

Irrigation Load Management

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Background

- Wisconsin Public Service – natural gas and electric provider for NE Wisconsin with 450,000 customers
- Service all potato/vegetable and cranberry growers company wide since 1991.
- Approximately 650 wells company wide
- Previous experience with lighting project coordinator and farm energy auditor

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Irrigation Load Management

- Must be user-friendly, with multiple options that are workable for the customer
- Will take time to develop
- Has to be more than creative rates

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Rate Options FG-2

- For customers that have not gone over 100 kw and 12,500 kwh 3 consecutive months
- Flat rate customer seasonal charge @ \$30/month for 6 months, May–October
- Energy charge @ \$0.09262/kwh

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Rate Options (cont.)

FG-6

- For customers that have gone over 12,500 kwh 3 consecutive months, but not 100 kw
- Flat Rate customer seasonal charge @ \$80/month for 6 months, May–October
- Energy Charge @ \$0.07852/kwh

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Rate Options (cont.)

FG-4-OTOU

- Available to farm customers who qualify for Fg-2 or Fg-6 rates
- Flat Rate \$80/month customer seasonal charge May–October
- On Peak: \$0.177/kwh
- Off Peak: \$0.04165/kwh
- On Peak May–September 9 a.m.–7 p.m.

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Rate Options (cont.) DLC

- 1993 - Held customer forum with 10 customers to get input for a DLC rate.
- 1994 – Introduced the DLC program
- Currently have 142 wells on program
- Total possible load reduction of 9545 kw
- Paying out an average of 27%/kw (coincidental factor) = 2577 kw at 6.50/kw for 4 months June–September

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Load Management Timeline

- 1989-96 – Public Service had a rebate program for all farm customers
- Initially, main focus was on dairy customers
- 1991-1996 – Created the Irrigation Rebate Program

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Load Management Timeline (cont.)

- 1996 – Public Service Commission of Wisconsin (PSCW) required all utilities to get out of the rebate program due to a high ridership on the equipment being offered
- Converted 125 wells from high pressure (>95 psi) to medium/low pressure (<55 psi)
- Total reduction 3620 kw at average cost of \$220/kw
- 2 million kwh annual savings

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Load Management Timeline (cont.)

- 2000 – Installed first 40 hp single phase written pole (W.P.) motor and tested primary affects
- 2003 – Installed 2nd 75 hp W.P. motor
- 2005 – Presently working with 5 customers this fall to install W.P. motors

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Load Management Timeline (cont.)

- 1999-2005 – Developed Rewiring Program to convert 3-wire 480 volt services to 4-wire 277/480 volt services.
- 2005 – Enhanced Irrigation Rewiring program to include reconductoring to the pump panel and updating all wiring to code
- Customer has choice of going to reduced pressure

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Load Management Timeline (cont.)

- Public Service pays 1st \$1,000 at 100% and matches 50% of next \$18,000 and provides a 3% loan on their portion up to a total of \$15,000 for up to 5 years
- An electrical Inspection is required
- Public Service is providing a 50% Bonus to all Focus On Energy projects Oct 1-Dec 31

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Load Management Timeline (cont.)

- 2005 – Tested VSD unit on an Irrigation Pivot with a corner system
- Payback currently is 10 -12 years
- If VSD unit prices come down and rates continue to increase, we will need to re-evaluate for cost effectiveness

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Conclusion

- It takes flexibility, time and numerous options like the rewiring program, and rate options that customers can manage, to have a successful Load Management program

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Questions?

Thank you for your attention today.

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