Welcome

Conservation Applied Research & Development (CARD) Webinar

August 18, 2022
Opportunities for CIP to Support Indigenous Food Sovereignty
• Attendees in listen-only mode
• Type questions into Q&A box
• Send to “All Panelists”
• Questions addressed at end
• Webinar recorded & archived
• Slide set will also be available

For close captions, click the “cc” bubble
Opportunities for CIP to Support Tribal Food Sovereignty

Mary Sue Lobenstein
Research Planning Director
MN Department of Commerce
marysue.Lobenstein@state.mn.us

Laura Silver
Senior State Program Administrator
MN Department of Commerce
laura.silver@state.mn.us

3/2/2023
Presenter Introductions

Dan Streit  
Senior Researcher  
Slipstream  
dstreit@slipstreaminc.org

Bryan Van Stippen  
Program Director for National Indian Carbon Coalition  
Indian Land Tenure Foundation (ILTF)  
bvanstippen@iltf.org

Kelly Cain  
Founder and Principal  
St. Croix Institute (SCI)  
kcain@4xbl.com
• Purpose to help Minnesota utilities achieve 1.5% energy savings goal by:
  • Identifying new technologies or strategies to maximize energy savings;
  • Improving effectiveness of energy conservation programs;
  • Documenting CO₂ reductions from energy conservation programs.

Minnesota Statutes §216B.241, Subd. 1e

• Utility may reach its energy savings goal
  • Directly through its Conservation Improvement Program (CIP)
  • Indirectly through energy codes, appliance standards, behavior, and other market transformation programs
CARD RFP Spending by Sector thru FY2020

RFP Summary

- 12 Funding Cycles
- 513 proposals
- 143 projects funded
- $31.2 million in research

CARD RFP Projects by Sectors thru CY2020

- Commercial (56), 39.2%
- Multi-sector (32), 22.4%
- Agricultural (7), 4.9%
- Industrial (12), 8.4%
- Residential 1-4 unit (27), 18.9%
- Multifamily 5+ unit (9), 6.3%
Indigenous Food Sovereignty

- Opportunities for CIP Support
- August 18, 2022
Acknowledgments

The State of Minnesota Is Located on Anishinaabe Land and Dakota Land.

We acknowledge the work we do in Mni Sota Makoce, the State of Minnesota, involves land that is of great historical, spiritual, and cultural significance to the Anishinaabe people and Dakota people. We also acknowledge the past and present harm done to Anishinaabe, Dakota, and other Indigenous nations through systematic racism, the forced removal of their people from their lands, and the seizure and colonization of these lands. We reflect on our place in these histories and our obligation to rectify the erasure of Indigenous peoples in our work. We acknowledge the Indigenous peoples on whose land we live, learn, and work as we seek to improve and strengthen our relations with Indigenous and sovereign nations.

This project was supported by a grant from the Minnesota Department of Commerce, Division of Energy Resources, through the Conservation Applied Research and Development (CARD) program, which is funded by Minnesota ratepayers.
Project Team

Doug Ahl | Executive Vice President
Deb Dynako | Director of Partnership Development
Jeannette LeZaks | Director of Research and Innovation
Dan Streit | Senior Researcher

Bryan Van Stippen | Program Director
Kelly Cain | Founder and CEO
Jim Gehrke | Founder and CEO
Acknowledgment of Contributors

- One, or more, Native nations of Minnesota that have chosen to remain anonymous
- Gavin Herrera, Chris Bedeau, and Briana Angstman — Leech Lake Band of Ojibwe
- Cherilyn Spears and Michael Van Horn — Red Lake Band of Lake Superior Chippewa
- Dan Cornelius — Intertribal Agricultural Council
- Diane Wilson — Native American Food Sovereignty Alliance
- Vanessa L. Miller — Oneida Nation
- Dani Pieratos — Harvest Nation
- John Hendrix — Mississippi Band of Choctaw Indians and Choctaw Fresh Produce
- Bridget Guiza — Ogema Organics
- Joseph Van Alstine — Little Traverse Bay Bands of Odawa and Ziibimijwang Farm
- Mary Greene-Trottier — Spirit Lake Nation
- Lori Capouch — North Dakota Association of Rural Electric Cooperatives
- Renika Love
- Katie Schmitz — American Indian Community Housing Organization
- Bella Halstead, Jakai Taylor, and Charlie Hood — Xcel Energy
- Ethan Warner — CenterPoint Energy
- Jeff Haase and Jill Eide — Great River Energy
- Kathryn Milun — University of Minnesota, Duluth
1. Understand energy issues related to Native nations and food sovereignty in Minnesota.

2. Identify potential non-energy benefits, including food desert mitigation, that may result from additional support from CIP offerings for Native food sovereignty projects.

3. Provide recommendations for how CIP offerings may support Native nations in advancing food sovereignty work.
Indigenous Food Sovereignty

“Food sovereignty as the right and ability of tribal nations and peoples to:

- freely develop and implement self-determined definitions of food sovereignty;
- cultivate, access, and secure nutritious, culturally essential food produced through ecologically sound and sustainable methods; and
- design and maintain food systems and enact policies that advance tribal priorities for ensuring that tribal citizens have the sustenance they need to thrive physically, mentally, socially, and culturally not just today, but for the generations to come.”

- National Congress of American Indians (2021)
Native Nations Food Sovereignty - Key Points

• Consistent objectives, but varied initiatives
  – Cultivation
  – Food Processing
  – Heirloom Preservation
  – Community Engagement
  – Food Distribution

• Projects reflect Indigenous resources, traditions, and priorities

• Strategies extend beyond agriculture
Native Nations and Utilities in Minnesota

Utilities Serving Native Reservations

<table>
<thead>
<tr>
<th>Electric</th>
<th>Natural Gas</th>
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<tr>
<td>Arrowhead Electric Co-op</td>
<td>CenterPoint Energy</td>
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<td>Beltrami Electric Co-op</td>
<td>MN Energy Resources</td>
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<td>Dakota Electric</td>
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<td>East Central Energy</td>
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<td>Lake Country Power</td>
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<td>Mille Lacs Energy Co-op</td>
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<td>Minnesota Power</td>
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<td>Minnesota Valley Electric Co-op</td>
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<td>Otter Tail Power</td>
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<td>Roseau Electric Co-op</td>
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<td>Shakopee Public Utilities</td>
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<tr>
<td>Wild Rice Electric Co-op</td>
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<tr>
<td>Xcel Energy</td>
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</tbody>
</table>

Image courtesy of Minnesota Department of Health
Food Deserts in Minnesota

USDA Economic Research Service Definition:

• Low-income census tract
• At least 500 people or 1/3 of population live
  – At least 10 miles from a grocery store (rural)
  – At least one mile from a grocery store (non-rural)
Methodology

• Literature Review

• Stakeholder Interviews

• CIP Review

• Analysis of Findings
  – CIP Intersections
  – GHG Offset Protocol
  – Economic Analysis

• Development of Recommendations
Data Protection and Confidentiality

• Legacy of exploitation

• Food sovereignty work is proprietary to Native nations

• Project team commitments to confidentiality
  – No disclosure of non-public information
  – No references to specific Native nations or projects
Geography of Food Sovereignty Interviews
## Food Sovereignty Themes Identified

<table>
<thead>
<tr>
<th>Multiple Stakeholders</th>
<th>Community Education and Engagement</th>
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<tr>
<td>Native nations</td>
<td>School-based programs</td>
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<tr>
<td>Households and Individuals</td>
<td>Community events</td>
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<tr>
<td>Indigenous businesses</td>
<td>Elder programming</td>
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<tr>
<td>On-Reservation Agriculture</td>
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<tr>
<td>Indigenous farms</td>
<td>Food Distribution</td>
</tr>
<tr>
<td>Support for member gardening</td>
<td>Incorporation with SHIP</td>
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<tr>
<td>Seed saving and heirloom</td>
<td>Mobile and stationary farmers markets</td>
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<tr>
<td>preservation</td>
<td>Food deliveries</td>
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<td>Harvest of Native Foods</td>
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<tr>
<td>Wild rice</td>
<td>Food-based Indigenous businesses</td>
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<tr>
<td>Maple sugar</td>
<td>Vendor platforms</td>
</tr>
<tr>
<td>Walleye</td>
<td>Synergistic businesses</td>
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</table>

- Harvest of Native Foods
  - Wild rice
  - Maple sugar
  - Walleye
## Energy Uses by Food Sovereignty Strategy (1 of 2)

<table>
<thead>
<tr>
<th>Greenhouses</th>
<th>Farming</th>
<th>Native Food Harvesting</th>
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<tr>
<td>• Lighting</td>
<td>• Irrigation</td>
<td>• Maple syrup evaporator</td>
</tr>
<tr>
<td>• HVAC</td>
<td>• Tractors</td>
<td>• Wild rice parcher</td>
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<tr>
<td>• Envelope</td>
<td>• Field equipment</td>
<td>• Bottling/packaging</td>
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<tr>
<td></td>
<td>• Livestock watering</td>
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<td></td>
<td>• Fans</td>
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## Energy Uses by Food Sovereignty Strategy (2 of 2)

<table>
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<tr>
<th>Community Engagement</th>
<th>Food Distribution</th>
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<td>• Food production</td>
<td>• Refrigerated trucks</td>
</tr>
<tr>
<td>• Food service</td>
<td>• Box trucks</td>
</tr>
<tr>
<td>• Refrigeration</td>
<td>• Personal vehicles</td>
</tr>
<tr>
<td>• Lighting</td>
<td></td>
</tr>
<tr>
<td>• Water heating</td>
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## Existing CIP Measures Relevant to Food Sovereignty (1 of 2)

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<tr>
<th>Measure Type</th>
<th>Agriculture</th>
<th>HVAC/ Water Heating</th>
<th>Ventilation</th>
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<td>Irrigation VFD</td>
<td>ASHP</td>
<td>Fan Energy Index</td>
<td>Commercial freezer and refrigerator</td>
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<td>Variable Speed Drive</td>
<td>GSHP</td>
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<td>Condenser fan ECM</td>
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<td>Livestock watering</td>
<td>HPWH</td>
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<td>ECM evaporator fan</td>
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<tr>
<td></td>
<td>Fans</td>
<td>ERV</td>
<td></td>
<td>Cooler case doors</td>
</tr>
<tr>
<td></td>
<td>Irrigation pumps</td>
<td>ASHP</td>
<td>Commercial freezers and refrigerators</td>
<td></td>
</tr>
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<td></td>
<td>Bison farming</td>
<td>GSHP</td>
<td>Commercial kitchens</td>
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<tr>
<td></td>
<td>Greenhouses</td>
<td>HPWH</td>
<td>Commercial kitchens</td>
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<td>Retail outlets</td>
<td>ERV</td>
<td>Commercial kitchens</td>
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<td>Commercial kitchens</td>
<td>Economizer</td>
<td>Commercial kitchens</td>
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<td>Ed/classrooms</td>
<td>Electric heat and water heating</td>
<td>Commercial kitchens</td>
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<tr>
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<td>Food hubs</td>
<td>Cooler case doors</td>
<td>Commercial kitchens</td>
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<td>Greenhouses</td>
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<td>Commercial kitchens</td>
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<td>Potential Food Sovereignty Applications</td>
<td>Irrigation pumps</td>
<td>Retail outlets</td>
<td>Commercial freezers and refrigerators</td>
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<td>Bison farming</td>
<td>Commercial kitchens</td>
<td>Condenser fan ECM</td>
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<td>Retail outlets</td>
<td>Food hubs</td>
<td>Cooler case doors</td>
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<td>Commercial kitchens</td>
<td>Greenhouses</td>
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<td>Food hubs</td>
<td>Meat processing</td>
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<td>Commercial kitchens</td>
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## Existing CIP Measures Relevant to Food Sovereignty (2 of 2)

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Food Service</th>
<th>Lighting</th>
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<td>Ovens</td>
<td>• Ovens</td>
<td>• LED fixtures, bulbs</td>
<td>• EV Charging</td>
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<td>Dishwashers</td>
<td>• Dishwashers</td>
<td>• Case lighting</td>
<td>• Load management</td>
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<td>Fryers</td>
<td>• Fryers</td>
<td>• Occupancy controls</td>
<td>• Custom rebates</td>
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<td>Griddles</td>
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<td>Broilers</td>
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<tr>
<td>Steamers</td>
<td>• Steamers</td>
<td></td>
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<tr>
<td>Hot food holding cabinets</td>
<td>• Hot food holding cabinets</td>
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<tr>
<td>Aerators and sprayers</td>
<td>• Aerators and sprayers</td>
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<tr>
<td>Ice Machines</td>
<td>• Ice Machines</td>
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### Potential Food Sovereignty Applications

<table>
<thead>
<tr>
<th>Food Service</th>
<th>Lighting</th>
<th>Other Programs</th>
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<td>Retail outlets</td>
<td>• Retail outlets</td>
<td>• Food trucks</td>
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<tr>
<td>Commercial kitchens</td>
<td>• Commercial kitchens</td>
<td>• Home delivery vehicles</td>
</tr>
<tr>
<td></td>
<td>• Greenhouses</td>
<td>• Refrigerated trucks</td>
</tr>
<tr>
<td></td>
<td>• Bison barns</td>
<td>• Indoor agriculture</td>
</tr>
</tbody>
</table>
Potential New and Expanded CIP Measures

- Greenhouse HVAC and shell improvements
- Efficient Grow Lighting
- Flash freezers
- Indoor agricultural modules
- Maple syrup evaporators
- Wild rice parchers
Opportunities for Additional CIP Support

• Direct messaging for custom measures
• Robust Native nation account management
• Flexible energy savings baseline
• Community engagement sponsorship
Focus on Holistic Solutions

Key Points of Connection
- Residential + Commercial + Government
- Efficiency + Renewables
- Buildings + Transportation + Field Equipment
- Utility energy + Delivered fuels
Findings of Intersections

Indigenous Priorities:
• Food Access
• Food Security
• Nutrition

No Findings

• NDAREC Mobile Food Hubs
• GRE Indoor Agriculture
Potential Non-Energy Benefits

- **Health**
  - Food Security
  - Diabetes Prevention
  - Obesity Prevention
  - Enhanced Nutrition

- **Economic**
  - Self-sufficiency
  - Safety Net
  - Education and Training

- **Cultural Relevance**
  - Sovereignty
  - Historical connection
  - Relationship to Food

- **Environment**
  - GHG Emissions
  - Water Quality
  - Soil Health
Local Food System Partnership

Healthy Share local food model
- “Shares” of fresh organic produce
- Aligned with USDA nutrition guidelines
- Maximize local sourcing
- Shares delivered weekly to members

Pilot Progress*
- Deliveries started November 9, 2021 (Ongoing)
- 14 Local producers
- 42% of delivered food produced locally
- Local portion is seasonally dependent

*This pilot is funded through a separate grant

Image courtesy of Minnesota Department of Health
Local Food System GHG Offset Protocol - Scope

**Scope**
- Transportation-based
- Harvest to consumption
- Potential savings/penalty for local sourcing

**Approach**
- Analyze emissions in local food pilot
- Direct tracking of transportation data
- Participant exit interviews
Local Food System GHG Offset Protocol - Findings

Data Inputs

• Distance from production to aggregation
• Distance from aggregation to delivery
• Distance from aggregation to retail
• Distance from households to retail
• Vehicle types and emissions factors
• Food weight

Key Sources of Uncertainty

• Variability in transportation methods (conventional)
• Shipping fill-levels (conventional)
• Seasonal variability in sourcing locations
• Household counterfactual behaviors
Local Food System Economic Impact

Conventional Food System Features

- Multi-national production
- Centralized processing
- Consolidated market
- $0.75 - $0.90 of food dollars leave local economy ("leakage")
- Gaps may create food deserts

Potential of Local Food Systems

- Support for Indigenous sovereignty
- Increased local economic resilience
- Reduced leakage
- Improved food access
# Economic Leakage Analysis Inputs

<table>
<thead>
<tr>
<th>Data Sets</th>
<th>Source</th>
<th>Uses</th>
</tr>
</thead>
</table>
| American Community Survey     | U.S. Census                                 | • Determine population and number of households by Indigenous reservations  
|                               |                                             | • Find household median income by Indigenous reservation             |
| Consumer Expenditure Series   | U.S. Bureau of Labor Statistics             | • Estimate household food budgets by income band                     |
| Food Dollar Series            | USDA Economic Research Service              | • Categorize local and non-local cash flows                          |
## Reduced Economic Leakage

<table>
<thead>
<tr>
<th>Native Nation Reservation</th>
<th>Baseline Estimate (Low leakage)</th>
<th>Baseline Estimate (High leakage)</th>
<th>Potential Local Benefit (Low estimate)</th>
<th>Potential Local Benefit (High Estimate)</th>
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<tbody>
<tr>
<td>Bois Forte Band of Chippewa</td>
<td>$1,245,057</td>
<td>$1,494,068</td>
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<td>Fond du Lac Band of Lake Superior Chippewa</td>
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<td>$9,129,523</td>
<td>$3,043,174</td>
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<td>Grand Portage Band of Lake Superior Chippewa</td>
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<td>$363,508</td>
<td>$708,840</td>
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<td>Leech Lake Band of Ojibwe</td>
<td>$21,809,772</td>
<td>$26,171,726</td>
<td>$8,723,909</td>
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<td>Lower Sioux Indian Community</td>
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<td>Mille Lacs Band of Ojibwe</td>
<td>$7,656,188</td>
<td>$9,187,425</td>
<td>$3,062,475</td>
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<td>Prairie Island Indian Community</td>
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<td>$435,420</td>
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<td>Red Lake Band of Chippewa Indians</td>
<td>$9,551,089</td>
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<td>$7,449,849</td>
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<td>Shakopee Mdewakanton Sioux Community</td>
<td>$1,880,175</td>
<td>$2,256,210</td>
<td>$752,070</td>
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<td>Upper Sioux Indian Community</td>
<td>$232,586</td>
<td>$279,104</td>
<td>$93,035</td>
<td>$181,417</td>
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<td>White Earth Reservation</td>
<td>$16,683,228</td>
<td>$20,019,874</td>
<td>$6,673,291</td>
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<td><strong>Total</strong></td>
<td><strong>$68,938,570</strong></td>
<td><strong>$82,726,284</strong></td>
<td><strong>$27,575,429</strong></td>
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# Recommendations

<table>
<thead>
<tr>
<th>Existing CIP Framework</th>
<th>Structural</th>
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<tr>
<td>Create new CIP offerings for food sovereignty focused measures</td>
<td>Value transportation emissions reductions</td>
</tr>
<tr>
<td>Expand account management</td>
<td>Value local economic resiliency</td>
</tr>
<tr>
<td>Adapt custom rebate offerings</td>
<td>Price comprehensive energy system risks</td>
</tr>
<tr>
<td>Increase support for community engagement</td>
<td>Foster partnership development beyond ratepayer program</td>
</tr>
</tbody>
</table>
Opportunities for CIP to Support Indigenous Food Sovereignty

Questions?

Send us your questions using the Q&A panel

Dan Streit
dstreit@slipstreaminc.org

Bryan Van Stippen
bvanstippen@iltf.org

Kelly Cain
kcain@4xbl.com
CARD Project Resources

For Reports use CARD Search Quick Link

For Webinars use CARD Webinars & Videos Quick Link

For Other research documents use CARD Fact Sheets, Guidelines & Tools Quick Link

Webinar Recording & Final Report available in couple months

R&D Web Page (https://mn.gov/commerce/industries/energy/utilities/cip/applied-research-development/)
Thanks for Participating!

Upcoming CARD Webinars:

- **October 12, 2022**: Michaels Energy – Energy Efficiency Potential of Nanofluids
- **October 19, 2022**: CADMUS – TRM v4.0 Recommendations for Residential Thermostats and Heating and Cooling Equivalent Full Load Hours
- **October 2022**: University of Minnesota – Project Overcoat: Affordable High-Performance Enclosure Upgrades for Multifamily Buildings

Commerce Division of Energy Resources e-mail list sign-up

Mary Sue Lobenstein | R&D Program Administrator
marysue.Lobenstein@state.mn.us | 651-539-1872
Let us know how we did today!

Your Feedback Matters