• Demand Side Management (DSM)
  • Least Cost Resource for Supply Portfolio
  • Includes Northwest Energy Efficiency Alliance (NEEA)

• Universal System Benefits (USB)
  • Public Purpose Programs
Least Cost Resource

- Acquire DSM at cost less than other energy supply alternatives through Rebates and Custom Incentives
- All ratepayers benefit
- DSM Program participants get dual benefit
  - Favorable effect on total costs and bill reductions from saved energy
- Environmental benefits
- Full cost recovery
• Regional Alliance funded by utilities to bring more energy efficient products, practices, and services to the market quicker and cheaper than without regional intervention
• 5 year contract
• Savings based on investments over past 20 years in NorthWestern’s MT territory
• Planning for 2020-2024
Public Purpose Programs

- USB Programs include various categories and activities
- Statute/Orders result in 50% Electric USB Funds to Low Income
- Electric is generally “fixed” and can carryover from year to year
Universal Systems Benefits Charge (USBC or USB)

Public Purpose Categories

- Local Conservation
- Market Transformation
- Renewable Generation
- Research & Development
- Low Income
- Large Customers
End Use Study

- MT electric & gas markets
- Residential, Commercial, Industrial, Irrigation--(Non Choice)
- Last one completed in 2016 by Nexant
- Timeline ~ Completed every 5 years
End Use Study Highlights

- Residential and Commercial End Use Saturations by Fuel Shares and Home Type
- Residential and Commercial Building Characteristics
- Overall Residential Load Shape (Electric & Natural Gas)
- Residential Interior Lighting Types & Commercial Lighting Technologies

<table>
<thead>
<tr>
<th>Survey Performance</th>
<th>Residential</th>
<th>Commercial</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers Contacted</td>
<td>108</td>
<td>3,737</td>
<td>3,845</td>
</tr>
<tr>
<td>Site Visits Scheduled</td>
<td>108</td>
<td>124</td>
<td>236</td>
</tr>
<tr>
<td>Site Visits Performed</td>
<td>106</td>
<td>118</td>
<td>224</td>
</tr>
</tbody>
</table>
## Residential End Use Saturations and Fuel Shares

<table>
<thead>
<tr>
<th>End Use</th>
<th>Saturation</th>
<th>Fuel Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Electricity</td>
</tr>
<tr>
<td>Central AC</td>
<td>39.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Central Heat</td>
<td>80.0%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Cooking Oven</td>
<td>100.0%</td>
<td>44.6%</td>
</tr>
<tr>
<td>Cooking Range</td>
<td>100.0%</td>
<td>44.6%</td>
</tr>
<tr>
<td>Dryer</td>
<td>91.5%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Freezer</td>
<td>57.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>HVAC Aux</td>
<td>-</td>
<td>100.0%</td>
</tr>
<tr>
<td>Heat Pump</td>
<td>1.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Lighting</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Other</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Plug Load</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>98.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Room AC</td>
<td>19.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Room Heat</td>
<td>15.2%</td>
<td>37.5%</td>
</tr>
<tr>
<td>Port. Space Heat</td>
<td>8.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Water Heat</td>
<td>97.1%</td>
<td>28.1%</td>
</tr>
</tbody>
</table>
## Commercial End Use Saturations and Fuel Shares

<table>
<thead>
<tr>
<th>End Use</th>
<th>Saturation</th>
<th>Electricity</th>
<th>Fuel Shares</th>
<th>Propane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking</td>
<td>65.8%</td>
<td>64.9%</td>
<td>28.5%</td>
<td>6.6%</td>
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<tr>
<td>Exterior Lighting</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Lighting</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Plug Loads</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>48.6%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Space Cooling</td>
<td>79.6%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Space Heating</td>
<td>95.2%</td>
<td>7.4%</td>
<td>88.3%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Ventilation</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Water Heating</td>
<td>81.0%</td>
<td>50.4%</td>
<td>45.3%</td>
<td>4.3%</td>
</tr>
</tbody>
</table>
Potential Assessment Study

- Last one completed in 2017 by Nexant
- Timeline ~ Completed every 5 years
- Based on 20 year potential (2015-2034)
Based on avoided costs from Energy Supply Biannual Plan

Acquisition Goals & Forecast Expenses
- List of measures that make up each category of potential
- We use achievable potential

• Technical potential:
  • savings available if all baseline equipment stock was replaced with the most efficient measures available

• Economic potential:
  • savings available if all baseline equipment stock was replaced with the most efficient measures that are cost effective
  • Economic potential constrained by measures that pass the Total Resource Cost (TRC) with a ratio of 1.0

• Achievable potential:
  • portion of economic potential attainable by the utility with consideration for market barriers and customers willingness to participate
Annual Electric Goals

- 1 aMW (average megawatt) = 1 MW for 8,760 hours/year

2016-2017 through 2020-2021
- 4.35 aMW
  - DSM (3.49 aMW)
  - NEEA (0.41 aMW)
  - USB (0.45 aMW)

2021-2022 through 2035-2036
- 3.77 aMW
  - DSM (2.95 aMW)
  - NEEA (0.40 aMW)
  - USB (0.42 aMW)
DSM Programs must be cost effective for NorthWestern

- DSM Only (includes NEEA), NO USB
- Resource Value (based on avoided cost) > Total Cost
  - Resource Value = Net Present Value (NPV) of Energy Savings to NorthWestern
  - Total Cost = NorthWestern Cost + Customer Cost
    - NorthWestern Cost = Rebate/Incentive to Customers + Contractor costs + Marketing Costs
- Total Resource Cost (TRC) test … a Benefit/Cost Ratio

\[
\text{TRC}^* = \frac{\text{Resource Value}}{\text{(Utility Cost)} + (\text{Customer Cost})}
\]

* ≥ 1.0 (Elec.)
Avoided Costs
  • Based on information from Energy Supply

What measures should we offer?
  • Derived from the Potential Assessment
    • Both Prescriptive & Custom
    • Ability to evaluate other measures based on complete and valid information
NorthWestern’s Montana Performance Contractors

- What’s Their Role?
- The Performance Contractors are associated with NorthWestern Energy’s commercial and industrial customers. Performance Contractors are used to market, identify, recruit, and develop projects under:
  - E+ Business Partners,
  - E+ Commercial Lighting Rebate
  - E+ Commercial Electric Rebate
Energy Efficiency is the Cornerstone of Green for Your Home

At NorthWestern Energy, we’re dedicated to helping you save energy and money through Efficiency Plus or E+. We offer dozens of ways to save energy through reduced use and rebates.

The E+ rebates and programs listed here are funded through rates collected from Montana customers and are only offered to our Montana customers. Complete details and current rebate application forms are available at www.NorthWesternEnergy.com/EnergyPlus or by calling (800) 823-5995. Programs details and listings of NorthWestern Energy Preferred Contractors are subject to change without notice. Qualifications apply. Federal and state tax credits may also be available.

E+ Programs for Existing Homes:
- **E+ Energy Audit for the Home**: Free online energy audits and mail-in survey audits. Available to: NorthWestern Energy space and water heat customers who haven’t received a residential audit since 2002, and are 5+ years old may qualify for the on-site audit. A mail-in audit is provided to residential electric customers that use electricity for appliances and lighting, space or water heat. Call (800) 823-5995 for more information.
- **E+ Natural Gas Savings Rebate Program**: This program includes REBATES to natural gas space and water heat customers for programmable thermostats, insulation improvements, and other qualifying efficiency natural gas measures. Rebates may be higher when customers work with a Preferred Contractor. Available to: NorthWestern Energy residential natural gas home space and water-heating customers in existing homes. Call (800) 823-5995 for more information.

Low Income Programs**: Local human resource councils have information on these programs and are very one or federal assistance.

Energy Efficiency is the Cornerstone of Green for Your Business

Savings: Simple: Easy. If you’re a commercial electric or natural gas customer of NorthWestern Energy, you’re probably leaving money on the table. Surprised? You’re in good company. Many businesses don’t take advantage of rebates and incentives we offer for implementing energy efficiency measures. This fact is on Energy Plus (E+) program offers a series of strategies and tips to save on energy through reduced use, rebates and incentives. Before you plan existing upgrades or new construction, check out your options.

Lighting often presents opportunities for saving energy — and rebates are available. However, rebates and incentives are also offered for highly specialized measures such as refrigeration and freezer case lighting.

Here’s a quick reference guide to rebates and programs for which your business may qualify. If you want details about qualifying measures, please visit northwesternenergy.com/business or call (800) 5995. Most NorthWestern Energy commercial, industrial, and agricultural customers in Montana qualify for E+ programs. Rebate programs are limited to NorthWestern Energy electric customers and natural gas programs are limited to NorthWestern Energy natural gas customers. However, there are a couple of exceptions. For instance, there are 30 or so large USB Electric Choice customers that do not qualify for electric E+ programs. Natural gas customers are required to buy their natural gas supplies from NorthWestern Energy to qualify for E+ Natural gas programs. If you’re unsure, please contact us.

Electric Customers: Existing Facilities • Rebates
- **E+ Commercial Lighting Rebate**: Replace indoor and outdoor lighting products with high efficiency technologies. Low-wattage T-8 lamps, LED lamp fixtures and switches, and weather-protected occupancy sensors installations may apply.
- **E+ Commercial Air Conditioning**: Chlorine equipment. HVAC demand control ventilation. ECM motors, and anti-sweat heater controls.
- **E+ Commercial Refrigeration**: Measures for refrigeration in grocery, convenience store, and refrigerated storage.
- **E+ Commercial Electronics, and Appliances**: ENERGY STAR® or other similar high-efficiency products.
- **E+ Commercial Water Heating**: Low-flow water heater, demand heat recovery, and heat pump installation.
- **E+ Commercial Variable Frequency Drives (VFDs)**: Variable speed drives for motor pump or fan systems. VFDs for air compressors and refrigeration compressors.
- **E+ Motor Rewind Rebate**: Rewind for motors 15 horsepower (HP) and greater. Motor rewinds to green Motor Practically by certified motor service provider.
Search “E plus”

“Save Energy and Money” Tab

“View programs” link

EFFICIENCY PLUS (E+) Page

Who does this and where we need more support?

NorthWesternEnergy.com
Website
• www.NorthWesternEnergy.com/Eplus

Mailbox
• E+Programs@NorthWestern.com

E+ Phone Numbers
• 800 823-5995 (Hotline)
• 888 700-6878 (NorthWestern Group)

Social Media
• Facebook
• Twitter
• YouTube
• RSS Feed
• LinkedIn
Thank you for your time today.
Any questions?

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