BACKGROUND

Minnesota Pollution Control Agency’s GreenStep Cities Program:

• Choose from 28 best practices

• GreenStep Cities tracks which practices cities have adopted, but does not currently have a method of tracking the effectiveness of these strategies

• GreenStep Cities Pilot

Regional Indicators Initiative Pilot
• Edina
• Falcon Heights
• Saint Louis Park
The Regional Indicators Initiative participants include:

33% of Minnesota’s total population, 1,745,441 people

50% of the seven county metropolitan area population, 1,441,250 people
**METRICS**

**ENERGY (IN BTUS):** electricity, natural gas, and district energy consumed citywide (subdivided into residential and commercial/industrial)

**WATER (IN GALLONS):** potable water consumed citywide (subdivided into residential and commercial/industrial)

**TRAVEL (IN VEHICLE MILES TRAVELED):** on-road distance traveled within city limits

**WASTE (IN POUNDS):** citywide municipal solid waste managed via recycling, composting, combustion, and landfilling (prorated from countywide data)

**COMMON METRICS**

**GREENHOUSE GAS EMISSIONS (IN TONNES CO₂E):** citywide greenhouse gas emissions associated with each of the four indicators

**COST (IN DOLLARS):** cost estimates associated with each of the four indicators

**ADDITIONAL DATA**

**DEMOGRAPHICS**
All data is reported both as a total as well as in units/capita. Residential data is reported in units/household, and Commercial/Industrial data is reported in units/job

**AREA**
City Area (sf)

**WEATHER**
Heating Degree Days
Cooling Degree Days
Precipitation (in)
A COMMON METRIC

BREAKDOWN OF GREENHOUSE GAS EMISSIONS - 2012 (22 cities)

- RII follows the method outlined in the ICLEI Community Protocol
- Many cities have done greenhouse gas inventories, but this is the first state-wide effort of this scale
- For RII cities, energy is the largest contributor to emissions
- RII’s primary metrics comprise over 90% of all in-boundary emissions
- Other emission sources were also calculated, including air travel and wastewater
TOTAL ENERGY USE
(kBtu/capita/day)
7-YEAR TRENDS
TWENTY CITIES
5 YEAR TRENDS
TWENTY-TWO CITIES - WEATHER NORMALIZED ENERGY USE

**TOTAL ENERGY**

<table>
<thead>
<tr>
<th>Year</th>
<th>kBtu/person/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>273</td>
</tr>
<tr>
<td>2008</td>
<td>279</td>
</tr>
<tr>
<td>2009</td>
<td>277</td>
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<tr>
<td>2010</td>
<td>270</td>
</tr>
<tr>
<td>2011</td>
<td>278</td>
</tr>
<tr>
<td>2012</td>
<td>265</td>
</tr>
<tr>
<td>2013</td>
<td>263</td>
</tr>
</tbody>
</table>

**COM./IND. ENERGY**

<table>
<thead>
<tr>
<th>Year</th>
<th>kBtu/job/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>231</td>
</tr>
<tr>
<td>2008</td>
<td>237</td>
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<tr>
<td>2009</td>
<td>243</td>
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<td>2010</td>
<td>236</td>
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<td>2011</td>
<td>242</td>
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<tr>
<td>2012</td>
<td>229</td>
</tr>
<tr>
<td>2013</td>
<td>227</td>
</tr>
</tbody>
</table>

**RESIDENTIAL ENERGY**

<table>
<thead>
<tr>
<th>Year</th>
<th>kBtu/household/day</th>
</tr>
</thead>
<tbody>
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<td>2007</td>
<td>261</td>
</tr>
<tr>
<td>2008</td>
<td>267</td>
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<td>2011</td>
<td>270</td>
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<tr>
<td>2012</td>
<td>258</td>
</tr>
<tr>
<td>2013</td>
<td>258</td>
</tr>
</tbody>
</table>
SO WHAT?
WEDGE DIAGRAMMING

We are currently working with test cities to identify specific goals and select reduction strategies to commit to. The goal is to create a wedge diagram template for use by cities in sustainability planning.

**REDUCTION FROM 2005 LEVELS**

<table>
<thead>
<tr>
<th>Category</th>
<th>Reduction</th>
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</thead>
<tbody>
<tr>
<td>Business-as-Usual</td>
<td>-87%</td>
</tr>
<tr>
<td>Target</td>
<td>62%</td>
</tr>
<tr>
<td>Plan</td>
<td>6%</td>
</tr>
</tbody>
</table>

**REDUCTION PLAN**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Energy Efficiency</th>
<th>Energy Decarbonization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial &amp; Industrial Energy</td>
<td>28%</td>
<td>23%</td>
</tr>
<tr>
<td>Existing buildings</td>
<td>6%</td>
<td>Decarbonization of grid</td>
</tr>
<tr>
<td>New buildings</td>
<td>20%</td>
<td>Decarbonization of on-site energy</td>
</tr>
<tr>
<td>Outdoor lighting</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Water treatment and distribution</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Residential Energy</td>
<td>29%</td>
<td>20%</td>
</tr>
<tr>
<td>Existing buildings</td>
<td>4%</td>
<td>Decarbonization of grid</td>
</tr>
<tr>
<td>New buildings</td>
<td>25%</td>
<td>Decarbonization of on-site energy</td>
</tr>
<tr>
<td>Energy Decarbonization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIVE-YEAR PLAN

- Undergo peer review
- Develop automated online database to manage data
- Collect and publish data for all metro area cities in time for use in comprehensive planning process
- Develop tools to assist cities in comprehensive planning (i.e. summary of city data, wedge diagram template, workshops)
- Expand program to be statewide, and incorporate into state’s climate action plan
- Continue to track annual data to measure progress toward goals

**Carleton College Climate Action Plan (2011)**
CITIES

- Bemidji
- Bloomington
- Burnsville
- Coon Rapids
- Duluth
- Eagan
- Eden Prairie
- Edina
- Elk River
- Falcon Heights
- Hopkins
- Kasson
- Lake Elmo
- Maplewood
- Minneapolis
- Minnetonka
- Oakdale
- Richfield
- Rochester
- Rosemount
- Shoreview
- Saint Anthony
- St. Cloud
- St. Louis Park
- St. Paul
- White Bear Lake
- Woodbury

DATA SOURCES

PUBLIC AND PRIVATE UTILITIES

- Anoka Municipal Utility
- CenterPoint Energy
- Connexus Energy
- Dakota Electric Association
- Duluth Comfort Systems
- Duluth Steam Cooperative
- Great River Energy
- Hennepin Energy Recovery Center
- Minnesota Energy Resources
- Minnesota Power
- Minnesota Valley Electric Cooperative
- NRG Energy
- Olmsted County Waste to Energy Facility
- Rochester Public Utility
- St. Paul District Energy
- University of Minnesota (Southeast Steam)
- Western Lake Superior Sanitation District
- Xcel Energy

STATE AND LOCAL GOVERNMENT

- Duluth Port Authority
- Hennepin County
- Metropolitan Airports Commission
- Metropolitan Council of the Twin Cities
- Minnesota Department of Administration
- Minnesota Department of Employment and Economic Development
- Minnesota Department of Natural Resources
- Minnesota Department of Transportation
- Minnesota Pollution Control Agency
- Rochester International Airport
- U.S. Energy Information Administration
- University of Minnesota

OTHER

- Degree Days.net
- ICLEI Local Governments for Sustainability

PARTNERS
SO WHAT?

TOTAL GREENHOUSE GAS EMISSIONS FROM PRIMARY SOURCES

- 15% reduction by 2015
- 30% reduction by 2025
- 80% reduction by 2050

RII DATA

PROJECTIONS

Business as usual

Targets (Next Generation Energy Act)

- 15% reduction by 2015
- 30% reduction by 2025
- 80% reduction by 2050

Millions of tonnes CO$_2$e