

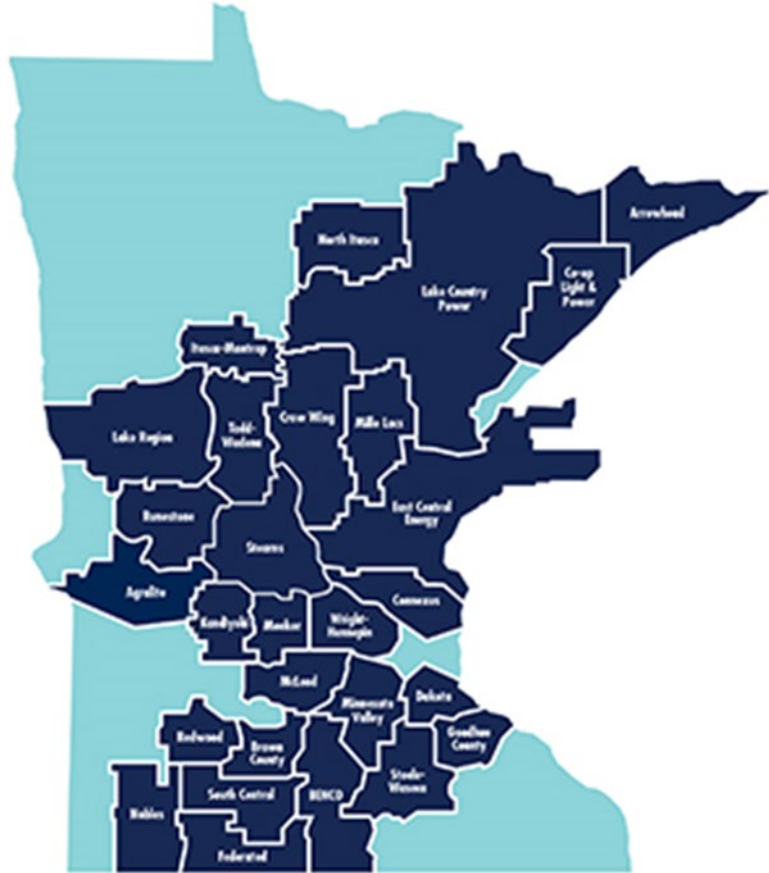
# Agricultural audits

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Jill Eide, Great River Energy

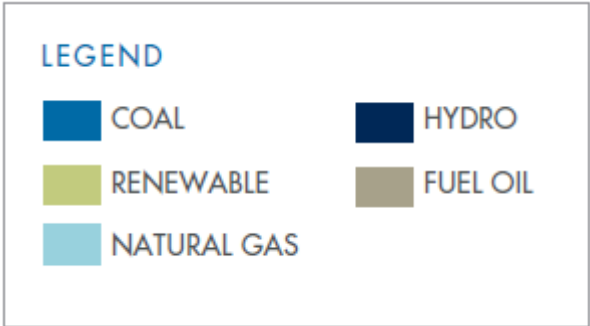
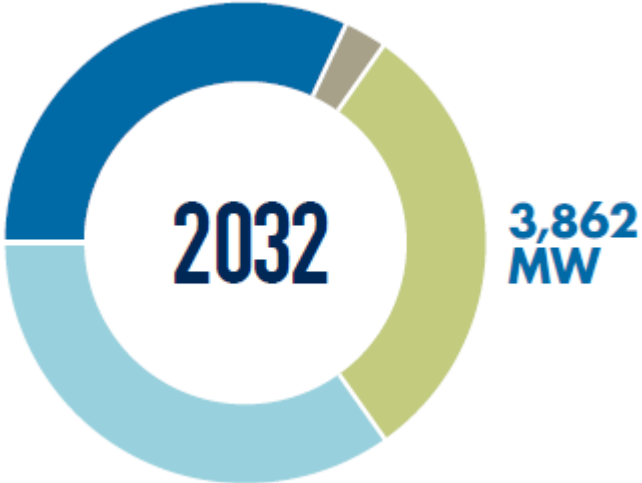
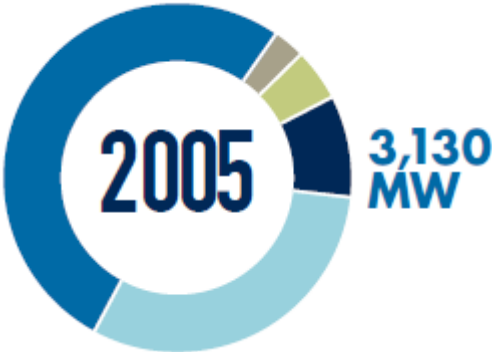


# Who is Great River Energy?

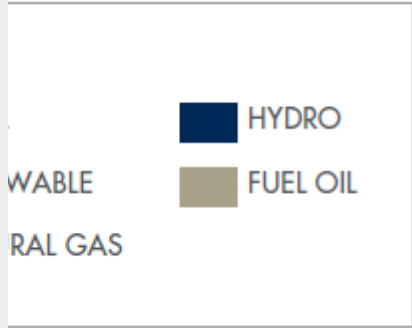
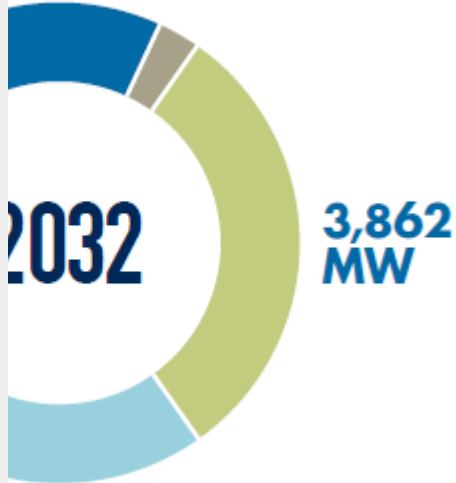


- ▶ Minnesota's largest G&T cooperative electric utility
- ▶ 2,800 MW of generation assets
- ▶ 4,770 miles transmission lines
- ▶ 910 employees (MN & ND)
- ▶ 28 member-owner distribution cooperatives
- ▶ 665,000 services (about 1.7M people)

# Generating Capacity



# Generating Capacity



# INNOVATIVE INITIATIVES



DECARBONIZATION



GRID  
MODERNIZATION



ENVIRONMENTALLY  
BENEFICIAL ELECTRIFICATION



ELECTRIC  
VEHICLES



BATTERY ELECTRIC  
SCHOOL BUSES



ELECTRIC  
THERMAL STORAGE



HEAT PUMP  
WATER HEATING



ECONOMIC  
DEVELOPMENT

*Great River Energy's conservation programs save an average of **114 million kilowatt-hours** every year. That equals the electricity consumption of **12,500 homes**.*

# USDA requirements

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## Grant Information

- ▶ \$100,000
- ▶ 24 month term or less
- ▶ 75%/25% cost share
- ▶ Other programs
  - USDA Natural Resources Conservation Service

## Definition



# How it works

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- ▶ GDS partnership
  - Must use GDS to qualify for program funding

## HOW DOES IT WORK?

**Step 1** Call 800-441-8525 to verify eligibility and cost.

**Step 2** Experts conduct a site visit and complete an energy audit that includes an in-depth analysis and recommendations via a comprehensive written, energy management plan.

**Step 3** If you choose to implement energy efficiency upgrades as a result of the audit, contact your cooperative, as rebates may be available.

# Audit example 1

Table 1: Summary of Recommended Energy Improvements

Recommended Measure	Estimated Reduction in Energy Use			Estimated Costs, Savings, Payback, and Prioritization for Implementation			
	Electric Savings (kWh)	Demand Savings (kW)	Energy Savings (MMBtu)	Install Cost	Annual Cost Savings	Payback (years)	Est. Life (years)
Engine Block Heater	446	-	1.5	\$35	\$49	0.7	5-10 years
Lighting	16,334	5.9	55.7	\$8,360	\$1,797	4.7	50,000 – 100,000 hours
Livestock Water Fountains	3,000	2	10.2	\$3,000	\$330	9.1	20 years



# Audit example 2

Table 1: Summary of Recommended Energy Improvements

Recommended Measure	Estimated Reduction in Energy Use					Estimated Costs, Savings, Payback, and Prioritization for Implementation			
	Electric Savings (kWh)	Demand Savings (kW)	Propane Savings (gallons)	Diesel Savings (gallons)	Energy Savings (MMBtu)	Install Cost	Annual Cost Savings	Payback (years)	Est. Life (years)
Engine Block Heaters	5,346	-	-	-	18.3	\$210	\$401	0.5	5-10 years
Automated Controls	18,043	-	-	-	61.6	\$1,400	\$1,353	1	10+ years
Lighting	121,509	22.8	-	-	414.7	\$16,120	\$9,113	1.8	50,000 – 100,000 hours
Laundry	21,763	5	605.2	-	129.7	\$11,000	\$2,183	5	15-20 years
Water Heater	-	-	991.7	-	90.8	\$7,000	\$902	7.8	15 years

# Then what?

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## ► Installation rebates

- LED lighting
- Ventilation fans
- VFDs (Irrigators, crop dryers, etc.)
- Engine block timers (new 2019)
- Livestock waterers (new 2019)
- Hog mats
- Dairy (plate cooler, robotic milkers, free heater aka RHR, vacuum and milk pump VSDs)

# Other important stuff

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- ▶ Biosecurity precautions
  - Shower in/out
  - Tyvek suits
  - 72 hrs between sites
- ▶ Preference to do audits between shipments

# Questions?

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