

Irrigation Newsletter

2008 Edition

Perennial Public Power District

York, Nebraska

It's time to start thinking about another irrigation season. In this newsletter we will bring you the latest information about our irrigation load management program as well as any changes in rates or policies. If you need more information try our website at www.perennialpower.com or call us at (402) 362-3355 or toll-free (800) 289-0288 during regular business hours of 8am to 5pm Mon-Fri.

Irrigation rates will increase in 2008 and beyond

Irrigation horsepower and energy charges will increase considerably in 2008. Although the increases will vary among control groups, irrigation rates will increase an average of 11%.

The major reason rates will be quite a bit higher this year is purchased power costs are escalating. Our power supplier, Nebraska Public Power District has informed us that the price of the power they sell us after April 1, 2008, will be 12% higher than it is today. In addition, NPPD has announced three main reasons why the cost of purchased power is going up. First, the cost of fuel used to generate electricity is increasing, and in some cases dramatically. For example, the price of coal has doubled over the past seven years. Also, due to an increase in uranium prices, refueling the Cooper Nuclear Station will cost NPPD twice as much in 2008 as it did in 2006.

Another factor contributing to higher wholesale power costs in 2008 is the costs associated with one of the worst ice storms in Nebraska's history, which virtually sliced NPPD's transmission grid in two around New Years Day last year, damaging more than 1,000 transmission structures and disabling about one-fourth of the transmission system. NPPD's net cost of repairs to the system was \$23 million. But because the electricity generated at their largest power plant (Gerald Gentleman Station near Sutherland) couldn't flow to eastern Nebraska, NPPD had to run higher price generating resources, as well as buy high priced power from utilities in other states. Combined, this more expensive power cost NPPD an additional \$34 million.

The other reason for NPPD's wholesale power rate increase is load growth. The rate of energy growth in Nebraska is expected to double historical averages over the next six years. This is partly the result of the expanded ethanol indus-

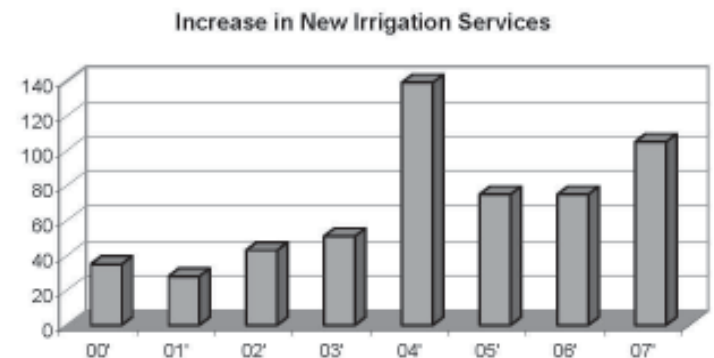
try in the state, but is also affected by a sizeable increase in electric irrigation loads, both of which we have seen in our service area. And both of which will receive some of the largest retail rate increases next year, because NPPD's rate for 'off-peak' energy use in the summer months is increasing more than any of their other rates.

What about rate increases after 2008? NPPD is currently projecting yearly rate increases through 2013, although they are expected to be less than what has been approved for 2008. Key reasons given as to why rates will rise further include the costs associated with the investments that need to be made in the power infrastructure throughout the state, anticipation that we will likely soon see federal or state laws requiring more generation resources from higher cost renewable energy, and an expectation that climate change legislation in the future will likely demand more pollution control equipment at coal fired generation resources, which will cost millions of dollars. At this time we can only assume, that if purchased power costs increase every year through 2013, irrigation rates might also increase yearly over the same period of time.

Outlook for new irrigation services

As is shown by the graph below, the demand for new electric irrigation services, including conversion of 'wheels-only' to deep well services, remains steady and the limitation on the number of new services that will be built annually will continue for the time being. Presently, the 'waiting list' for new irrigation services is full through the year 2012.

As a reminder, the primary reason for the limitation is to



Continued on next page

Outlook (continued)

allow adequate time for the evaluation and upgrading of substations and lines that are needed to serve the load growth. Also, the limitation assures that a sufficient amount of resources are devoted to maintenance of the existing electric system, as well as the construction of new facilities, both of which are needed to provide a reliable supply of power to all of our customers. Although the number of new irrigation services that will be installed every year has been limited, we will continue to work with customers that are considering an electric irrigation service, and continue to make system improvements for future irrigation load growth. If you are thinking about converting your current irrigation system to electricity, adding a pivot to your existing system, or making any change that may require an uprate of your electric service, please contact our Operations Dept. so that together we can make plans to provide you the service you want.

Questions & Answers about new irrigation services

Q. What does Perennial supply for a new service?

A. Perennial will supply the energy source. This includes poles, wires, transformers, meter socket and meter. The customer is responsible for trenching and installing all necessary wire and equipment beyond the meter including a disconnect switch below the meter socket.

Q. What size underground wire is needed for an electric well?

A. Wire size will vary depending on the size of the motor and the distance between the meter and the well. The electrician or well installer should be able to answer this question based on your particular installation.

Q. What is an automatic motor restart switch?

A. Automatic motor restart switches are a common device installed in a well panel that will restart a motor if it loses power. Whether it is a short outage due to a blink or a longer outage due to load control, once power is restored the well will automatically restart. The advantage is peace of mind and fewer trips to the well to manually restart it.

Q. What is a motor capacitor and why does Perennial require them on motors 20 horsepower and larger?

A. Electric motors can draw between 5 to 7 times more amperage when they are starting compared to when they are under normal operation. A motor capacitor is a device that stores electricity then releases it when a motor is being started. If motors didn't have capacitors, the electrical system would experience multiple voltage drops as motors are starting and stopping during daily operation. Perennial also installs large capacitors to help this situation. If you have further questions about Perennial's policies relating to irrigation services and load control feel free to contact us.

Irrigation Rate Schedule

Horsepower Charge, per horsepower (*billed in May*)

	<u>2007</u>	<u>2008</u>
Anytime Control	\$11.00	\$13.00
3 Days Per Week Control	\$16.75	\$20.50
1 Day Per Week Control	\$21.25	\$25.00
No Control	\$25.00	\$29.00
Pivot Wheels-Only	\$28.00	\$31.00
Re-Use Pump	\$22.25	\$25.25

Energy Charge, per kilowatt-hour (*billed in October*)

	<u>2007</u>	<u>2008</u>
<u>Anytime Control</u>		
First 50 kWh per horsepower	17.50¢	18.00¢
All additional kWh	4.90¢	5.20¢

3 Days Per Week Control

First 50 kWh per horsepower	17.50¢	18.00¢
All additional kWh	5.40¢	6.00¢

1 Day Per Week Control

First 50 kWh per horsepower	17.50¢	18.00¢
All additional kWh	5.90¢	6.70¢

No Control

First 50 kWh per horsepower	17.50¢	18.00¢
All additional kWh	6.70¢	7.65¢

Pivot Wheels-Only

First 50 kWh per horsepower	17.50¢	18.00¢
All additional kWh	6.70¢	6.90¢

Re-Use Pump

First 50 kWh per horsepower	17.50¢	18.10¢
All additional kWh	6.70¢	8.10¢

Billing information

If you are a new irrigation customer, you may not be aware that irrigation services are billed twice per year. Annual horsepower charges are billed prior to the start of the irrigation season in May and due by June 5th. Energy charges are billed at the end of the irrigation season in October and due by November 5th. It is important that these bills be paid on time to avoid a 1.33% per month late fee charge.

Name changes on your bill

Please contact us as soon as possible if you are planning to irrigate additional land this year that is currently in someone else's name. We appreciate having all of that paperwork completed and turned in before we generate annual horsepower bills. If possible, we would like to have that information by March 15th.

Right to change load control option during season

For every irrigation service that qualifies for the load management program, one time per season customers may cancel their existing Interruptible Irrigation service Agreement, and move to a plan of a lesser amount of control, including getting out of the load management program. All that needs to be done to implement this option, is sign a form authorizing the change, and pay a \$150 service charge and the difference between the respective rates for each account requesting a change. This option gives customers the ability to adjust their amount of irrigation during adverse weather conditions.

Load control deadline

Irrigation customers that want to have their wells controlled under a different load management option than what they are presently signed up for, will need to execute a new Interruptible Irrigation Service Agreement before March 15, 2008. If you would like to sign up for a different load control option, please contact Perennial’s customer service department to request a new Interruptible Irrigation Service Agreement.

Load management control hours

As a reminder, the potential hours for load control are from 9 a.m. - 11 p.m. However, the maximum amount of time that any irrigation well will be controlled during the 9 a.m. – 11 p.m. time-frame is 12 consecutive hours. The starting and stopping time can and usually will change from day to day.

Sunday load control

Due to increased load on Sundays, this year our power supplier NPPD has decided to no longer waive that day. What this means to irrigators is that Sundays will now be a day when load control is possible. The good news is that if you are controlled on Sunday, it can only be for 6 hours. Also the maximum amount that any group can be controlled throughout the entire week is 72 hours.

Emergency Load Control (on Sundays)

In addition to regular load control on Sundays our power supplier could also ask us to control load on an emergency basis in the event that some of their equipment failed. If this happened we would make the information available and keep you updated on our load control hot-line as well as with our after-hours call center.

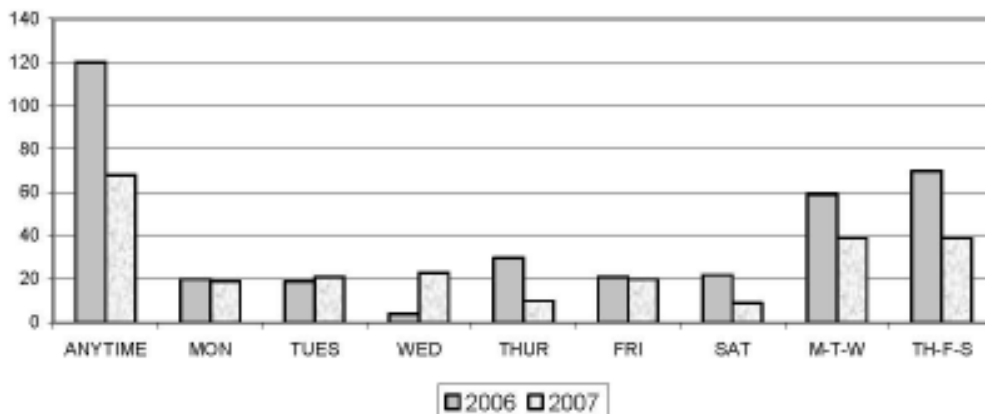
Dollar impact of rate increase

Shown below are average annual cost comparisons between 2007 and 2008, for each irrigation customer class. The Service Information is actual data from the 2006 irrigation season.

Customer Class	Service Information			\$	\$	Annual \$	%
	# of services	Ave. HP	Ave. KWH	2007 Rates	2008 Rates	Difference	Inc.
Anytime Control	337	75	26,390	\$2,620	\$2,827	\$207	7.9%
3 Days/Week Control	203	77	29,450	\$3,378	\$3,808	\$430	12.7%
1 Day/Week Control	401	72	32,011	\$3,871	\$4,347	\$476	12.3%
No Control	65	34	21,262	\$2,481	\$2,788	\$307	12.4%
Pivot Wheels-Only	710	12	1,301	\$489	\$528	\$39	8.0%
Re-Use Pump	151	11	2,351	\$465	\$523	\$58	12.5%

Total Hours Controlled

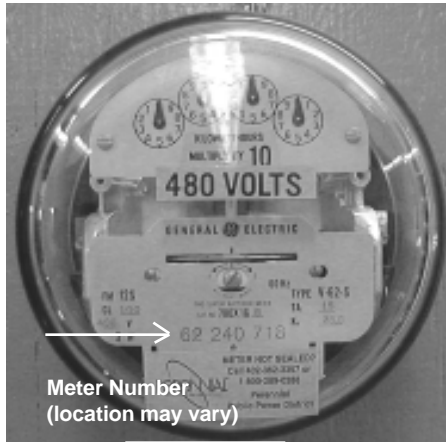
Below is a graph showing the number of hours each load control group experienced in 2006 and 2007.



Understanding basic troubleshooting and outage reporting

Perennial gets more power outage calls in the summertime than any other time of the year. The biggest reason for this is because of lightning and windstorms.

After a storm or at the beginning of irrigation season after the wells have been idle all winter, we get flooded with calls about irrigation services that are out of power. If you know some basic troubleshooting techniques, you can possibly fix a problem yourself, if it's on your equipment. But if you need to call Perennial, you need to know what information we need and where you can find that information



Irrigation Well Outages

If your well or pivot won't run, there are a few things you should check before calling us. First, go to your disconnect below the meter and check the fuses (if it has them). If the fuses are ok, keep working your way toward the well motor, checking any possible fuses that could be blown. If everything checks okay, you've done about all you can, and

you are ready to call us.

Calling Perennial

We need to know some basic billing information about your well service. Most important is the name on your bill, and remember to mention if it is in a corporate name. Also included should be your **Account Number**, the legal description, the **Meter Number**, the **Well Number**, and if applicable, the **Load Control Switch Number**. Any one of the references in bold print, should help us pinpoint your service and speed up our response time. Remember, we need directions to the meter and not to the well. Sometimes the well and meter are across the road from each other in different sections. This causes a bit of confusion from time to time. It is always a good idea to leave a phone number where you can be reached.

Contact information

Load Control Hot-line – (402) 362-4786

Office (during regular business hours of 8:00 AM to 5:00 PM M-F) – (402) 362-3355

Service Calls (24 hours a day) (800) 289-0288

Website – www.perennialpower.com

Load Control Messages on KRVN 880 Rural Radio

Load Control Messages - Again this year Perennial will have daily irrigation load control messages broadcasted on KRVN radio. Messages will be read at 8:29 a.m. Mon-Sat. If load control is expected the radio announcer will say "Code Red" followed by a starting time for load control. If the announcer says "Code Green," this means that there is no load control that day. Early release messages (if necessary) will be scheduled for 4:59, 5:29, 5:59, 6:29, 6:59, 7:29, 7:59, 8:29, 8:59, 9:29 and 9:59.

Help us get better connected to you!

E-mail is a great way to get fast up-to-date information. We want to be able to connect to you by email, so we can send you information faster, and more efficiently. Please call or write us with your email address, if you would like to be included in our database. Also be sure to tune in to our website at **www.perennialpower.com** for more information.



York research plot is generating data as to how soil moisture and timing of irrigation correlates into electric load control options

At the CROP-TIP demonstration plot south of York (across Highway 81 from Perennial Public Power District), the Upper Big Blue NRD and Cornerstone Bank have created an opportunity to study the importance of measuring soil moisture to determine the amount of irrigation water to be applied in correlation to the timing of irrigating throughout the growing season. We have now finished up our fourth year at the site.

Measuring soil moisture and evapo-transpiration or “ET” (crop water use) can allow a producer to schedule irrigation so as to not over water or under water crops. The amount of

irrigation water applied directly relates to the amount of electrical power consumed to run the CROP-TIP pump.

The silt loam soils in this area are capable of holding two inches of water per foot of soil. In a three-foot root zone, a full moisture profile would consist of six inches of moisture. Crops in general (i.e. corn, soybeans, etc.), can remove half of this or at least three inches before encountering moisture stress, which can reduce yield.

The Equipment

In order to accurately track the progress of our goals at CROP-TIP, we use equipment capable of providing us with viable data to substantiate our objectives. The following photos profile the equipment used at CROP-TIP along with a description as to how each element works throughout the research process.

Atmometer

To measure crop water use or evapo-transpiration (ET), an Atmometer was placed on a telescoping pole in the field. The atmometer, or ET gauge, is a canvas-covered ceramic evaporation plate mounted on a water reservoir that has a capacity of 11.8 inches. The canvas covering controls the evaporation rate simulating the rate of evaporation from a healthy leaf in a well-watered situation. The green canvas that covers the plate mimics the solar radiation absorption characteristics of a plant leaf. Water is provided to the ceramic plate by suction through a plastic supply tube and the amount of water drawn to the plate depends on wind speed, sunlight, and relative humidity.

As water evaporates from the ET gauge, the water level in the reservoir and sight tube on the outside of the reservoir decreases. The ET gauge has two movable red rubber bands on the sight tube that can be used to mark the level of water in the tube at different times. The top rubber band could be used to mark the initial water level and the other could be used to indicate when irrigation is necessary. The Atmometer is installed one foot above the corn canopy through the growing season and is read every Monday morning between 9:00 a.m. and 10:00 a.m.



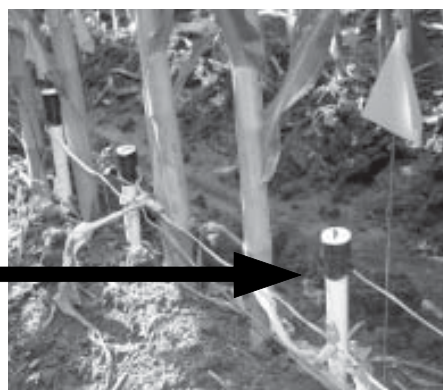
Dan Leininger, Water Conservationist of the Upper Big Blue NRD, takes a reading from an atmometer at CROP-TIP, which simulates the evapo-transpiration of a corn leaf

Watermark sensors and Data loggers

Watermark® sensors are used to track soil moisture at CROP-TIP. The Watermark® sensor operates on the electrical resistance principle (pictured to the left) and is attached to 1/2” inside diameter PVC pipe. We also use Data loggers to obtain soil moisture readings from the Watermark® sensors. Five data loggers are installed at the edge of the field that would display current soil moisture and also log the sensor readings every hour.



The sensors were installed at eight, eighteen, and thirty inches deep in the middle of the ten fields.



Dan is shown here downloading soil moisture readings onto a laptop computer to graph the data logger information.

The Electric Powered Well—Scheduling Irrigation gives you more flexibility towards load control options:

So what does all this fancy equipment really provide? Well it gives us enough information to benefit producers...Whereby if a producer accurately measures his soil moisture and crop water use he is therefore able to manage his irrigation scheduling. This could translate into taking advantage of a power company's load control options, which ultimately culminates into saving the producer money. The equipment at CROP-TIP has saved us from unnecessary irrigation especially early in the growing season and again at the end of the season when the crop is approaching maturity.

For example, by monitoring our soil moisture we will know how much water is in the root zone and whether we need to be irrigating. If not, we will also know the days before the next irrigation is necessary. This information is vital if we are to use load control options to reduce our horsepower charges:

Perennial Public Power District Rates: Horsepower Charge, per horsepower (billed in May)

Anytime Control	\$13.00
3 Days Per Week Control	\$20.50
1 day Per Week Control	\$25.00
No Control	\$29.00
Pivot Wheels-Only	\$31.00
Re-Use Pump	\$25.25

At CROP-TIP, we are using a 30-horsepower submersible well to pump our irrigation water. Because we know how much moisture we have in our soil profile, we have the confidence to select the Anytime Control (\$13 per/hp) option versus the No Control (\$29 per/hp). We then realize a savings of \$16 per/hp charge (\$29-\$13). Multiplying \$16 by our 30-hp pump, we get a \$480.00 savings. If a producer had five 60-hp electric wells, he could realize a savings of \$4,800.00!

The bottom line is that “You Can’t Manage if You Don’t Measure”...