



Electric Cooperatives of Minnesota

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Overview

- ✦ Background
- ✦ Energy Efficiency
- ✦ Demand Response/Load Management
- ✦ Community Solar
- ✦ Rate Design
- ✦ Economic Development



The 7 Cooperative Principles

The Cooperative Principles are guidelines by which cooperatives put their values into practice:

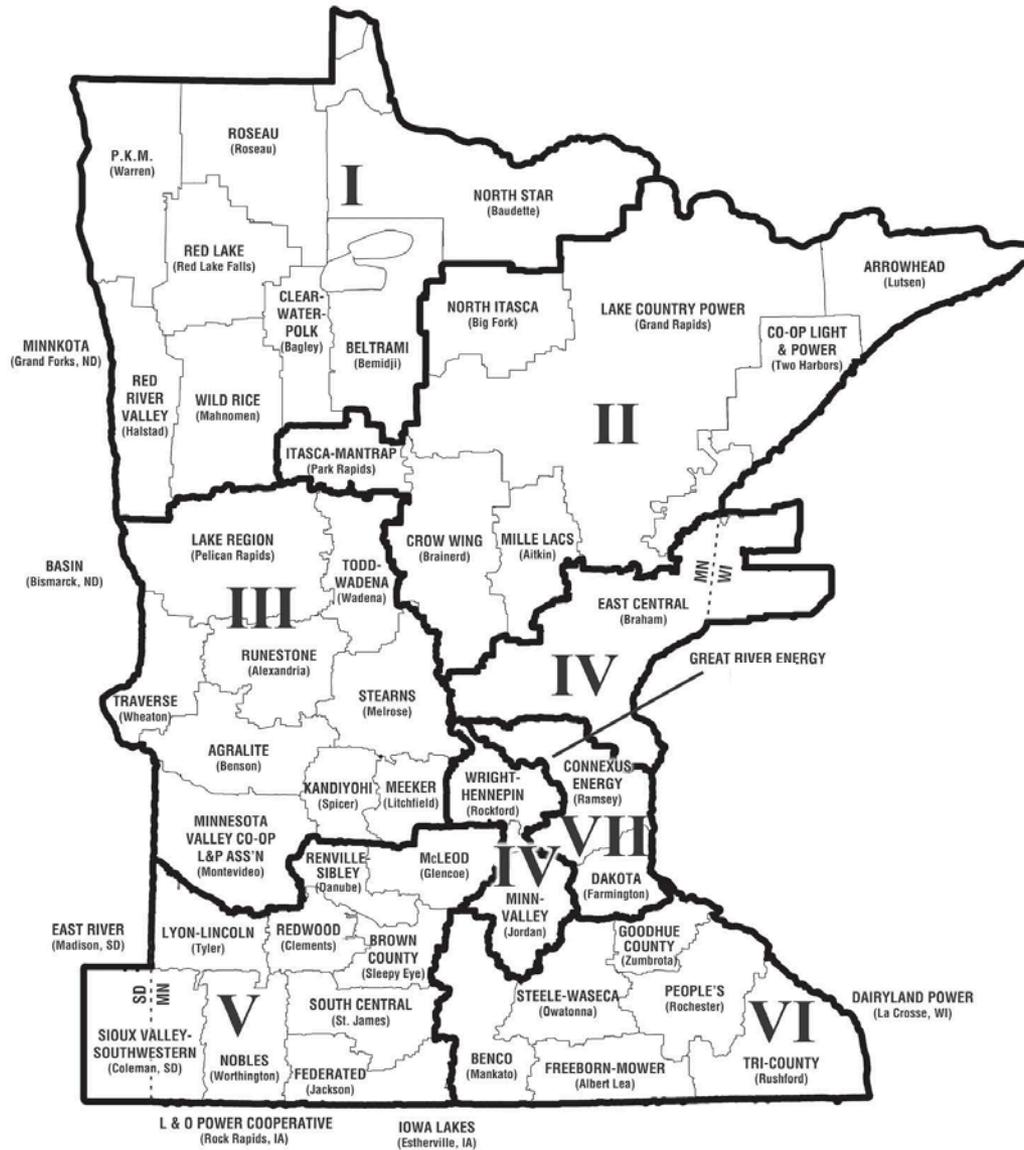
1. Voluntary and Open Membership
2. Democratic Member Control
3. Member Economic Participation
4. Autonomy and Independence
5. Education, Training and Information
6. Cooperative Among Cooperatives
7. Concern for Community



Electric Cooperatives are:

- ✦ Private, independent, non-profit electric utilities.
- ✦ Owned by the members they serve.
- ✦ Incorporated under the laws of the states in which they operate.
- ✦ Established to provide at-cost electric service.
- ✦ Governed by a board of directors elected from the membership which sets policies, procedures, and rates that are implemented by the co-op's management.





Local Democratic Control



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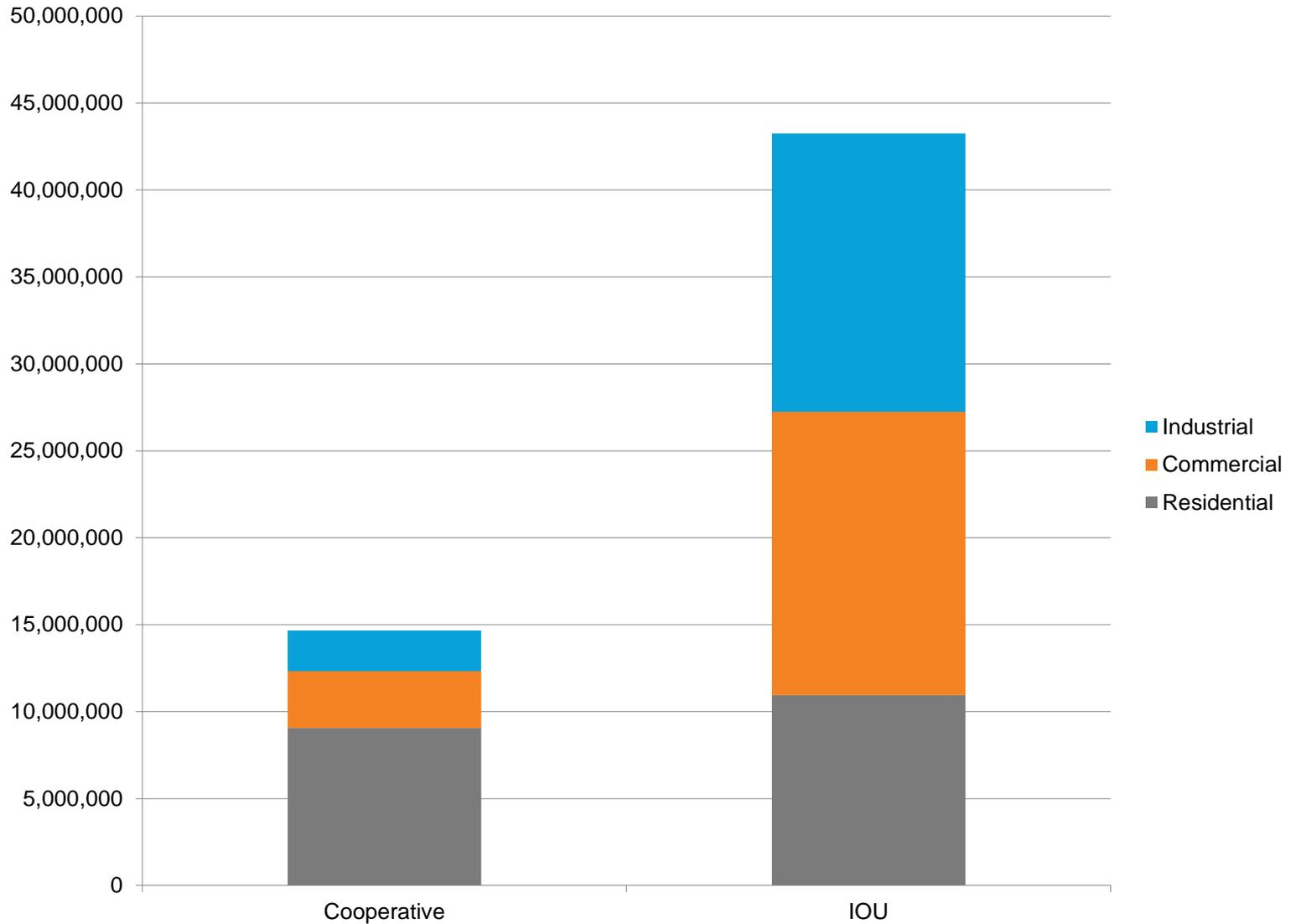
Cooperative Structure

- ✦ Generation and Transmission:
 - ✦ Basin Electric Power Cooperative (Bismarck, ND)
 - ✦ Dairyland Power Cooperative (La Crosse, WI)
 - ✦ East River Electric Power Cooperative (Madison, SD)
 - ✦ Great River Energy (Maple Grove, MN)
 - ✦ Minnkota Power Cooperative (Grand Forks, ND)
- ✦ 44 Distribution Cooperative Systems:
 - ✦ Range in size from about 2,500 members to about 125,000 members.
 - ✦ Serve predominately farm, residential, small commercial and some light industrial members.



2013 Retail MWH Sales in Minnesota

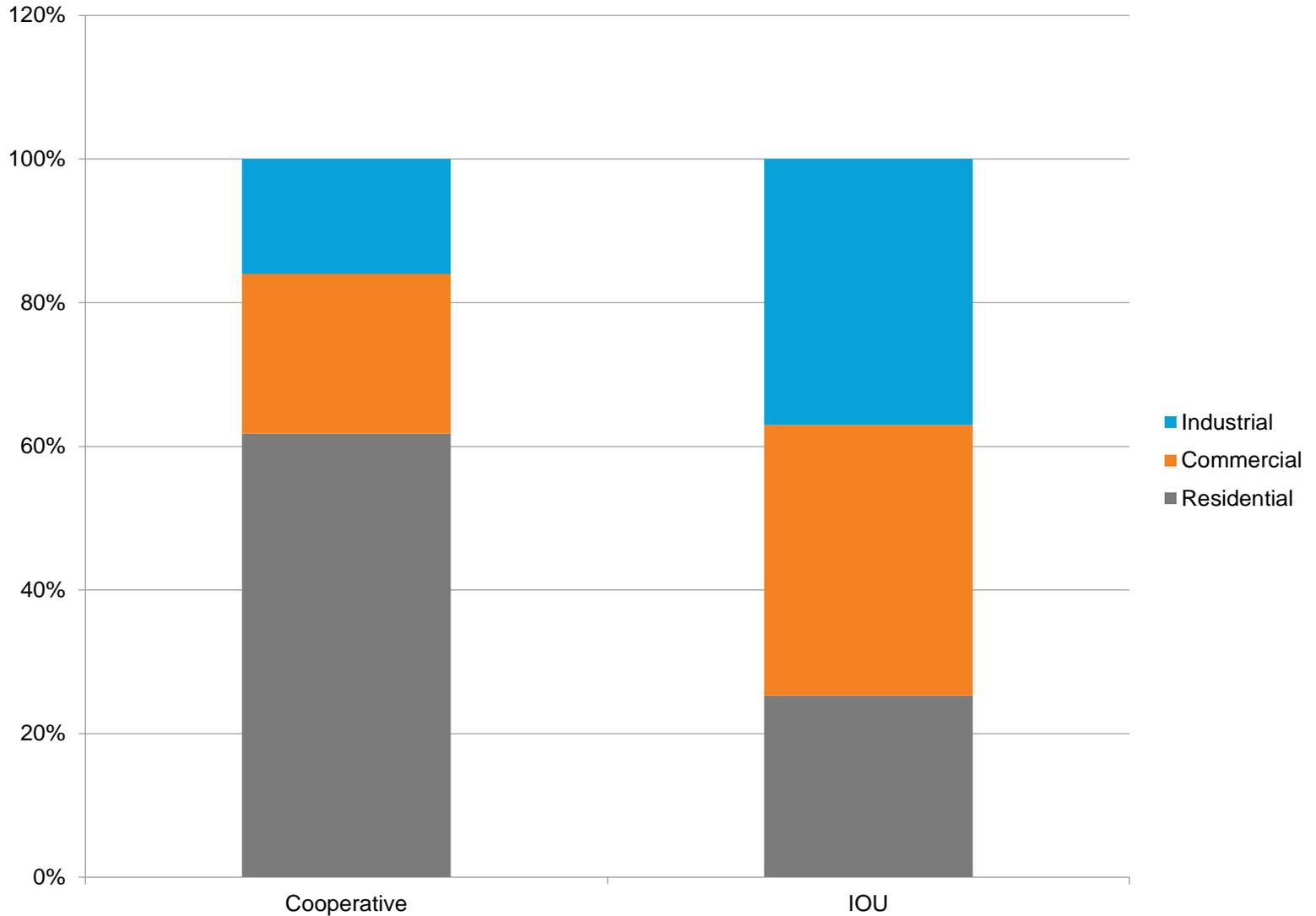
Source: DOE Energy Information Administration



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2013 % of Retail MWH Sales in Minnesota

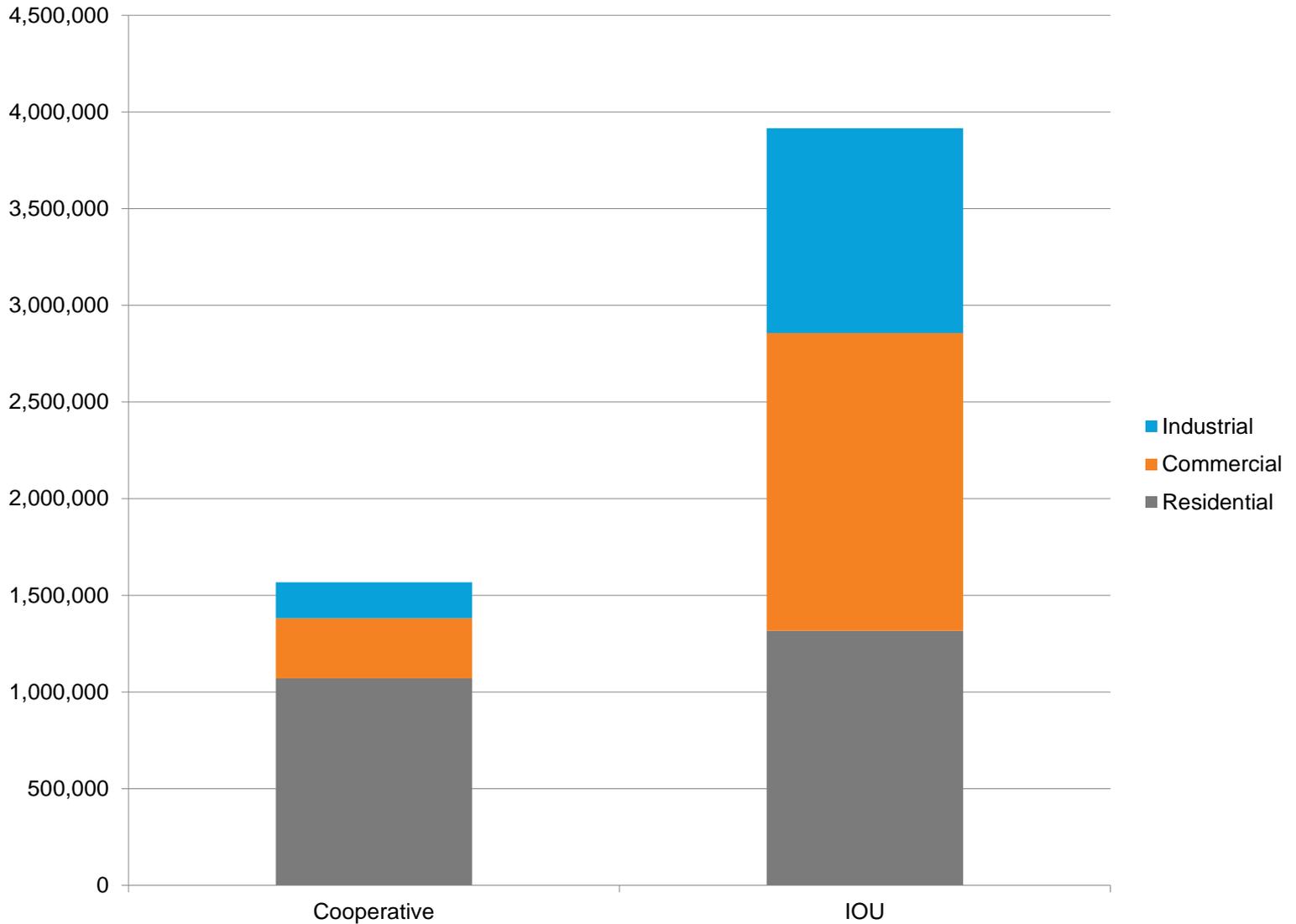
Source: DOE Energy Information Administration



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2013 Retail Revenue in Minnesota

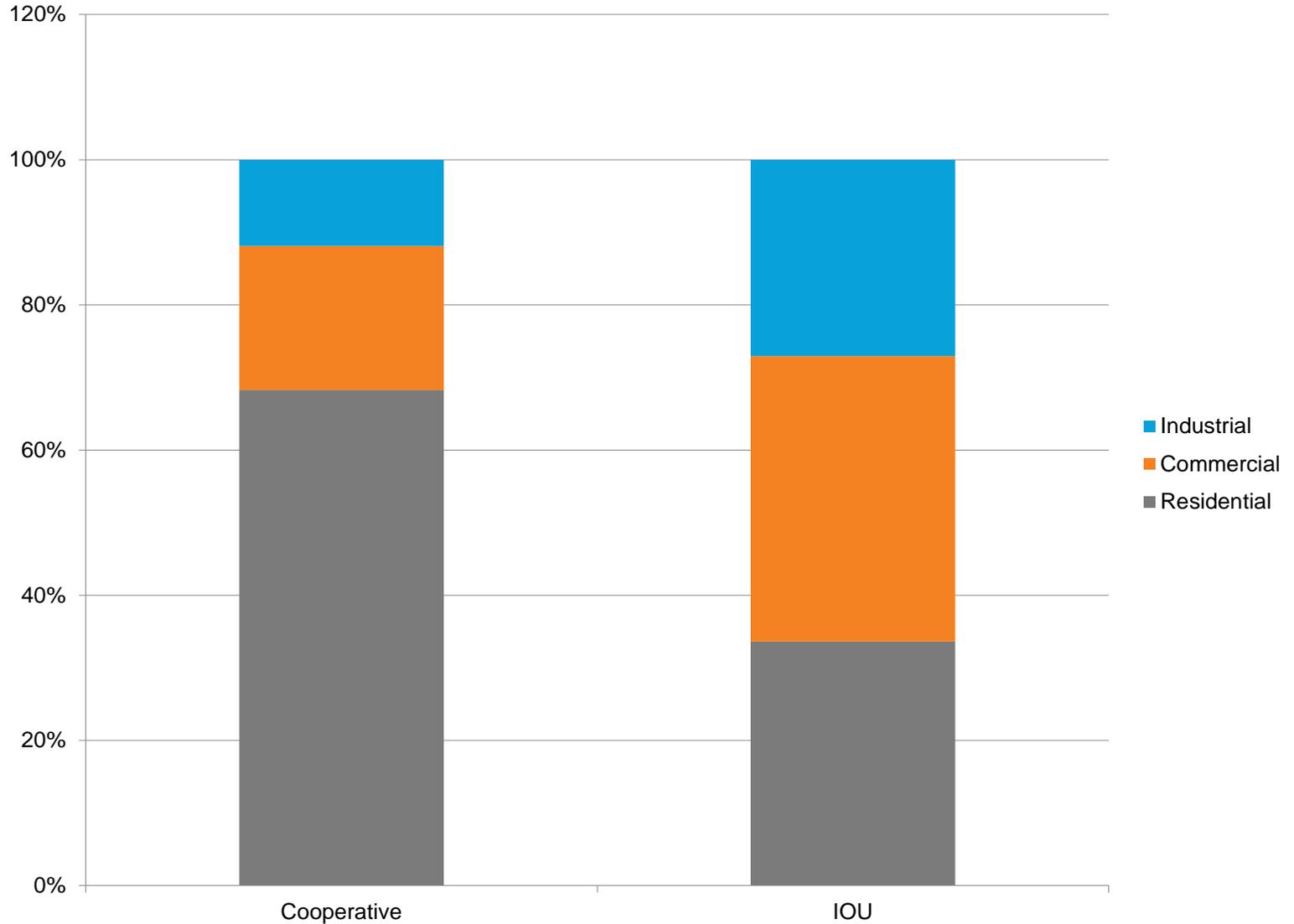
Source: DOE Energy Information Administration



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2013 % of Retail Revenue in Minnesota

Source: DOE Energy Information Administration



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G&T – Distribution Relationship

- Ownership
 - ✦ G&Ts are owned by the member distribution cooperatives
- Democratic governance
 - ✦ Distribution cooperative directors elected by member-consumers
 - ✦ G&T directors come from member cooperatives' boards
- ✦ Member regulated
 - ✦ G&T board sets budgets, policies and strategies
 - ✦ Wholesale rates approved by G&T board
 - ✦ Monthly board and member CEO meetings
- ✦ Long term power supply and transmission contracts



Cooperation Among Cooperatives

- ✦ National Rural Electric Cooperative Association (NRECA)
 - ✦ Education and Training
 - ✦ Federal Government Affairs
- ✦ Minnesota Rural Electric Association (MREA)
 - ✦ Safety and Loss Control
 - ✦ Education and Training
 - ✦ Government and Regulatory Affairs
 - ✦ Rural Electric Managers Association (REMA)
 - ✦ Statewide working groups



Energy Efficiency

- ✦ Actively encourage energy conservation and load management.
 - ✦ Reduce utility costs through:
 - ✦ Member programs that reduce consumption.
 - ✦ Utility system improvements.
 - ✦ Efficient use by members to lower monthly bills.
 - ✦ Programs to provide member control of energy usage.



List of Conservation Programs

Commercial Programs

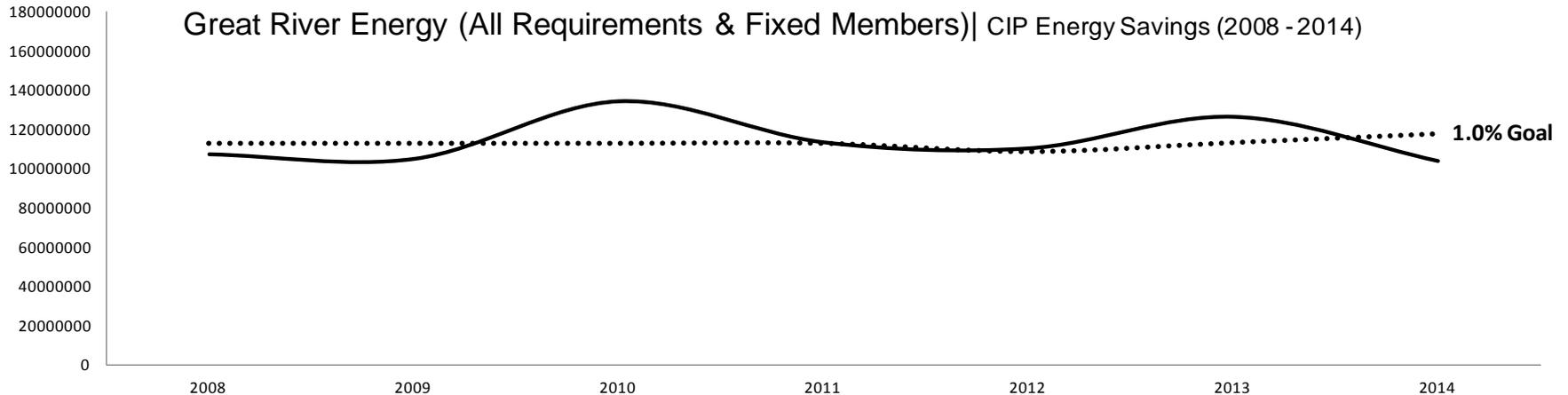
- ◆ Engineering & Design Assistance
- ◆ Agriculture
- ◆ Compressed Air
- ◆ Custom
- ◆ Lighting
- ◆ HVAC
- ◆ Motors & Drives
- ◆ Energy Audits
- ◆ Food Service

Residential Programs

- ◆ Appliances
 - ✦ Refrigerators, Freezers, Dishwashers, Clothes Washers, Dehumidifiers
- ◆ HVAC
 - ✦ ECM Motors
 - ✦ Quality Installed AC, ASHP
 - ✦ GSHP
- ◆ Income Eligible Programs
 - ✦ Appliance Replacements
 - ✦ Weatherization
- ◆ Water Heating
- ◆ Specialty Programs
 - ✦ Pool pumps and heaters
 - ✦ Behavioral Modification
 - ✦ Whole Home Programs



CIP Results



- ✦ To date GRE has implemented two waste heat to electricity projects
 - ✦ DryFining at Coal Creek Station – efficiency improvement from use waste heat to remove moisture from coal feedstock.
 - ✦ ORMAT – 5.5 MW Recovered Energy Generation at a Natural gas compressor station near Trimont, MN
- ✦ Basin Electric Cooperative has implemented a waste heat recovery on it's Northern Pipeline.
- ✦ GRE has also captured energy efficiency through turbine upgrades, and cooperative distribution system improvements.
- ✦ Minnkota has captured energy efficiency through turbine and conductor upgrades and transformer optimization tap projects.



Demand Response & Load Management

- ✦ Cooperatives have been actively promoting load management for decades:
 - ✦ Reduces and defers need to build new capacity.
 - ✦ Reduces distribution cooperative wholesale power costs.
 - ✦ Members save money.



Current Demand Response & Load Management Programs

- ✦ Grid-enabled Water Heaters
- ✦ Cycled Air Conditioning
- ✦ Space Heating
- ✦ Commercial On-site Generation
- ✦ Free Wi-Fi Enabled Smart Thermostats
- ✦ “Beat the Peak” Energy Challenge
- ✦ Irrigation Management



Solar Energy Leaders

- ✦ Distribution cooperatives were some of the first utilities in the country to offer community solar.
- ✦ Community solar projects are being built that reflect the needs and desires of the communities served.
- ✦ G&Ts are investing utility scale solar in response to the needs of the distribution cooperatives and their member-owners.
- ✦ Without many of the federal/state incentives and mandates, electric cooperatives are either building or actively evaluating community solar.



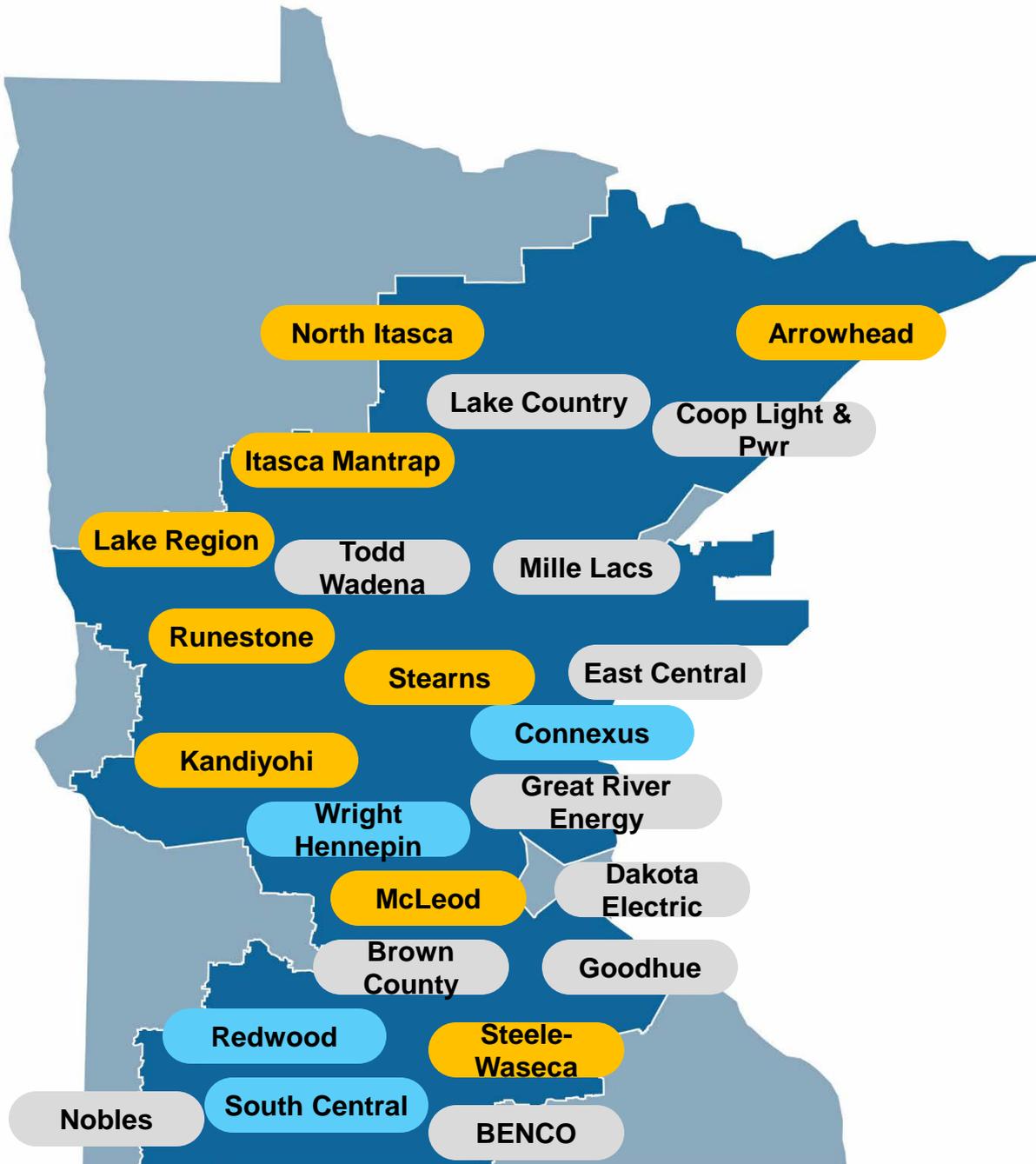
Innovative Solar Projects

- ✦ Steele-Waseca Electric Cooperative's SUNNA Project.
- ✦ Wright-Hennepin Electric Cooperative's partnership with the City of Rockford.
- ✦ Lake Region's homegrown community solar.
- ✦ Minnesota-Three Solar Project developed, owned and operated by Freeborn-Mower Cooperative, People's Energy Cooperative, and Tri-County Cooperative.
- ✦ Great River Energy's Wellspring Wind and Solar



GRE and Member Solar Projects

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Focused on Increasing Member Value

- ✦ Special Rates for LED Lighting
- ✦ Rates and Power Supply for Electric Vehicles (REVOLT Program)
- ✦ Smart Meters allow for pre-pay and other grid modernization tools that reduce member costs and improve member control of energy usage.



Increased Reliability

- ✦ Grid Modernization:
 - ✦ Minnesota Valley Electric Cooperative among others
- ✦ Building to NESC standards.
- ✦ Regular inspections by RUS.
- ✦ Minnesota electric cooperatives lead on smart meter integration.



Economic Development

- ✦ A financially healthy electric cooperative is an important economic development engine throughout Minnesota.
 - ✦ Great River Energy's Economic Development Program including data center ready sites
 - ✦ East River's REED Program
 - ✦ Minnkota's Value of Electricity Campaign



Conclusion

- ✦ Electric Cooperatives were formed to meet the unique needs of our member-owners. Everyday we strive to meet those needs while providing safe, reliable and affordable power. Minnesota Electric Cooperatives are among the industry leading utilities in
 - ✦ Integrating renewable generation
 - ✦ Developing and implementing innovative energy efficiency and demand response programs,
 - ✦ Promoting and supporting the communities they serve with effective economic development programs.





Thank you!
