and will gladly give special attention to any particularly difficult situation confronting a customer.

RPU will be happy to confer with those customers desiring information concerning rates, services, etc., upon request by telephone or otherwise. Such requests should be directed to RPU's Customer Service Representative (located in RPU's Service Center at 4000 East River Road NE, phone 507.280.1500, 1.800.778.3421 or fax 507.280.1642 or online fax 507.280.1643).

These rules and regulations are available on the RPU web site www.rpu.org. Contact RPU for more details.

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SECTION 100

DEFINITIONS

Application for Service: The agreement or contract between RPU and the Customer under which electric service is supplied and taken.

Accessible: Admitting close approach and not guarded by locked doors, elevation, or other effective means including any portion of a temporary or permanent structure.

Approved: Acceptable to the authority having jurisdiction.

Connected Load: The combined manufacturer's rated capacity of all motors and other electric energy consuming devices on the Customer's premises which may, at the will of the Customer, be operated with the electric energy to be supplied from the service of RPU.

Customer: Any individual, partnership, corporation, or other legal entity now being served or to be served, using the electric service of RPU at any specified location.

Customer's Service Equipment: The necessary equipment and accessories, located near the point of entrance of supply conductors to a building, which constitute the main control and means of disconnecting the supply to that building. This equipment usually consists of a circuit breaker or a switch and fuses.

Disconnection Means: A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Distribution Lines: RPU's lines located along streets, alleys, highways, or easements on private property, when used or intended for use for general distribution of electric service to Customers of RPU.

Dwelling:

Dwelling Unit: One or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living and sleeping, and permanent provisions for cooking and sanitation.

Multi-Family Dwelling: A building containing three or more dwelling units.

One-Family Dwelling: A building consisting solely of one dwelling unit.

Two-Family Dwelling: A building consisting solely of two dwelling units.

Electric Service: The availability of electric power and energy, regardless of whether any electric power and energy is actually used. The supplying of electric service by RPU consists of the maintaining, at the point of delivery, approximately the agreed voltage, phase and frequency by means of facilities adequate for carrying the load that RPU is thereby obligated to supply by reason of the known requirements.

Fault Current: The current that will flow through the system to a point where a piece of equipment or a conductor has failed, such as bare conductors touching together or a bare conductor touching a ground point.

Meter Set: An instrument or instruments, together with auxiliary equipment, for measuring the electric power and energy supplied to a Customer.

National Electrical Code: The current edition of the National Electrical Code as issued by the National Fire Protection Association (NFPA No. 70).

National Electric Safety Code: The current edition of the National Electric Safety Code as issued by the American National Standards Institute (ANSI C2).

Overhead Distribution Areas: The area or areas served by RPU's overhead distribution system as differentiated from the underground systems.

Points of Delivery: The point where the electric energy first leaves the line or apparatus owned by RPU and enters the line or apparatus owned by the

Customer unless specified in the Customer's Agreement for Service. This is not necessarily the point of location of RPU's meter.

RPU: Rochester Public Utilities.

Rate Schedule Classification: The classification of the use of electricity into categories considering the amount of power supplied and the purpose of its use.

Secondary Terminal: The secondary side of a pad mounted transformer, a secondary terminal box at the base of a riser pole, or a secondary junction box, whichever is designated by RPU.

Service: The conductors and equipment for delivering energy from RPU's system to the wiring system of the Customer.

Service Drop: The overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.

Service Entrance Conductors, Overhead System: The service conductors between the terminals of the service equipment and a point usually outside the building, clear of building walls, where joined by tap or splice to the service drop.

Service Entrance Conductors, Underground System: The service conductors between the terminals of the service equipment and the point of connection to the service lateral.

Service Equipment: The necessary equipment, usually consisting of a circuit breaker or switch and fuses, and their accessories, located near the point of entrance of supply conductors to a building or other structure, or an otherwise defined area, and intended to constitute the main control and means of cutoff of the supply.

Service Lateral: The underground service conductors from RPU's distribution system, including any risers at a pole or other structure or from transformers, to the first point of connection with the service entrance conductors in a terminal box or meter or other enclosures with adequate space, inside or outside the building wall. Where there is no terminal box, meter, or other enclosure with adequate space, the point of connection shall be considered to be the point of entrance of the service conductors into the building.

Type of Service: The characteristics of electric service described in terms of frequency, phase, nominal system voltage and number of wires.

Primary Service: Any type of service with a nominal voltage greater than 600 volts.

Secondary Service: Any type of service with a nominal voltage less than or equal to 600 volts.

Underground Residential Distribution (URD) Areas: Those residential subdivisions or other specified areas within which all customers are served by underground distribution lines.

Utility: For the purpose of this document any public, city, or city-franchised organization that furnishes electric service.

Voltage (Of a Circuit): The greatest root-mean-square (effective) difference of potential between any two conductors of the circuit concerned.

Voltage, Nominal: The value, expressed in volts, which is assigned to a circuit or system for the purpose of conveniently designating its voltage class (as 120/240, 480Y/277, 600, etc.). The actual voltage at which a circuit operates can vary from the nominal within a range established by ANSI C84.1. The customer is responsible for making sure that their systems are capable of operating within range B of ANSI C84.1.

Voltage to Ground: For grounded circuits, the voltage between the given conductor and that point or conductor of the circuit that is grounded; for underground circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

SECTION 200
GENERAL INFORMATION

201 Service Jurisdiction

RPU has been established by the City of Rochester for the purpose of providing electricity to the residents of the City. RPU also provides electricity to residents outside of the City limits but within the service area boundaries established by the State of Minnesota. Service will be provided to all eligible applicants only when all applications, agreements, easements, deposits, payments, and other required information has been provided to RPU.

202 Application for Service

Application for new, additional, or temporary electric service must be made by the Customer, or a designated representative, to RPU Service Center, 4000 East River Road NE, in person or by FAX (507.280.1642 or online fax 507.280.1643). At the time of application, the Customer will be required to provide, in writing on the form(s) provided, information relating to the service request, including the following:

- (1) Exact location of premises to be served including building street address, apartment or unit number if applicable, lot and block numbers and name of subdivision.
- (2) The type of service desired (e.g. temporary, permanent, residential subdivision, dwelling unit, commercial, industrial, rewire, etc.).
- (3) The approximate date that electric service is required.
- (4) The name, address, and telephone number of the Customer's designated representative who will be responsible for working with RPU representatives in providing the electric service (e.g. customer employee, engineer, contractor).

- (5) Commercial Services'---Electrical Load Data Statement specifying the type of service required by the Customer and expected magnitudes of connected and peak load. Additional data in the form of construction drawings and the proposed service entrance may also be necessary for RPU to adequately determine the capacity and arrangement of service to the Customer. The statement must be received by RPU before a work order for the project can be issued and the necessary planning and design of the project can begin.

RPU should be advised of planning installations as early as possible so that details for furnishing service may be arranged and construction completed by the desired date. Blank application forms and additional information may be obtained by contacting RPU's New Service Representative at 507.292.1232.

See Section 206 for connections and disconnections to existing services.

203 Ownership of Equipment

203.1 RPU-Owned Equipment

The meter and associated metering equipment furnished or installed by RPU are the property of RPU.

- (1) Overhead Service—In addition to the metering equipment, the overhead service drop installed by RPU is the property of RPU.
- (2) Underground Service—In addition to the metering equipment, all equipment up to and including the designated secondary terminal installed by RPU is the property of RPU. (The secondary terminal could be the secondary terminal of a pad mounted transformer, or a secondary junction box.) Unless service is taken at primary voltage or otherwise specified by written agreement, all conductors and equipment operating at nominal voltages in excess of 600V are the property of RPU.

203.2 Customer-Owned Equipment

The meter socket, instrument transformer compartment (if required, see Section 610), the service entrance conductors and conduit from the meter socket to the service entrance disconnect, the service entrance switch or circuit breaker and the service entrance ground equipment and the concrete transformer pad are the property of the Customer.

- (1) Overhead Service—In addition to the equipment on the Customer side of the meter socket, the service drop wire holder or bracket, the weatherhead and either the service mast and conduit with entrance wires or the service entrance cable with watertight connection to the meter socket are the property of the Customer.
- (2) Underground Service—In addition to the equipment on the Customer side of the meter, all conduit and cable required to extend the secondary service lateral from RPU's secondary terminals to the meter socket are the property of the Customer.

The Customer and RPU are responsible for the installation, maintenance, repair, and replacement of the electric service equipment which each owns.

204 Easements

Whenever any RPU-owned underground and/or overhead material and equipment is located on or above the Customer's property, the Customer shall grant an easement to RPU to the extent which RPU deems necessary. (This does not include secondary service drops or service laterals.) All utility easements required by RPU are to be granted by the Customer at no cost to RPU. The Customer must provide a legal description by a Registered Land Surveyor. The easement will be signed and recorded by RPU.

205 Inspection of Customer's Facilities

205.1 As a minimum, wiring and electrical equipment of the Customer, shall be installed in accordance with the latest edition of the National Electrical Code (NFPA No. 70).

205.2 Wiring installations located within the Rochester city limits, including temporary installations, must be inspected and approved by an authorized inspector of the City Building Safety Department as required by Minnesota Statutes Section 326.244. RPU will make connection only after approval by the authorized inspecting authority. The inspector is required by Minnesota Statutes Section 326.244 to disconnect or have disconnected by the utility any installation that is declared by the inspector to be unsafe and a hazard.

205.3 Underground Service Installation. Electrical contractors are requested to contact RPU when they call for inspection of residential service conductors with the trench open. If inspection points are used rather than an open trench, the contractor is requested to have one of the inspection points by the RPU point of service. This is done to facilitate prompt installation of cable into the secondary pedestal or transformer and avoid damage to the service conductors, especially for fall and winter installations.

205.4 Customers living outside the Rochester city limits and requesting service from RPU must have their wiring inspected by a state inspector. RPU will make connection before authorization from the state inspector only if the master electrician who installed or supervised the installation agrees in writing to be responsible for said wiring until such time that it can be inspected and approved by the state inspector ("Request for Electrical Inspection" – white form).

206 Service Connection, Disconnection, and Reconnection

After the Customer's installation has been inspected and approved by the proper authority, a meter will be installed by RPU and the electric service made available provided that all applications, agreements, and deposits have been submitted by the Customer and approved by RPU. Written or faxed inspection notices must be received by RPU no later than 3:00 p.m. of the day preceding the date that connection is desired (weekends and holidays excluded). RPU Service Center is located at 4000 East River Road NE, Rochester, Minnesota. Customer Service fax number is

(507.280.1642). Under special circumstances, verbal inspections will be accepted as long as written inspection documentation is submitted immediately thereafter.

Customer requests for disconnection or reconnection of existing services must be received by RPU at least 24 hours in advance of the desired time of disconnection or reconnection (weekends and holidays excluded). For the mutual protection of the Customer and RPU, only authorized employees of RPU are permitted to set and remove meters, or to make and energize or break and de-energize the connection between RPU's service drop or secondary terminals and the Customer's service entrance conductors or secondary laterals.

207 Liability

RPU does not engage in the practice of doing interior wiring on Customer's premises except for the installation and maintenance of its own property, and therefore is not responsible for service beyond the point of delivery. RPU shall not be liable for damage to any Customer or to any third party resulting from the use of the service or from the presence of RPU's appliances or equipment on the Customer's premises.

The Customer is solely responsible for any accidents, fires or failures resulting from the condition and use of his wiring installation or equipment.

208 Service Interruptions

RPU reserves the right to interrupt service at any time. Interruptions for maintenance and system improvements will be prearranged and advance notice will be given to the Customer whenever practical.

RPU will not be responsible for consequential damages resulting from service interruptions, fluctuations outside its control, or from operations in response to abnormal system conditions. Customers requiring service reliability and/or stability exceeding RPU's normal service should consider uninterruptible power supplies, isolation transformers, power conditioners, redundant services, or other options to provide the level of service needed. RPU's Engineering staff (507.280.1500) is available to discuss such needs.

209 Access

Employees of RPU shall have the right of access to the Customer's premises at all reasonable times for the purpose of installing, reading inspecting, maintaining, or removing any of its meters, devices, or other equipment which is used in connection with the furnishing of the Customer's electric service.

210 Customer Responsibility

Failure of the Customer to notify RPU in a timely manner of any planned alteration to electric service facilities or increased electrical load, and failure to comply with RPU's published rules, regulations, and rate schedules may result in delayed connections, interruption of service, or damage to equipment, for which RPU disclaims all responsibility

211 Revisions of Requirements

All requirements stated or implied herein are subject to change at any time without prior notice. All revisions can be obtained from RPU's Customer Service Representative.

SECTION 300

**RATES, CONNECTION CHARGES,
AND CREDIT POLICY**

301 Rate Schedule Classification

Electric service is supplied to Customers under various rate schedule classifications as determined by the type of service, the amount of electric power supplied, and the purpose for which the electric service is to be used. Copies of RPU's rate schedules are available at RPU's Service Center.

302 Payment

RPU will, insofar as possible, read all meters every month and bill the Customer for service used during the period. Payment of the bill is due on the date noted on the bill.

If the meter cannot be read during a billing period, or the reading seems erroneous, an estimate will be made for that billing period. Adjustments to bills resulting from inaccuracies in the meters will be handled in the manner described in paragraph **608 Meter Testing**.

303 Customer Charge

There is a customer charge for each meter/service provided. The amount of this customer charge will vary based on the type and number of services provided.

304 New Underground Service Connection Charge

RPU will charge an underground service connection charge for the extension and connection of new underground electrical service to any single-family home, townhome, condominium, duplex or triplex located in a R-1, R-1x, R-Sa, R-2, R-4 or Special District, zoning districts. The amount of the charge can be obtained from a New Service Representative.

304.1 Service Connections

There will be no charge for connections to existing services during RPU's normal working hours. If connection must be made outside of normal working hours at the request of the Customer, a special connection charge will be assessed. The charge for such work can be obtained from the Customer Service Representative.

305 Service Disconnection/Reconnection

RPU may disconnect a Customer's service, with notice, for any of the following reasons:

- Nonpayment of billings or issuance of non-negotiable check
- Nonpayment of a deposit or other charges/fees
- Failure to meet credit requirements
- Failure to provide access to RPU owned metering equipment

Without notice, the Customer's service may be disconnected for:

- A condition determined to be hazardous--to the Customer; to other customers or to RPU.
- Unauthorized use of electricity, water, or equipment belonging to RPU.

In the event service has been disconnected for a valid cause, the Customer will be required to pay a reconnection fee before the service is restored.

A schedule of fees is available from RPU Customer Service Representative.

24 hours notice is required for removal of meter or disconnect of service due to re-siding.

306 Service Deposit

RPU has established a credit policy whereby existing customers with an acceptable credit history and customers never having had service with RPU may not be required to provide a deposit as a condition of service. A new or additional deposit may be required in cases where a deposit has been refunded or where the current deposit amount is inadequate. The deposit amount is based on two times the average monthly bill and bears interest at the rate established by the RPU Board. Further information is available in the RPU Deposit Policy.

SECTION 400
STANDARD SERVICES

401 General Characteristics

This section describes the types of services offered to Customers under RPU's Standard Rate Schedules. Electric service supplied by RPU is alternating current having a nominal frequency of 60 Hertz (cycles per second).

402 Availability of Service

Although the types of service listed below are generally available through the area served by RPU, service of the type requested by a Customer may not be available at the location where such service is desired, and in certain cases may be available only through special contractual arrangements and at the expense of the Customer. **Each Customer will generally be allowed only one type of service and one point of connection for each location. For redundant services see Section 503.**

403 Secondary Service Voltages

The following types of secondary service are generally available to Customers served under RPU's Standard Rate Schedules:

403.1 Single Phase Service

120/240 Volt, 3-Wire, Grounded Neutral. Generally available where the total load is 100kVA or less for pad-mounted primary service, or 50kVA or less for pole-mounted primary service with an underground secondary in each case.

403.2 Three Phase Service

- a) 208Y/120 Volt, 4-Wire, Grounded Neutral. Generally available where facilities of adequate capacity are adjacent to the premises to be served. For loads where the service desired by the customer is not adjacent to the premises to be served, special

contract arrangements may be required prior to service being furnished.

- b) 240/120 Volt, Delta, 4-Wire, Grounded Neutral. Available only where installed capacity exists.
- c) 240 Volt (and 480 Volt), Delta, 3-Wire. Available only where installed capacity exists.
- d) 480Y/277 Volt, 4-Wire, Grounded Neutral. Generally available where the total load is 75kVA or greater for a pad-mounted primary service.

404 Primary Service Voltages

Three-Phase, 13800Y/7970 Volt, 4-Wire, Grounded Neutral Service: Available only by special request where the total annual peak load at one site is projected to exceed 500 kW (actual, metered, power factor corrected demand). RPU reserves the right to deny a request for a primary voltage service.

RPU will retain ownership of primary voltage equipment and conductors unless specifically agreed upon between RPU and the Customer. The point of delivery will normally be the terminals of RPU's cable in the Customer's switchgear.

SECTION 500
SPECIAL SERVICES

501 Temporary Service

501.1 Temporary service is intended to be supplied at secondary voltages only to customers for use during the construction of permanent facilities and before the permanent service can be installed.

501.2 The address of the location to be supplied with temporary service must be permanently displayed at the location and on the temporary pedestal and be easily readable from the street before RPU will install the temporary service. All overhead and underground temporary services will be metered and billed under one of RPU's Standard Rate Schedules. RPU will furnish only the service drop or lateral and the metering equipment.

501.3 The Customer shall provide an approved meter socket with the necessary raceway and a suitable rigid support for attachment of the metering equipment and service drop or lateral. On all three phase temporary services, where required, the Customer shall also provide a suitable enclosure for installation of RPU's instrument transformers.

501.4 A nominal flat fee (payable in advance) will be assessed for the first single phase temporary service of 200 amperes or less installed for residential construction. The location of the temporary service will be designated by representatives of RPU. The Customer will be required to pay RPU for the actual cost to install and remove any additional single phase temporary service of 200 amperes or less, any single phase temporary service larger than 200 amperes, any commercial temporary service, any temporary service located for the convenience of the Customer, and any other special facilities requested by the Customer.

Information regarding the charges for temporary service can be obtained from RPU's Customer Service Representative.

502 Services for Unusual Load Characteristics

The operation of Customer equipment having a relatively high load of short or intermittent duration, such as welders, compressor motors, elevators, and X-ray equipment, may cause serious fluctuations of voltage and interfere with the service being provided by RPU to other customers. If such a load is anticipated, the Customer must consult with RPU and agree to install such protective devices as may be required so as not to cause damage to any of RPU's equipment or in any way inhibit service to other customers. In addition, special compensation may be required by RPU from the Customer in those cases where it is necessary for RPU to install special or larger facilities than would normally be required to provide satisfactory service. (Refer to Section 700 for additional details.)

503 Redundant Facilities

RPU will normally provide one set of facilities (such as a set of primary cables and a transformer) to one point of service for each Customer. If a Customer requires redundant facilities (more than one set of facilities to the same point of service), RPU must be advised as soon as possible so the feasibility of such service can be determined. If RPU determines that redundant facilities can and will be provided, the Customer will be required to reimburse RPU for the entire cost of additional facilities, including all labor, materials, vehicle charges, and overheads. An agreement between the Customer and RPU may also be executed.

504 Relocation or Protection of RPU Facilities

It is the responsibility of the Customer to arrange for the relocation and/or protection of RPU's facilities whenever such action is appropriate. Any intended relocation or protection of RPU facilities must be reviewed with and approved by RPU in advance. The cost of any change or relocation of RPU's facilities for the benefit only of the Customer, and which has been initiated by the Customer, shall be borne solely by the Customer. A deposit by the Customer may also be required before the changes are made. RPU will bear costs to the extent that a change or relocation benefit RPU. The Customer shall not be required to pay for changes necessitated through public improvements by the City, County or State.

505 Security Lighting

Security lighting is available under its own rate schedule classification for those Customers requesting it.

506 Rewiring Existing Facilities

The customer or electrical contractor shall contact RPU when it is necessary to rewire or upgrade an existing electric service. All RPU Electric Service Rules & Regulations will be followed to the degree that conditions allow, with final approval by RPU personnel. The customer shall be responsible for maintaining the same phase rotation for 3-phase rewires.

507 Underground Locations

507.1 Minnesota Statute, Chapter 216D, requires an excavator to contact the utility notification center (Gopher State One Call) at least 48 hours before beginning an excavation. The excavation notice may be made by calling the center at 1-800-252-1166 and providing the following information:

- 507.1a Name of the individual calling.
- 507.1b Precise location of the proposed excavation.
- 507.1c Name, address and telephone number of the excavator.
- 507.1d Excavator's field telephone number.
- 507.1e Type and extent of proposed excavation.
- 507.1f Any anticipated use of explosives.
- 507.1g Date and time when excavation is to commence.

507.2 "Excavation" means an activity that moves, removes, or otherwise disturbs the soil by use of a motor, engine, hydraulic or pneumatically powered tool, or machine-powered equipment of any kind, or by explosives. Excavation does not include:

- 507.2a The extraction of minerals.
- 507.2b The opening of a grave in a cemetery.
- 507.2c Normal maintenance of roads and streets if the maintenance does not change the original grade and does not involve the road ditch.
- 507.2d Plowing, cultivating, planting, harvesting, and similar operations in connection with growing crops, trees, and shrubs, unless any of these activities disturbs the soil to a depth of 18 inches or more.
- 507.2e Gardening, unless it disturbs the soil to a depth of 12 inches or more.
- 507.2f Planting of windbreaks, shelterbelts, and tree plantations, unless any of these activities disturbs the soil to a depth of 18 inches or more.
- 507.3 Rochester Public Utilities encourages that underground facilities locations be requested prior to all construction or activity that disturbs the soil, including especially those activities that involve hand tools.
- 507.4 Any contact with an electric cable during excavation must be reported immediately, day or night, by calling RPU direct at 507.280.9191.

SECTION 600

Notice – Effective 1/1/06 - All new or rewired residential or commercial services must have an approved lever operated bypass meter socket (see Section 613 for approved bypass meter sockets). After the above date, any new or rewired service without an approved bypass socket will not be energized!

METERS

This section covers the installation of meters and associated equipment such as current and potential transformers for both overhead and underground services. Further description of RPU requirements for both overhead and underground services is covered in other sections of this booklet. The requirements contained in this section are for services rated 600 volts or less. When services are required at primary voltage (such as 13800 Y/7970 volts), the metering requirements and equipment will be determined on an individual basis.

601 Responsibilities for Providing Metering Equipment

All metering equipment, with the exception of current transformers and potential transformers, must be purchased and installed by the customer or electrical contractor. All metering equipment installed must be UL listed and labeled and have prior approval of the RPU metering department. Metering equipment installed without RPU approval will not be energized unless by special permission of the RPU metering department. RPU will energize only one set of metering equipment under each contract or application for one class of service.

602 Location of Meters

Meter locations will be agreed upon by representatives of the Customer and RPU, subject to final approval by the RPU.

602.1 Residential —All new or rewired services must have the meter located outside. Prior written approval from an RPU representative is needed to be excluded from this requirement.

602.2 Multiple Dwellings — Where more than one meter is installed, as on a duplex or apartment complexes, meters are to be located outside and grouped if possible. Exception: Complexes that have 24 meters or more may locate the meters inside as long as they are grouped at one location and accessible at all times to each customer and RPU personnel.

602.3 Industrial and Commercial — Meters for industrial and commercial service shall be located outdoors.

602.4 Height Limits — All meters located outdoors on residential or commercial services, where the meter is mounted on a permanent structure, shall have a height limit of not more than 6 feet and not less than 3 feet from final grade to the center of the meter. A typical metering arrangement is shown in Section 1000, Exhibit 1.

602.5 Mobile Homes — As of April 1, 1998, RPU will individually meter each mobile home located in a mobile home court or addition to a mobile home court. Resale of metered electrical energy by the court owner will not be permitted in these facilities. Individual meter pedestals, with bypass sockets, shall be provided by the customer or his representative. Maintenance and repair of the meter pedestal is the responsibility of the customer. A typical mobile home metering arrangement is shown in Section 1000, Exhibit 2.

602.6 Meter Clearances — Meters shall be situated such that there is not less than three feet of unobstructed space in front and one foot on all sides. Meters shall not be located where they are subject to corrosive fumes, dust, vibration or physical damage. Outdoor meters shall not be located in carports, under porches whether open or enclosed, or along walkways or driveways where they might create a hazard to people or be subject to damage by passing objects.

602.7 Access to Meters — Meter locations shall not be hazardous or cause inconvenience to employees of RPU when installing, maintaining, or reading the meters.

602.8 Residential Apartment Buildings — In all cases where multi-metering panels with stacked meter sockets are used, the maximum height to the center of the top meter shall be not more than 6 feet and the minimum height to the center of the bottom meter shall be not less 2 feet indoors and 3 feet outdoors. Individual apartment

disconnects must be connected on the load side of the meter. If the service voltage is 120/208 volts, a fifth terminal located at the 9 o'clock position is required in the socket and must be connected to the service neutral in accordance with the National Electric Code (see Exhibit 12). The house meter socket for apartment buildings requires an approved lever actuated positive bypass mechanism which will provide clamping pressure on the meter blades. Only one meter may be installed under one socket cover in multi-metering panels.

602.9 Commercial Multi-Metering Panels — All commercial multi-metering panels used in shopping centers, spec buildings and multi-commercial tenant buildings shall have a maximum of four meter sockets per vertical stack. In all cases, the maximum height to the center of the top meter shall be 6 feet and the minimum height to the center of the bottom meter shall be 2 feet indoors and 3 feet outdoors. An approved lever actuated bypass is required on all meter sockets and each individual unit disconnect shall only be connected to the load side of the meter. Each individual meter socket shall have a barrier to isolate the customer's disconnect switch and wiring from the metering area. Only one meter may be installed under one socket cover. A system neutral is required to each 5 and 7 terminal meter socket in accordance with the National Electric Code.

603 Grouped Meters

In installations requiring more than one meter, the meters shall be grouped and suitably connected such that a meter serves no more than one Customer. The height limits stated previously also pertain to grouped meters where practicable. If deemed necessary by the space available, the meters may be stacked in an orderly fashion. Any dwelling with more than one Customer living therein must have an individual meter for each dwelling unit. These meters must be easily accessible to all tenants and to personnel of RPU. There shall be an approved type of disconnecting means for each meter which is lockable in some way to prevent reconnection by other than RPU personnel. A typical multiple metering arrangement is shown in Section 1000, Exhibit 3.

604 Meter Identification

If more than one meter is required for a building, each meter socket shall be identified and permanently designated in a suitable manner indicating the particular customer served. Each circuit shall be carefully traced and rechecked by the contractor to ensure against errors in wiring that would result in one customer obtaining service through the meter serving another customer. This is especially important when the wiring is concealed. Electric service shall not be energized if meter sockets are not identified. It will be the contractor's/owner's responsibility to correct any errors due to misidentification of meter sockets. RPU reserves the right to charge the building owner and/or electrical contractor for actual costs incurred by RPU to make corrections.

605 Meter Mounting

605.1 Outdoor meters and meter mounting devices shall be mounted securely on permanent structures such as houses, garages, and other buildings. Where outdoor meters are installed on surfaces that prevent installation of the meter mounting device in an exact vertical plane, a meter board must be installed or the surface modified in such a manner that the meter mounting device can be installed vertically. The preferred meter location is within ten (10) feet of the front end of the building (house or attached garage) on single family dwellings for new customer hook-ups. All meter locations for rewired or upgraded services shall be located outdoors with locations agreed upon between customer, contractor, and RPU personnel with final approval by RPU personnel. RPU has the right to refuse to energize service if these requirements have not been met.

605.2 Indoor meters, **where permitted**, shall be mounted in accordance with the preceding requirements of this section and shall be located as close as possible to the point where service enters the building. Indoor metering equipment shall be mounted securely in a vertical plane on permanent structures in a location free from moisture, high temperature, vibration, dust or dirt.

606 Meter Connections

The Customer shall provide the necessary wiring for the meter set with the wiring so arranged that the line (supply) side can be connected to the top terminals of the socket and the load side to the bottom terminals. All conductors shall extend into the meter socket a minimum distance equal to the length of the socket trough. All neutral conductors must be insulated. For underground services, the line side neutral wire is to be identified in accordance with the National Electrical Code. There should be sufficient slack left in the underground cables to make up for any ground shifting due to settling or extreme cold.

607 Wiring Restrictions on Meters and Metering Sets

No Customer wiring is permitted to be connected to the metering, secondary wiring or under the terminals of the meter. No part of the metering set may be used as a junction box for the Customer's wiring.

608 Meter Testing

608.1 Any Customer who believes that a meter is failing to properly register the use of electricity, may request a meter check by contacting the Customer Service Representative. RPU will test the meter using standard calibration equipment and generally accepted test procedures within a reasonable period of time. Customers who request additional meter tests within a twelve (12) month period may be charged for the additional tests at a standard fee.

608.2 Whenever a watthour meter is found upon test to have an average error of more than two percent (2%) from one hundred percent (100%) or a demand meter more than one and one-half percent (1.5%) from one hundred percent (100%), a recalculation of bills for service will be made on the basis that the meter should be one hundred percent (100%) accurate with respect to a working test standard.

608.3 If the period of inaccuracy cannot be determined, it will be assumed that the metering equipment has become inaccurate at a uniform rate since it was installed or last tested unless there is valid reason to use another method. Recalculation of bills is based on RPU Board Policy for adjustments of customer accounts.

608.4 When the average error cannot be determined by test due to complete failure of all or part of the metering equipment, then an estimate of the quantity of energy consumed based on available data will be used to determine the adjusted bills.

609 Meter Seals

All connections to RPU's service equipment shall be made by RPU personnel only. **Unauthorized connections to or tampering with any RPU meter, associated equipment or meter seals, or indications or evidence thereof subjects the Customer to immediate discontinuance of service, prosecution under the laws of Minnesota, adjustment of prior bills for services rendered, and reimbursement to RPU for all extra expense incurred on the account.** In addition, when the unauthorized connections or tampering involve an inside meter, the Customer shall, at his own expense, relocate all service equipment and metering facilities outside the building.

610 Services Requiring Instrument Transformer Installation

Single Phase – When any single phase service has a total connected load of 320 amps or greater, it will be necessary for RPU to use instrument transformers in the metering installation.

Three Phase – When any three phase service has a total connected load of 200 amps or greater, it will be necessary for RPU to use instrument transformers in the metering installation. These instrument transformers will be furnished by RPU and installed by the customer on the line side of the customer service entrance disconnect switch. As of April 1998, instrument transformers will not be installed in pad-mounted transformer compartments. The location of the instrument transformers will be determined by the RPU meter department. The customer shall not install any additional disconnect switches or junction boxes on the line side of the instrument transformer location. The customer must furnish and install a 1-inch metering conduit from the instrument transformer location to a meter location approved by the RPU metering department. Conduit runs shall not exceed 25 feet, except by special permission. If the conduit run exceeds 25 feet, it is the customer responsibility to furnish and install wire, per RPU

specifications, from the instrument transformer location to the meter location.

610.1 Underground Service from Pad Mounted Transformers:

Where service is underground from a pad mounted transformer, instrument transformers are to be mounted in an approved instrument transformer cabinet. The location of the instrument transformer cabinet must be approved by the RPU metering department.

610.2 Overhead Services:

Where service is provided by overhead service drops, approved outdoor instrument transformer cabinets will be required. Location of transformer cabinets will have final approval by RPU Meter Dept. before installation. (No open air CT's or PT's will be allowed.) Refer to 610.3a for cabinet requirements.

610.3 Indoor Mounted Instrument Transformers:

Instrument transformers installed indoors must have a service size of 1200 amps or greater, be installed inside the customer switch gear in a compartment designated for instrument transformers only and have prior approval from RPU metering personnel.

610.3a Secondary Metering Instrument Transformer Cabinet

Instrument transformer cabinets shall be furnished and installed by the Customer. This includes all services either overhead or underground. All cabinets must be UL listed and labeled, approved by RPU meter personnel and meet all NEC requirements prior to installation. Cabinets must conform to the following:

- a. The minimum cabinet size is to be 24 inches wide, 24 inches high, and 10 inches deep.
- b. The door must have provisions for locking with a standard padlock.
- c. The cabinet must be hinged on the right or left side only.

- d. Cabinets shall not be used as junction boxes or service connection cabinets.
- e. Only RPU metering transformers may be contained therein.
- f. Cabinets must be UL approved and be the correct NEMA class for the area environment in which they are installed.
- g. A 1-inch conduit installed between the cabinet and meter socket is required.
- h. Cabinet must accept bar-type current transformers on all services 1200 amps or less.

All services that require instrument transformers to be used will require the Customer or contractor to purchase an instrument rated meter socket from the RPU Meter Department. Contact the RPU metering department to obtain the proper socket and pricing. (See Section 613.1 and 613.2.)

610.3b Primary Metering Equipment - Indoors

When indoor primary metering service is to be installed, the Customer shall furnish a compartment or switchgear cubicle to house the primary current and potential transformers. All current and potential transformers shall be rated for metering accuracy as approved by the RPU Engineering Department. The metering point shall be located electrically between the Customer's main disconnect and customer lateral circuits.

When practical, RPU may request that the Customer install instrument transformers per RPU specifications. (Call the Customer Service Representative at 507.280.1500 to obtain Engineering assistance.) In such situations, RPU will credit the Customer for installation and material charges up to RPU's normal cost for instrument transformers.

610.3c Primary Metering Equipment - Outdoors

When outdoor primary service is to be installed, RPU may elect to utilize either a pole-mounted or pad-mounted primary metering equipment set. Outdoor primary metering units are furnished and installed by RPU. Sharing of the material and

installation costs for primary metering will be determined on a case-by-case basis.

611 Self-Contained Metering for Commercial Installations

In general, RPU will install self-contained meters (meters without instrument transformers) on single phase services where total connected load is 320 amps or less and on three phase services where the total connected load is 200 amps or less. Where such metering is to be used, the Customer shall provide a lever-operated bypassing socket (see Section 601). Such sockets permit a continuation of service upon removal of the meter for testing or maintenance. If a lever-operated bypass socket is not installed, the service will not be energized.

Commercial self-contained sockets must be rated continuous 200 amperes, minimum. For information on approved meter bypass sockets, see Section 614.1.

612 Master Metering

612.1 All new residential units will be individually metered. Exception: Multi-Unit facilities providing care to elderly or disabled persons may be master metered in accordance with State Law (§116J.27 Subd.8).

612.2 All new commercial or industrial units will be individually metered. Exceptions:

612.2a Where the construction of a building or installation is such that individual service conductors and disconnects are not required by provisions of applicable building codes.

612.2b Where the building or installation owner demonstrates conclusively that the cost to accommodate individual metering exceeds the long-run cost benefit to the individual occupants.

612.3 Existing master metered buildings or installations will be reviewed if:

612.3a Additional units are added or the nature of existing units is substantially altered, and

612.3b If the occupants of the units are responsible for paying for a portion of the electric power and energy used in these units.

The continuation of master metering in existing buildings or installations will be prohibited unless the owner demonstrates conclusively that the cost to accommodate individual metering exceeds the long-run cost benefit to the individual occupants.

612.4 Individual meters will be installed, owned, maintained, and read by RPU. Submetering by others for the purpose of charging individual occupants based on measured use must be in accordance with statutory requirements. Submetering by others for information purposes or to control the use of electric power for energy is permitted.

613 Approved Bypass Sockets

Meter sockets installed for self-contained meters must be approved by RPU prior to installation. Meter installations made with unapproved sockets will not be energized. Services energized with unapproved sockets will be subject to disconnection until the correct socket is installed.

613.1 Customer-Furnished Sockets — All meter sockets for single phase self-contained metering up to 320 amps and for three phase self-contained metering up to 200 amps are to be furnished and installed by the customer/contractor. All sockets require an approved lever actuated locking jaw bypass with an insulating track resistant poly carbonate safety_shield. Three phase services over 200 amps require instrument rated sockets.

613.2 RPU-Furnished Sockets — Meter sockets for instrument rated meters must be purchased from RPU and installed by the customer/contractor. Contact RPU to obtain the proper socket and pricing.

613.3 Approved Bypass Sockets - Currently the Landis and Gyr (HQ), Milbank (HD 200 Series) and Thomas & Betts/Anchor (TB Series) Square D (HD) bypasses are approved. Any other bypass socket must have approval from RPU prior to installation. Meter installation made with unapproved bypasses will not be energized. Service will be subject to disconnection until the correct socket is installed.

614 Service at 480 Volts

480 volt, 3 phase, 3 wire and 480 volt, 3 phase, 4 wire delta services will be metered using instrument transformers on both currents and potentials for safety reasons. RPU will supply and install all instrument transformers at no cost to the customer/contractor.

615 Location of High-Leg in Meter Socket on 240/120 Volt, 3 Phase Services

The conductor with the higher voltage to ground must be connected to the terminal on the right side. The high-leg conductor must be identified as required by the National Electric Code. Meter sockets with the high-leg in the wrong position will not be energized. Incorrectly wired sockets will be subject to disconnection until wiring is corrected.

616 Removing RPU Seals and Meters

Disconnection of RPU metering equipment and cutting of seals is not allowed without obtaining prior approval.

617 Customer Generation

Where a customer intends to operate any type of electric generator, photovoltaic array, wind generator, or similar equipment interconnected with the RPU system, special service and metering requirements must be satisfied. Contact RPU for details prior to interconnecting any generation equipment.

618 Proper Grounding

All metering conduits and sockets must be properly grounded. If PVC conduits are used, grounding conductors must be provided and installed by the customer/contractor in accordance with the National Electric Code. Electric service will not be connected to improperly grounded equipment.

619.1 Neutral for 5 and 7 Terminal Sockets

A system neutral is required to each 5 and 7 terminal socket. Conductor should be sized in accordance with the National Electric Code.

619 Customer Disconnect Switch

Individual customer disconnect switches should be connected on the load side of the meter. No customer devices, e.g. surge suppressors, load management equipment, etc., may be installed on the line side of the meter.

620 Special Sockets

All special sockets, such as apartment panels, recessed, mobile home parks, socket and switch, or socket and transfer, must have RPU's approval prior to installation.

621 RPU-Owned Equipment

Any metering equipment furnished by RPU, such as meters, instrument transformers, relays, totalizers, test switches, etc., remain the property of RPU. If the equipment has to be removed or disconnected for any reason, please call RPU so that the equipment can be picked up.

SECTION 700

CUSTOMER UTILIZATION EQUIPMENT

The Customer's service entrance and utilization equipment shall be installed in accordance with all local, state and National Electrical Code requirements. It is the intent of this section to provide the Customer with recommendations concerning factors that can affect both RPU and the Customer in the selection, installation, maintenance and operation of the Customer's utilization equipment. If concerns arise that are not covered in this section, RPU's Customer Service Representative should be contacted.

701 Protection of Customer Equipment

The customer is advised to provide adequate protection against the effects of outages or voltage spikes in accordance with the NEC or other pertinent sources of information for all types of motors and other equipment.

Equipment that should be protected includes, but is not limited to:

- motors
- computers
- electronics equipment
- equipment in which computers or electronics form an integral operating part

Equipment should be protected under all conditions, including:

- overload
- loss of voltage
- high or low voltage
- loss of phase(s) (e.g. single phasing on polyphase motors)
- re-establishment of service after any of the foregoing
- phase reversal
- motors that cannot be subjected to full voltage on starting
- harmonics or wave form irregularities

Failure to provide such protection may result in needless damage to equipment and the expense of delay and repair.

Sensitive electronics, such as microprocessor-based home electronics and business computers, are susceptible to damage due to voltage spikes or surges.

Before any microprocessor-based electronics are installed:

- Wiring practices that meet manufacturer specifications need to be assured. (For example, proper grounding and dedicated circuits are important.)
- Consideration should be given to installing transient voltage surge suppression
 - at the main service entrance, and
 - at the point of use
- An uninterruptible power supply (battery backup) should be considered if a momentary voltage dip or outage would cause loss of data.

702 Motor Starting Currents

Generally, all motors require a starting current substantially greater than their normal running current. Where starting currents are excessive, an abnormal drop in supply voltage will result. In order to minimize the unfavorable effects of such voltage drops, it is essential that the Customer's motors do not exceed the allowable starting characteristics as shown in Table 430-151 of the National Electric Code.

NOTE: Customers planning to install any motor larger than 5 hp single phase or 25 hp three phase, must contact the Customer Service Representative. Motor installations that cause power quality problems for other customers shall be corrected at the owner's expense.

703 Power Factor

In order to improve the efficiency of RPU's distribution system, the Customer's utilization equipment shall maintain an average power factor as close to unity as possible.

Some of RPU's rate schedules include a demand charge and a penalty for an average power factor that is less than 95%. Details of the method of billing for such Customers can be obtained from the Customer Service Representative. For new services, it is suggested that the Customer's utilization equipment be designed for operation at high power factor or with capacitors that are switched on and off with the equipment. See Section 1000, Exhibit 11 for correcting customer's power factor.

RPU will calculate the power factor of Customers in designed rate classes by installing a varhour meter. See Section 601 for Customer's responsibilities in providing metering equipment.

704 Fault Currents

The Customer's service equipment and other devices shall be adequate to withstand and interrupt the maximum available fault current. For single family residences with service equipment rated 200 amperes maximum and 120/240 volts, single phase, equipment shall have a minimum interrupting rating of 10,000 amperes symmetrical and other equipment shall be braced to withstand that minimum value.

705 Wiring Adequacy

The National Electrical Code (NFPA No. 70) specifies the adequacy of wiring with respect to safety but such installations may not be efficient, convenient, or adequate for good service of future expansion of electrical use. In many instances, the installation of wiring capacity greater than minimum code requirements is strongly recommended.

706 Customer-Owned Generating Equipment

Unless authorized by written agreement, electric generating equipment installed by the Customer shall not be interconnected or operated in parallel with RPU system. The customer shall own, install, operate, and maintain electrical interlocking equipment which will prevent parallel operation and such equipment shall be approved by RPU prior to installation. Please contact RPU for specific requirements relating to generation installations designed to operate in parallel with the RPU distribution system (e.g. solar, wind, etc.)

707 Energy Conservation

RPU encourages the prudent and efficient use of the electric power and energy which it provides. Customers desiring special information or other assistance regarding the efficient end use of electricity should contact a Customer Service Representative at 507.280.1500.

708 Customer's Obligations

708.1 Increased Load. In the event the Customer desires to increase load materially, such as additional electric heat, increased motor loads, etc., they shall give RPU sufficient advance notice, so that RPU may provide added facilities if necessary. If the Customer fails to notify RPU and RPU's equipment is damaged as a result of such increase in load, the Customer shall reimburse and make payment to RPU for all such damages.

708.2 Balancing of Load. Except in the case of three-phase, four-wire delta services, the current unbalance in three-phase services shall not exceed 10 percent of the current that would be required at maximum load under balanced conditions.

708.3 Total Harmonic Distortion (THD).

708.3a The application of any nonlinear load by the Customer (e.g., static power converters, arc furnaces, adjustable speed drive systems, etc.) shall not cause voltage and/or current Total Harmonic Distortion (THD) levels greater than industry accepted levels on RPU's electric system at the point of power delivery to the Customer's facility.

708.3b The Customer shall disclose to RPU all nonlinear loads prior to connection. RPU may test the Customer's load to determine the THD levels.

708.3c It shall be the responsibility of the Customer to assure that the THD requirements are met, including the purchase of necessary filtering equipment. Any load found not in compliance with this policy shall be corrected immediately by the Customer at the Customer's expense. If not corrected, RPU may disconnect service to the Customer's facility.

708.3d The Customer shall be liable for all damages, losses, claims, costs, expenses and liabilities of any kind or nature arising out of, caused by, or in any way connected with the application by the Customer of any nonlinear load operating with maximum THD levels in excess of the values stated in 708.3a. The Customer shall hold harmless and indemnify RPU from and against any claims, losses, costs of investigation, expenses, reasonable attorneys' fees, damages and liabilities of any kind or nature arising out of, caused by, or in any way connected with the application by the Customer of any nonlinear load operating with maximum THD levels in excess of the values stated in 708.3a.

SECTION 800

OVERHEAD SECONDARY SERVICE

RPU will supply overhead secondary service (600 volts or less) at the voltages and under the conditions specified in other sections of this publication. The service entrance location will be specified by RPU. This section includes information on distribution transformer size, overhead service drop and connections to the Customer's premises or equipment. Metering and customer equipment requirements are covered in other sections of this publication. The requirements of this section apply to all residential, commercial and industrial customers.

801 Maximum Transformer Size

801.1 The maximum overhead transformer size installed by RPU will be either one 50kVA transformer for a single phase application or three 15kVA transformers for multiphase applications. If a larger transformer size is required for a particular application, it shall be a pad-mounted type.

801.2 One or more secondary services may be supplied from a transformer; the number of services from a transformer shall be determined by RPU depending upon the application.

802 Service Drop Conductors

802.1 The service drop for new services will be a twisted wire triplex (three wires) or quadruplex (four wires) configuration from the distribution system to the point of attachment on the Customer's premises.

802.2 Existing services may be either a twisted wire or open wire configuration. If necessary for various reasons, RPU may change a service from an open wire to a twisted wire configuration.

803 Clearances

803.1 The service drop must be so located that the minimum clearance as specified in the latest edition of the National Electrical Code (NFPA No. 70) is maintained. An illustration of the clearances required is shown in Section 1000, Exhibit 4.

803.2 Service drop conductors shall not be installed above a swimming pool or surrounding area extending 10 feet horizontally from the pool edge, diving structure, observation stands, towers or platforms.

804 Point of Attachment

A solid point of attachment for supporting the service drop on the building shall be provided by the Customer at a point which will comply with previously stated clearances. Where the required heights and clearances cannot be maintained by a point of attachment on the building, the Customer shall provide a service mast which is of a permanent nature and of sufficient strength to support the service drop at the required minimum clearance. Typical building attachment and service mast installations are shown in Section 1000, Exhibits 5 and 6, respectively. In such an installation, 2-inch or larger galvanized iron conduit or 3-inch or larger rigid aluminum conduit shall be used. RPU reserves the right to decline to connect its service drop to an extension support which, in its judgment, constitutes a hazard to life or property.

805 Service Entrance

The Customer's service entrance wiring shall terminate at a point so located that the service drop from the supply lines will not interfere with windows, doors, awnings, drainpipes, or other parts of the building or other obstructions so that only one bracket is required.

SECTION 900
UNDERGROUND SERVICE

901 Undergrounding in New Residential Developments

901.1 RPU requires the complete underground installation of primary and secondary distribution service laterals to new structures in all residential zones, except in those cases where it is determined that such underground installations are either technically or economically undesirable.

901.2 RPU will designate a junction point for the connection of the Customer's secondary underground service lateral. The junction point will be a service pedestal or junction box, the terminals of a pad-mounted transformer, or a meter enclosure. In general, RPU will install, own, operate, paint Munsell green, and maintain all facilities on the source side of the junction point, including the junction enclosure and connections; and the Customer will install, own, operate, and maintain all secondary cables, conduit, and related service equipment specified in other sections of this publication on the load side of the junction point. However, the developer of a new subdivision is responsible, during general development, for installing road crossing conduits per RPU specifications. (Refer to Section 1000, Exhibit 13.)

901.3 Junction points will be located within RPU's easement area along or near a front or rear property line unless it is necessary or desirable to designate locations which are closer to the metering point(s). In such cases, the Customer will be charged for the installed cost of any additional lengths of underground distribution cable and conduit from the property line to the junction point. Such charges shall be in addition to any other charges specified herein.

901.4 RPU's primary and/or secondary distribution laterals will normally be installed within front lot line utility easements provided by the Customer as a part of the recorded property plat. All utility easements requested by RPU are to be granted by the Customer at no cost to RPU.

901.5 Additional information regarding RPU and customer responsibilities for URD installations is provided in Section 1000, Exhibit 9.

902 Residential Undergrounding in Overhead Areas

Customers residing in residential zones served by overhead lines may request underground electric service. Customers intending to relocate, upgrade or replace an existing overhead service may request underground service. In either case, the Customer shall install, own, operate, and maintain the facilities specified in Section 901.2. In addition, the Customer will be charged an amount which reflects any additional cost incurred by RPU in providing service to the junction point. All such charges must be paid by the Customer before RPU will commence installation of the necessary facilities.

903 Underground Service to Commercial and Industrial Customers

903.1 RPU requires the underground installation of primary and secondary distribution service laterals to new commercial and industrial structures.

903.2 RPU will designate a junction point for the connection of the Customer's secondary underground service lateral. The junction point will normally be the secondary terminals of a pad-mounted transformer placed at a mutually agreeable location on the Customer's property, as close as practicable to the metering point.

903.3 RPU will install, own, operate, and maintain the primary underground cable, the distribution transformer, and the secondary connections.

903.4 The primary cable will be installed in Schedule 40 PVC with marking tape electrical —conduit, sized to RPU construction standards from RPU's main distribution system, on or adjacent to the Customer's property, to the distribution transformer. If underground main distribution facilities are located on the Customer's property, the Customer shall provide the conduit from a designated tap point to the distribution transformer. If overhead main distribution facilities are located on the Customer's property, the Customer shall provide conduit to be installed by RPU on the riser pole and the Customer shall provide and install the conduit including the elbow, from the

riser pole to the pad mounted distribution transformer. See Section 1000, Exhibit 8 for details.

903.5 The Customer shall install, own and maintain a concrete transformer pad to RPU specifications. If the transformer is located in an area where it may be subject to physical damage (e.g. from vehicular traffic), RPU may require the Customer to furnish and install an approved means of protection.

903.6 The Customer shall install, own, and maintain all secondary cables, conduits, and cabinets from the transformer to the building service entrance; the cables and conduit shall be buried 24 inches minimum below final grade. If service is such that a secondary lateral is to be installed directly from RPU's main secondary distribution system, the secondary cables and conduit shall be installed, owned, and maintained by the Customer. (Conduit for the riser pole, if required, shall be furnished by the Customer.) RPU must approve the design of all secondary bus duct and cable bus designs. The installation will be inspected by RPU and the secondary connections to the transformer, and the transformer side of the connection cabinet will be made by RPU. It is the Customer's responsibility to coordinate with and provide the necessary information to RPU to assure that adequate connections are made at the secondary terminals of the transformer.

903.7 RPU will furnish and install the meter set in accordance with the requirements of Section 600.

903.8 The maximum number of secondary connections available shall be:

- Single Phase:
 - Six (6)350 MCM conductors per phase

Three Phase:

<u>Transformer Size</u>	<u># of Conductors per Phase</u>
45 KVA	3
75 KVA to 500kVA	6
750kVA to 2500kVA	10

The maximum size secondary conductor to be installed in a 3-phase transformer is 750 MCM.

Any service requiring more conductors per phase than listed above must utilize a customer-provided secondary connection cabinet.

903.10 Secondary cables installed in an RPU manhole must be copper conductor.

903.11 Secondary cables installed to a three phase pad-mounted transformer should be copper.

904 Secondary Connection Cabinets

Where secondary connection cabinets are necessary, the following apply:

904.1 Cabinet assemblies will be suited to the installation and meet RPU and National Electric Code (NEC) requirements.

904.2 Cabinets shall be constructed with provisions for bar-type or donut-type current transformers.

904.3 Conduits from service equipment to connection cabinet and from transformer to connection cabinet will be furnished and installed by electrical contractor as concrete pads are being formed and poured. Conduit systems shall meet RPU requirements. Above-grade raceway from the transformer to the connection cabinet is not allowed.

905 Transformer Clearances

Where pad mounted transformers and equipment in pad mounted enclosures are installed, the minimum clearances specified in Section 1000, Exhibit 7 must be maintained. Fences, shrubbery, and trees may be installed by the Customer provided that the specified clearances are maintained, the grade is not altered, and the underground cables are not endangered.

906 Winter Installation

Underground cable installation at the Customer's request between December 1 and April 30 will be subject to a winter installation charge. See Section 1000, Exhibit 10 for details.

907 Total Undergrounding

RPU does not install underground vaults, manholes, or submersible transformers on Customer property. If the presence of permanent structures up to the property lines, or other conditions, precludes the installation of pad mounted equipment on the Customer's property, primary service will normally be provided.

SECTION 1000

EXHIBITS

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Attachment: RPU 2011 Rules Regulations (3898 : 2015 Electric Service Rules & Regulations)

EXHIBIT 1

TYPICAL UNDERGROUND RESIDENTIAL
METERING ARRANGEMENT UP TO AND
INCLUDING 200 AMP, 120/240 VOLT

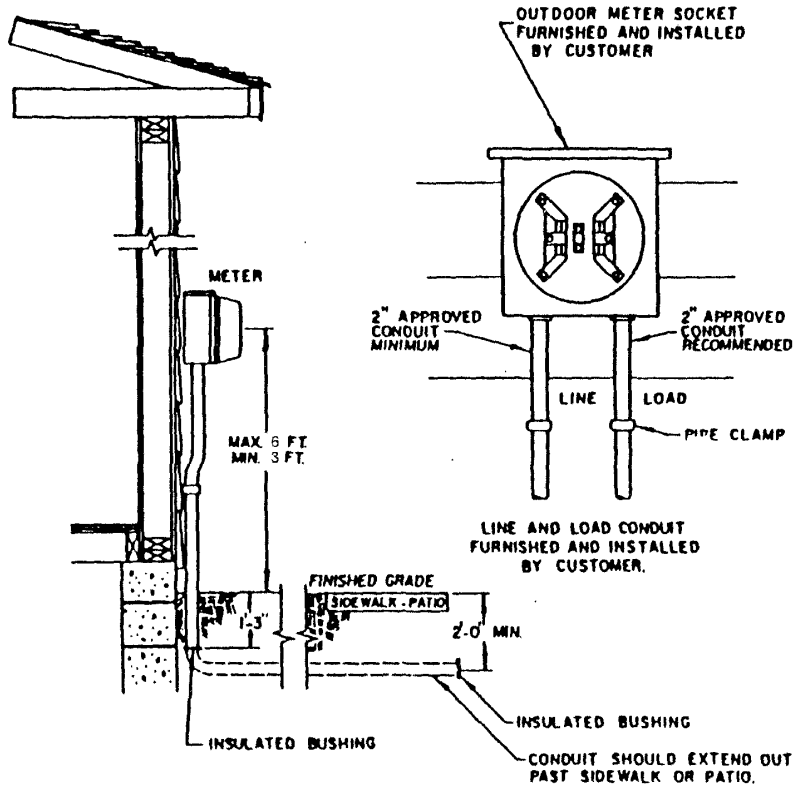
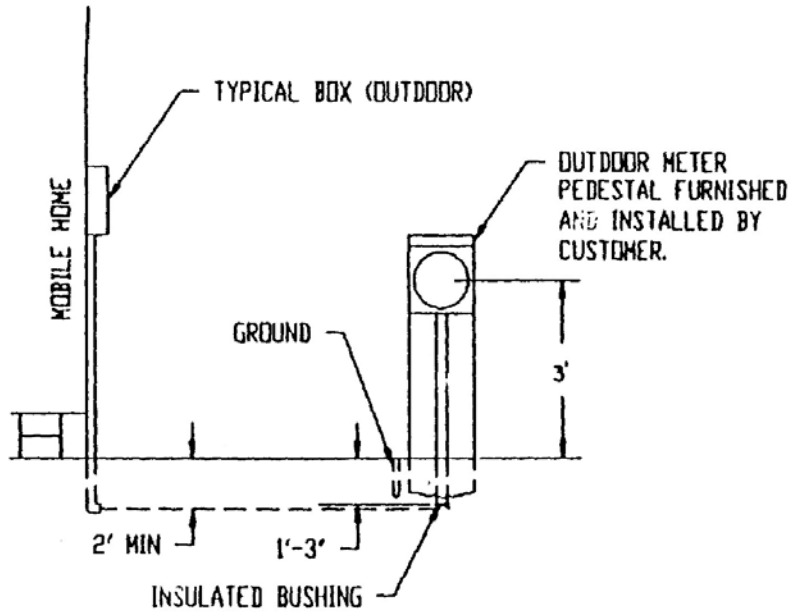


EXHIBIT 2

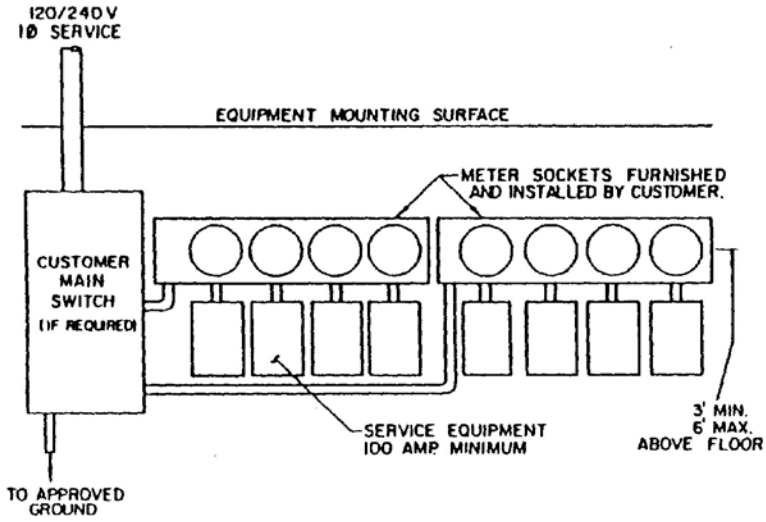
TYPICAL MOBILE HOME METERING ARRANGEMENT



- 1. METERS ARE TO BE PERMANENTLY LABELED.
- 2. METERS ARE TO FACE TOWARDS STREET.
- 3. SERVICE LATERAL FROM THE SECONDARY JUNCTION AT THE PROPERTY LINE, TO THE METER PEDESTAL, TO THE MOBILE HOME, IS THE RESPONSIBILITY OF THE CUSTOMER.

EXHIBIT 3

TYPICAL MULTIPLE METERING ARRANGEMENT



- 1. METERS ARE TO BE PERMANENTLY LABELED
- 2. METERS MUST HAVE INDIVIDUAL LOCK-OFF CAPABILITY.
- 3. METERS MUST BE ACCESSIBLE TO R.P.U. AND TO CUSTOMERS

EXHIBIT 4

SECONDARY SERVICE DROP CLEARANCES

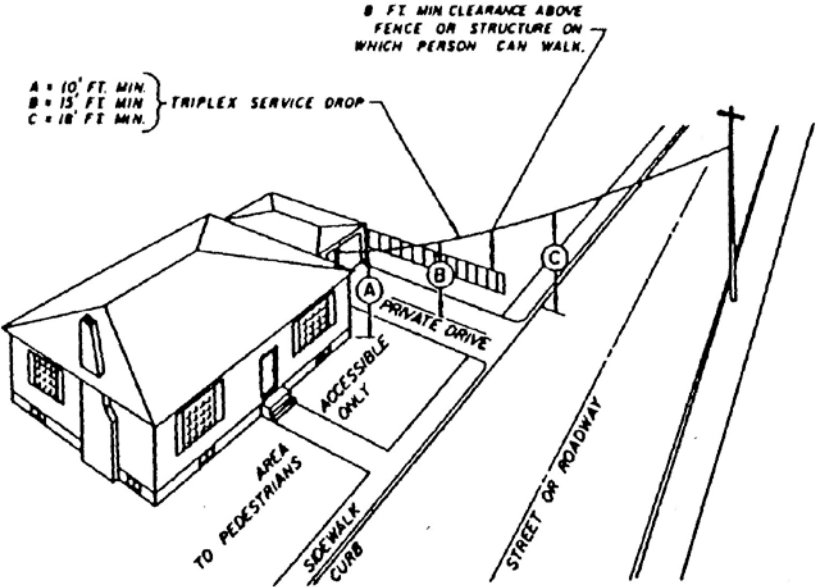


EXHIBIT 5

TYPICAL RESIDENTIAL OVERHEAD SERVICE INSTALLATION

CABLE WIRE SHALL PROJECT AT LEAST 3 FEET FROM WEATHERHEAD FOR CONNECTION BY THE R.P.U. TO SERVICE DROP.

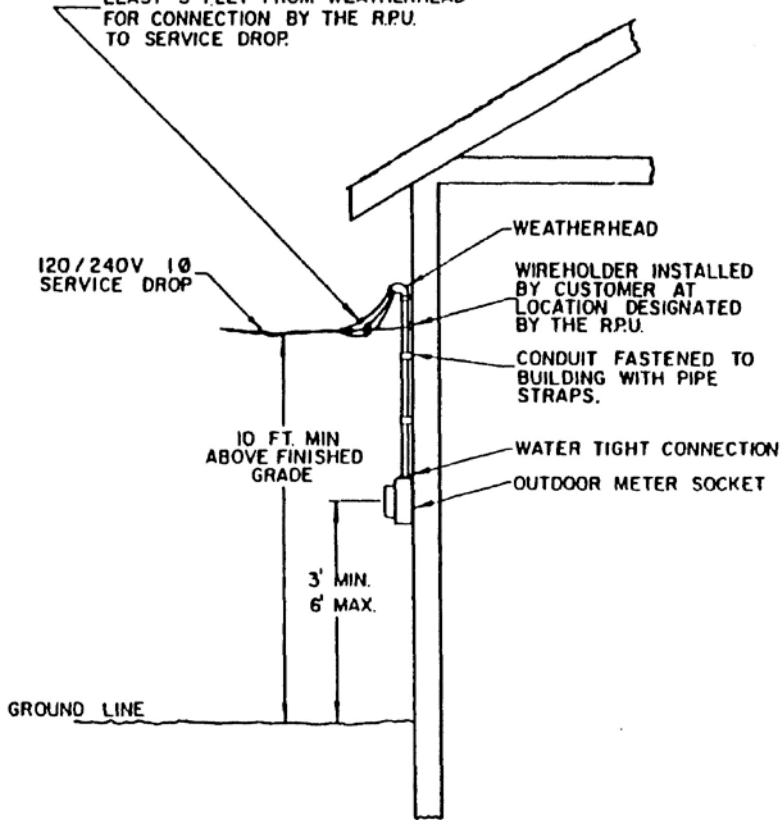


EXHIBIT 6

TYPICAL RESIDENTIAL SERVICE MAST

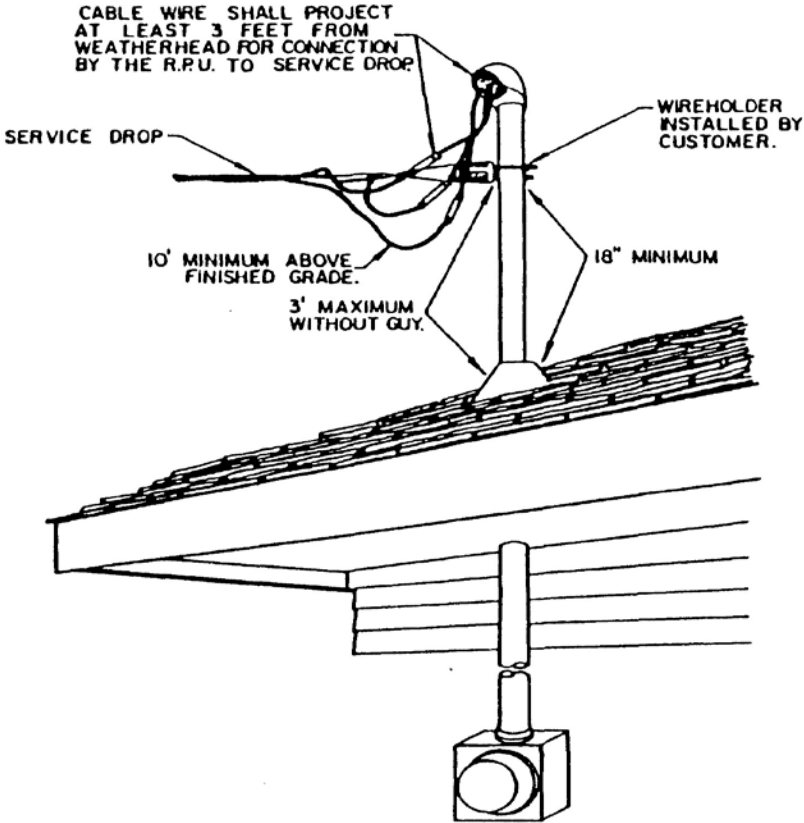


EXHIBIT 7

Location of Pad-Mounted Transformers Near Buildings

1. **Non-Combustible Walls**

(Included in this class would be wood framed brick veneered buildings, metal clad steel framed buildings, asbestos-cement-board walled metal framed buildings and masonry buildings.)

Pad-mounted oil insulated transformers may be located a minimum distance of 24 inches from non-combustible walls if all the following clearances are maintained from doors, windows and other building openings. A sump shall be installed for transformers if the immediate terrain is not pitched away from the building. Contact RPU's Engineering Section for sump specifications. If a combustible first floor overhang exists, a 10-ft. distance from the edge of the transformer to the edge of the overhang (combination of vertical and horizontal distance) shall be required in addition to the other clearance as shown.

A. **Doors**

Pad-mounted oil insulated transformers shall not be located within a zone extending 20-ft. outward and 10-ft. to either side of a building door.

B. **Air Intake Openings**

Pad-mounted oil transformers shall not be located within a zone extending 10-ft. outward and 10-ft. to either side of an air intake opening located at the level of the transformer. If the air intake opening is located above the transformer level, the distance from the transformer to the opening shall be a minimum of 25-ft.

The above term "level of the transformer" is to be interpreted as within 10-ft. of the ground.

EXHIBIT 7 – Continued

C. Windows or Openings other than Air Intake

1. First Story

Pad-mounted oil insulated transformers shall not be located within a zone extending 10-ft. outward and 3-ft. to either side of a building window or opening other than an air intake.

2. Second Story

Pad-mounted oil insulated transformers shall not be located less than 5-ft. from any part of a second story window or opening other than an air intake.

2. Combustible Walls (Included in this class would be wood buildings and metal clad buildings with wood frame construction.)

Pad-mounted oil insulated transformers shall be located at a minimum of 10-ft. from the building wall. In addition to the clearance from building doors, windows and other openings set forth for non-combustible walls. A sump shall be installed for transformers if the immediate terrain is not pitched away from the building. Contact RPU Engineering Section for sump specifications. If a combustible first floor overhang exists, a 10-ft. distance from the edge of the transformer to the edge of the overhang (combination of vertical and horizontal distance) shall be required in addition to the other clearances as shown.

3. Barriers (Included in this class are reinforced concrete, brick or concrete block barrier walls.)

If the clearance specified above cannot be obtained, a fire resistant barrier shall be constructed in lieu of the separation. The barrier when required is provided by the Customer. The following methods of construction are acceptable:

A. Non-Combustible Walls

The barrier shall extend to a projection line from the corner of the pad-mount to the furthest corner of the window, door or opening in question. The height of the barrier shall be 1-ft. above the top of the pad-mounted transformer.

EXHIBIT 7 – Continued

B. Combustible Walls

The barrier shall extend 3-ft. beyond each side of the pad-mounted transformer. The height of the barrier shall be 3-ft. above the top of the pad-mounted transformer. If a combustible first floor overhang exists, the 24-in. specified shall be measured from the edge of the overhang rather than from the building wall.

4. Fire Escapes

Pad-mounted oil insulated transformers shall be located such that a minimum clearance of 20-ft. is maintained from fire escapes at all times.

Exception: Pad-mounted transformers may be located closer to a fire escape than the 20-ft. minimum when a fire resistant barrier is constructed around the pad-mounted (side walls and roof). The barrier shall extend a minimum of 1-ft. beyond the pad-mount. The pad-mount and barrier shall not in any way obstruct the fire escape exit. A 10-ft. clearance is required in front of pad-mounted transformer doors. Adequate transformer accessibility and ventilation must be provided.

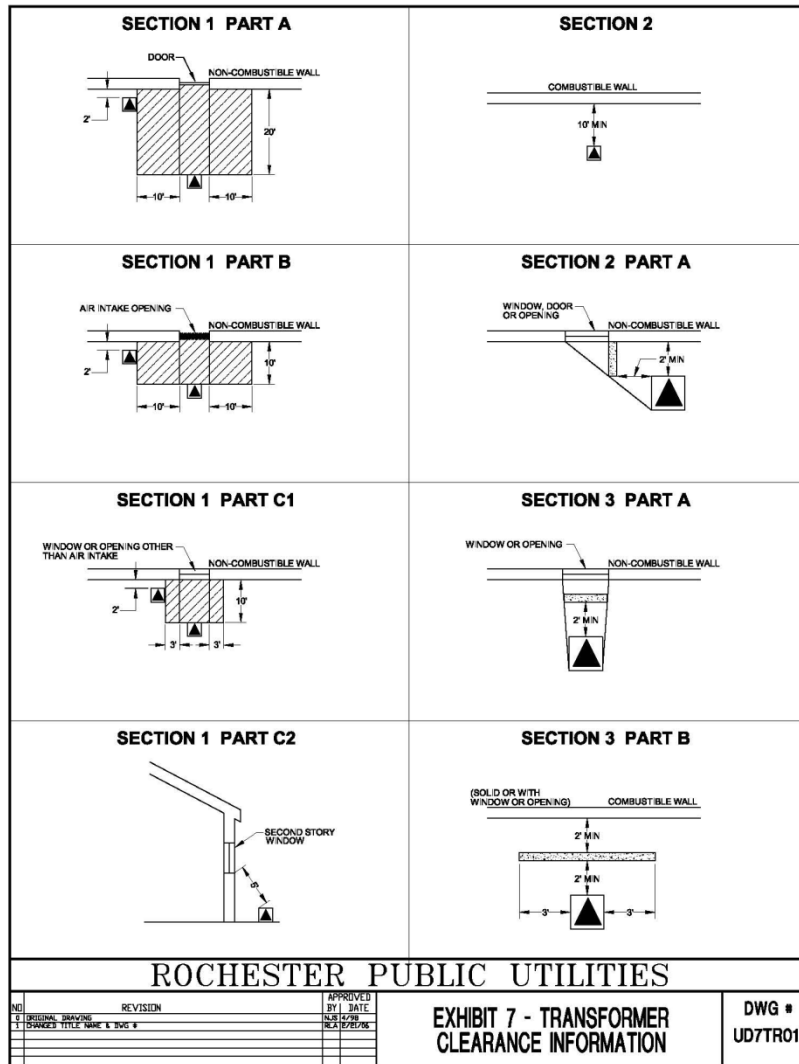
5. Decorative Combustible Enclosure

Decorative combustible enclosures (fence) installed by the customer around pad-mounted transformers adjacent to a combustible building wall shall not extend more than 24-in. beyond the transformer towards the combustible wall. A 10-ft. clearance is required in front of pad-mounted transformer doors. Adequate transformer accessibility and ventilation must be provided.

6. Non-Combustible and Combustible Walls — Fire Resistant Barriers

For definitions of combustible and non-combustible walls and fire resistant barriers, refer to the State of Minnesota Building Code. This information can be obtained at the office of the Rochester Building Safety Department, 281-6133.

Exhibit 7 – Transformer Clearances Drawing



ISSUE DATE – APRIL 98

EXHIBIT 8

RPU AND CUSTOMER RESPONSIBILITIES ASSOCIATED WITH UNDERGROUND THREE-PHASE INSTALLATIONS

RPU RESPONSIBILITIES

1. Designate service location and/or transformer location.
2. Supply and install pad-mounted transformer.
3. Make all primary terminations and connections.
4. Connect the Customer's secondary cable to the secondary terminals of the transformer only after Customer's wiring has been approved by the inspecting authority.
5. Energize the service only when authorized to do so by the inspecting authority.
6. Install conduit supplied by Customer on terminal poles.
7. Supply and install all primary cable at no cost to the Customer after said Customer furnishes and installs conduit for the entire distance from the property line to the transformer (including a 30 foot vertical riser on the pole).
8. Supply and install one meter set for each Customer, including all meters required for billing purposes and any accessories such as totalizers, current and potential transformers, phase-shifting transformers, test switches, and color code meter wiring.
9. Inspect customer-furnished equipment required by RPU. Installations not in compliance with RPU regulations will be rejected.

CUSTOMER RESPONSIBILITIES

1. Contact RPU to obtain the location and routing of RPU's facilities and to fill out an "Application for Service," and any other forms or statements required by RPU.
2. Provide necessary easements and clear area of all construction obstructions.
3. Bring area to final grade before installation of cable and transformers. Grade changes requiring cable adjustments will result in charges to the party requiring the changes.

EXHIBIT 8 - Continued

4. Compaction along conduit route after installation of conduit is Customer's responsibility.
5. Furnish and install a transformer pad and ground rod to RPU specifications. Contact RPU to obtain the pad specifications and transformer location for the specific service being installed. Notify RPU to inspect formed pad prior to pouring concrete.
6. Provide the following minimum clearances around the transformer: front-10 feet; sides and back-24 inches. These clearances must be at the same grade as the transformer.
7. Provide easy accessibility to area 24 hours a day.
8. Furnish and install all secondary cables, cabinets, and conduits from the transformer to the building service entrance.
9. Furnish and install a specified length of 4 inch or larger Schedule 40 PVC electrical conduit with marking tape to the point of interconnection with RPU (36" minimum depth), including a steel elbow at the riser pole. Minimum elbow (bend) radius shall be 36 inches. Furnish and install pull rope in conduit. Final location of the riser conduit attachment to the pole must be approved by RPU personnel.
10. Install protective posts if transformer pad is to be installed in parking area or area of vehicular traffic.
11. Protect RPU facilities from damage during construction period.
12. Have wiring approved by inspecting authority and then request service connection by RPU.
13. Notify RPU prior to any proposed building or grade changes within 10 feet of the electrical service or the cable route.
14. Supply and install RPU approved meter socket on outside wall or approved location and install conduit for service cable.
15. Notify RPU as far in advance as possible when any unusual loads are anticipated, such as special medical equipment, arc welders, elevators, or any other equipment that could affect RPU's system or any other Customer.

EXHIBIT 9

RPU AND CUSTOMER RESPONSIBILITIES ASSOCIATED WITH UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) INSTALLATIONS

RPU RESPONSIBILITIES

1. Designate service location or transformer location.
2. Supply and install all primary cable, transformer pads, and pad-mounted transformers.
3. Make all primary terminations and connections and install the grounding system.
4. Connect Customer's secondary cables to RPU's secondary terminal after Customer's wiring has been approved by the inspecting authority.
5. Supply and install the meter set, including the meter(s) and any other meter accessories needed for billing purposes, excluding the meter socket.
6. Energize the service only when authorized to do so by the inspecting authority.
7. Install conduit supplied by Customer on terminal poles.
8. Supply and install secondary connection pedestals and secondary cable to the pedestals.

CUSTOMER RESPONSIBILITIES

1. Contact RPU to obtain the location of RPU's facilities and customer service point and to fill out an "Application for Service," and any other forms or statements required by RPU.
2. Provide necessary easements and clear area of all construction obstructions.
3. Bring area to final grade before installation of cable and transformers. Install grade stakes at all front lot line property corners. Grade changes requiring cable adjustments will result in charges to the party requiring the changes.
4. In new developments, install road crossing conduits per Exhibit 13 as designated by RPU in the general development specifications.

EXHIBIT 9 - Continued

5. In areas with overhead transformers, supply Schedule 80 PVC or rigid steel conduit for RPU installation on the riser pole.
6. Allow RPU to install cable/conduit prior to installation of sidewalks, soil or lighting along cable route.
7. Compaction of Customer installed (buried) cable is Customer's responsibility. (RPU will compact all primary and secondary cable it buries.)
8. Provide firm soil conditions under the pad area to prevent settling of the pad.
9. Provide the following minimum clearance around the transformer: front-10 feet; sides and back-24 inches. These clearances must conform with Exhibit 7 and be at the same grade as the transformer.
10. Protect RPU facilities from damage during construction period.
11. Provide easy accessibility to the area 24 hours a day.
12. Have wiring approved by inspecting authority and then request service connection by RPU.
13. Install protective posts if transformer pad is to be installed in parking area or area of vehicular traffic.
14. Underground cable installed between December 1 and April 30 will be subject to a per foot winter installation charge.
15. Notify RPU prior to any proposed building or grade changes within 10 feet of the electrical service or the cable route.
16. Notify RPU as far in advance as possible when any unusual loads are anticipated, such as special medical equipment, arc welders, elevators, or any other equipment that could affect RPU's system or any other Customer.
17. Supply and install RPU approved meter socket on outside wall. (In subdivisions where RPU supplies service cable, Customer is to install a minimum 2 inch conduit for the service cable.) Service conduit to extend a minimum of 15 inches below grade and have insulated bushings.
18. Supply all secondary cable extending from the meter to the RPU designated secondary terminus.
19. Contact RPU 24 hours in advance when a service is to be installed so that RPU can unlock the power source and the contractor can install the service into the power source.

EXHIBIT 10

ROCK AND WINTER INSTALLATION GUIDELINES

1. RPU will bill the developer for any surcharge we receive from our contractor for rock excavated or unsuitable backfill.
2. RPU will install underground electric services through October 31 at the standard charge, on a first come - first served basis. For jobs started before December per a mutually agreed upon schedule, installation will continue until complete with no surcharge applied for frost.
3. Developments not ready for installation by the day scheduled will be rescheduled to last. If rescheduling will result in installation on or after November 1, a trenching surcharge may be applied.
4. Installations scheduled on or after December 1, and completed before April 30, may receive a per foot trenching surcharge.
5. Installations scheduled on or after December 1 will be attempted at the discretion of RPU, based on ground conditions.
6. Where conditions do not permit the completion of a scheduled installation, or where a development cannot be completely brought to grade in time, partial installation will be made at no added cost under the following conditions:
 - A. Partial installation must conform to final design layout, including placement of one (minimum) permanent transformer.
 - B. Partial installations must be contiguous with existing facilities.
 - C. Total project fees must be paid before partial installation will be approved.
 - D. All standard pre- and post-installation site conditions must be met for a partial installation.
7. Temporary service to a permanent structure in an undeveloped area will be provided on a "at cost" basis.

EXHIBIT 11

**MULTIPLIERS TO DETERMINE REQUIRED CAPACITOR KVARs
FOR CORRECTING POWER FACTOR**

Original Power Factor	Corrected Power Factor						
	90%	92%	94%	95%	96%	98%	100%
60%	0.849	0.907	0.97	1.005	1.042	1.13	1.333
62%	0.781	0.839	0.903	0.937	0.974	1.062	1.265
64%	0.716	0.775	0.838	0.872	0.909	0.998	1.201
66%	0.654	0.712	0.775	0.81	0.847	0.935	1.138
68%	0.594	0.652	0.715	0.75	0.787	0.875	1.078
70%	0.536	0.594	0.657	0.692	0.729	0.817	1.02
72%	0.48	0.538	0.601	0.635	0.672	0.761	0.964
74%	0.425	0.483	0.546	0.58	0.617	0.706	0.909
76%	0.371	0.429	0.492	0.526	0.563	0.652	0.855
78%	0.318	0.376	0.439	0.474	0.511	0.599	0.802
80%	0.266	0.324	0.387	0.421	0.458	0.547	0.75
82%	0.214	0.272	0.335	0.369	0.406	0.495	0.698
84%	0.162	0.22	0.283	0.317	0.354	0.443	0.646
86%	0.109	0.167	0.23	0.265	0.302	0.39	0.593
88%	0.055	0.114	0.177	0.211	0.248	0.337	0.54
90%	0	0.058	0.121	0.156	0.193	0.281	0.484
92%		0	0.063	0.097	0.134	0.223	0.426
94%			0	0.034	0.071	0.16	0.363
96%					0	0.089	0.292
98%						0	0.203
100%							0

INSTRUCTIONS:

1. Determine the average power factor that your system operates at during peak demand months. Call this your ORIGINAL POWER FACTOR.
2. In the row titled CORRECTED POWER FACTOR at the top of the page, find the power factor that you wish to correct your system to.

EXHIBIT 11 - Continued

3. Read from left to right along the row corresponding to your ORIGINAL POWER FACTOR until you reach the column that shows your desired CORRECTED POWER FACTOR.
4. Read the number that you find at the intersection of the row and column. Multiply your KW Demand by this number to calculate the total amount of capacitor KVAR you need to install to your electric service.
5. If your plant operates with a 3 phase electric service, divide the total KVAR by 3 to determine the amount of KVAR to connect per phase.

Example: If your plant has a 3 phase demand of 410 KW and operates at 76% power factor, but you want to correct to 95%:

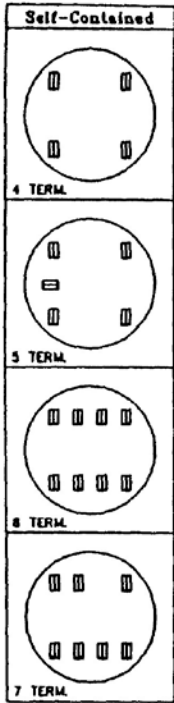
- a. Find 95% in the CORRECTED POWER FACTOR row at the top of the page.
- b. Find 76% in the ORIGINAL POWER FACTOR column along the left edge of the page. Read from left to right along this row until you reach the 95% column.
- c. Read the number at the intersection of the row and column (0.526)

410 KW x 0.526 = 216 KVAR needed to correct your system to 95% power factor.

- d. $216 \div 3 = 72$ KVAR per phase.

EXHIBIT 12

ALL METER SOCKETS WHERE POTENTIAL OR CURRENT TRANSFORMERS ARE NOT REQUIRED MUST BE PURCHASED BY THE HOMEOWNER OR ELECTRICIAN.



120-240 VOLT SINGLE PHASE.

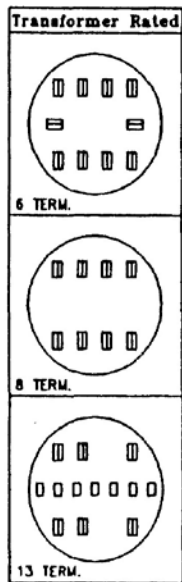
120-208 VOLT SINGLE PHASE. FIFTH TERMINAL TO BE LOCATED AT 9 O'CLOCK POSITION.

120-240 VOLT THREE PHASE THREE WIRE. THIS MUST HAVE A BY-PASS LEVER IN SOCKET.

120-208, 277-480 VOLT THREE PHASE FOUR WIRE. THIS MUST HAVE A BY-PASS LEVER IN SOCKET. ALSO 240 4 WIRE Δ

EXHIBIT 12 - Continued

ALL SOCKETS REQUIRED FOR USE WITH POTENTIAL OR CURRENT TRANSFORMERS MUST BE PURCHASED AT R.P.U.

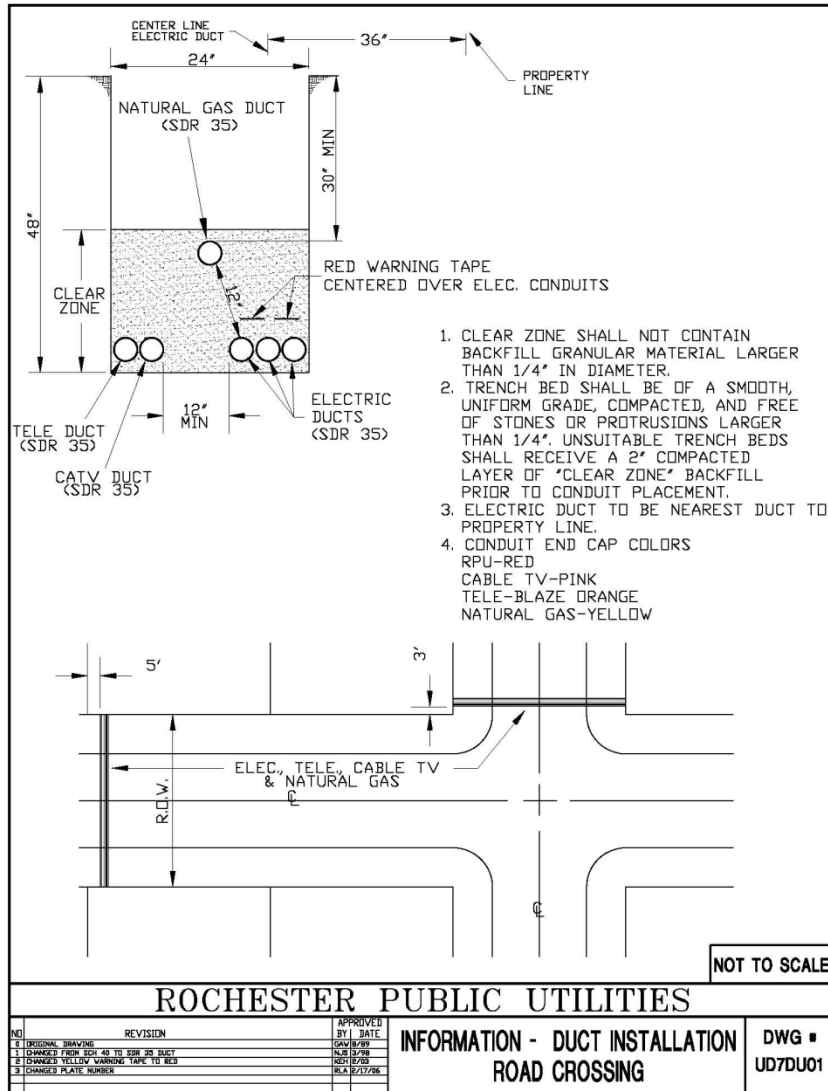


120-240 VOLT SINGLE PHASE.

120-240 VOLT THREE PHASE THREE WIRE.

120-208, 277-480 VOLT THREE PHASE FOUR WIRE.
240 VOLT THREE PHASE FOUR WIRE.

EXHIBIT 13



Attachment: RPU 2011 Rules Regulations (3898 : 2015 Electric Service Rules & Regulations)

PHONE NUMBERS

Metering Department.....	280.1565
New Electric Service.....	507.292.1232
Customer Service.....	800.778.3421
Bill Payment and Collections.....	280.1500
General Information.....	280.1540
Electrical Outage (24 Hours)	280.9191
Water Outage	
8:00 a.m. to 5:00 p.m.	280.1500
5:00 p.m. to 8:00 a.m.	280.9191
Underground Location Assistance	
Gopher State One Call.....	1-800.252.1166
Fax	507.280.1642
Online Fax.....	507.280.1643

RPU SERVICE CENTER
4000 East River Road NE
Rochester, MN 55906-2813

www.rpu.org



2015

ELECTRIC SERVICE RULES

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

ROCHESTER PUBLIC UTILITIES

ELECTRIC SERVICE RULES AND REGULATIONS

Revised May 2015

INTRODUCTION

Rochester Public Utilities (hereafter referred to as RPU) has assembled this booklet to assist its customers and their architects, engineers, or electrical contractors to plan for and obtain electric service. The requirements herein supersede all previous publications of the “Electric Service Rules and Regulations” issued by RPU prior to this date and is subject to change without notice.

The information presented here is intended to supplement the requirements of the National Electrical Code® (NEC®), National Electric Safety Code® (NESC®), National Fuel and Gas Code (NFPA54), Liquefied Petroleum Gas Code (NFPA58), and all other applicable federal, or state, and municipal codes, regulations, laws and ordinances. It is always necessary to refer to and comply with such other codes, regulations, laws, and ordinances when planning, designing, and installing a new electrical service. Specific requirements of RPU do not intentionally conflict with any other requirements known to be in effect as of the publication date of this booklet. Any apparent conflicts of this nature should be brought to the attention of RPU for interpretation. RPU assumes no responsibility whatsoever for the manufacturer’s, supplier’s, electrician’s, or engineering consultant’s compliance with all applicable codes as well as all local and state codes. Any waiver at any time of RPU’s rights or privileges under the electric service rules and regulations will not be deemed a waiver as to any breach of other matter subsequently occurring.

All questions or requests should be directed to RPU's Customer Services at the contact number or address listed on page 2.

These rules and regulations are available on the RPU web site www.rpu.org. Contact RPU for more details.

RPU ELECTRIC CONTACT INFORMATION

Main Office Address:
4000 East River Rd NE
Rochester, MN 55906-2813

Web Address:
www.rpu.org

Contact	Phone Number	Email
Customer Service	507.280.1500	CustomerServiceReps@rpu.org
Customer Service: Toll Free	800.778.3421	
Emergency Electrical Outages (24 hr.)	507.280.9191	
General Information	507.280.1540	
General Fax	507.280.1643	
Metering Department	507.292.1232	
Modified or New Service	507.292.1232	newservice@rpu.org

OTHER CONTACT INFORMATION

Contact	Phone Number	WEBSITE
GOPHER STATE ONECALL	800.252.1166	www.gopherstateonecall.org
Rochester Building and Safety	507.328.2600	

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

REVISION HISTORY

Revision Date	Brief Description of Revisions
Aug 2011	Starting Revision for tracking
May 2015	Major Revisions

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

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SECTION 100

DEFINITIONS

Application for Service: The agreement or contract between RPU and the customer under which electric service is supplied and taken.

Accessible: Allowing or admitting, close approach; not guarded by locked doors, elevation, or other effective means including any portion of a temporary or permanent structure.

Building: A structure with roof and walls. Two or more structures shall not be considered a single building merely by the existence of skyways, tunnels, common heating or cooling facilities, common garages, entry halls or elevators, or other attachments.

Connected Load: The combined rated capacity of all motors and other electric energy consuming devices on the customer's premises which may, at the will of the customer, be operated with the electric energy to be supplied from the service of RPU.

Current Transformer: An instrument transformer designed for the measurement or control of current.

Contractor: Licensed individual or company who performs work for the Customer or RPU.

Customer: Any individual, partnership, corporation, or other legal entity now being served or to be served, using the electric service of RPU at any specified location.

Customer's Service Equipment: The necessary equipment and accessories, located near the point of entrance of supply conductors to a building, which constitute the main control and means of disconnecting the supply to that building. This equipment usually consists of a circuit breaker or a switch and fuses.

Disconnection Means: A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Distribution Lines: RPU's lines located along streets, alleys, highways, or easements on private property, when used or intended for use for general distribution of electric service to customers of RPU.

Dwelling:

Dwelling Unit: One or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living and sleeping, and permanent provisions for cooking and sanitation.

Multi-Family Dwelling: A building containing two or more dwelling units.

Single-Family Dwelling: A building containing a single dwelling unit.

Electric Service: The availability of electric power and energy, regardless of whether any electric power and energy is actually used. The supplying of electric service by RPU consists of the maintaining, at the point of delivery, approximately the agreed voltage, phase and frequency by means of facilities adequate for carrying the load that RPU is thereby obligated to supply by reason of the known requirements.

Excess Facilities: In those instances where RPU provides distribution and/or metering facilities at the customer's request, in excess of the facilities RPU deems necessary to supply service to the customer.

Fault Current: The current that will flow through the system to a point where a piece of equipment or a conductor has failed, such as bare conductors touching together or a bare conductor touching a ground point.

Frost (Frozen Ground): A condition where the water contained in the ground freezes resulting in additional difficulty and expense in excavation.

Individual RPU Metering: Direct measurement by RPU, using a RPU meter, of all electrical consumption of a customer supplied by Company.

Instrument Transformer: A transformer that reproduces in its secondary circuit, the voltage or current proportional to its primary circuit.

Instrument Transformer Cabinet: A cabinet installed and owned by the customer, meeting RPU's requirements, designed for housing instrument transformers used for metering.

Master Metering: Metering configuration where a single meter (master meter) measures the consumption for a building and then sub meters on the customer side of the Master Meter measure the consumption of individual load loads or groups of loads.

Meter/ Meter Set: An instrument or instruments, together with auxiliary equipment, for measuring the electric power and energy supplied to a customer.

National Electrical Code® (NEC®)¹: The current edition of the National Electrical Code as issued by the National Fire Protection Association (NFPA No. 70).

National Electric Safety Code® (NESC®)²: The current edition of the National Electric Safety Code as issued by the Institute of Electrical and Electronics Engineers (IEEE® C2), American National Standards Institute (ANSI® C2).

Nominal Voltage: The value, expressed in volts, which is assigned to a circuit or system for the purpose of conveniently designating its voltage class (as 120/240, 480Y/277, 600, etc.). The actual voltage at which a circuit operates can vary from the nominal within a range established by ANSI C84.1. The customer is responsible for making sure that their systems are capable of operating within range B of ANSI® C84.1.

Occupancy Unit: A room, office, apartment, or other space separated by walls or partitions that enclose the area, or a contiguous grouping thereof when occupied by a single customer.

Outside Sale: The sale or provision of electrical supply by a customer to any other person outside the customer's building or property.

Point of Delivery: The point where RPU's electric facilities first connect to the electric facilities of the customer. This is not necessarily the location of RPU's meter.

Point of Interconnection: The location designated by RPU that the customer must extend conduits to in order for RPU to install our facilities on customer property.

Primary Service: Any type of service with a nominal voltage greater than 600 volts.

RPU: Rochester Public Utilities.

Rate Schedules: The classification of the use of electricity into categories considering the amount of power supplied and the purpose of its use.

Redistribution: The provision of unmetered electrical supply by a customer to customer's tenants or other occupant, or to any person who qualifies for unmetered service.

Redundant Facilities: Duplicate (partial or full) facilities installed at the request of the customer for the purpose of increasing reliability of the system for a particular customer.

¹ *National Electrical Code® and NEC® are registered trademarks of the National Fire Protection Association, Inc., Quincy, MA 02269*

² *National Electric Safety Code® and NESC® are registered trademarks and service marks of the Institute of Electrical and Electronics Engineers, Inc. New York, NY 10017*

Secondary Connection Cabinet: Cabinet required when the number and/or size of the conductors exceeds RPU's limit for terminating in a specific pad-mounted transformer. If a secondary connection cabinet is used it will also be the location of the metering equipment.

Secondary Service: Any type of service with a nominal voltage less than or equal to 600 volts.

Secondary Terminal: The secondary side of a pad mounted transformer or a secondary junction box, whichever is designated by RPU.

Series Subtractive Metering: An arrangement to measure consumption in a multiple occupancy unit building using individual RPU meters on each occupancy unit in series with one RPU master meter to measure total building consumption on the set of service entrance conductors or feeder supplying the individual occupancy units with billing for common area usage determined by Company formula.

Service: The conductors and equipment for delivering energy from RPU's system to the wiring system of the customer.

Service Drop: The overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.

Service Entrance Conductors, Overhead System: The service conductors between the terminals of the service equipment and a point usually outside the building, clear of building walls, where joined by tap or splice to the service drop.

Service Entrance Conductors, Underground System: The underground service conductors between the terminals of the service equipment and the point of delivery.

Service Equipment: The necessary equipment, usually consisting of a circuit breaker or switch and fuses, and their accessories, located near the point of entrance of supply conductors to a building or other structure, or an otherwise defined area, and intended to constitute the main control and means of cutoff of the supply.

Submetering: The provision of metered electrical supply through a customer owned meter to a customer's tenants, cooperative or condominium owners, other occupants, or to a portion of the customer's own electrical consumption.

Underground Residential Distribution (URD) Areas: Those residential subdivisions or other specified areas within which all customers are served by underground distribution lines.

Underground Service Lateral: The secondary service conductors from RPU's distribution system.

Upgrade Service: An electric service is considered upgraded if the rating of the customer disconnect is increased or if either the conductors between the meter socket and the customer disconnect or the conductors on the supply side of the meter are changed.

Utility: For the purpose of this document any public, city, or city-franchised organization that furnishes electric service.

Voltage to Ground: For grounded circuits, the nominal voltage between the given conductor and that point or conductor of the circuit that is grounded; for underground circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

Voltage Transformer: An instrument transformer intended for use in the measurement or control of a circuit and designed to have its primary winding connected in parallel with the circuit.

SECTION 200

GENERAL INFORMATION

201 Service Jurisdiction

RPU has been established by the City of Rochester for the purpose of providing electricity to the residents of the City. RPU also provides electricity to residents outside of the City limits but within the service area boundaries established by the State of Minnesota. Service will be provided to all eligible applicants only when all applications, agreements, easements, deposits, payments, and other required information has been provided to RPU.

202 Use of Service

Electric service may be used only for the purposes set forth in the respective rate schedules. RPU is in the business of providing retail electricity to the ultimate consumer. Electricity is supplied for use by customer's household or business, and outside sale of such service is not permitted. RPU permits redistribution and submetering where allowed by law, but a landlord may not charge the tenants more than the landlord is charged by RPU.

The electric service equipment and associated building wiring of buildings must be arranged by the owner to facilitate individual metering of the electrical consumption of each building and occupancy unit. (Minnesota Statute Section 326B.106 Subd.12 requires separate metering on most residential units). If desired by the owner, RPU will install and maintain necessary individual RPU meters to measure consumption and tender bills on the applicable rate schedules to each customer and separately occupied buildings and occupancy units. Installation and maintenance of individual RPU meters by RPU shall not relieve the owner or landlord of responsibility for electrical service equipment and associated building wiring, nor shall it relieve the owner or landlord of responsibility to notify RPU of a single-metered residential building.

Electric service in a single-metered residential building, as defined pursuant to Minn. Stat. 504B.215, shall be billed to the landlord/building owner except when a de minimis exception exists. A de minimis exception to the determination that a building is a single-metered residential building exists if electrical service used in a common area but measured by an individual tenant's meter does not exceed an aggregate 1,752 kilowatt hours per year. The landlord shall bear the burden and cost associated with proving an exception. (Minnesota Statute 504B.215 Subd. 2 requires the landlord of a single-metered residential building shall be the bill payer responsible, and shall be the customer of record contracting with the utility, and requires the landlord to advise the utility of the existence of a single-metered residential building). Except where a de minimis exception applies, a single

metered residential building includes the following situations: “shared meter” in which a utility meter measures service provided to a tenant’s dwelling and also measures such service to areas outside that dwelling; or “mixed wiring” in which electric outlets, fixtures or devices outside the individual unit are included on an individual meter; or “mixed plumbing” when related to electric utility service such as when an electric water heater serves more than one individual unit. RPU shall respond to a tenant customer’s request for a shared meter investigation within ten (10) business days. RPU’s investigation shall consider whether a de minimis exception applies.

The following may be representative de minimis exception examples:

- Common area lighting fixtures up to two 100-watt light bulbs operating 24 hours/day, seven days per week.
- Common area outlets without constant motor loads, such as an outlet in a hallway used for housekeeping.
- Common area garage door opener for non-commercial use.
- Mixed wiring with another tenant unit.
- Laundry appliances accessible by multiple tenants.
- Common area lighting exceeding two 100-watt bulbs operating 24 hour per day, 7 days per week usage.

A landlord seeking to prove a de minimis exception shall do so by providing evidence establishing by actual measurement that the usage does not exceed 1,752 kilowatt hours per year. Where such actual measurement is not possible the landlord shall present written documentation from a licensed tradesperson or housing inspector that this usage is not likely to exceed 1,752 kilowatt hours per year. Such evidence must be presented prior to, during, or within 30 days of the conclusion of a shared meter investigation.

Upon discovery of a single-metered residential building, as defined pursuant to Minnesota Statute Section 504B.215, whether shared metering, mixed wiring or mixed plumbing in which individual metered service had been established and billed, RPU shall, within thirty (30) business days, recognize and make adjustments to its records to reflect that the landlord/building owner is the bill payer responsible and customer of record. RPU shall make adjustments to the tenants and landlord/building owners account based on Minnesota State Statute and RPU’s standard practices. Additionally, the tenant or landlord/building owner may seek additional adjustment of charges or challenge RPU’s finding of a shared meter situation by filing a complaint with the Minnesota Public Utilities Commission, or by court action. Upon request, RPU will provide to the tenant available billing history in relation to such additional actions. The Minnesota Public Utilities Commission has determined that regardless of how or by whom an investigation is initiated leading to utility account adjustments, credits and/or refunds as herein described, the investigation and any resulting adjustments, credits and/or refunds shall implicate the protections of Minnesota Statute

Sections 504B.285 Subds. 2 and 3, and 504B.441.

In the event the landlord/building owner denies access to the building or fails to cooperate with an investigation to determine whether a single-metered residential building exists, as defined pursuant to Minnesota Statute Section 504B.215, the building shall be presumed to be a single-metered residential building as defined pursuant to Minnesota Statute Section 504B.215, and the landlord/building owner shall be the bill payer responsible and customer of record. RPU shall make adjustments to the tenants and landlord/building owners account based on Minnesota State Statute and RPU's standard practices. Additionally, the tenant or landlord/building owner may seek additional adjustment of charges or challenge RPU's finding of a shared meter situation by filing a complaint with the Minnesota Public Utilities Commission, or by court action. The Minnesota Public Utilities Commission has determined that regardless of how or by whom an investigation is initiated leading to utility account adjustments, credits and/or refunds as herein described, the investigation and any resulting adjustments, credits and/or refunds shall implicate the protections of Minnesota Statute Sections 504B.285 subds.2 and 3, and 504B.441.

In order to reestablish individual metered service for the individual tenant units, the landlord/building owner shall be required to provide certification of a licensed electrician that the building has been inspected sufficiently to determine that all instances of mixed wiring, shared metering and mixed plumbing have been eliminated or that the building qualifies for a de minimis exception, as shown by actual measurement or by certification by a licensed tradesperson or housing inspector. Additionally, the building owner may be required by RPU to post a deposit equal to the expected charges for up to two months of usage for electric service to the building.

RPU shall have the right to verify the certification at the landlord/building owner's expense prior to establishing metered service for individual units. Such verification shall not relieve the landlord/building owner of its responsibility to be the bill payer and customer of record of a single-metered residential building as defined pursuant to Minnesota Statute Section 504B.215.

In the event of discovery of a single-metered residential service, as defined pursuant to Minnesota Statute Section 504B.215, after previous certification to reestablish individual metered service for tenants, in addition to the above adjustments, the building shall be ineligible for individual metered service for tenants without petition to the Minnesota Public Utilities Commission by the landlord/building owner and a showing by the building owner by clear and convincing evidence justifying the reestablishment of individual metered service for tenants. Additionally, the MPUC may require consent of the building's tenants in determining that reestablishment of the individual metered service for tenants is appropriate.

RPU will not install, operate, maintain, or acquire any series metering system. RPU may, however, require series subtractive metering for its own purposes to measure consumption and render bills for electric energy not otherwise measured.

Electricity is normally supplied to each separate customer through a single service and meter. RPU does not engage in the practice of doing interior wiring on customer's premises except for the installation and maintenance of its own property. The customer may combine the supply of electricity through one meter and one service to two or more buildings or occupancy units if they are located on the same or contiguous parcels of property and occupied by the same customer, solely for customer's own use. If separate buildings are occupied in whole or part by tenants of the customer, then each tenant occupied building, or area, or occupancy unit must be segregated from other loads of the customer and metered by RPU.

If more than one building with tenants, or portions of more than one building with tenants, are served through one meter, this practice may continue until such time as material structural changes are made that will result in major modifications to the customer's service entrance equipment. If such modifications do occur, provisions must be made to allow for individual RPU metering of each tenant occupied building, or area, or occupancy unit. While the single meter service continues, the bill for the buildings will be computed as though each building used an equal portion of the total metered service and was separately billed.

All wiring and equipment on customer's side of the point of delivery, except metering equipment, will be furnished, installed, and maintained at the customer's expense in a manner approved by the public authorities having jurisdiction over the same.

Customer will protect all electrical equipment and systems with devices that conform to the industry accepted standard for the various classes of electrical equipment and systems to prevent fire or damage to equipment from electrical disturbances or fault occurring in the customer's system or in the supplying system. The "industry accepted standard" will be as required in the National Electrical Code and such additional devices as are prescribed by any public authority with jurisdiction over the installation of electrical facilities.

Any inspection of a customer's wiring and equipment by RPU is for the purpose of avoiding unnecessary interruptions of service to its customers or damage to its property and for no other purpose, and will not be construed to impose any liability upon RPU to a customer or any other person by reason thereof. In addition, RPU will not be liable or responsible for any loss, injury, or damage that may result from the use of or defects in a customer's wiring or equipment.

RPU may, however, at any time require a customer to make such changes in customer's electrical or non-electrical property or use thereof as may be necessary to eliminate any hazardous condition or any adverse effect which the operation of the customer's property or equipment may have on said customer, other customers of RPU, the public, or RPU's employees, equipment or service. In lieu of changes by the customer, RPU may require reimbursement from the customer for the cost incurred by RPU in alleviating an adverse effect on RPU's facilities caused by the customer's property.

The transformers, service conductors, meters, and appurtenances used in furnishing electric service to a customer have a definite capacity. Therefore, no material increase in load or equipment will be made without first making arrangements with RPU for the additional electric supply.

203 Application for Service

Application for initial, additional, or temporary electric service must be made by the customer, or a designated representative, to RPU. Applications can be made at RPU's Service Center or by contacting a New/Modified Service Representative (See Page 2 for contact information). At the time of application, the customer will be required to provide, in writing on the form(s) provided, information relating to the service request, including the following:

- (1) Exact location of premises to be served including building street address, apartment or unit number if applicable, lot and block numbers and name of subdivision.
- (2) The type of service desired (e.g. temporary, permanent, residential subdivision, dwelling unit, commercial, industrial, rewire, etc.).
- (3) The approximate date that electric service is required.
- (4) The name, address, and telephone number of the customer's designated representative who will be responsible for working with RPU representatives in providing the electric service (e.g. customer employee, engineer, contractor).
- (5) Commercial Services'
 - a) Load Data Sheet: The Customer or their representative shall submit to RPU Engineering a completed Electrical Load Data Sheet specifying the type of service required by the customer and expected magnitudes of connected and peak load. Additional data in the form of construction drawings and the proposed service entrance may also be necessary for RPU to adequately determine the capacity and arrangement of service to the customer. The load data sheet must be received before RPU can perform the necessary planning and design of the project. Failure to provide this information at the start of a project may result in significant delay in RPU being able to provide service.
 - b) Application for commercial service must be received a minimum of 10 working days prior to energizing the service.

RPU should be advised of planning installations as early as possible so that details for furnishing service may be arranged and construction completed by the desired date. Application forms and additional information may be obtained by contacting RPU's New Service Representative (see page 2 for contact information) or at www.rpu.org.

204 Ownership of Equipment

204.1 RPU-Owned Equipment

The meter and associated metering equipment furnished or installed by RPU are the property of RPU.

- a) Overhead Service—In addition to the metering equipment, the overhead service drop installed by RPU is the property of RPU.
- b) Underground Service—In addition to the metering equipment, all equipment up to and including the designated point of delivery is the property of RPU.

204.2 Customer-Owned Equipment

The meter socket, instrument transformer compartment (if required, see Section 610), the service entrance conductors and conduit from the meter socket to the service entrance disconnect, the service entrance switch or circuit breaker and the service entrance ground equipment and the concrete transformer pad are the property of the customer.

- a) Overhead Service—In addition to the equipment on the customer side of the meter socket, the service drop wire holder or bracket, the weatherhead and either the service mast and conduit with entrance wires or the service entrance cable with watertight connection to the meter socket are the property of the customer.
- b) Underground Service Lateral—In addition to the equipment on the customer side of the meter, all conduit and cable required to extend the service lateral from RPU's point of delivery to the meter socket are the property of the customer.

The customer and RPU are responsible for the installation, maintenance, repair, and replacement of the electric service equipment which each owns.

205 Easements

Whenever any RPU-owned underground and/or overhead material and equipment is located on or above the customer's property, the customer shall grant an easement to RPU to the extent which RPU deems necessary. All utility easements required by RPU are to be granted by the customer at no cost to RPU. The customer must provide a legal description by a Registered Land Surveyor. The easement will be signed and recorded by RPU.

206 Inspection of Customer's Facilities

206.1 As a minimum, wiring and electrical equipment of the customer, shall be installed in accordance with the latest edition of the National Electrical Code®.

206.2 Customer services and associated wiring installations located within the Rochester city limits, including temporary installations, must be inspected and approved by an authorized inspector of the City Building Safety Department as required by Minnesota Statutes Section 326.B.36. RPU will make connection only after approval by the authorized inspecting authority. The inspector is required by Minnesota Statutes Section 326.B.36 to disconnect or have disconnected by the utility any installation that is declared by the inspector to be unsafe and a hazard.

206.3 Customer services and associated wiring installations located outside the Rochester city limits and requesting service from RPU must have their wiring inspected by a state inspector. RPU will make connection before authorization from the state inspector only if the master electrician who installed or supervised the installation agrees in writing to be responsible for said wiring until such time that it can be inspected and approved by the state inspector ("Request for Electrical Inspection" – white form).

207 Service Connection, Disconnection, and Reconnection

After the customer's installation has been inspected and approved by the proper authority, a meter will be installed by RPU and the electric service made available provided that all applications, agreements, and deposits have been submitted by the customer and approved by RPU. Inspection notices must be received by RPU two business days prior to the date that the connection is desired (weekends and holidays excluded). Under special circumstances, verbal inspections will be accepted as long as written inspection documentation is submitted immediately thereafter.

207 Service Connection, Disconnection, and Reconnection (cont.)

Customer requests for disconnection or reconnection of existing services must be received by RPU two business days prior to the desired time of disconnection or reconnection (weekends and holidays excluded). For the mutual protection of the customer and RPU, only authorized employees of RPU are permitted to set and remove meters, or to make and energize or break and de-energize the connection between RPU's service drop or secondary terminals and the customer's service entrance conductors or underground service laterals.

208 Liability

RPU does not engage in the practice of doing interior wiring on customer's premises, except for the installation and maintenance of its own property, and therefore is not responsible for service beyond the point of delivery. RPU shall not be liable for damage to any customer or to any third party resulting from the use of the service or from the presence of RPU's appliances or equipment on the customer's premises.

The customer is solely responsible for any accidents, fires or failures resulting from the condition and use of his wiring installation or equipment.

209 Service Interruptions

RPU reserves the right to interrupt service at any time. Interruptions for maintenance and system improvements will be prearranged and advance notice will be given to the customer whenever practical.

RPU will not be responsible for consequential damages resulting from service interruptions, fluctuations outside its control, or from operations in response to abnormal system conditions. Customers requiring service reliability and/or stability exceeding RPU's normal service should consider uninterruptible power supplies, isolation transformers, power conditioners, redundant services, or other options to provide the level of service needed. RPU's Engineering staff is available to discuss such needs.

210 Access

Employees of RPU shall have the right of access to the customer's premises at all reasonable times for the purpose of installing, reading, inspecting, maintaining, or removing any of its meters, devices, or other equipment which is used in connection with the furnishing of the customer's electric service.

211 Customer Responsibility

Failure of the customer to notify RPU in a timely manner of any planned alteration to electric service facilities or increased electrical load, and failure to comply with RPU's published rules, regulations, and rate schedules may result in delayed connections, interruption of service, or damage to equipment, for which RPU disclaims all responsibility.

212 Revisions of Requirements

All requirements stated or implied herein are subject to change at any time without prior notice.

SECTION 300

RATES, CONNECTION CHARGES, AND CREDIT POLICY

301 Rate Schedule Classification

Electric service is supplied to customers under various rate schedule classifications as determined by the type of service, the amount of electric power supplied, and the purpose for which the electric service is to be used. Copies of RPU's rate schedules are available at RPU's Service Center and www.rpu.org.

302 Payment

RPU will, insofar as possible, read all meters every month and bill the customer for service used during the period. Payment of the bill is due on the date noted on the bill.

If the meter cannot be read during a billing period, or the reading seems erroneous, an estimate will be made for that billing period. Adjustments to bills resulting from inaccuracies in the meters will be handled in the manner described in section **608 Meter Testing**.

303 Customer Charge

There is a customer charge for each meter/service provided. The amount of this customer charge will vary based on the type and number of services provided (see RPU's rate schedule for more information).

304 New Underground Residential Service Connection Charge

RPU will charge an underground service connection charge (New Underground Service fee) for the extension and/or connection of new underground electrical service to any single-family home, townhome, condominium, duplex or triplex located in a R-1, R-1x, R-Sa, R-2, R-4 or Special District, zoning districts. The amount of the charge can be obtained from a Customer Service Representative.

304.1 Service Connections

There will be no charge for connections/reconnections of existing services, in good payment standing, during RPU's normal working hours. If connection must be made outside of normal working hours at the request of the customer, a special connection charge will be assessed. The charge for such work can be obtained from the Customer Service Representative.

305 Service Disconnection/Reconnection

RPU may disconnect a customer's service, with notice, for any of the following reasons:

- Nonpayment of billings or issuance of non-negotiable check.
- Nonpayment of a deposit or other charges/fees.
- Failure to meet credit requirements.
- Failure to provide access to RPU owned metering equipment.

Without notice, the customer's service may be disconnected for:

- A condition determined to be hazardous--to the customer; to other customers or to RPU.
- Unauthorized use of electricity, water, or equipment belonging to RPU.

In the event service has been disconnected for a nonpayment, deposit, theft, or other credit cause, the customer will be required to pay a reconnection fee before the service is restored. In the event that the service is disconnected because of hazardous conditions on the customer owned equipment or unauthorized use, the customer will be required to have all required inspections performed prior to service being restored.

A schedule of fees is available from RPU Customer Service Representative.

306 Service Deposit

RPU has established a credit policy whereby existing customers with an acceptable credit history and customers never having had service with RPU may not be required to provide a deposit as a condition of service. A new or additional deposit may be required in cases where a deposit has been refunded or where the current deposit amount is inadequate. The deposit amount is based on two times the average monthly bill and bears interest at the rate established by Minnesota Statute Section 325E.02. Further information is available in the RPU Deposit Policy.

307 Security Lighting

Security lighting is available under its own rate schedule classification for those customers requesting it.

SECTION 400

STANDARD SERVICES

401 General Characteristics

This section describes the types of services offered to customers under RPU's standard rate schedules. Electric service supplied by RPU is alternating current having a nominal frequency of 60 Hertz (cycles per second).

402 Availability of Service

Although the types of service listed below are generally available throughout the area served by RPU, service of the type requested by a customer may not be available at the location where such service is desired, and in certain cases may be available only through special contractual arrangements and at the expense of the customer. Each customer will generally be allowed only one type of service and one point of delivery for each location. For redundant services see Section 504.

403 Secondary Service Voltages

The following types of secondary service are generally available to customers served under RPU's standard rate schedules:

403.1 Single Phase Service

120/240 Volt, 3-Wire, Grounded Neutral: Generally available where the total load is 100kVA or less for pad-mounted service, or 50kVA or less for pole-mounted service with an underground secondary in each case.

403.2 Three Phase Service

- a) 208Y/120 or 277/480 Volt, 4-Wire, Grounded Neutral: Generally available where three phase utility primary facilities are adjacent to the premises to be served.
 - i. For customers with loads less than 75 KVA, based on RPU's projections, there will be charges for the cost difference between providing a single phase service and a three phase service. These charges will need to be paid by the customer prior to RPU performing the three phase installation.
- b) 240/120 Volt, Delta, 4-Wire, Grounded Neutral: No longer available as a new standard service.

- c) 240 Volt (and 480 Volt), Delta, 3-Wire: No longer available as a new standard service.

404 Primary Service Voltages

Three-Phase, 13800Y/7970 Volt, 4-Wire, Grounded Neutral Service: Available only by special request where the total annual peak load at one site is projected by RPU to exceed 500 kW. RPU reserves the right to deny a request for a primary voltage service.

The point of delivery will normally be the terminals of RPU's cable in the customer's switchgear.

SECTION 500

SPECIAL SERVICES

501 Temporary Service

501.1 Temporary service is intended to be supplied at secondary voltages only to customers for use during the construction of permanent facilities and before the permanent service can be installed.

501.2 The address of the location to be supplied must be permanently displayed at the location and on the temporary pedestal/meter location and be easily readable from the street before RPU will install the temporary service. All overhead and underground temporary services will be metered and billed under one of RPU's standard rate schedules.

501.3 The customer shall provide an approved meter socket with the necessary raceway and a suitable rigid support for attachment of the metering equipment and service drop. On all three phase temporary services, where required, the customer shall also provide a suitable enclosure for installation of RPU's instrument transformers.

501.4 Fees

a) Secondary Available at Property:

A temporary meter installation fee will be assessed for the first single phase temporary service installed for construction. The location of the temporary service will be designated by RPU.

b) RPU has primary voltage facilities available on or adjacent to the lot and setting of a transformer is required:

A temporary meter installation fee and a temporary facilities installation fee will be assessed for the first temporary service installed for construction. The location of the temporary service and facilities will be designated by RPU.

c) RPU does not have adequate facilities in the area:

The Customer will be required to pay RPU for the actual cost to install and remove the temporary services.

Information regarding the charges for temporary service can be obtained from RPU's Customer Service Representative. RPU may require temporary service fees to be paid in advance.

502 Services for Unusual Load Characteristics

The operation of customer equipment having a relatively high load of short or intermittent duration, such as welders, compressor motors, elevators, and X-ray equipment, may cause serious fluctuations of voltage and interfere with the service being provided by RPU to other customers. If such a load is anticipated, the customer must consult with RPU and agree to install such protective devices as may be required so as not to cause damage to any of RPU's equipment or in any way inhibit service to other customers. In addition, special compensation may be required by RPU from the customer in those cases where it is necessary for RPU to install special or larger facilities than would normally be required to provide satisfactory service. (Refer to Section 700 for additional details.)

503 Excess Facilities

RPU will normally size its electric facilities (primary cable and transformer) to serve the load projected by RPU. If a customer desires RPU to install excess facilities, RPU must be advised as soon as possible so the feasibility of such a service can be determined. If RPU determines that excess facilities can and will be provided the customer will be required to reimburse RPU for the difference in cost between the standard and the requested excess facilities, including all labor, materials, and overheads. A written agreement between the customer and RPU shall also be executed at RPU's discretion.

504 Redundant Facilities

RPU will normally provide one set of facilities (such as a set of primary cables and a transformer) to one point of delivery for each customer. If a customer requires redundant facilities RPU must be advised as soon as possible so the feasibility of such service can be determined. If RPU determines that redundant facilities can and will be provided, the customer will be required to reimburse RPU for the entire cost of the redundant facilities, including all labor, materials, vehicle charges, and overheads. A written agreement between the customer and RPU shall also be executed at RPU's discretion.

505 Relocation or Protection of RPU Facilities

It is the responsibility of the customer to arrange for the relocation and/or protection of RPU's facilities whenever such action is appropriate. Any intended relocation or protection of RPU facilities must be reviewed with and approved by RPU in advance. The cost of any change or relocation of RPU's facilities for the benefit only of the customer, and which has been initiated by the customer, shall be borne solely by the customer. A deposit by the customer may also be required before the changes are made. RPU will bear costs to the extent that a change or relocation benefits RPU. The customer shall not be required to pay for changes necessitated through public improvements by the City, County or State. The customer shall not paint or otherwise modify the appearance of any RPU owned equipment or facilities.

506 Rewiring or Upgrade Existing Facilities

The customer or electrical contractor shall contact RPU when it is necessary to rewire or upgrade an existing electric service. All RPU Electric Service Rules & Regulations will be followed.

The customer shall be responsible for maintaining the same phase rotation for 3-phase rewires.

When a customer upgrades an existing electric service with RPU owned underground service laterals the ownership of the underground service lateral will transfer to the customer.

Customers shall not be allowed to convert an existing underground electric service to an overhead service.

SECTION 600

METERS AND METERING EQUIPMENT

[All new or upgraded residential or commercial services must have an approved meter socket (see Section 613 for approved meter sockets). Any new or upgraded service without an approved meter socket will not be energized!]

This section covers the installation of meters and associated equipment such as current and potential transformers for both overhead and underground services. Further description of RPU requirements for both overhead and underground services is covered in other sections of this booklet. The requirements contained in this section are for services rated 600 volts or less. When services are required at primary voltage (such as 13800 Y/7970 volts), the metering requirements and equipment will be determined on an individual basis.

601 Responsibilities for Providing Metering Equipment

All metering equipment, with the exception of the meter, current transformers and potential transformers, must be purchased and installed by the customer or electrical contractor. All metering equipment installed must be certified and labeled and have prior approval of the RPU metering department. Metering equipment installed without RPU approval will not be energized unless by special permission of the RPU metering department. RPU will energize only one set of metering equipment under each contract or application for one class of service.

602 Location of Meters

Meter locations will be agreed upon by representatives of the customer and RPU, subject to final approval by RPU.

602.1 Meter Clearances

Meters shall be situated such that there is not less than three feet of unobstructed space in front and one foot on all sides. Meters shall not be located where they are subject to corrosive fumes, dust, vibration or physical damage. Outdoor meters shall not be located in carports, under porches whether open or enclosed, or along walkways or driveways where they might create a hazard to people or be subject to damage by passing objects.

602.2 Access to Meters

Meter locations shall not be hazardous or cause inconvenience to employees of RPU when installing, maintaining, or reading the meters. RPU personnel shall have direct and unobstructed access to RPU's metering equipment at all times.

602.3 Industrial and Commercial

Meters for industrial and commercial service shall be located outdoors.

602.4 Height Limits

All meters located outdoors on residential or commercial services, where the meter is mounted on a permanent structure, shall have a height limit of not more than 6 feet and not less than 3 feet from final grade to the center of the meter. A typical metering arrangement is shown in Section 1100, Exhibit 1.

602.5 Residential

- a) All new services must have the electric meter located outside.
- b) Existing residential customers where the meter is located inside shall relocate the meter to the outside if the service is upgraded.

All new self-contained meter sockets installed must be on the list of approved meter sockets (see section 613).

602.6 Multi-Family Dwelling

Where more than one meter is installed, as on apartment complexes, meters are to be located outside and grouped if possible.

Exceptions:

Multi-Family dwellings that have 24 meters or more may request to locate the meters inside as long as they are grouped at one location and accessible at all times to each customer and RPU personnel.

Multi-Family dwellings where the building has over 3 occupied stories fully above grade the customer may request in writing for permission to be allowed to install grouped metering panels in multiple locations. The metering locations should be minimized and typically would only be allowed on every 3rd story of the building.

In all cases where multi-metering panels with stacked meter sockets are used, the maximum height to the center of the top meter shall be not more than 6 feet and the minimum height to the center of the bottom meter shall be not less 1 feet indoors and 3 feet outdoors. Individual apartment disconnects must be connected on the load

side of the meter. If the service voltage is 120/208 volts, a fifth terminal located at the 9 o'clock position is required in the socket and must be connected to the service neutral in accordance with the NEC[®] (see Exhibit 12). The house meter socket for apartment buildings requires an approved lever actuated positive bypass mechanism which will provide clamping pressure on the meter blades. Only one meter may be installed under one socket cover in multi-metering panels.

602.7 Mobile Homes

RPU will individually meter each mobile home located in a mobile home court or addition to a mobile home court. Resale of metered electrical energy by the court owner will not be permitted in these facilities. Individual meter pedestals, with bypass sockets, shall be provided by the customer or his representative. Maintenance and repair of the meter pedestal is the responsibility of the customer. A typical mobile home metering arrangement is shown in Section 1100, Exhibit 2.

602.8 Commercial Multi-Metering Panels

All commercial multi-metering panels used in shopping centers, spec buildings and multi-commercial tenant buildings shall have a maximum of four meter sockets per vertical stack. In all cases, the maximum height to the center of the top meter shall be 6 feet and the minimum height to the center of the bottom meter shall be 1 feet indoors and 3 feet outdoors. An approved lever actuated bypass is required on all meter sockets and each individual unit disconnect shall only be connected to the load side of the meter. Each individual meter socket shall have a barrier to isolate the customer's disconnect switch and wiring from the metering area. Only one meter may be installed under one socket cover. A system neutral is required to each 5 and 7 terminal meter socket in accordance with the NEC[®].

Each meter shall have a separate accessible lockable service disconnect wired in cold sequence to be used by RPU.

In situations where the building has over 3 occupied stories fully above grade the customer may request in writing for permission to be allowed to install grouped metering panels in multiple locations. The metering locations should be minimized and typically would only be allowed on every 3rd story of the building.

603 Grouped Meters

In installations requiring more than one meter, the meters shall be grouped and suitably connected such that a meter serves no more than one customer. The height limits stated previously also pertain to grouped meters where practicable. If deemed necessary by the space available, the meters may be stacked in an orderly fashion. Any dwelling with more than one customer living therein must have an individual meter for each dwelling unit. These meters must be easily accessible to all tenants and to personnel of RPU. There shall be an approved type of disconnecting means for each meter which is lockable in some way to prevent reconnection by other than RPU personnel. A typical multiple metering arrangements is shown in Section 1100, Exhibit 3.

604 Meter Identification

If more than one meter is required for a building, each meter socket shall be identified and permanently designated in a suitable manner indicating the particular customer served. **For outside locations the meter socket shall be marked with a stamped brass, aluminum or stainless steel tag. If the meter location is inside an engraved hard plastic tag will also be acceptable. The lettering on the tag shall be ½ inch block letters or numbers and the tag shall be securely attached to the exterior, non-removable portion of the meter socket and at the individual meter main disconnect.** Any other means of identification is not acceptable. A permanent marking shall also be inside the meter socket base in a visible location (RPU will except a written address using a permanent marker as satisfying the requirement for marking inside the meter socket). **Meters will not be installed until this requirement is met.**

Each circuit shall be carefully traced and rechecked by the contractor to ensure against errors in wiring that would result in one customer obtaining service through the meter serving another customer. This is especially important when the wiring is concealed. Electric service shall not be energized if meter sockets are not identified. It will be the contractor's/owner's responsibility to correct any errors due to misidentification of meter sockets. RPU reserves the right to charge the building owner and/or electrical contractor for actual costs incurred by RPU to make corrections.

605 Meter Mounting

605.1 Outdoor meters and meter mounting devices shall be mounted securely on permanent structures such as houses, garages, and other buildings. Where outdoor meters are installed on surfaces that prevent installation of the meter mounting device in an exact vertical plane, a meter board must be installed or the surface modified in such a manner that the meter mounting device can be installed vertically. The preferred meter location is within ten (10) feet of the front end of the building (house or attached garage) on a single-family

dwelling for new customer hook-ups. All meter locations for rewired or upgraded services shall be located outdoors with locations agreed upon between customer, contractor, and RPU personnel with final approval by RPU personnel. RPU has the right to refuse to energize service if these requirements have not been met.

605.2 Indoor meters, **where permitted**, shall be mounted in accordance with the preceding requirements of this section and shall be located as close as possible to the point where service enters the building. Indoor metering equipment shall be mounted securely in a vertical plane on permanent structures in a location free from moisture, high temperature, vibration, dust or dirt.

606 Meter Connections

The customer shall provide the necessary wiring for the meter set with the wiring so arranged that the line (supply) side can be connected to the top terminals of the socket and the load side to the bottom terminals. All conductors shall extend into the meter socket a minimum distance equal to the length of the socket trough. All neutral conductors must be insulated. For underground services, the line side neutral wire is to be identified in accordance with the NEC[®]. There should be sufficient slack left in the underground cables to make up for any ground shifting due to settling or extreme cold.

607 Wiring Restrictions on Meters and Metering Sets

No customer wiring is permitted to be connected to the metering, secondary wiring or under the terminals of the meter. No part of the metering set may be used as a junction box for the customer's wiring.

608 Meter Testing

608.1 Any customer who believes that a meter is failing to properly register the use of electricity, may request a meter check by contacting the Customer Service Representative. RPU will test the meter using standard calibration equipment and generally accepted test procedures within a reasonable period of time. Customers who request additional meter tests within a twelve (12) month period may be charged for the additional tests at a standard fee.

608.2 Whenever a watthour meter is found upon test to have an average error of more than two percent (2%) from one hundred percent (100%) or a demand meter more than one and one-half percent (1.5%) from one hundred percent (100%), a recalculation of bills for service will be made on the basis that the meter should be one hundred percent (100%) accurate with respect to a working test standard.

608.3 If the period of inaccuracy cannot be determined, it will be assumed that the metering equipment has become inaccurate at a uniform rate since it was installed or last tested unless there is valid reason to use another method. Recalculation of bills is based on RPU Board Policy for adjustments of customer accounts.

608.4 When the average error cannot be determined by test due to complete failure of all or part of the metering equipment, then an estimate of the quantity of energy consumed based on available data will be used to determine the adjusted bills.

609 Meter Seals

All connections to RPU's service equipment shall be made by RPU personnel only. **Unauthorized connections to or tampering with any RPU meter, associated equipment or meter seals, or indications or evidence thereof subjects the customer to immediate discontinuance of service, prosecution under the laws of Minnesota, adjustment of prior bills for services rendered, and reimbursement to RPU for all extra expense incurred on the account.** In addition, when the unauthorized connections or tampering involve an inside meter, the customer shall, at his own expense, relocate all service equipment and metering facilities outside the building.

610 Services Requiring Instrument Transformer Installation

RPU no longer furnishes instrument rated meter sockets. Please contact a local electrical distributor of your choice to purchase an RPU approved instrument rated meter socket. If requiring an 8 terminal meter socket, please contact RPU's Electric Meter Department for prior approval.

610.1 Single Phase:

When any single phase service has a rating greater than 400 amps, it will be necessary for RPU to use instrument transformers in the metering installation.

610.2 Three Phase:

When any three phase service has a rating greater than 200 amps, it will be necessary for RPU to use instrument transformers in the metering installation. These instrument transformers will be furnished by RPU and installed by RPU's Electric Metering Department, or delivered to the customer/contractor to install into an instrument transformer cabinet. The instrument transformer cabinet will be located before the customer service entrance disconnect switch.

Any new electrical services requiring the use of instrument transformers, the instrument transformers must be mounted in an instrument transformer

cabinet, or equipment designed solely for the purpose to house metering instrument transformers. In situations requiring emergency repairs to an existing electrical service where instrument transformers are installed in any location other than an instrument transformer cabinet, the customer/contractor must receive prior approval for the new mounting location of the current transformer from RPU's Electric Metering Department. These types of installations include, but are not limited to; instrument transformers mounted on a pole, installed inside a distribution transformer, and installed inside customer switchgear.

610.3 Underground Service from Pad Mounted Transformers:

Where service is underground from a pad mounted transformer, instrument transformers are to be mounted in an approved instrument transformer cabinet. The location of the instrument transformer cabinet must be approved by the RPU metering department.

610.4 Overhead Services:

Where service is provided by overhead service drops, approved outdoor instrument transformer cabinets will be required. Location of transformer cabinets will have final approval by RPU Meter Dept. before installation. (No open air CT's or PT's will be allowed.) Refer to 610.5a for cabinet requirements.

610.5 Indoor Mounted Instrument Transformers:

Instrument transformers installed indoors must have a service size of 1200 amps or greater, be installed inside the customer switch gear in a compartment designated for instrument transformers only and have prior approval from RPU metering personnel.

610.5.a Secondary Metering Instrument Transformer Cabinet

Instrument transformer cabinets shall be furnished and installed by the customer. This includes all services either overhead or underground. All cabinets must be certified and labeled, approved by RPU meter personnel and meet all NEC[®] requirements prior to installation. Cabinets must conform to the following:

- a) The minimum instrument transformer cabinet sizes are:
 - i. 250 volts and below: 48 inches High, 25 inches Wide, and 15 inches deep.
 - ii. 251 - 600 volts: 48 inches High, 36 inches Wide, and 15 inches deep.

- b) The door must have provisions for locking with a standard padlock.
- c) The cabinet must be hinged on the right or left side only.
- d) Cabinets shall not be used as junction boxes or service connection cabinets.
- e) Only RPU metering transformers may be contained therein.
- f) Cabinets must be certified and be the correct NEMA class for the area environment in which they are installed.
- g) 1-inch conduit installed between the cabinet and meter socket is required.
- h) Cabinet must accept bar-type current transformers on all services 1200 amps or less.
- i) The customer is required to label the line side and load side of the conductors within the instrument transformer cabinet.

All services that require instrument transformers will require the customer or contractor to purchase an instrument rated meter socket from a local electrical distributor. **RPU no longer stocks, or sells instrument rated meter sockets. Please contact a local electrical distributor of your choice to purchase an RPU approved instrument rated meter socket. If requiring an 8 terminal meter socket, please contact RPU's Electric Meter Department for prior approval. (See Section 613).**

610.5.b Primary Metering Equipment – Indoors

When indoor primary metering service is to be installed, the customer shall furnish a compartment or switchgear cubicle to house the primary current and potential transformers. All current and potential transformers shall be rated for metering accuracy as approved by the RPU Engineering Department. The metering point shall be located electrically between the customer's main disconnect and customer's circuits.

When practical, RPU may request that the customer install instrument transformers per RPU specifications. (Call the Customer Service Representative to obtain Engineering assistance.) In such situations, RPU may credit the customer for installation and material charges up to RPU's normal cost for instrument transformers.

610.5.c Primary Metering Equipment - Outdoors

When outdoor primary service is to be installed, RPU may elect to utilize either a pole-mounted or pad-mounted primary metering equipment set. Outdoor primary metering units are furnished and installed by RPU. Sharing of the material and installation costs for primary metering will be determined on a case-by-case basis.

611 Self-Contained Metering for Commercial Installations

In general, RPU will install self-contained meters (meters without instrument transformers) on single phase services where the service rating is 400 amps or less and on three phase services where the service rating is 200 amps or less. Where such metering is to be used, the customer shall provide a lever-operated bypassing socket (see Section 613). Such sockets permit a continuation of service upon removal of the meter for testing or maintenance. If a lever-operated bypass socket is not installed, the service will not be energized.

Commercial self-contained sockets must be rated continuous 200 amperes, minimum.

612 Master Metering

612.1 All new residential units shall be individually metered.

Exception provided in Minnesota Rule 326B.106 Subd.12.

“Buildings intended for occupancy primarily by persons who are 62 years of age or older or disabled, supportive housing, or buildings that contain a majority of units not equipped with complete kitchen facilities, shall be exempt from the provisions of this subdivision. For purposes of this section, “supportive housing” means housing made available to individuals and families with multiple barriers to obtaining and maintaining housing, including those who are formerly homeless or at risk of homelessness and those who have a mental illness, substance abuse disorder, debilitating disease, or a combination of these conditions.”

A customer claiming an exception takes all legal responsibility for proving the exemption for the life of their building.

All customers claiming an exception must provide RPU, in writing, a statement that they are claiming an exception under Minnesota Rule 326B.106 Subd.12 and why they feel their building meets the requirements for an exception. RPU does not determine the validity of the claimed exception and this required filing is for our RPU’s documentations only.

612.2 All new commercial or industrial units will be individually metered.

Exceptions must be approved by the RPU Metering Department.

612.3 Submetering by others for the purpose of charging individual occupants based on measured use must be in accordance with statutory requirements. Submetering by others for information purposes or to control the use of electric power for energy is permitted.

613 Approved Meter Sockets

Meter installations made with unapproved sockets will not be energized, or subject to disconnection if non-approved equipment is installed.

RPU APPROVED METER SOCKETS		
SERVICE TYPE	SERVICE VOLTAGES	APPROVED MFG./PART NUMBER
Meter Socket, 4 Terminal, 100A to 320A, Lever Bypass (Residential, 1-Phase, Self-contained meters)	Single Phase, 2 wire 120V or Single Phase, 3 wire 120 to 480V (240/480V, 200A MAX)	Landis and Gyr: HQ Series Milbank: HD 200 Series Thomas & Betts/Anchor: TB Square D: HD Series
Meter Socket, 5 Terminal, 100A to 320A, Lever Bypass (Residential, 1-Phase, Self-contained meters)	Single Phase, 2 wire 120V or Single Phase, 3 wire 120 to 480V or Single Phase, 3 wire Network 120/240V (240/480V, 200A MAX)	Landis and Gyr: HQ Series Milbank: HD 200 Series Thomas & Betts/Anchor: TB Square D: HD Series
Meter Socket, 6 Terminal, over 400A and larger Residential and Commercial 1-Phase Instrument Transformer rated	Single Phase, 3 wire 120/240V	Milbank: #UC7478-XL-WC-271 (Prewired to RPU spec.)
Meter Socket, 7 Terminal, 200A MAX, Lever Bypass (Commercial, 3-Phase only for Self-contained meters)	Three Phase, 4 Wire-WYE 120 to 480 V Three Phase 4 Wire-Delta, 120/240V (this service is not allowed for new installations)	Milbank: #U4701-RRL Cutler Hammer: #UTE7213BCH L&G: # 40407-025
Meter Socket, 8 Terminal, Over 200A and larger 3-Phase Instrument Transformer rated	Three Phase Delta	Contact RPU for approval
Meter Socket, 13 Terminal, over 200A and larger 3-Phase Instrument Transformer rated (Commercial, 3-Phase for Instrument Transformer rated)	Three Phase, 4 Wire-Wye, 120 to 480V Three Phase, 4 Wire Delta, 120/240V (this service is not allowed for new installations)	Milbank: #UC7445-XL-WC-951 (Pre-wired to RPU spec.)

614 Service at 480 Volts

Any 480 volt metering service requiring the use of current transformers will require the use of a step down potential transformer. RPU will supply and install all metering potential transformers at no cost to the customer/contractor.

615 Location of High-Leg in Meter Socket on 240/120 Volt, 3 Phase Services

The conductor with the higher voltage to ground must be connected to the terminal on the right side. The high-leg conductor must be identified as required by the National Electric Code. Meter sockets with the high-leg in the wrong position will not be energized. Incorrectly wired sockets will be subject to disconnection until wiring is corrected.

616 Removing RPU Seals and Meters

Disconnection of RPU metering equipment and cutting of seals is not allowed.

617 Customer Generation

Where a customer intends to operate any type of electric generator, photovoltaic array, wind generator, or similar equipment interconnected with the RPU system, special service and metering requirements must be satisfied. Contact RPU for details prior to interconnecting any generation equipment.

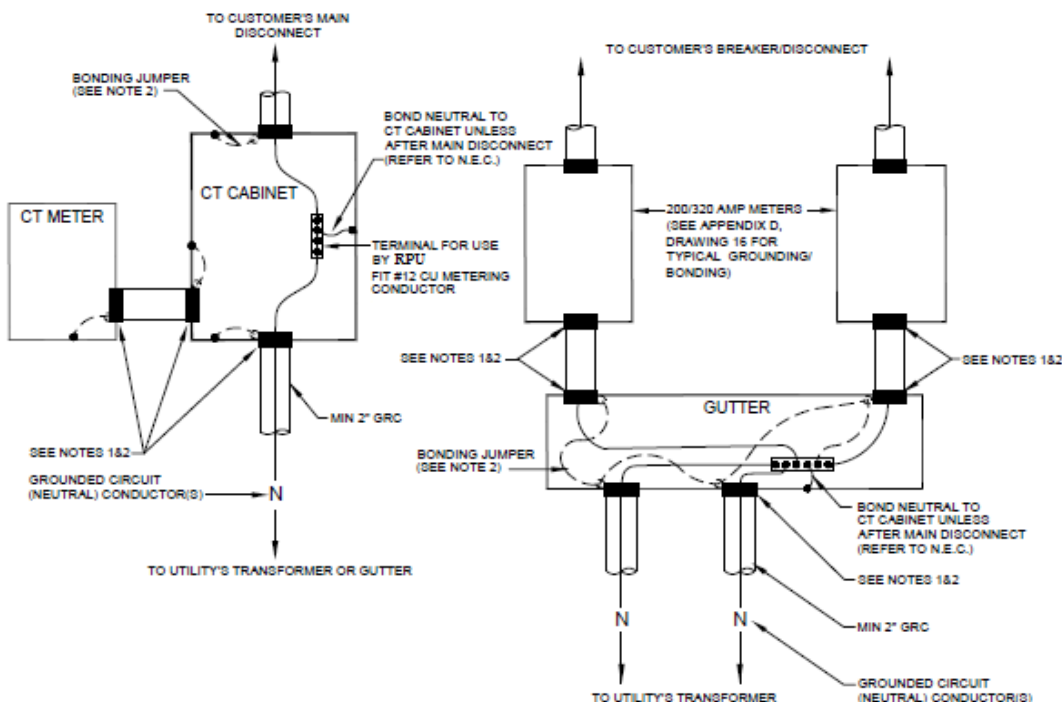
618 Proper Grounding/Bonding of Meter Sockets and Services

Service equipment and enclosures would be called on to carry heavy fault currents in the event of a ground-fault. For this reason, it is imperative that meter sockets and conduits be adequately bonded to the neutral and to the ground. Bonding is to be done by threaded couplings and threaded bosses in a rigid metal conduit system where the joints will be made up wrench tight. Locknuts and bushings do not fulfill the requirement of bonding at service equipment. Grounding bushing (with bonding jumpers), bonding locknuts, threaded conduit hubs, or other means approved. Refer to the NEC[®] Article 250.66. All metering conduits and sockets must be properly grounded. If PVC conduits are used, grounding conductors must be provided and installed by the customer/contractor in accordance with the National Electric Code. Electric services will not be connected if improperly grounded/bonded.

618.1 Neutral for 5 and 7 Terminal Sockets

A system neutral is required to each 5 and 7 terminal socket. Conductor should be sized in accordance with the NEC[®].

TYPICAL GROUNDING/BONDING FOR CT CABINET AND GUTTER



NOTES:

1. The metal conduit raceway (PVC is allowed on the load side of meter socket or CT cabinet) shall be bonded to the neutral conductor by the use of a grounding bushing (with bonding jumper), bonding locknuts, threaded conduit hub.
2. When a grounding bushing is used, a bonding jumper shall be installed to connect with the bonded enclosure. The bonding jumpers shall be sized to meet NEC Table 250-66. Bonding to be completed by contractor.
3. All neutral conductors shall be terminated in CT cabinets and gutters to a common connection.

SIZE OF LARGEST SERVICE-ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS		SIZE OF BONDING JUMPER CONDUCTOR
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER
#1/0 or smaller	#3/0 or smaller	6
#2/0 or #3/0	#4/0 or 250 kcmil	4
Over #3/0 thru 350 kcmil	Over 250 kcmil thru 500 kcmil	2
Over 350 kcmil thru 600 kcmil	Over 500 kcmil thru 900 kcmil	#1/0
Over 600 kcmil thru 1100 kcmil	Over 900 kcmil thru 1750 kcmil	#2/0
Over 1100 kcmil	Over 1750 kcmil	#3/0 or 12-1/2% of conductor kcmil, whichever is larger

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

619 Customer Disconnect Switch

Individual customer disconnect switches shall be connected on the load side of the meter. No customer devices, e.g. surge suppressors, load management equipment, etc., may be installed on the line side of the meter.

Each non-residential customers must have a separate securable disconnect accessible to RPU at all times. (If the building is a multi-tenant building each non-residential customer must have a separate securable disconnect.) The disconnect shall be labeled and mounted adjacent to the meter.

620 Special Sockets

All special sockets, such as apartment panels, recessed, mobile home parks, socket and switch, or socket and transfer, must have RPU's approval prior to installation.

621 RPU-Owned Equipment

Any metering equipment furnished by RPU, such as meters, instrument transformers, relays, totalizers, test switches, etc., remain the property of RPU. If the equipment has to be removed or disconnected for any reason, please call RPU so that the equipment can be picked up.

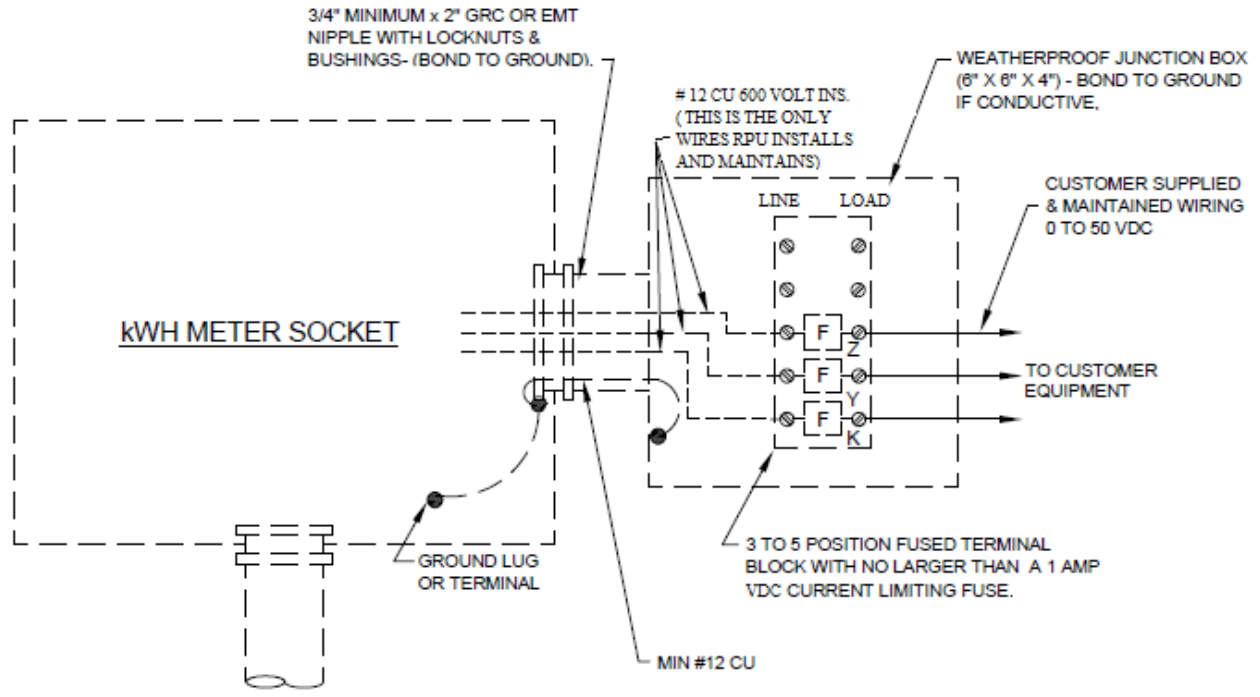
622 The Temporary Removal of Customer Owned Meter Sockets by RPU Personnel for Siding Installation and/or Repairs

RPU will temporarily remove meter sockets from premise walls for siding purposes on single and duplex meter sockets. Any meter housing containing more than two meter sockets for removal, will be at the discretion of RPU's personnel. Should RPU's personnel not be able to perform the work, it will be up to the customer to hire an electrician/contractor to perform the task. If at any time safety is a concern, RPU will have the service de-energized to perform the work. The customer/contractor shall contact RPU two business days in advance to schedule the temporary removal of the meter socket for siding purposes.

623 Pulse Initiating Device

Upon the customer's request, the customer/contractor will install a pulse-initiating device on a customer's existing meter socket. To initiate a request for a pulse-initiating device, the customer shall contact RPU. The customer should submit, in writing, all technical information concerning the customer's load-monitoring equipment to RPU. RPU will determine what type of pulse and the amount of pulses available in a given time interval. The customer/contractor will install a weatherproof junction box, a 3 to 5 position fused terminal block, a 3/4 inch galvanized rigid conduit with ground wire from the meter socket to the weatherproof junction box. The customer will furnish, install and maintain all necessary equipment. This wiring will be in accordance with the requirements of the electrical code governing such installation with RPU stipulation that one-amp current limiting fuses be installed on the load side of the terminal block. RPU will then install pulse-initiating device and wiring from the meter socket to the terminal block. Note: RPU's responsibility and liability ends at the line side of the terminal block. **RPU reserves the right to interrupt pulses at any time in order to test or change the meter and to change the pulse value whenever it becomes necessary to upgrade the metering equipment. Every effort will be made to notify the customer when it becomes necessary to interrupt pulses for equipment maintenance. The customer will be notified of any change to the pulse values.**

CUSTOMER CONNECTIONS FOR PULSE-INITIATING DEVICE INSTALLATION



PULSE INITIATING DEVICE INSTALLATION

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

SECTION 700

CUSTOMER EQUIPMENT

The customer's service entrance and equipment shall be installed in accordance with all local, state and NEC[®] requirements. It is the intent of this section to provide the customer with recommendations concerning factors that can affect both RPU and the customer in the selection, installation, maintenance and operation of the customer's equipment. If concerns arise that are not covered in this section, RPU's Customer Service Representative should be contacted.

701 Protection of Customer Equipment

The customer is advised to provide adequate protection against the effects of outages or voltage spikes in accordance with the NEC[®] or other pertinent sources of information for all types of motors and other equipment.

Equipment that should be protected includes, but is not limited to:

- motors
- computers
- electronics equipment
- equipment in which computers or electronics form an integral operating part

Equipment should be protected under all conditions, including:

- overload
- loss of voltage
- high or low voltage
- loss of phase(s) (e.g. single phasing on polyphase motors)
- re-establishment of service after any of the foregoing
- phase reversal
- motors that cannot be subjected to full voltage on starting
- harmonics or wave form irregularities

Failure to provide such protection may result in needless damage to equipment and the expense of delay and repair.

Sensitive electronics, such as microprocessor-based home electronics and business computers, are susceptible to damage due to voltage spikes or surges.

Before any microprocessor-based electronics are installed:

- Wiring practices that meet manufacturer specifications need to be assured. (For example, proper grounding and dedicated circuits are important.)
- Consideration should be given to installing transient voltage surge suppression.
 - at the main service entrance, and
 - at the point of use.
- An uninterruptible power supply (battery backup) should be considered if a momentary voltage dip or outage would cause loss of data.

702 Motor Starting Currents

Generally, all motors require a starting current substantially greater than their normal running current. Where starting currents are excessive, an abnormal drop in supply voltage will result. In order to minimize the unfavorable effects of such voltage drops, it is essential that the customer's motors do not exceed the allowable starting characteristics as shown in Table 430-251(A and B) of the NEC[®].

NOTE: Customers planning to install any motor larger than 5 hp single phase or 25 hp three phase, must contact the Customer Service Representative. Motor installations that cause power quality problems for other customers shall be corrected at the owner's expense.

702.1 Voltage Flicker

RPU uses IEEE Standard 141 (IEEE Red Book) as a guideline for the level of allowable flicker. Customers are not allowed to start any load on RPU's system that produces unacceptable levels of flicker which affect other customers. Customers are responsible for correcting unacceptable flicker problems in a timely manner when notified by RPU.

703 Power Factor

In order to improve the efficiency of RPU's distribution system, the customer's utilization equipment shall maintain an average power factor as close to unity as possible.

Some of RPU's rate schedules include a demand charge and a penalty for an average power factor that is less than 95%. Details of the method of billing for such customers can be obtained from the Customer Service Representative. For new services, it is suggested that the customer's utilization equipment be designed for operation at high power factor or with capacitors that are switched on and off with the equipment. See Section 1100, Exhibit 11 for correcting customer's power factor.

RPU will calculate the power factor of customers in designed rate classes by installing a varhour meter. See Section 601 for customer's responsibilities in providing metering equipment.

704 Fault Current

The customer's service equipment and other devices shall be adequate to withstand and interrupt the maximum available fault current. For single-family residences with service equipment rated 200 amperes maximum and 120/240 volts, single phase, equipment shall have a minimum interrupting rating of 10,000 amperes symmetrical and other equipment shall be braced to withstand that minimum value (see Section 1003 for more information).

705 Wiring Adequacy

The National Electrical Code[®] (NFPA No. 70) specifies the adequacy of wiring with respect to safety but such installations may not be efficient, convenient, or adequate for good service of future expansion of electrical use. In many instances, the installation of wiring capacity greater than minimum code requirements is strongly recommended.

706 Customer-Owned Generating Equipment

Unless authorized by written agreement, electric generating equipment installed by the customer shall not be interconnected or operated in parallel with RPU system. The customer shall own, install, operate, and maintain electrical interlocking equipment which will prevent parallel operation and such equipment shall be approved by RPU prior to installation. Please contact RPU for specific requirements relating to generation installations designed to operate in parallel with the RPU distribution system (e.g. solar, wind, etc.)

707 Customer's Obligations

707.1 Increased Load

In the event the customer desires to increase load materially, such as additional electric heat, increased motor loads, etc., they shall give RPU sufficient advance notice, so that RPU may provide added facilities if necessary. If the customer fails to notify RPU and RPU's equipment is damaged as a result of such increase in load, the customer shall reimburse and make payment to RPU for all such damages.

707.2 Balancing of Load

Except in the case of three-phase, four-wire delta services, the current unbalance in three-phase services shall not exceed 10 percent of the current that would be required at maximum load under balanced conditions.

707.3 Total Harmonic Distortion (THD)

- a) The application of any nonlinear load by the customer (e.g., static power converters, arc furnaces, adjustable speed drive systems, etc.) shall not cause voltage and/or current Total Harmonic Distortion (THD) levels greater than industry accepted levels on RPU's electric system at the point of power delivery to the customer's facility (reference standard IEEE 519).
- b) The customer shall disclose to RPU all nonlinear loads prior to connection. RPU may test the customer's load to determine the THD levels.
- c) It shall be the responsibility of the customer to assure that the THD requirements are met, including the purchase of necessary filtering equipment. Any load found not in compliance with this policy shall be corrected immediately by the customer at the customer's expense. If not corrected, RPU may disconnect service to the customer's facility.
- d) The customer shall be liable for all damages, losses, claims, costs, expenses and liabilities of any kind or nature arising out of, caused by, or in any way connected with the application by the customer of any nonlinear load operating with maximum THD levels in excess of the values stated in 708.3a. The customer shall hold harmless and indemnify RPU from and against any claims, losses, costs of investigation, expenses, reasonable attorneys' fees, damages and liabilities of any kind or nature arising out of, caused by, or in any way connected with the application by the customer of any nonlinear load operating with maximum THD levels in excess of the values stated in 708.3a.

SECTION 800

OVERHEAD SECONDARY SERVICE

RPU will supply overhead secondary service (600 volts or less), in areas where overhead facilities are available, at the voltages and under the conditions specified in other sections of this publication. The service entrance location will be specified by RPU. This section includes information on distribution transformer size, overhead service drop and connections to the customer's premises or equipment. Metering and customer equipment requirements are covered in other sections of this publication. The requirements of this section apply to all residential, commercial and industrial customers.

801 Maximum Transformer Size

801.1 The maximum standard overhead transformer size installed by RPU will be either one 50kVA transformer for a single phase application or three 15kVA transformers for multiphase applications. If a larger transformer size is required for a particular application, it shall be a pad-mounted type

801.2 One or more secondary services may be supplied from a transformer; the number of services from a transformer shall be determined by RPU depending upon the application.

802 Service Drop Conductors

802.1 The service drop for new services will be a twisted wire triplex (three wires) or quadruplex (four wires) configuration from the distribution system to the point of attachment on the customer's premises.

802.2 Existing services may be either a twisted wire or open wire configuration. If necessary for various reasons, RPU may change a service from an open wire to a twisted wire configuration.

803 Clearances

803.1 The service drop must be so located that the minimum clearance as specified in the latest editions of the NEC[®] and NESC[®] are maintained. An illustration of the clearances required is shown in Section 1100, Exhibit 4. **It is strongly recommended that the customer contact RPU's Engineering Department if the service is going to pass over a roof, balcony/deck, or within 5 feet of a window/door for additional clearance information. RPU will not energize an electric service with an observed clearance violation.**

803.2 Service drop conductors shall not be installed above a swimming pool or surrounding area extending 10 feet horizontally from the pool edge, diving structure, observation stands, towers or platforms.

804 Point of Attachment

A solid point of attachment for supporting the service drop on the building shall be provided by the customer at a point which will comply with previously stated clearances. Where the required heights and clearances cannot be maintained by a point of attachment on the building, the customer shall provide a service mast which is of a permanent nature and of sufficient strength to support the service drop at the required minimum clearance. Typical building attachment and service mast installations are shown in Section 1100, Exhibits 5 and 6, respectively. In such an installation, 2-inch or larger schedule 40 galvanized metallic conduit or 3-inch or larger rigid aluminum conduit shall be used. No couplings in the service mast will be allowed above the roof line. RPU reserves the right to decline to connect its service drop to an extension support which, in its judgment, constitutes a hazard to life or property.

805 Service Entrance

The customer's service entrance wiring shall terminate at a point so located that the service drop from the supply lines will not interfere with windows, doors, awnings, drainpipes, or other parts of the building or other obstructions so that only one bracket is required.

SECTION 900

UNDERGROUND SERVICE

901 New Residential Developments

RPU will designate a point of delivery for the connection of the customer's secondary underground service. The point of delivery may be a service pedestal or junction box, or the terminals of a pad-mounted transformer. In general, RPU will install, own, operate, and maintain all facilities on the source side of the point of delivery, including the junction enclosure and connections; the customer will install, own, operate, and maintain all secondary cables, conduit, and related service equipment specified in other sections of this publication on the load side of the point of delivery. However, the developer of a new subdivision is responsible, during general development, for installing road crossing conduits per RPU specifications. (Refer to Section 1100, Exhibit 13.)

Points of delivery will be located within RPU's easement area along or near a front or rear property line unless it is necessary or desirable to designate locations which are closer to the metering point(s). In such cases, the customer will be charged for the installed cost of any additional lengths of underground distribution cable and conduit from the property line to the point of delivery. Such charges shall be in addition to any other charges specified herein.

Additional information regarding RPU and customer responsibilities for URD installations is provided in Section 1100, Exhibit 9.

902 Residential Undergrounding in Overhead Areas

Customers residing in residential zones served by overhead lines may request underground electric service. Customers intending to relocate, upgrade or replace an existing overhead service may request underground service. In either case, the customer shall install, own, operate, and maintain the facilities specified in Section 901.

Customers replacing an existing overhead service with an underground service will also be responsible for installing an RPU provided secondary pedestal at a location specified by RPU and providing and installing RPU specified conduit from the secondary pedestal to an RPU specified pole or other piece of equipment. The customer should contact RPU's Engineering Department for more details prior to proceeding.

903 Underground Service to Commercial and Industrial Customers

903.1 RPU requires the underground installation of primary and secondary distribution service to new commercial and industrial structures.

903.2 RPU will designate a point of delivery for the connection of the customer's secondary underground service lateral. The point of delivery will normally be the secondary terminals of a pad-mounted transformer placed at a mutually agreeable location on the customer's property, as close as practicable to the metering point.

903.3 RPU will install, own, operate, and maintain the primary underground cable, the distribution transformer, and the secondary connections.

903.4 If underground primary distribution facilities are located on the customer's property, the customer shall provide the conduit from a designated point of interconnection to the distribution transformer.

903.5 If overhead main distribution facilities are located on or adjacent to the customer's property, the customer shall provide conduit to the riser pole, including the elbow, to the pad mounted distribution transformer. See Section 1100, Exhibit 8 for details.

903.6 The customer shall install, own and maintain a concrete transformer pad to RPU specifications. If the transformer is located in an area where it may be subject to physical damage (e.g. from vehicular traffic), RPU may require the customer to furnish and install an approved means of protection.

903.7 The customer shall install, own, and maintain all secondary cables, conduits, and cabinets from the transformer to the building service entrance. The customer shall install, own and maintain all secondary cables, conduits, and cabinets from the transformer (or pole mounted secondaries) to the building service entrance. (Conduit for the riser pole, if required, shall be furnished by the customer.)

RPU must approve the design of all secondary bus duct and cable bus designs. The installation may be inspected by RPU and the secondary connections to the transformer and the transformer side of the connection cabinet will be made by RPU.

It is the customer's responsibility to coordinate with and provide the necessary information to RPU in order to insure adequate connections are available at the secondary terminals of the transformer.

903.8 RPU will furnish and install the meter set in accordance with the requirements of Section 600.

903.9 The maximum number of secondary connections available shall be:

Single Phase:

Six (6)350 MCM conductors per phase

Three Phase:

<u>Transformer Size</u>	<u># of Conductors per Phase</u>
45 KVA	3
75 KVA to 500kVA	6
750kVA to 2500kVA	10

The maximum size secondary conductor to be installed in a 3-phase transformer is 750 MCM. Contact RPU's Engineering Department if more or larger conductors are required.

Any service requiring more conductors per phase than listed above must utilize a customer-provided secondary connection cabinet.

903.10 Secondary cables installed in an RPU manhole must be copper conductor.

904 Secondary Connection Cabinets

Where secondary connection cabinets are necessary, the following apply:

904.1 Cabinet assemblies will be suited to the installation and meet RPU and NEC[®] requirements.

904.2 Cabinets shall be constructed with provisions for bar-type or donut-type current transformers.

904.3 Conduits from service equipment to connection cabinet and from transformer to connection cabinet will be furnished and installed by electrical contractor as concrete pads are being formed and poured. Conduit systems shall meet RPU requirements. Above-grade raceway from the transformer to the connection cabinet is not allowed.

905 Transformer Clearances

Where pad mounted transformers and equipment in pad mounted enclosures are installed, the minimum clearances specified in Section 1100, Exhibit 7 must be maintained. Fences, shrubbery, and trees may be installed by the customer provided that the specified clearances are maintained, the grade is not altered, and the underground cables are not endangered.

906 Winter Installation

The Customer shall be required to pay a per foot additional fee for underground cable installation, at the customer's request, after frost has been established in the ground to an average depth of 6 inches or more. The amount of the frost fee depends on the depth of the frost. RPU may require that the estimated frost charges be paid in advance of performing work.

907 Installation in Rocky Soils or Poor Backfill

The Customer shall be required to pay an additional fee if rock or poor quality backfill is encountered during the installation of RPU's facilities. The fee will be based on the cubic feet of unsuitable material encountered by RPU or our contractor during installation. RPU may require that the Customer pay an estimated fee prior to performing the work.

908 Total Undergrounding

RPU does not install underground vaults, manholes, or submersible transformers on customer property. If the presence of permanent structures up to the property lines, or other conditions, precludes the installation of pad mounted equipment on the customer's property, primary service will normally be provided.

SECTION 1000

TRANSFORMERS and TRANSFORMER DATA

1000 Transformers

Necessary transformers will be installed and maintained by RPU in accordance with its established Rate Schedules, Electric Service Rules and Regulations, and Line Extension Policy.

RPU will not furnish transformers unless they are of standard size and voltage as established by RPU. The Customer shall notify RPU in advance of any change in the customer's load requirements that may affect the installed transformer capacity.

1001 Grounding

All service systems that operate below 600 volts contain a grounded neutral or a grounded phase conductor used as a circuit conductor in the system. The grounded neutral or grounded phase conductor is grounded at the supply transformer and will be run from the transformer bank to the meter socket and to each service disconnection means in accordance with 2014 *National Electrical Code*[®] Article 250.24(B), or as may be amended.

Customers requiring an ungrounded service for operation of a ground detection system, or for other operations permitted by the *National Electric Safety Code*[®], shall submit an exception request detailing the special circumstances necessitating the request. In addition, the customer shall state in the exception request that he is aware of and accepts the increased risk to personal safety associated with an ungrounded service. When supplying an ungrounded service results in an additional cost to the Company, the additional cost may be passed on to the customer.

1002 Special Rules

When a customer furnishes transformers or other equipment, in accordance with the applicable RPU rate schedule, Electric Service Rules and Regulations, RPU accepts no responsibility for maintaining or replacing the customer's transformers or other equipment if damaged or destroyed.

The customer shall provide a minimum of ten (10) feet level clearance on the door side(s) of padmounted transformers for hot-stick operation and ten (10) feet level clearance on the door side(s) of pad-mounted primary metering cabinets for instrument transformer maintenance.

1003 Fault Current

It is RPU's intent to address the customer's need for information concerning fault current and transformer protective device requirements pertaining to new construction, rewire, or additional load. Refer to 2014 *National Electrical Code*® Article 110.9 Interrupting Rating and Article 110.16 Flash Protection, or as may be amended.

Tables 10.1 through 10.3 in this Section show the available RMS symmetrical fault currents that may be expected at the secondary terminals of distribution transformers. Each fault current value listed in the tables is based on the typical lowest percent impedance transformer that might be set initially or as a replacement. No primary source or secondary line impedance has been included since it is generally relatively small, may change, and cannot be accurately forecasted.

Note: Because an overloaded transformer is typically replaced by the next larger size transformer, and an under-loaded transformer may be replaced by the next smaller size transformer, the customer is encouraged to use this range of transformers to perform their studies and select equipment such as current limiting fuses, breakers and switchgear bus bar bracing. When selecting the fault current interrupting rating of the customer protection devices the customer should also take into account the minimum size transformer that would be required to serve the load rating of the customer main protection device.

Due to the variability of the transformer and electric distribution system characteristics these tables are to be used as a general guideline and **shall not** be used as a design tool to replace engineering that may be required by the Code Authorities having jurisdiction. Customers or contractors requiring specific fault current calculations should consult a registered professional engineer of their choice.

Note 1: All installations served from a single-phase pad-mount transformer should as a minimum use the calculations based on the installation of a 37.5kVA minimum transformer.

Note 2: All temporary construction meter installations may use the actual transformer size.

1004 Arc Flash

It is RPU's intent to address a customer's need for information concerning arc flash data requires as follows:

For Secondary Voltage Services the Company will provide, upon request from the customer:

- a) Transformer size, primary voltage, secondary voltage, and typical percent impedance.
- b) Transformer primary fuse information size and type.
- c) Calculated symmetrical bolted three-phase fault current, bolted single-line ground fault current and calculated system impedance (R and X) at the high side of the transformer.
- d) The upstream protective device information nearest the service point. This information will include the device model, rating and applicable settings.

For Primary Voltage Services RPU will provide, upon request from the customer:

- a) Calculated symmetrical bolted three-phase fault current, bolted single-line ground fault current and calculated system impedance (R and X) at the service point.
- b) The upstream protective device information nearest the service point. This information will include the device model, rating and applicable settings.

Fault current calculations are based upon the distribution system configuration at the time of the calculations. RPU does not provide minimum fault current information or associated protective device clearing times.

It is understood that this data is to be used for arc flash calculations. Parties using this data must understand that it may change due to various reasons. RPU will not notify the customer when such changes occur.

Tables 10.1 through 10.3 in this Section are only intended to provide the basic information necessary for secondary service customers to make their own internal system fault current and basic arc flash calculations. Primary service customers will still need to consult with an RPU Engineer, to obtain fault current and protective device information for their service locations.

As a safety measure, RPU recommends that when customers are performing maintenance work on or near exposed electrical equipment that their electrical system be de-energized whenever possible.

SINGLE-PHASE PADMOUNT TRANSFORMERS									
EXPECTED SINGLE-PHASE FAULT CURRENTS (IN RMS AMPS) AT THE SECONDARY TERMINALS									
TRAN KVA	TRAN		TRAN		TRAN %X	Fault Current 240 V Secondary	Protective Device, Overhead Fuse 7960 V Primary		
	%Z	%R	%R	%X			Bay-O-Net	Rating (A)	
10	1.0	0.39	0.39	0.92	4,170	4000358C03	3		
15	1.0	0.39	0.39	0.92	6,250	4000358C03	3		
25	1.0	0.32	0.32	0.95	10,420	4000358C05	8		
37.5	1.0	0.25	0.25	0.97	15,630	4000358C05	8		
50	1.1	0.57	0.57	0.94	18,940	4000358C05	8		
75	1.1	0.38	0.38	1.03	28,410	4000358C08	15		
100	1.1	0.34	0.34	1.05	37,880	4000358C08	15		
167	1.2	0.34	0.34	1.05	57,990	4000358C10	25		
TRAN KVA	TRAN		TRAN		TRAN %X	Fault Current 480 V Secondary	Protective Device, Overhead Fuse 7960 V Primary		
	%Z	%R	%R	%X			Bay-O-Net	Rating (A)	
15	1.1	0.39	0.39	1.03	2,840	4000358C03	3		

Note: Bay-O-Net fuse is a Cooper or equivalent

Table 10.1 Single Phase Underground

SINGLE-PHASE OVERHEAD TRANSFORMERS
EXPECTED SINGLE-PHASE FAULT CURRENTS (IN RMS AMPS) AT THE SECONDARY TERMINALS

TRAN KVA	TRAN		TRAN		TRAN		TRAN		TRAN		TRAN		Protective Device, Overhead Fuse	
	%Z	%R	%X	Fault Current 240 V Secondary	%Z	%R	%X	Fault Current 120 V Secondary	%Z	%R	%X	Fault Current 7960 V Primary	Typical	Limited Use
10	1.2	0.35	1.15	3,470	1.48	0.53	1.38	5,630	1.48	0.53	1.38	5,630	1.5X	6 ELF
15	1.2	0.66	1.00	5,210	1.56	0.99	1.20	8,010	1.56	0.99	1.20	8,010	2X	6 ELF
25	1.2	0.50	1.09	8,680	1.51	0.75	1.31	13,800	1.51	0.75	1.31	13,800	3.5X	6 ELF
37.5	1.2	0.39	1.13	13,020	1.48	0.59	1.36	21,110	1.48	0.59	1.36	21,110	5.5X	8 ELF
50	1.2	0.43	1.12	17,360	1.49	0.65	1.34	27,960	1.49	0.65	1.34	27,960	7X	12 ELF
75	1.2	0.17	1.19	26,040	1.45	0.26	1.43	43,100	1.45	0.26	1.43	43,100	10X	18 ELF
167	1.2	0.17	1.19	57,990	1.45	0.26	1.43	95,980	1.45	0.26	1.43	95,980	25KS	18 ELF

Table 10.2: Single Phase Overhead

THREE-PHASE PADMOUNT TRANSFORMERS									
EXPECTED THREE-PHASE FAULT CURRENTS (IN RMS AMPS) AT THE SECONDARY TERMINALS									
TRAN KVA	TRAN			TRAN %X	Fault Current 120/208 V Secondary	Fault Current 277/480 V Secondary	Transformer Protective Device		
	%Z	%R	%X				Current Limiting Cooper or Equivalent	Cooper or Equivalent	BAY-O-NET Cooper or Equivalent
45	1.3	1.04	0.78	0.78	9,600	NA	3544040M61M	3544040M61M	4000358C05
75	1.3	0.70	1.10	1.10	16,000	6,900	3544040M61M	3544040M61M	4000358C05
112.5	1.4	0.49	1.31	1.31	22,300	9,700	3544100M51M	3544100M51M	4000358C05
150	1.4	0.35	1.36	1.36	29,700	12,900	3544100M51M	3544100M51M	4000358C05
225	1.4	0.43	1.33	1.33	44,600	19,300	3544125M61M	3544125M61M	4000358C08
300	1.4	0.48	1.32	1.32	59,500	25,800	3544125M61M	3544125M61M	4000358C08
500	1.6	0.40	1.55	1.55	86,700	37,600	3544080M51M (2 in parallel)	3544080M51M (2 in parallel)	4000358C10
750	4.5	0.39	4.48	4.48	46,300	20,000	3544150M51M (2 in parallel)	3544150M51M (2 in parallel)	4000358C12
1,000	5.1	0.32	5.09	5.09	54,400	23,600	3544150M51M (2 in parallel)	3544150M51M (2 in parallel)	4038361C03CB
1,500	5.1	0.36	5.09	5.09	NA	35,400	3544150M51M (2 in parallel)	3544150M51M (2 in parallel)	4038361C04CB
2,000	5.1	0.43	5.08	5.08	NA	47,200	3544125M61M (2 in parallel)	3544125M61M (2 in parallel)	4038361C05CB
2,500	5.1	0.33	5.09	5.09	NA	59,000	3544175M51M (2 in parallel)	3544175M51M (2 in parallel)	4038361C05CB

Table 10.3: Three Phase Padmount Transformers

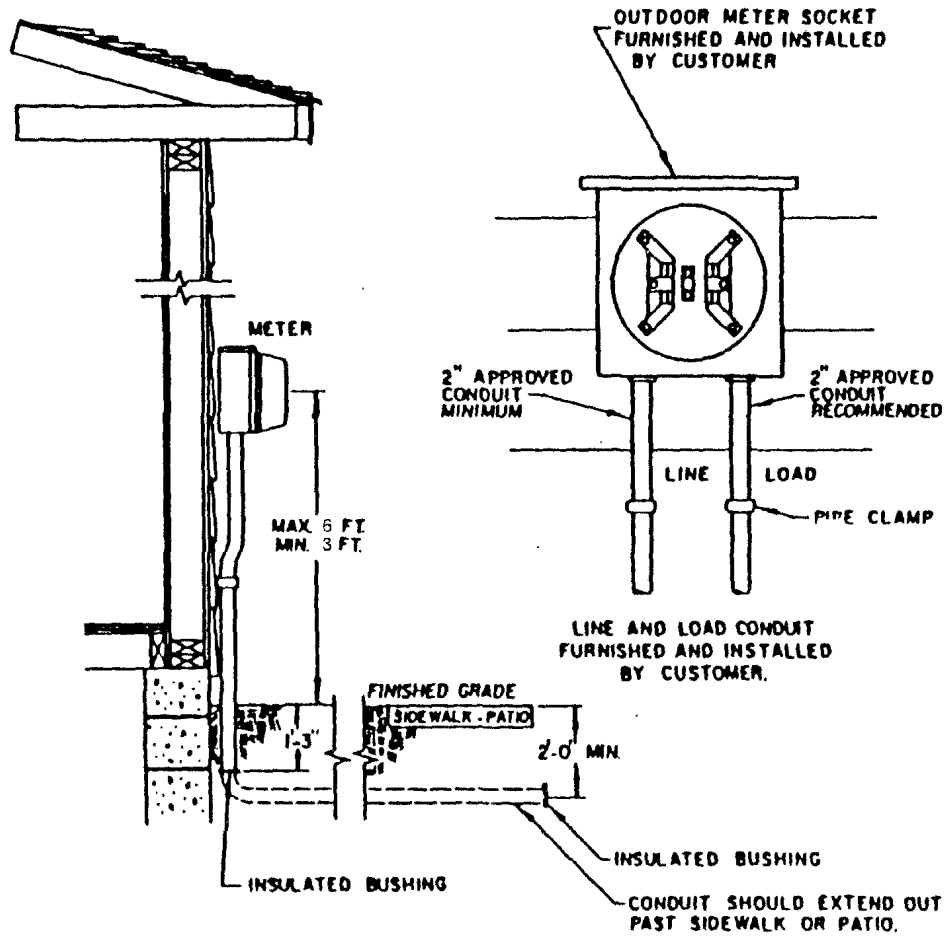
SECTION 1100

EXHIBITS

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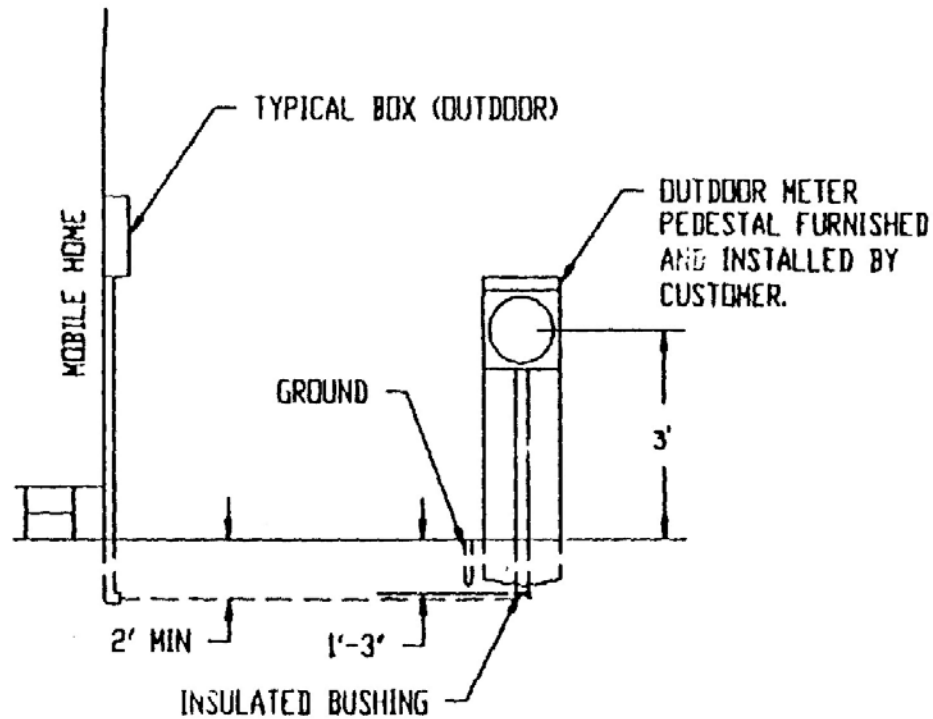
EXHIBIT 1

TYPICAL UNDERGROUND RESIDENTIAL METERING ARRANGEMENT UP TO AND INCLUDING 200 AMP, 120/240 VOLT



Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

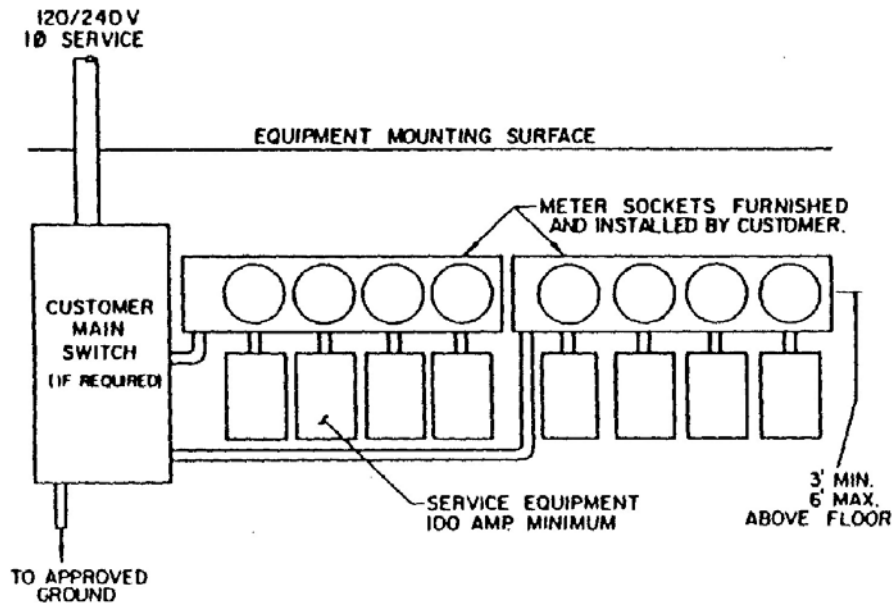
EXHIBIT 2

TYPICAL MOBILE HOME METERING
ARRANGEMENT

1. METERS ARE TO BE PERMANENTLY LABELED.
2. METERS ARE TO FACE TOWARDS STREET.
3. SERVICE LATERAL FROM THE SECONDARY JUNCTION AT THE PROPERTY LINE, TO THE METER PEDESTAL, TO THE MOBILE HOME, IS THE RESPONSIBILITY OF THE CUSTOMER.

EXHIBIT 3

TYPICAL MULTIPLE METERING ARRANGEMENT



- 1. METERS ARE TO BE PERMANENTLY LABELED
- 2. METERS MUST HAVE INDIVIDUAL LOCK-OFF CAPABILITY.
- 3. METERS MUST BE ACCESSIBLE TO R.P.U. AND TO CUSTOMERS

EXHIBIT 4

SECONDARY SERVICE DROP CLEARANCES

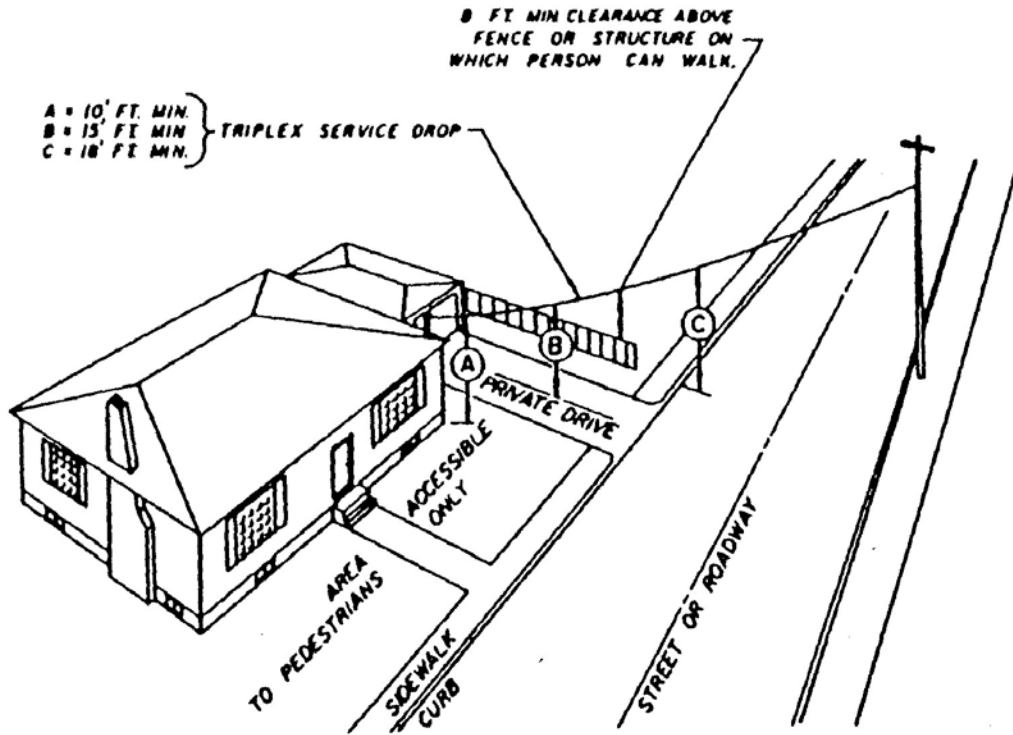
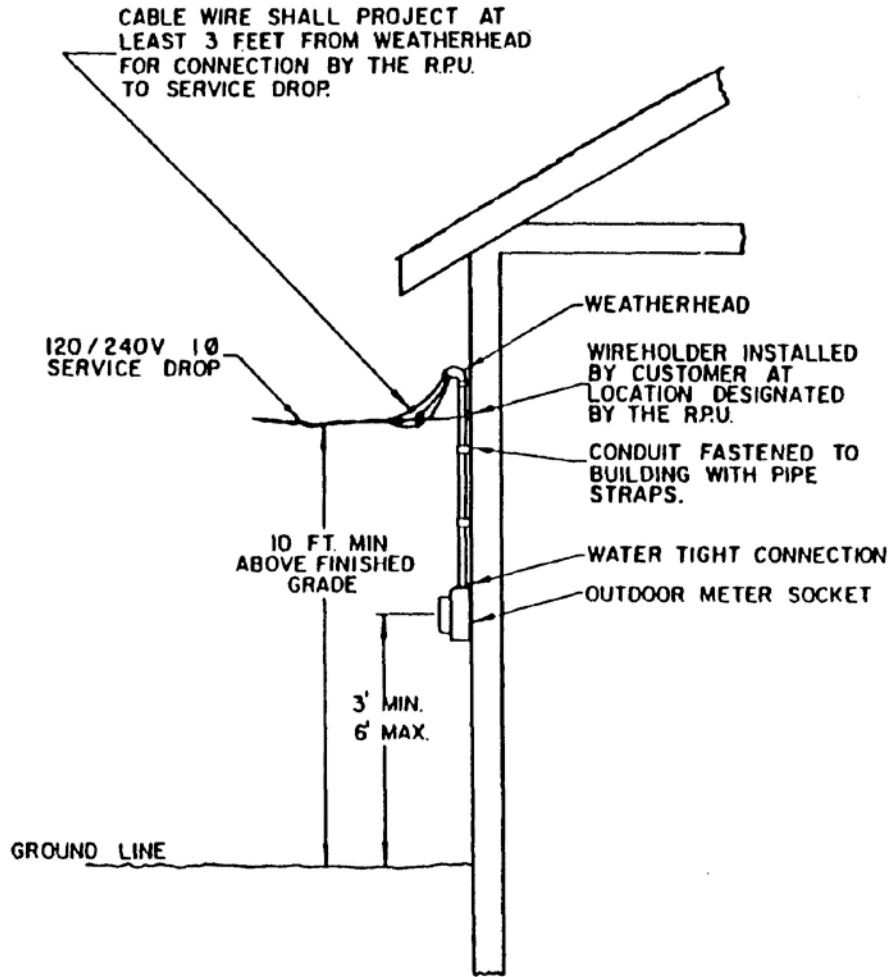


EXHIBIT 5

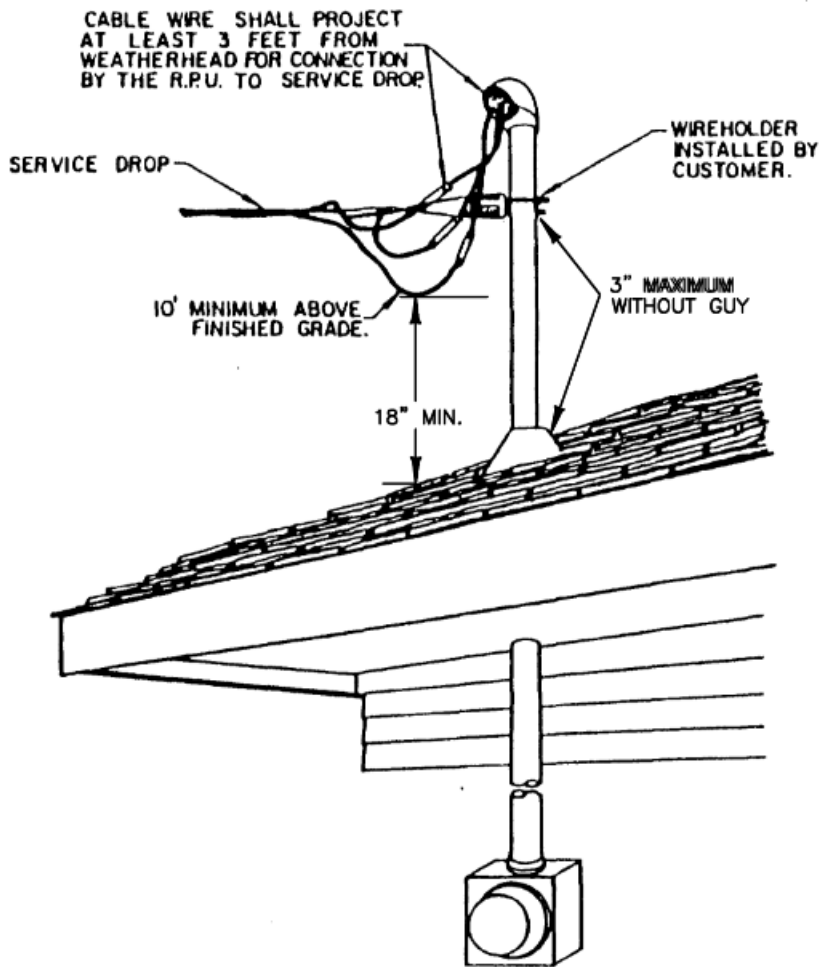
TYPICAL RESIDENTIAL OVERHEAD SERVICE INSTALLATION



Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

EXHIBIT 6

TYPICAL RESIDENTIAL SERVICE MAST



Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

EXHIBIT 7

Clearance Requirements of Pad-Mounted Transformers

A minimum zone free of vegetation and obstructions shall be maintained around padmounted transformers. The minimum clearances around the transformer are 10 feet in front of the transformer doors and 2 feet from the sides and back of the transformer or the outside dimensions of the transformer pad whichever is greater. These minimum clearances must be at the same grade as the transformer. Transformers shall not be located under any overhang (roof, balcony, stairs, etc.) without customer provided and installed provisions for setting/removal of the transformer and prior approval by RPU's Engineering Department.

The following additional clearance requirements shall be met if the transformer is located near a structure.

1. **Non-Combustible Walls**

(Included in this class would be wood framed brick veneered buildings, metal clad steel framed buildings, asbestos-cement-board walled metal framed buildings and masonry buildings.)

Pad-mounted oil insulated transformers may be located a minimum distance of 24 inches from non-combustible walls if all the following clearances are maintained from doors, windows and other building openings. A sump shall be installed for transformers if the immediate terrain is not pitched away from the transformer. Contact RPU's Engineering Section for sump specifications. If a combustible first floor overhang exists, a 10-ft. distance from the edge of the transformer to the edge of the overhang (combination of vertical and horizontal distance) shall be required in addition to the other clearance as shown.

a) **Doors**

Pad-mounted oil insulated transformers shall not be located within a zone extending 20-ft. outward and 10-ft. to either side of a building door.

b) **Air Intake Openings**

Pad-mounted oil transformers shall not be located within a zone extending 10-ft. outward and 10-ft. to either side of an air intake opening located at the level of the transformer. If the air intake opening is located above the transformer level, the distance from the transformer to the opening shall be a minimum of 25-ft.

The above term "level of the transformer" is to be interpreted as within 10-ft. off the ground.

c) **Windows or Openings other than Air Intake**

1. **First Story**

Pad-mounted oil insulated transformers shall not be located within a zone extending 10-ft. outward and 3-ft. to either side of a building window or opening other than an air intake.

2. **Second Story**

Pad-mounted oil insulated transformers shall not be located less than 5-ft. from any part of a second story window or opening other than an air intake.

2. **Combustible Walls** (Included in this class would be wood buildings and metal clad buildings with wood frame construction.)

Pad-mounted oil insulated transformers shall be located at a minimum of 10-ft. from the building wall. In addition to the clearance from building doors, windows and other openings set forth for non-combustible walls. A sump shall be installed for transformers if the immediate terrain is not pitched away from the building. Contact RPU Engineering Section for sump specifications. If a combustible first floor overhang exists, a 10-ft. distance from the edge of the transformer to the edge of the overhang (combination of vertical and horizontal distance) shall be required in addition to the other clearances as shown.

3. **Barriers** (Included in this class are reinforced concrete, brick or concrete block barrier walls.)

If the clearance specified above cannot be obtained, a fire resistant barrier shall be constructed in lieu of the separation. The barrier when required is provided by the customer. The following methods of construction are acceptable:

a) **Non-Combustible Walls**

The barrier shall extend to a projection line from the corner of the pad-mount to the furthest corner of the window, door or opening in question. The height of the barrier shall be 1-ft. above the top of the pad-mounted transformer.

b). **Combustible Walls**

The barrier shall extend 3-ft. beyond each side of the pad-mounted transformer. The height of the barrier shall be 3-ft. above the top of the pad-mounted transformer. If a combustible first floor overhang exists, the 24-in. specified shall be measured from the edge of the overhang rather than from the building wall.

4. **Fire Escapes**

Pad-mounted oil insulated transformers shall be located such that a minimum clearance of 20-ft. is maintained from fire escapes at all times.

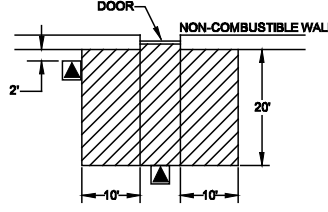
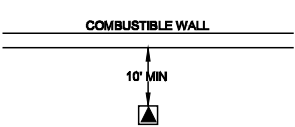
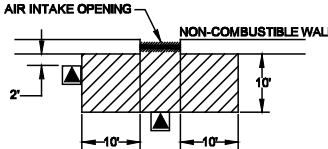
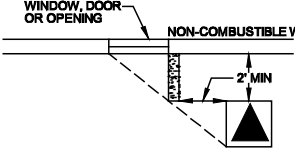
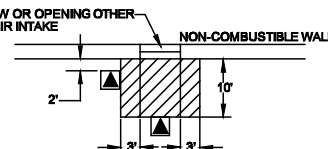
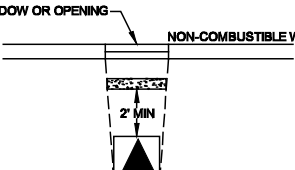
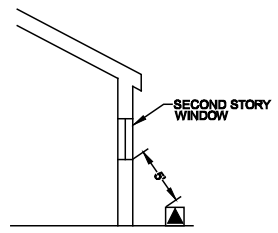
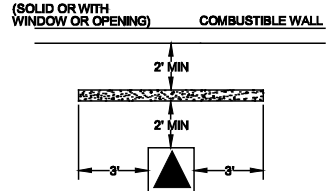
Exception: Pad-mounted transformers may be located closer to a fire escape than the 20-ft. minimum when a fire resistant barrier is constructed around the pad-mounted transformer (side walls and roof). The barrier shall extend a minimum of 1-ft. beyond the pad-mount transformer. The pad-mount and barrier shall not in any way obstruct the fire escape exit. A 10-ft. clearance is required in front of pad-mounted transformer doors. Adequate transformer accessibility and ventilation must be provided.

5. **Decorative Combustible Enclosure**

Decorative combustible enclosures (fence) installed by the customer around pad-mounted transformers adjacent to a combustible building wall shall not extend more than 24-in. beyond the transformer towards the combustible wall. A 10-ft. clearance is required in front of pad-mounted transformer doors. Adequate transformer accessibility and ventilation must be provided.

6. **Non-Combustible and Combustible Walls — Fire Resistant Barriers**

For definitions of combustible and non-combustible walls and fire resistant barriers, refer to the State of Minnesota Building Code. This information can be obtained at the office of the Rochester Building Safety Department (See contact number on page 2).

<p>SECTION 1 PART A</p> 	<p>SECTION 2</p> 																
<p>SECTION 1 PART B</p> 	<p>SECTION 2 PART A</p> 																
<p>SECTION 1 PART C1</p> 	<p>SECTION 3 PART A</p> 																
<p>SECTION 1 PART C2</p> 	<p>SECTION 3 PART B</p> 																
<p>ROCHESTER PUBLIC UTILITIES</p>																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 40%;">REVISION</th> <th style="width: 55%;">APPROVED BY / DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ORIGINAL DRAWING</td> <td>NLS 11/98</td> </tr> <tr> <td>1</td> <td>CHANGED TITLE NAME & DWG #</td> <td>RLA 2/21/06</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	REVISION	APPROVED BY / DATE	0	ORIGINAL DRAWING	NLS 11/98	1	CHANGED TITLE NAME & DWG #	RLA 2/21/06							<p>EXHIBIT 7 – TRANSFORMER CLEARANCE INFORMATION</p>	<p>DWG # UD7TR01</p>
NO.	REVISION	APPROVED BY / DATE															
0	ORIGINAL DRAWING	NLS 11/98															
1	CHANGED TITLE NAME & DWG #	RLA 2/21/06															

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

EXHIBIT 8**RPU AND CUSTOMER RESPONSIBILITIES ASSOCIATED WITH
NON SINGLE FAMILY RESIDENTIAL UNDERGROUND INSTALLATIONS****RPU RESPONSIBILITIES**

1. Designate service location and/or transformer location.
2. Supply and install pad-mounted transformer.
3. Make all primary terminations and connections.
4. Connect the customer's secondary cable to the secondary terminals of the transformer only after customer's wiring has been approved by the inspecting authority.
5. Energize the service only when authorized to do so by the inspecting authority.
6. Install conduit supplied by customer on terminal poles.
7. Supply and install all primary cable at no cost to the customer after said customer furnishes and installs conduit for the entire distance from the property line to the transformer (including a 30 foot vertical riser on the pole).
8. Supply and install one meter set for each customer, including all meters required for billing purposes and any accessories such as totalizers, current and potential transformers, phase-shifting transformers, test switches, and color code meter wiring.
9. Inspect customer-furnished equipment required by RPU. Installations not in compliance with RPU regulations will be rejected.

CUSTOMER RESPONSIBILITIES

1. Contact RPU to obtain the location and routing of RPU's facilities and to fill out an Application for Service, Load Data Sheet and any other forms or statements required by RPU.
2. Provide necessary easements and clear area of all construction obstructions.
3. Bring area to final grade before installation of cable and transformers. Grade changes requiring cable adjustments will result in charges to the party requiring the changes.

EXHIBIT 8 - Continued

4. Compaction along conduit route after installation of conduit is customer's responsibility.
5. Furnish and install a transformer pad and ground rod to RPU specifications. Contact RPU to obtain the pad specifications and transformer location (transformer location shall be truck accessible and within 15 feet of a hardened surface) for the specific service being installed. Notify RPU to inspect formed pad prior to pouring concrete.
6. Provide a location for the transformer(s) that meets the clearance requirements of Exhibit 7.
7. Provide easy accessibility to area 24 hours a day.
8. Furnish and install all secondary cables, cabinets, and conduits from the transformer to the building service entrance.
9. Furnish and install electrical conduit per RPU's specifications (typically schedule 40 PVC 4" or larger) with marking tape to the point of interconnection with RPU. All conduit shall be installed a minimum of 36" below final grade. All radiuses less than 60" shall be factory fabricated and shall be made of schedule 40 galvanized rigid metallic conduit. Minimum elbow (bend) radius shall be 36 inches. Furnish and install pull rope in conduit. **Final location of the riser sweep attachment to the pole must be approved by RPU personnel.**
10. Install protective bollards if transformer pad is to be installed in parking area or area subject to vehicular traffic.
11. Protect RPU facilities from damage during construction period.
12. Have all required inspections of facility performed and approved.
13. Notify RPU prior to any proposed building or grade changes within 10 feet of the electrical service or the cable route.
14. Supply and install RPU approved meter socket on outside wall or approved location and install conduit for service cable.
15. Notify RPU as far in advance as possible when any unusual loads are anticipated, such as special medical equipment, arc welders, elevators, or any other equipment that could affect RPU's system or any other customer.
16. Pay all applicable RPU fees.

EXHIBIT 9

RPU AND CUSTOMER RESPONSIBILITIES ASSOCIATED WITH UNDERGROUND SINGLE FAMILY RESIDENTIAL DISTRIBUTION (URD) INSTALLATIONS

RPU RESPONSIBILITIES

1. Designate point of delivery or transformer location.
2. Supply and install all primary cable, transformer pads, and pad-mounted transformers.
3. Make all primary terminations and connections and install the grounding system.
4. Connect customer's secondary cables to RPU's point of delivery after customer's wiring has been approved by the inspecting authority.
5. Supply and install the meter set, including the meter(s) and any other meter accessories needed for billing purposes, excluding the meter socket.
6. Energize the service only when authorized to do so by the inspecting authority.
7. Install conduit supplied by customer on terminal poles.
8. Supply and install secondary connection pedestals and secondary cable to the pedestals.

CUSTOMER RESPONSIBILITIES

1. Contact RPU to obtain the location of RPU's facilities and customer service point and to fill out an "Application for Service," and any other forms or statements required by RPU.
2. Provide necessary easements and clear area of all construction obstructions.
3. Bring area to final grade before installation of cable and transformers. Install grade stakes at all front lot line property corners. Grade changes requiring cable adjustments will result in charges to the party requiring the changes.
4. In new developments, install road crossing conduits per Exhibit 13 as designated by RPU in the general development specifications.
5. In areas with overhead transformers, supply Schedule 80 PVC or rigid steel conduit for RPU installation on the riser pole.
6. Allow RPU to install cable/conduit prior to installation of sidewalks, soil or lighting along cable route.
7. Compaction of customer installed (buried) cable is customer's responsibility. (RPU will compact all primary and secondary cable it buries.)
8. Provide firm soil conditions under the pad area to prevent settling of the pad.
9. Provide location for the transformer(s) that meets the clearance requirements of Exhibit 7.
10. Protect RPU facilities from damage during construction period.
11. Provide easy accessibility to the area 24 hours a day.
12. Have wiring approved by inspecting authority and then request service connection by RPU.

13. Install protective posts if transformer pad is to be installed in parking area or area of vehicular traffic.
14. Notify RPU prior to any proposed building or grade changes within 10 feet of the electrical service or the cable route.
15. Notify RPU as far in advance as possible when any unusual loads are anticipated, such as special medical equipment, arc welders, elevators, or any other equipment that could affect RPU's system or any other customer.
16. Supply and install RPU approved meter socket on outside wall.
17. Supply all secondary cable extending from the meter to the RPU designated secondary terminus.
18. Contact RPU 2 business days in advance when a service is to be installed so that RPU can schedule the meeting to provide access to the power source and the contractor can install the service into the power source.
19. Pay all applicable RPU fees.

EXHIBIT 10

INSTALLATION GUIDELINES

Scheduling:

1. RPU will install underground electric facilities on a first come - first served basis. If for some reason the site is not ready for the installation on the scheduled date it will be rescheduled to the end of the queue.
2. New Commercial/Residential Subdivisions are typically installed as joint installations with other utilities. These installations are jointly scheduled by the utilities and our contractor once certain site conditions are met. If for some reason the site is not ready for installation of all facilities on the scheduled date the installation will be rescheduled to the end of the queue.
3. Installation in Rocky Soils or Poor Backfill:

The customer shall be required to pay an additional fee if rock or poor quality backfill is encountered during the installation of RPU's facilities. The fee will be based on the cubic feet of unsuitable material encountered by RPU or our contractor during installation. RPU may require that the Customer pay an estimated fee prior to performing the work.

4. Winter Installations:

The customer shall be required to pay a per foot additional fee for underground cable installation, at the customer's request, after frost has been established in the ground to an average depth of 6 inches or more. The amount of the frost fee depends on the depth of the frost. RPU may require that the estimated frost charges be paid in advance of performing work.

Installations scheduled on or after the onset of frost will be attempted at the discretion of RPU, based on ground conditions.

5. Partial Installations:

Where conditions do not permit the completion of a scheduled installation, or where a development cannot be completely brought to grade in time, partial installation may be made at no added cost under the following conditions:

- a) Partial installation must conform to final design layout, including placement of one (minimum) permanent transformer.
- b) Partial installations must be contiguous with existing facilities.
- c) Total project fees must be paid before partial installation will be approved.
- d) All standard pre- and post-installation site conditions must be met for a partial installation.

EXHIBIT 11

MULTIPLIERS TO DETERMINE REQUIRED CAPACITOR KVARs FOR CORRECTING POWER FACTOR

Original Power Factor	Corrected Power Factor						
	90%	92%	94%	95%	96%	98%	100%
60%	0.849	0.907	0.97	1.005	1.042	1.13	1.333
62%	0.781	0.839	0.903	0.937	0.974	1.062	1.265
64%	0.716	0.775	0.838	0.872	0.909	0.998	1.201
66%	0.654	0.712	0.775	0.81	0.847	0.935	1.138
68%	0.594	0.652	0.715	0.75	0.787	0.875	1.078
70%	0.536	0.594	0.657	0.692	0.729	0.817	1.02
72%	0.48	0.538	0.601	0.635	0.672	0.761	0.964
74%	0.425	0.483	0.546	0.58	0.617	0.706	0.909
76%	0.371	0.429	0.492	0.526	0.563	0.652	0.855
78%	0.318	0.376	0.439	0.474	0.511	0.599	0.802
80%	0.266	0.324	0.387	0.421	0.458	0.547	0.75
82%	0.214	0.272	0.335	0.369	0.406	0.495	0.698
84%	0.162	0.22	0.283	0.317	0.354	0.443	0.646
86%	0.109	0.167	0.23	0.265	0.302	0.39	0.593
88%	0.055	0.114	0.177	0.211	0.248	0.337	0.54
90%	0	0.058	0.121	0.156	0.193	0.281	0.484
92%		0	0.063	0.097	0.134	0.223	0.426
94%			0	0.034	0.071	0.16	0.363
96%					0	0.089	0.292
98%						0	0.203
100%							0

INSTRUCTIONS:

1. Determine the average power factor that your system operates at during peak demand months. Call this your ORIGINAL POWER FACTOR.
2. In the row titled CORRECTED POWER FACTOR at the top of the page, find the power factor that you wish to correct your system to.

Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)

EXHIBIT 11 - Continued

3. Read from left to right along the row corresponding to your ORIGINAL POWER FACTOR until you reach the column that shows your desired CORRECTED POWER FACTOR.
4. Read the number that you find at the intersection of the row and column. Multiply your KW Demand by this number to calculate the total amount of capacitor KVAR you need to install to your electric service.
5. If your plant operates with a 3 phase electric service, divide the total KVAR by 3 to determine the amount of KVAR to connect per phase.

Example: If your plant has a 3 phase demand of 410 KW and operates at 76% power factor, but you want to correct to 95%:

- a) Find 95% in the CORRECTED POWER FACTOR row at the top of the page.
- b) Find 76% in the ORIGINAL POWER FACTOR column along the left edge of the page. Read from left to right along this row until you reach the 95% column.
- c) Read the number at the intersection of the row and column (0.526).

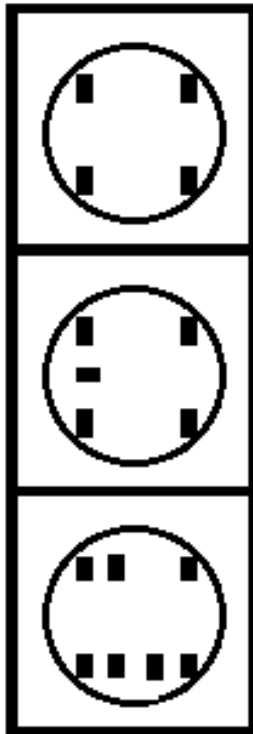
$410 \text{ KW} \times 0.526 = 216 \text{ KVAR}$ needed to correct your system to 95% power factor.

- d) $216 \div 3 = 72 \text{ KVAR}$ per phase.

EXHIBIT 12

ALL SELF-CONTAINED METER SOCKETS MUST CONTAIN A LEVER BYPASS, AND WILL NEED TO BE PURCHASED BY THE HOME OWNER OR ELECTRICIAN / CONTRACTOR

Self-Contained



4 TERMINAL
120-240 VOLT
SINGLE PHASE

5 TERMINAL
120-208 VOLT
SINGLE PHASE
FIFTH TERMINAL NEEDS TO BE
LOCATED IN THE 9 O'CLOCK POSITION

7 TERMINAL
120-208, 277-480 VOLT
THREE PHASE 4 WIRE
ALSO 240 VOLT 4 WIRE DELTA

EXHIBIT 12 - CONTINUED

ALL TRANSFORMER RATED METER SOCKETS MUST BE PURCHASED AT A LOCAL ELECTRICAL DISTRIBUTOR. RPU NO LONGER SELLS METER SOCKETS.

TRANSFORMER RATED

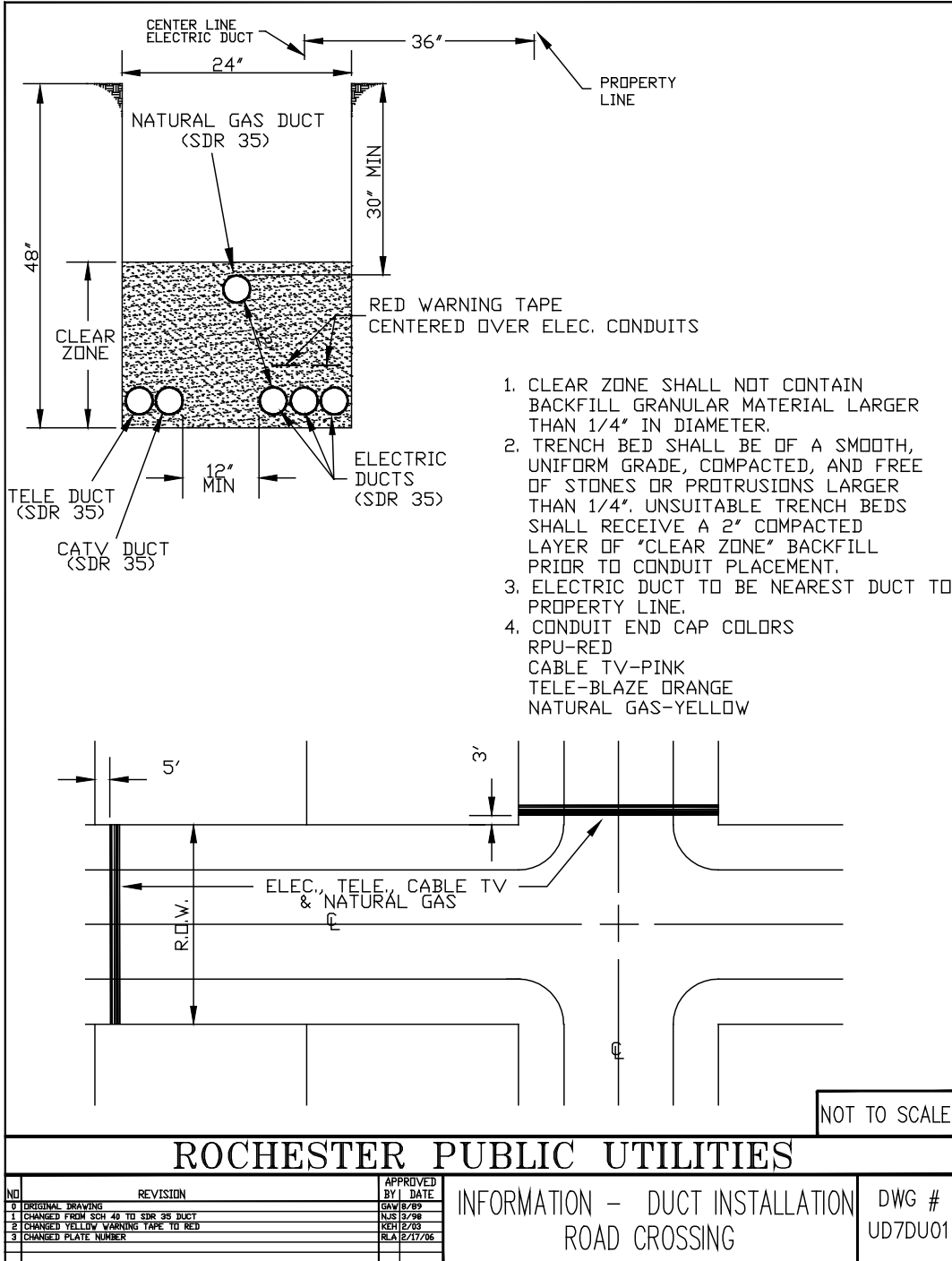


6 TERMINAL
120-240 VOLT
SINGLE PHASE

8 TERMINAL
120-240 VOLT
THREE PHASE THREE WIRE
MUST HAVE BYPASS LEVER IN
METER SOCKET

13 TERMINAL
120-208, 240, 277-480 VOLT
THREE PHASE FOUR WIRE

EXHIBIT 13



Attachment: Rules and Regs 2015 For Board no Watermark (3898 : 2015 Electric Service Rules & Regulations)



RESOLUTION

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota, to approve the proposed Electric Service Rules and Regulations to become effective June 1, 2015.

Passed by the Public Utility Board of the City of Rochester, Minnesota, this 26th day of May, 2015.

President

Secretary

FOR BOARD ACTION

Agenda Item # (ID # 3901)

Meeting Date: 5/26/2015

SUBJECT: Solar RFP Results

PREPARED BY: Jeremy Sutton

ITEM DESCRIPTION:

On March 19th RPU issued an Request for Proposal for a Purchase Power Agreement from a 300-500 kW solar array located at 4000 East River Rd. Rochester MN. Staff will review the results of that Request for Proposal and seek Board consensus on moving forward with finalizing the negotiations on the Purchased Power Agreement to be brought to the June Board meeting for approval.



ROCHESTER PUBLIC UTILITY

Submitted by:
Troy Van Beek, Ideal Energy

Attachment: RPU_Proposal Response (3901 : Solar RFP Results)

Ideal Energy Inc.
602 N 6TH ST Fairfield, IA
52556

800.634.4454
www.idealenergyinc.com
info@idealenergyinc.com



April 10, 2015

Rochester Public Utility
ATTN: Donald Coldiron

RE: Rochester Public Utility Service Center Solar Array

Ideal Energy, Inc. in partnership with groSolar, is pleased to submit the follow proposal for Rochester Public Utility's Request for Proposals. We are confident that our qualifications are strong and that we are an ideal team to collaborate with Rochester Public Utility in the development, financing, construction and operation of the Service Center Solar Array.

Ideal Energy is a senior solar company in the Midwest and has been providing high-quality commercial electrical services to the Midwest since 2009. We pride ourselves in our safety, quality workmanship, Midwest relationships, and our selectively chosen partnerships to accomplish projects of any scope and size. groSolar has over 15 years of award winning solar development, engineering and construction experience and has developed and constructed thousands of utility solar projects across the county. Together, our team affords:

- Industry leading Power Purchase Agreement (PPA) pricing achieved through low cost of capital, buying power, utilization of local undeveloped sites adjacent to substation and standardized design
- A single point of contact through the development, financing, construction, and operation of the solar PV plant
- Extensive large scale solar development and construction experience with Municipal Utility Companies
- Unrivaled experience in installing solar PV on challenging and environmentally sensitive sites

We have a long standing reputation for delivering award-winning projects on time, on budget, and of the highest quality. Ideal Energy and groSolar accolades and certifications include:

- Photovoltaic Project of Distinction Award – Keystone Solar;
Solar Energy Industries Association & Solar Electric Power Association – groSolar

- NABCEP Certified Design – Ideal Energy
- Diamond Award Certificate – Longwood Gardens’
American Council of Engineering Companies – groSolar
- Certified Service Disabled Veteran-owned small business (SDVOSB) –
Ideal Energy

As evidenced by groSolar’s long history of completing and operating successful solar projects and Ideal Energy’s strong reputation for quality workmanship and project management within the Midwest community, our team is well experienced in completing large scale solar energy projects. We feel that this experience and knowledge of the Midwest market conditions is vital to the success of Rochester Public Utility’s proposal Solar Photovoltaic (PV) generation facility.

The following proposal and attached documents are as requested by Rochester Public Utility:

- Proposal response including Proposal Form and Authorization Form
- One Line Diagram
- Preliminary Drawing
- Proposed Equipment Data Sheets

Thank you for this opportunity. Please feel free to contact me directly with any questions. Our team looks forward to working with Rochester Public Utility in developing, constructing and operating this and any future solar projects.

Sincerely,



Troy Van Beek, Founder, CEO

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3. Executive Summary	Page 8
4. Contractor Information	Page 10
5. Pricing	Page 14
6. Design and Engineering	Page 15
7. Schedule	Page 17
8. Proposed Equipment	Page
9. Warranties and Guarantees	Page
10. Operations and Maintenance	Page
11. Monitoring	Page



PROPOSAL FORM

PROPOSAL DUE DATE: April 10, 2015, 2:00 PM Local Time

PROJECT: City of Rochester, Rochester Public Utilities
NERC Consulting Services

ATTENTION: Donald Coldiron, Materials Manager
dcoldiron@rpu.org
507.280.1674

The undersigned agrees, if this proposal is accepted, to enter into an agreement for the work described in this request for proposal and any subsequent formal written changes, exclusive of any qualifications attached hereto, for the following price for the work/equipment as indicated by these specifications. Contractor shall submit price details with proposal.

Pricing reflects addendums N/A through N/A.

Item No.	Description	Base Proposal Amount
1	PPA Energy Cost (\$ per kWhr)	\$ 0.1014
2	Optional Buyout Price	\$ N/A See PRICING

A detailed explanation of any Alternate Proposal must be attached which includes, but shall not be limited to, all supporting technical information, drawings, technical data, milestones, schedule, etc. sufficient to allow City to adequately evaluate any Alternate Proposal. City reserves the right to accept either the Base Proposal or Alternate Proposal.

EXCEPTIONS AND ENCLOSURES

The Contractor shall state below whether they will comply with all the requirements of the Request for Proposal Package. Any and all exceptions shall be itemized below. Each exception shall be referenced to its specific section of the Request for Proposal Package.


Section	Exception
BUYOUT PRICE	Fair Market Value must be determined near the time of sale by a third party appraiser, methods of estimating the FMV are including in the PRICING section of Proposal.

REQUIREMENTS SUMMARY

	Yes	No
Proposal is, without exception, in exact accordance with the specifications, terms, conditions and requirements of this RFP? (If no, attach separate page with clarifications.)	X	<input type="checkbox"/>
Pricing will remain valid for acceptance for 90 days and is not subject to escalation?	X	<input type="checkbox"/>
Contractor has submitted the Authorization of Signature form?	X	<input type="checkbox"/>



The undersigned is fully informed with respect to the preparation and contents of the attached specifications and has reviewed all documents for accuracy prior to submission of this proposal. Furthermore, the undersigned has(have) not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in connection with the project for which this proposal is submitted.

Company Name:	Ideal Energy, Inc	Address:	602 N 6 th Street
Phone:	(641) 209-3288	City/State/Zip	Fairfield, Iowa 52556
Authorized Signature:		Email:	troy@idealenergyinc.com
Printed Name:	Troy Van Beek	Date:	4/10/2015
Date:	4/10/2015	Home Tax State:	Iowa
Project Manager: Katie Greenfield Email: katie@idealenergyinc.com Phone: (641) 209-3288			

Attachment: RPU_Proposal Response (3901 : Solar RFP Results)

ACKNOWLEDGMENT OF CORPORATION

AUTHORIZED SIGNATURE

STATE OF IOWA

COUNTY OF JEFFERSON

On this 10th day of April, 2015, before me appeared Troy Van Beek to me personally known, who, being by me
Name of Officer

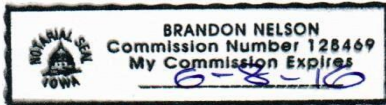
Duly sworn, did say that he/she is the president of Ideal Energy, Inc.
Title Name of Corporation

602 N. 6th, Fairfield, IA 52556
Address City & State Zip Code

A corporation; and that said instrument was executed in behalf of said corporation by authority of its Board of Directors; and that said Troy Van Beek
Name of Officer

Acknowledged said instrument to be the free act and deed of said corporation.

NOTARIAL SEAL



[Signature]
Notary Public

Jefferson
County

My Commission Expires: _____

EXECUTIVE SUMMARY

Ideal Energy proposes a 491kW solar PV system for Rochester Public Utility's Service Center Array.

- Proposed kWh price with no escalation: \$.1014 / kWh
- Proposed kWh price with 2% annual escalator: \$.0881 / kWh

Ideal Energy has been providing solar PV engineering, procurement and construction services to the Midwest since 2009. Our strategic partnerships and long-standing relationships have enabled us to become an industry leader in the Midwest.

Ideal Energy will act as the single point of contact through development, contracting, mobilization, and preconstruction, construction, and ongoing operations and maintenance of the proposed RPU solar project as the general contractor. Upon selection as your solar partner, our team will present RPU with an implantation schedule, outlining the current, near-term, and long-term activities that are required to develop one or more solar projects.

Our value added services include marketing and public relations. Ideal Energy can provide access to our marketing team to promote your array; we can develop events, graphically designed materials and written public relations campaigns to support the branding of RPU's leadership in sustainability. We understand that RPU has it's own goals and marketing team, and we will act as a complimentary resource to promote your solar project. Additionally, Ideal Energy will work with RPU to design a dedication ceremony in which employees, project partners, local media and community members can attend.

Financiers

Our strategic partner, groSolar has strong relationships with national level financiers who are capable of financing this project for RPU.

Alternate Pricing

Ideal Energy with groSolar would like to extend the offer to install a 5MW project, in which case the price per kWh would be approximately \$.069 /kWh with a 2% annual escalator or \$.0802 flat rate on a 25 year PPA. This pricing would also apply to this RFP should RPU choose to scale upwards. The 5MW project could be designed on RPU land or through a procured lease option. With the Federal Income Tax Credit

set to expire at the end of 2016, we believe that the window of opportunity to complete larger solar projects is fast closing.

Schedule

Our team generally notes a 12-month development and construction period for each project. Our team will work with RPU to create and adjust a schedule upon award. Note that groSolar and Ideal energy are fully capable of developing and constructing multiple large-scale commercial solar projects concurrently.

Proposed Equipment

Ideal Energy proposes using ReneSola modules, Solectria inverters with a Schletter racking system. We have strong relationships with all of these suppliers and have worked with their tier one products for over 5 years. We have attached proposed equipment data sheets and warranty information. Please note that equipment choices may change due to availability and project schedule, however any equipment used will be tier one, UL rated.

Subcontractors

Ideal Energy, acting as general contractor to the financier has developed an in-house construction and electrical team. It is our number one priority to manage the safety and quality of the project from start to finish. Our labor force may be supplemented by local hires, and any additional subcontractors will be carefully vetted for their safety and experience prior to hiring.

Operations, Maintenance and Monitoring

Ideal Energy will be contracted directly through the project financier to operate, maintain and monitor the system during the term of the PPA. RPU can directly contract with Ideal Energy, or choose to self-service the system in the event of a buyout. Our O&M and monitoring program is outlined in the proposal response.

CONTRACTOR INFORMATION

PROJECT LEAD

Ideal Energy

602 N 6th Street
Fairfield, Iowa 52556

Office phone: (641) 209-3288
Office fax: (888) 507-5682
Email: troy@idealenergyinc.com

Ideal Energy was established in 2009 and currently has 13 full-time employees with an additional 15+ part-time or seasonal employees. Ideal Energy has completed over 50 installations in the Midwest. Our in-house design, construction and service teams manage all aspects of our solar installations with professional engineering, procurement and construction services. Ideal Energy serves a range of sectors including business, municipalities, educational institutions and utilities.

PARTNERSHIPS

Ideal Energy and groSolar are working together in developing a number of large scale projects in the Midwest. Ideal Energy's Midwest relationships and groSolar's large scale expertise creates a team capable of any project.

FINANCING PARTNERS

Our team is able to finance projects developed under Power Purchase Agreements from both internal and external capital sources. Just as a home buyer will shop for the best mortgage before locking in a mortgage rate and committing to one lender, Ideal Energy and groSolar will work with clients to determine the best source of permanent financing.

groSolar maintains a strong and deep relationships with multiple third party financing parties for their projects and is constantly developing new tax equity and project finance partners. groSolar's partners are truly a "who's who" of solar industry project finance partners including SunEdison, SolarCity, NRG, Integrys Energy Solutions, DE shaw and many others.

All of groSolar's partners have strong balance sheets, equity and debt availability, and industry experience. If selected for this opportunity, our team will secure financing for Rochester Public Utility.

CONTACT PERSON

Troy Van Beek, Founder, CEO
602 N 6th Street
Fairfield, Iowa 52556

Office phone: (641) 209-3288
Mobile: (641) 209-2269
Email: troy@idealenergyinc.com

PROPOSED TEAM

LEAD: Katie Greenfield, Director of Finances and Business Development
Contact: katie@idealenergyinc.com

ENGINEERING & DESIGN

LEAD: Channing Congdon, Director of Design and IT
Contact: channing@idealenergyinc.com

NABCEP SERVICES: Richard Stoval, CEO, SolPower People, Inc
Contact: rstovall@solpowerpeople.com

SUPPORT: Jay Miller, Director of Engineering, groSolar

INSTALLATION: ELECTRICAL & CONSTRUCTION

ELECTRICAL LEAD: Paul Rabalais, Master Electrician, Ideal Energy
Contact: paul@idealenergyinc.com

ELECTRICAL SUPPORT: Brian Robbins, Ideal Energy
Contact: brian@idealenergyinc.com

CONSTRUCTION LEAD: Troy Van Beek, Ideal Energy
Contact: troy@idealenergyinc.com

CONSTRUCTION SUPPORT: Bradley Helms, Jr. Construction Manager, Ideal Energy

Contact: bradley@idealenergyinc.com

OPERATIONS & MAINTENANCE

LEAD MONITORING: Channing Condon, Director of Design and IT

Contact: channing@idealenergyinc.com

LEAD MAINTENANCE: Bradley Helms, Jr. Construction Manager, Ideal Energy

Contact: bradley@idealenergyinc.com

KEY SUPPORT PERSONNEL: Brian Robbins, Ideal Energy

Contact: brian@idealenergyinc.com

REFERENCES

Access to all kWh production is restricted due to client confidentiality and may be available upon request.

Please see attached case studies per project for additional information.

IDEAL ENERGY

School House Apartments, LLC

Todd Schneider (Owner) (319) 470-8711, cowman63@hotmail.com

Role: EPC, Monitoring, O&M

Location: Ft. Madison, Iowa

Application Description: Commercial, former 1930's School retrofitted into a 42 unit apartment complex

System Size and Installation Date:

200kW DC ballasted roof mount, installed July 2014

100kW DC ground mount, under construction

GPM Office Building

Marge Millane (Manager) (641) 209-3540, mgm@greenfieldoffierentals.com

System Size and Installation Date:

20kW DC ground mount, installed December 2011

Sky Factory

Jason Taylor (Manager) (641) 472-1747, jasont@theskyfactory.com

Role: EPC, Monitoring, O&M

Location: Fairfield, Iowa

Application Description: Commercial, ground mount racking system, first fully solar powered business in the state of Iowa

System Size and Installation Date:

54kW DC, installed 2012

GRO SOLAR**Sterling Municipal Light Department**

Sean Hamilton (Manager), (978) 422-8267 x111, shamilton@energysterling.com

Role: EPC, Monitoring, O&M

Location: Sterling, MA

Application Description: Municipal, utility-scale, ground mount racking system

System Size and Installation Date:

2.4MW DC, installed 2013

Berkley East Solar

Bright Plain Renewable Energy (project developer)

Project contact: William Lee Email: wlee@brightplain.com

Role: EPC, Monitoring, O&M

Location: East Chicago, IN and Griffith, IN

Application Description: Municipal, utility-tied, concrete ballasts installed adjacent to operating facilities

System Size and Installation Date:

3.88MW DC, installed 2013

PRICING

Ideal Energy used the following methodology to calculate capacity factors and annual production kWh used for PPA pricing for the installation site:

- Helioscope Solar Calculator kWh values to estimate theoretical nameplate maximum production kWh
- PV system site specific production modeling and share analysis based on Ideal Energy's 3D CAD drawings.
- NREL solar PV energy modeling software: Capacity Factor = $((AC \text{ kWh/yr}) / (DC \text{ kW}) / (8760 \text{ h/yr}))$

Price

Ideal Energy proposes a 491kW solar PV system for Rochester Public Utility's Service Center Array.

- Proposed kWh price with no escalation: \$.1014 / kWh
- Proposed kWh price with 2% annual escalator: \$.0881 / kWh

Buyout

While the Fair Market Value for the RPU Server Center array must be determined near the time of sale by a third party appraiser, one method of estimating the Fair Market Value is to estimate the future Cash Flow for the life of the system.

Alternative

Ideal Energy with groSolar would like to extend the offer to install a 5MW project, in which case the price per kWh would be approximately \$.069 /kWh with a 2% annual escalator or \$.0802 flat rate on a 25 year PPA. This pricing would also apply to this RFP should RPU choose to scale upwards. This project could be designed on RPU land or through a procured lease option.

DESIGN AND ENGINEERING

Ideal Energy has prepared the following design specifications per RPU’s request for proposals. A site layout and helioscope report is attached.

Site

1. Meet all codes without fencing
 - a. System has been designed without fencing. It is possible that the financier of the project may require a fence for security reasons. This would require a significant redesign of the layout as well as changing the amount modules and type of inverters.
2. Include plans for ground covering (grass, rock, etc) underneath PV system. (include optional pricing for providing and installing ground cover)
 - a. A budget was included for the re-seeding of grass and aerating of compacted areas.

Permits

1. All permits will be obtained by contractor and are included in the PPA price

Design

1. Drawing including layout, equipment locations, access requirements
 - a. The array is located south of the building, with a small supplementary array to the north of the entry driveway with an 8 ft setback along the perimeter of the array. The array switchboard is located near the building just east of the array. Inverters would be grouped in appropriate columns along the rows, attached to the array racking. Approximately 9 trees would need to be removed from the installation area.
See attached RPU Layout Detail
2. Single line diagram showing interconnection, PV disconnection and protection, basic AC/DC system configuration
See attached RPU Preliminary One Line Diagram
3. Peak PV generated power and min (system turn-on)
 - a. Minimum PV Generated Power: 266.32 kW
 - b. Peak PV Generated Power: 440 kW
4. Annual capacity factor (MISO)
 - a. 16.66% , 642.2 MWh initial annual production

5. Design Parameters:
 - a. Quantity, type, ratings of PV modules including warranties
 1. Qty: 1584, Polycrystalline, Renesola Vitrus II 310W, 10 year workmanship / 25 year power production warranty
 - b. Surface area occupied by array
 1. 94,902 sq ft
 - c. Quantity, type, ratings of inverters including warranties
 1. Qty: 22, 480V transformerless, Solectria PVI TL series 20kW, 10 year Standard Warranty / Up to 20 Year Extended Warranty
 - d. Wiring methods used (conduit, cable tray, underground)
 1. Where appropriate a combination of conduit, underground wire, and cable trays will be used
 - e. DC parameters
 1. 491.0 kW DC Nameplate
 - f. AC parameters
 1. 440 kW AC Nameplate
 - g. Module support structure and foundation type
 1. Schletter FS System, Aluminum, Pile Driven Ground Mount, 20 year warranty
 - h. Equipment support structure and foundation type
 1. Schletter Equipment Mounts directly to racking system.

Interconnection

1. 480/277V switchgear within RPU service center - located within electrical room, near entrance north of installation.
 - a. Outside switchboard has been located to be close to the PCC
2. Interconnection shall include provisions (CT cabinet and meter socket) for RPU to install revenue grade meter.
 - a. CT Cabinet and meter socket will be provided on array location or within the building next to the PCC
3. Provide all tasks required to design and install interconnection to building electrical system
 - a. Ideal Energy will provide all work required to interconnect and appropriately sized breaker within the space provided in the building's existing switchboard. RPU would be responsible for any needed changes in the building's switchboard.

SCHEDULE

Rochester Public Utilities (RPU) PV Solar Project: Milestone Schedule

Assuming award date is May 1, 2015.

	Start
<u>Agreements</u>	
Power Purchase Agreement	5/15/15
<u>Engineering</u>	
Design Review and Kickoff Meeting	5/15/15
Civil, Environmental and Site Plan	6/15/15
<u>Entitlements and Approvals</u>	
Interconnection Approval (Managed and approved by RPU)	7/15/15
Permitting and Approvals	7/15/15
<u>Construction</u>	
Notice to Proceed with Construction	6/15/15
Commencement of Construction	7/30/15
Commercial Operation Date	11/15/2015
Final Inspection	12/15/2015

Attachment: RPU_Proposal Response (3901 : Solar RFP Results)

PROPOSED EQUIPMENT

Ideal Energy recommends the following equipment or like quality for the proposed RPU Service Center PV Array. Please see attached data sheets for equipment specific details.

ReneSola Virtus II 310 Modules

ReneSola was founded in 2015 and was listed on New York Stock Exchange in 2008. ReneSola has 42 warehouses worldwide. Ideal Energy has worked with this product and has a strong relationship with ReneSola. This PV module is 72-cell 310W Polycrystalline module with high module conversion efficiencies.

Solectria PVI 20 TL Inverters

Solectria was founded in 2005 and has 5 offices in the United States. Solectria is the 5th largest grid-tied PV inverter manufacturer for commercial and utility scale inverters in the county. Solectria offers high performance, reliability and bankability. Ideal Energy has utilized the 600 voltage level due to the fencing requests by RPU.

Schletter Racking

Schletter has over 40 years experience in the design and manufacturing of steel and aluminum products. Since 2008 Schletter's two PV specific offices have globally designed, developed and produced solar mounting systems for over 8GW of installed module capacity.

AlsoEnergy Monitoring

-Data Logger

-Integrated Weather Station

AlsoEnergy was founded in 2007 to provide software-as-a-service monitoring solutions with a focus on solar PV. They are ranked by GTM Research as the top-selling independent PV monitoring provider in North America. AlsoEnergy monitors over 3.5GW of energy at over 10,000 independent sites worldwide, with North America as their primary market.

WARRANTIES AND GAURANTEES

All existing warranties will be transferable to RPU in the event of a buyout.

Warranties on proposed equipment:

ReneSola JC310M-24-Ab

- Limited Product Warranty: 10-years repair, replacement or refund
- Limited Peak Power Warranty: 25-year power output

Solectria PVI 20TL

- Standard 10-year limited warranty with options for 15-20 year extended limited warranty

Schletter FS System

- 20-year limited warranty

AlsoEnergy

- 5-year limited warranty

OPERATIONS AND MAINTENANCE

The cost of Operation, Maintenance, Service and Monitoring plan is included in the PPA price. Ideal Energy will be servicing the PV system, contracted through the third party financier. In the event of RPU purchasing the system, Ideal Energy can contract directly with RPU for O&M. With no moving parts, fixed tilt PV systems require the least amount of maintenance of any type of power generating asset. However, a robust O&M program is important to endure the system performs as designed and meets both the goals and expectations of the client. Our program is defined below.

O&M SERVICE OVERVIEW

SCHEDULED MAINTENANCE: ANNUAL SERVICE

ON-SITE SYSTEM INSPECTIONS AND MAINTENANCE INCLUDING:

- Coordinating with RPU to safely turn off the system for RPU provided maintenance, repair and or replacement of RPU non-solar equipment. Safely re-activating the system after RPU has completed work and confirmed the system can be reactivated
- Visually inspect entire system: record and correct apparent problems
- Visually inspect solar panels: record if panels are properly affixed in racking system, correct if panels are not firmly affixed
- Visually inspect ground mount foundation
- Verify the points where array wiring enters into conduit are secure, sealed to prevent rain from entering and free of abrasion on the wire insulation
- Check connections within combiner boxes, verify combiner boxes are free of water/moisture
- Verify DC means of disconnection are free of damage, corrosion or arc evidence and that they open and close freely
- Verify AC means of disconnection are free of damage, corrosion, or arc evidence and that they open and close freely

- Test each string for proper short circuit current (Isc) and open circuit voltage (Voc) using IV Trace test
- Verify conduit is structurally supported and secured
- Verify conduit junctions and box connectors are secure and sealed
- Coordinate with inverter manufacturer that it's annual service obligations are undertaken (e.g. replacement of the air inlet filters on the inverters, cleaning of air intakes at powerstations, check power capacitors for signs of damage, charging resistors at inverters).
Annually or as recommended in O&M manual
- Inspect and clean the inside of the inverter for dirt deposits and water penetrations. Seal penetrations if found
- Inspect all cooling fans, test for functionality, replace if necessary
- Check conditions of AC and DC surge suppressors
- Measure and record phase to phase input voltages and currents by means of inverter data and DAS
- Measure the output of all power supplies to be within tolerances
- Check fuses for open or signs of heating
- Vegetation abatement
- Maintenance and cleaning on all equipment surfaces

AS NEEDED SERVICE

Any of the above items on an as-needed basis, with a 48 hours response period including:

- On-site troubleshooting of inverter/system faults when it cannot be solved remotely. This typically extends past inverter issues and may include open circuit, shorted cabling, and opened/blown fuse scenarios
- On-site troubleshooting for warranty claim items and submissions where required

TRAINING

Ideal Energy offers training for RPU systems manager employees and first responders for safe operation and de-energization for energy situations as well as comprehensive understanding of the PV system.

In addition, RPU will be provided with:

- As-built drawings including (1) on CAD
- One-line electrical diagrams
- Operation, Maintenance and Parts manuals
- Equipment data sheets

RECORD KEEPING

Ideal Energy will maintain detailed monitoring logs, historical trouble tickets, and asset tracking data (serial number changes, warranty claims, etc.) for the O&M term, which can be transferred to RPU in scheduled intervals.

SAFETY

Safety is a priority for our O&M plan. Ideal Energy uses only OSHA certified, technically qualified employees to inspect PV system. Our safety measures include:

- Risk assessment prior to project commencing
- Lockout/tagout procedures
- PPE and other safety equipment as project requires
- PV-specific signage and warnings
- Technical and safety training on electrical disconnect operation

MONITORING

Our monitoring services will be integrated into the O&M agreement. Remote monitoring and reporting services include:

- Dedicated staff to remotely monitor the PV system for outages and underperformance, daily (5 day/week minimum), including remote troubleshooting of inverter/system faults and remote inverter resets when possible
- “Client Connect” provides RPU with an online monitoring portal account to view:
 - Real-time and historical PV system performance
 - System availability
 - Average and accumulated output
 - Real-time historical weather conditions

Ideal Energy will prepare supporting documentation, meter readings and information necessary to accurately prepare, justify and support monthly invoice in accordance with the PPA Agreement terms. RPU can choose to be notified via email upon each trouble ticket opening and closing.

	Cedar Creek	Ideal Energy	SunEdison
Cost	Score	56.3	61.1
	Score		60.3
	PPA Cost	114.0	101.4
	Buyout Cost	\$ 818,767	FMV, approx future cash flow, est \$857,000
	Other		\$ 701,766
Experience	Other		
	Previous project of 300kW or greater	none listed	Y
	Previous project with 3 phase interconnect	Y	Y
	Previously built solar PV system with PPA investor	Y	Y
	Credit worthiness		
	PPA contract	25	25
	References		
	Finance Partner	New Energy Equity	groSolar
	Year founded	2007	2009
	Number Systems installed	100+	50+
	Employees (fulltime)	20	13
Technical	NABCEP Certified Design		Y
	System Size (DC kW)	476	491
	System Size (AC kW)	408	440
	Total Area	72600	94902
	Panels out front	N	Y
	Estimated annual kWh	651000	642200
	Number modules	1536	1548
	Module watts	310	310
	Module Manufacturer	Trina Solar	ReneSola Vitrus II
	Module Warranty	25	25
	Number inverters	17	22
	Inverter Manufacturer	Fronius Symo	Solectria PVI TL series
	Inverter Warranty	10	10
	Inverter PF adjustable	Y	Y
	Total racks	32	
	Rack Manufacturer	ATE G Eco	Schletter FS System
	Rack Warranty	10	20
	MISO Capacity Factor		
	System Footprint	5.62 W/ft2	4.64 W/ft2
	Monitor system	Fronius Solar Web	Also Energy
	Operations and Maintenance plan	Annual	Annual
	Ground Cover	Rock/weed barrier, \$24,100	Included budget for reseeding
	Other		grass, sodding will add \$7/MWH to PPA
	Other		
	Schedule		2015
	Schedule		Early 2016

Attachment: Evaluation_completed (3901 : Solar RFP Results)

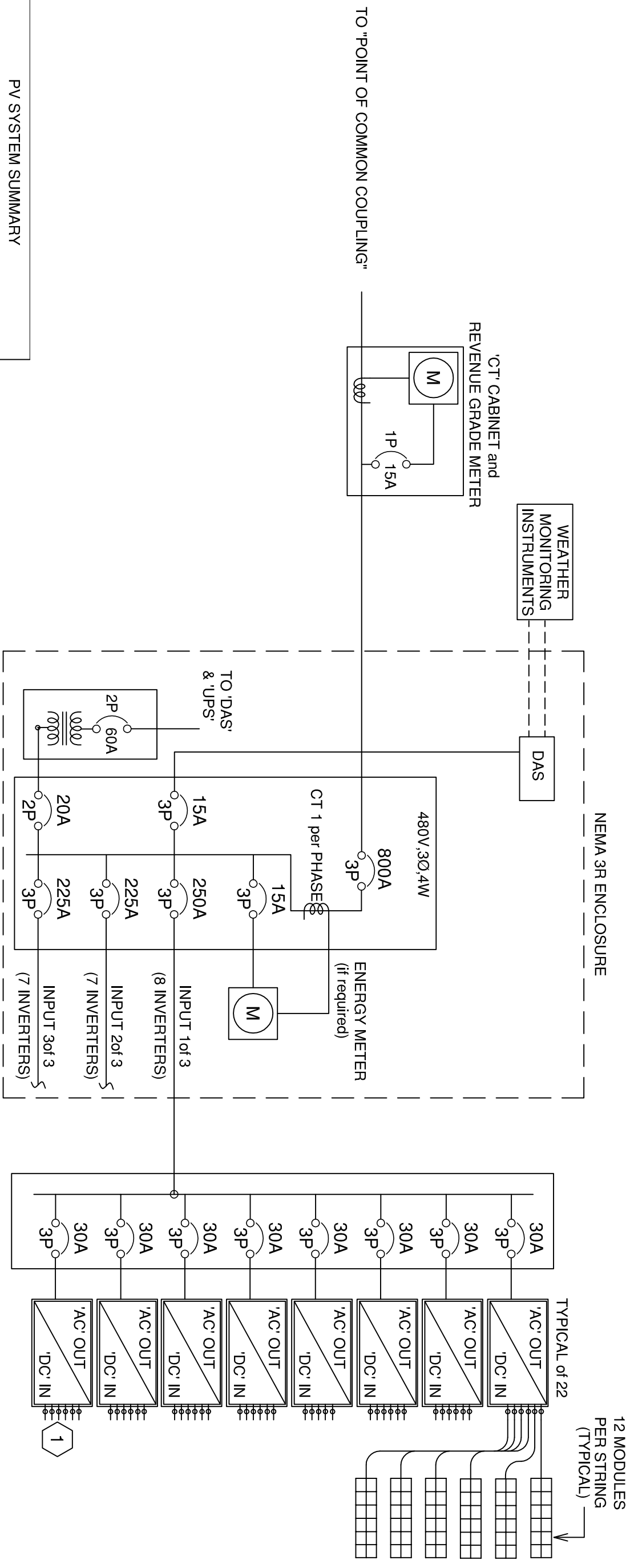
	SunEdison	Ideal Energy	Cedar Creek
Verify module cleanliness	X	X	
Check for broke, loose modules, loose racking hardware, corrosion, unsecured wiring	X	X	X
Inspect ground mount foundation, erosion near footings		X	X
Inspect grounding continuity	X		
Check for corrosion between copper wires and PV frames and racking structure	X		
Check plastic wire ties and insulation materials between wires and metal edges in array	X		
Check for proper signage and labeling			X
Check for signs of animal infestation			X
Inspect wire runs/conduits	X	X	X
Inspect wire runways, sealing holes which would allow insect rodent ingress	X	X	X
Note presence of vegetation and need for removal	X	X	X
DC string test (open circuit voltage test and short circuit current test)	X	X	
Check for loose disconnected wires			X
Inspect inverter and combiners for external damage	X	X	X
Check inverter display and record all input/output voltages or logged errors	X	X	X
Confirm all voltage and current values	X	X	X
Infrared scan of all AC/DC connections to note hotspots and retorque if necessary	X	X	
Clean area around inverter and verify base is sealed	X		X
Vacuum debris from inverter	X	X	
Clean / replace air filter and air returns	X	X	X
Inspect for moisture intrusion - correct as needed	X	X	
Inspect cooling fans		X	X
Check condition of AC and DC surge suppressors		X	
Verify torque specs	X		X
Cleaning as necessary	X	X	
Vegetation abatement	X	X (lists but does not define)	
Verify DC and AC breakers and fuses are free of damage and operate freely		X	X

Total 20 19 16
Rank 1 2 3

Yellow highlights are for items that are implied but not explicitly listed

Attachment: O&MComparison (3901 : Solar RFP Results)

CONCEPTUAL SCHEMATIC NOT FOR CONSTRUCTION



PV SYSTEM SUMMARY	
MODULE POWER	310 watts
MODULES PER STRING	12 MODULES
STRINGS PER INVERTER	6 STRINGS
TOTAL QUANTITY OF MODULES	1584 MODULES
TOTAL PV POWER RATING	491Kw DC
TOTAL INVERTER CAPACITY	440 KwAC

1 22 - INVERTERS:SOLEKTRIA 20Kw, OUTPUT:480V,3Ø

IDEAL ENERGY, INC.
PROJECT: ROCHESTER PUBLIC UTILITIES
PHOTOVOLTAIC SCHEMATIC
DRAWING BY: PAUL R. 4.9.15
DRAWING NAME: ROCHESTER_PU-3.DWG

FOR BOARD ACTION

Agenda Item # (ID # 3897)

Meeting Date: 5/26/2015

SUBJECT: 2014 Electric Engineering & Operations Report

PREPARED BY: Randy Anderton

ITEM DESCRIPTION:

The Electric E&O Report for 2014 has been provided to the Board under separate cover. The report is prepared annually to document the major accomplishments and performance statistics that reflect the work of the electric department for the year. Staff will make a brief presentation on the report and respond to any questions from the Board. Please bring your copy to the meeting.

UTILITY BOARD ACTION REQUESTED:

This is a presentation. No action is required by the Board.

REQUEST FOR COUNCIL ACTION**MEETING DATE:**
5/26/2015**AGENDA SECTION:**
Informational**ORIGINATING DEPT:**
Public Utility Board**ITEM DESCRIPTION:**
2014 Renewable Energy Objective**PREPARED BY:**
Jeremy Sutton

The RPU Board has elected to voluntarily follow MN Statute 216B.1691 (Renewable Energy Objective). As such, the following renewable energy certificates have been retired to meet RPU's 12% of load obligation.

Current ramp timeline to 25% renewable energy:

2012 12%
2016 17%
2020 20%
2025 25%

Retired Certificates 457-MN-01-2010-8901-173 to 363

Total of 191 Renewable Energy Certificates
12% of 1,589 MWHR's (RPU load over CROD)

COUNCIL ACTION REQUESTED:

For file only, no action required

FOR BOARD ACTION

Agenda Item # (ID # 3911)

Meeting Date: 5/26/2015

SUBJECT: Division Reports & Metrics

PREPARED BY: Mark Kotschevar