DMC
A Global Destination for Health & Healing

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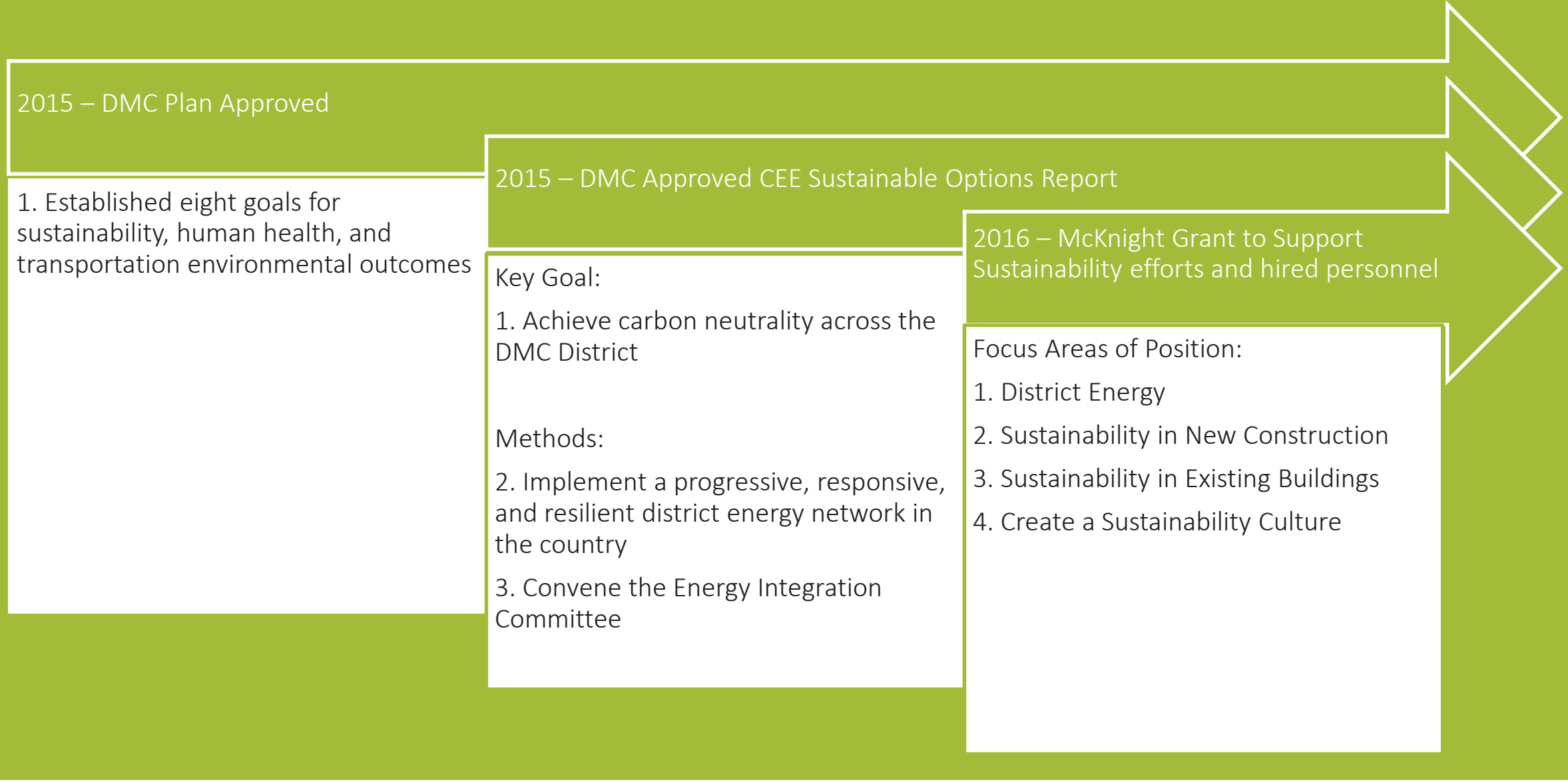
Destination Medical Center Economic Development Agency / City of Rochester

Energy Commission: What will it take to meet Energy Action Plan Goals?



DMC Sustainability Timeline

McKnight Grant Update

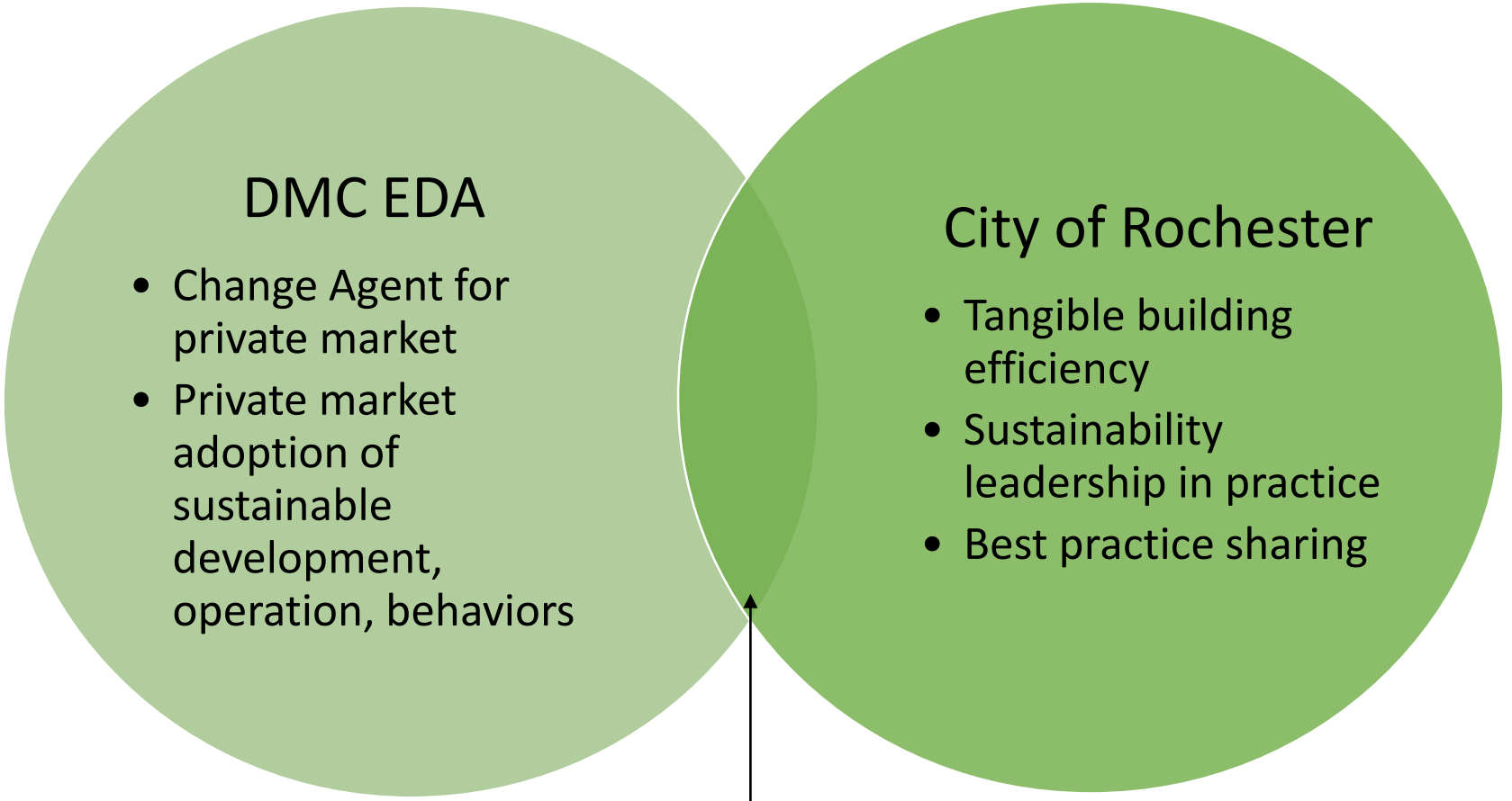
DMC McKnight Grant Goals

The DMC initiative has bold energy & sustainability goals as part of its plan. These include a sustainability vision of, “Implement the most progressive, responsive, and resilient district energy network in the county.” Supporting this vision are three sustainability goals:

1. Create a clean, reliable, and flexible energy network through an upgraded infrastructure, new effective systems, and the optimization of renewables
2. Create a new ethos and culture of conservation at Destination Medical Center
3. Provide building and district guidelines for future expansions and existing building renovations and retrofits.
    - Additionally the plan calls for an aspirational sustainability target of, “Reduce energy consumption by 25% below 2010 levels by 2030.”

*Grant runs from March 2017 – March 2019

Organizational Collaboration



Collaborations: Affordable housing, transportation planning, public realm projects, sustainability series and culture building, America's City for Health (equity in all areas)

Progress to Goal 1: District Energy

- Action Steps:
  1. Convene the Energy Integration Committee
     - District Energy System Planning for New Projects
       - Created a developer interconnection process
       - Identifying additional ways to collaborate on energy infrastructure projects – focused on Discovery Square
  2. Voluntary Commercial Energy Benchmarking Program
     - Through the EIC and in partnership with CEE, created a commercial energy benchmarking program in Rochester
       - Community commercial partner outreach starting in October 2018
       - Incorporated an energy reduction goal as part of draft Resolution
       - Support for effort from DMC EDA Board, DMCC Board, and Rochester City Council

Progress to Goal 2: Culture Building

- Action Steps:
  1. Community Sustainability Series
  2. Rochester Energy Commission Projects
     - Solarize Campaign for residential solar
     - Affordable Housing Energy Conservation and Weatherization
  3. Sustainability Measurement Efforts
     - GreenSteps Cities Levels 4 and 5
     - LEED for Cities Pilot Certification (under review)
  4. City of Rochester Sustainability Leadership
     - Identified over $200,000 in energy reduction opportunities
     - MN BioBusiness Center Energy Reduction Projects (2017-18)
     - City Hall Recommissioning (2018)
     - City Hall LED Lighting Retrofit (2018)
     - City Hall IEQ Thermal Comfort Study (2018)

Progress to Goal 3: Address Buildings

- Sustainable Building Guidelines for DMC-funded projects
  - Integrated into DMC Application July 2018
  - Based on St Paul Sustainable Building Policy
  - Projects with guidance integrated (1.5 million SF):
    - One Discovery Square – 89,000 SF Life Science Building
    - Berkman – 327,965 SF Mixed Use Building
    - Hyatt House – 146,800 SF Hotel
    - Bloom Development – 891,085 SF Mixed Use

- New Construction and Existing Building Incentives
  - Pilot a streamlined new construction incentive for projects pursuing SB2030
  - Piloting a streamlined retrocommissioning incentive for existing buildings

New Construction – DMC Sustainability Application Guidance

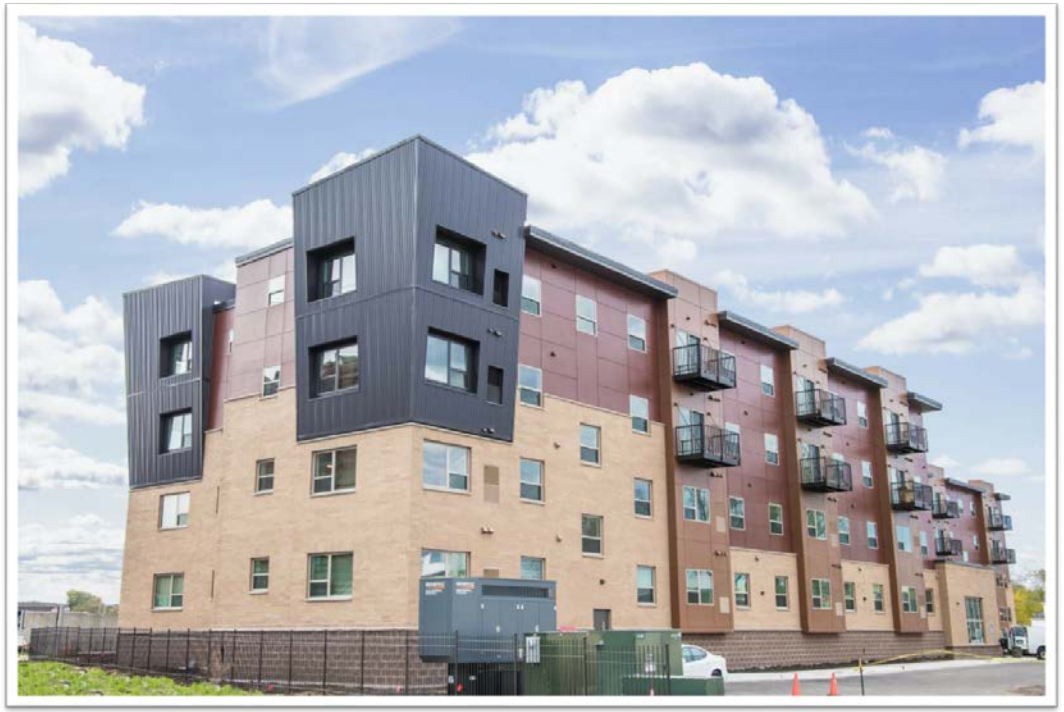
Integrate sustainability elements into the DMC funding application

Key Components:

1. EUI target from project's inception
    - Must be 20% below energy code
2. 75% diversion rate
3. 35% water reduction
4. 50% irrigation reduction
5. Alternative Transportation elements
6. Third Party Certification
7. Energy Benchmarking

Key Tools:

1. Energy Targeting
2. Energy Modeling
3. Benchmarking



Sustainability Program Next Steps

1. Clean Power
   - Utility Infrastructure Planning
     - RPU Renewable Infrastructure Planning Effort
     - Automated Meter Interval Electric Meters
     - Demand Side Conservation Projects – DMC District and City-wide
2. Electrify the Economy
   - Transportation Plan Implementation
     - Mode shift from 70% SOV Rate to 43% by 2040
     - EV Bus and Charging Infrastructure Grant Pursuit
3. Optimize Energy Demand
   - City Sustainable Building Policy
     - City leadership approach
     - Researching St Paul TIF-focused Sustainable Building Policy Approach
   - Discovery Square District Energy System Planning
   - Energy Benchmarking
   - Energy Incentive expansion

1. Other
   - City for Health Planning
     - How can we create America's City for Health in all respects? Can we translate this to longer life and quality of life?
     - Affordable Housing and Equitable Development Strategies
   - City Sustainability Goals Beyond Energy:
     - Fleet Management, Procurement – facilities equipment, on-going consumables, durable goods, Waste, Food purchasing, Information Technology Occupant Focused Programming
     - Behavior-focused sustainability programming
     - Communication and Outreach

McKnight Next Steps

1. DMC and City will meet with McKnight in the Fall of 2019 to discuss next steps for extending the grant
    1. One option includes the addition of another staff member as capacity is the limitation at the moment to expanding scope of program

City of Rochester and DMC Environmental Goals
Where to focus?

DMC District Sustainability Focus Areas

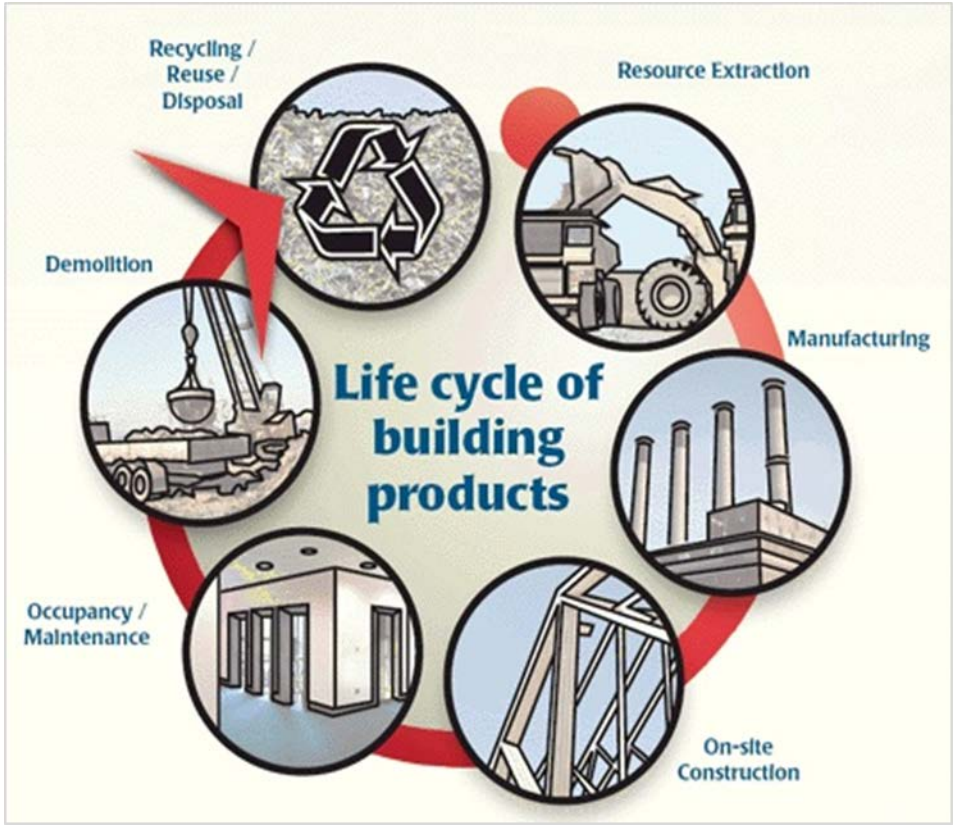
Behavior Change:

- Human Health and Wellness – Ex. Wellness program participation, collect sickness absences
- Community Health – ex. encourage active transportation, recreation, social interaction, links between clinic and community
- Economic Health – ex. Create 28,000 jobs by 2034, support avg of 1,800 construction jobs, attract MBE/WBE participation
- Transportation – Achieve a 50% SOV commuter rate by 2035 (currently at 70% SOV rate)

DMC District Sustainability Focus Areas

Resource Reduction:

- Water – Reduce consumption below 2012 levels by 2030
- Materials and Waste – Reduce total waste generated by 30% below 2012 levels by 2030
- Energy – Reduce EUI and consumption by 25% below 2010 levels by 2030
- Climate – Reduce DMC-wide emissions per square foot by 80% below 2005 levels by 2050



DMC Sustainability Timeline

2015 – DMC Plan Approved

1. Established eight goals for sustainability, human health, and transportation environmental outcomes

2015 – DMC Approved CEE Sustainable Options Report

Key Goal:

1. Achieve carbon neutrality across the DMC District

Methods:

2. Implement a progressive, responsive, and resilient district energy network in the country

3. Convene the Energy Integration Committee

2016 – McKnight Grant to Support Sustainability efforts and hired personnel

Focus Areas of Position:

1. District Energy
2. Sustainability in New Construction
3. Sustainability in Existing Buildings
4. Create a Sustainability Culture

Carbon Neutrality is an ambitious goal

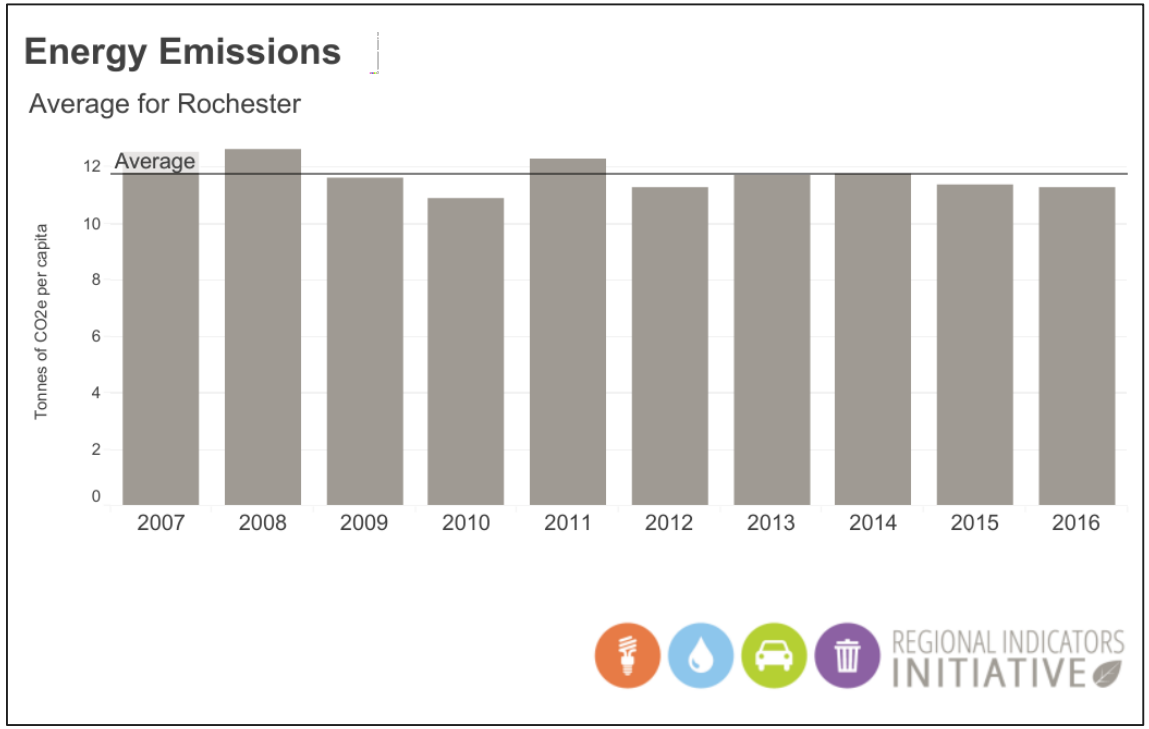
1. Globally, 19 cities have committed to carbon neutrality goals
   - Most of them have a longer timeline (2050) than the DMC project (2035)
2. Nationally, 5 colleges have achieved carbon neutrality

To achieve carbon neutrality need to address the following topics:

1. New Construction
2. Existing Building Efficiency
3. District Energy System Planning
4. Renewable Energy Infrastructure
5. Culture of Sustainability
6. Incentive Programs

City of Rochester – Energy Goals

1. 1.5% annual retail energy savings
2. 25% renewable energy by 2025
3. City-wide GHG energy emission reductions (per capita) using 2005 as a baseline of:
    1. 15% by 2015
    2. 30% by 2025
    3. 80% by 2050



Progress to date:

2007 – 12.53 MTCDE / person

2016 – 11.27 MTCDE / person

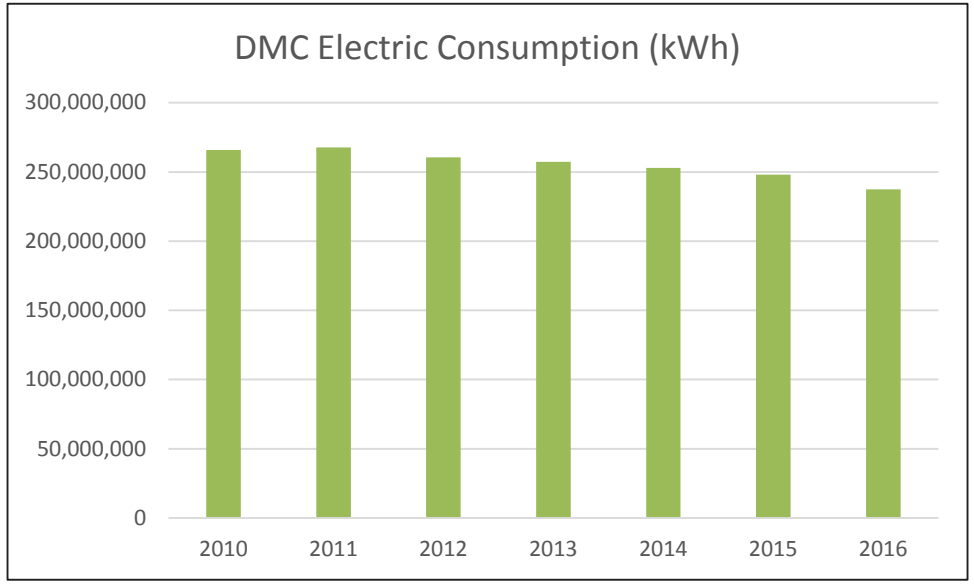
9.9% reduction since 2007

DMC District – Energy Goals and Progress

1. Attain carbon neutrality across the DMC District
2. 25% energy reduction below 2010 levels by 2030
3. Reduce DMC-wide emissions per square foot by 80% below 2005 levels by 2050

DMC District = ~20-25% of City-wide electric consumption (gas TBD)

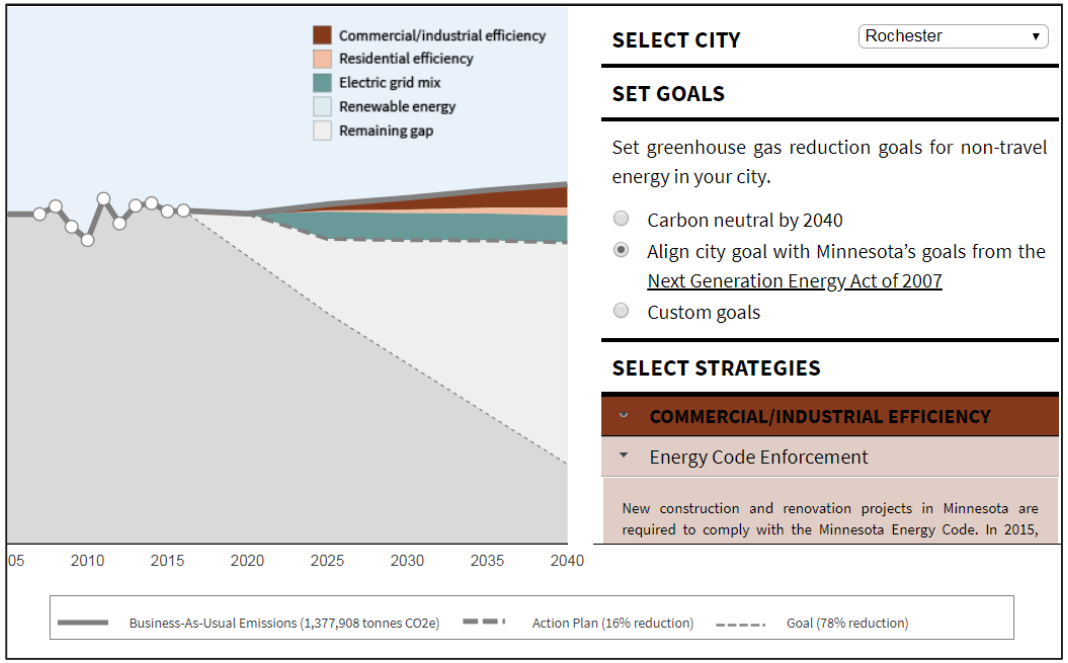
In size, DMC District is 1.8% of total City land area



Year	Electric Consumption (kWh)	% Savings
2010	265,751,423	-
2011	267,697,932	(0.73%)
2012	260,618,691	1.93%
2013	257,211,739	3.21%
2014	252,818,512	4.87%
2015	248,113,323	6.64%
2016	237,444,953	10.65%

DMC / City of Rochester – GHG Levers

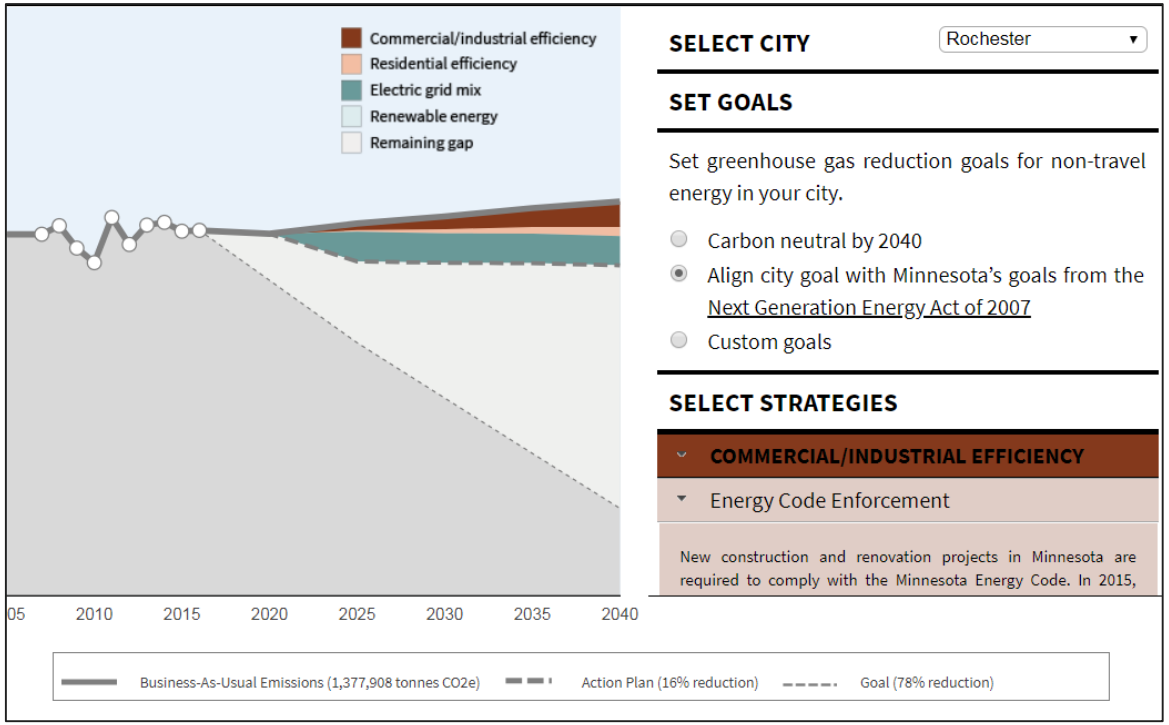
1. Commercial and Residential Efficiency
   - Energy Code Enforcement (~92% meet code)
   - Stretch Energy Code Adoption
   - Building Retrofit
   - Appliance efficiency
   - Efficient Building Operations
   - Behavior Change
2. Electric Grid Mix
   - Planned Portfolio Changes
   - Increased Renewable Energy Standards
3. Renewable Energy
   - On-site photovoltaics
   - Green Power Purchases – commercial / residential



DMC / City of Rochester – GHG Levers

Base Case

1. Commercial Efficiency
   - Energy Code Enforcement (~92% meet code) – 5%
2. Residential Efficiency
   - Energy Code Enforcement (77% meet code) – 2%
3. Electric Grid Mix
   - Planned Portfolio Changes
4. Renewable Energy



Goal for Next Gen Energy Act – 80% Reduction by 2050

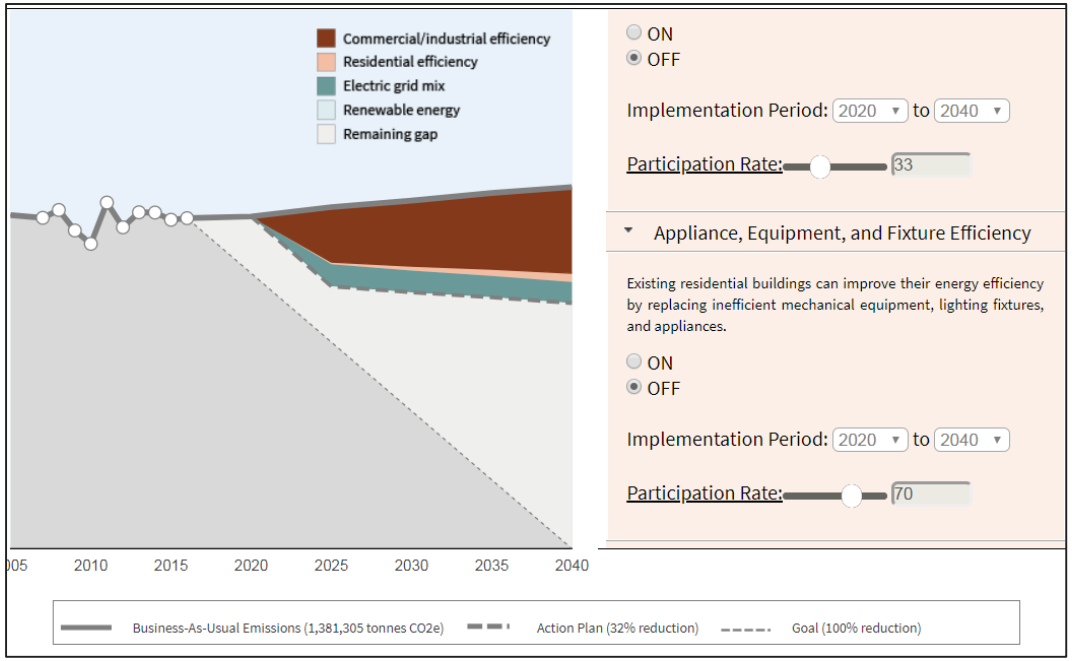
- Energy code and grid changes provide 16% savings, need to identify another 64% in opportunities

DMC / City of Rochester – GHG Levers

Scenario 1: Commercial Efficiency (Implementation Period 2020-2040)

1. Commercial Efficiency
   - Energy Code Enforcement (~92% meet code) = 5%
   - Stretch Energy Code Adoption (City and TIF-15%) = 2%
   - Building Retrofit (30% adopt) = 1%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 5%
   - Efficient Building Operations (85% adopt) = 8%
   - Behavior Change (25% adopt) = ~1%
2. Residential Efficiency
   - Energy Code Enforcement (77% meet code) – 2%
3. Electric Grid Mix
   - Planned Portfolio Changes = 7%
4. Renewable Energy

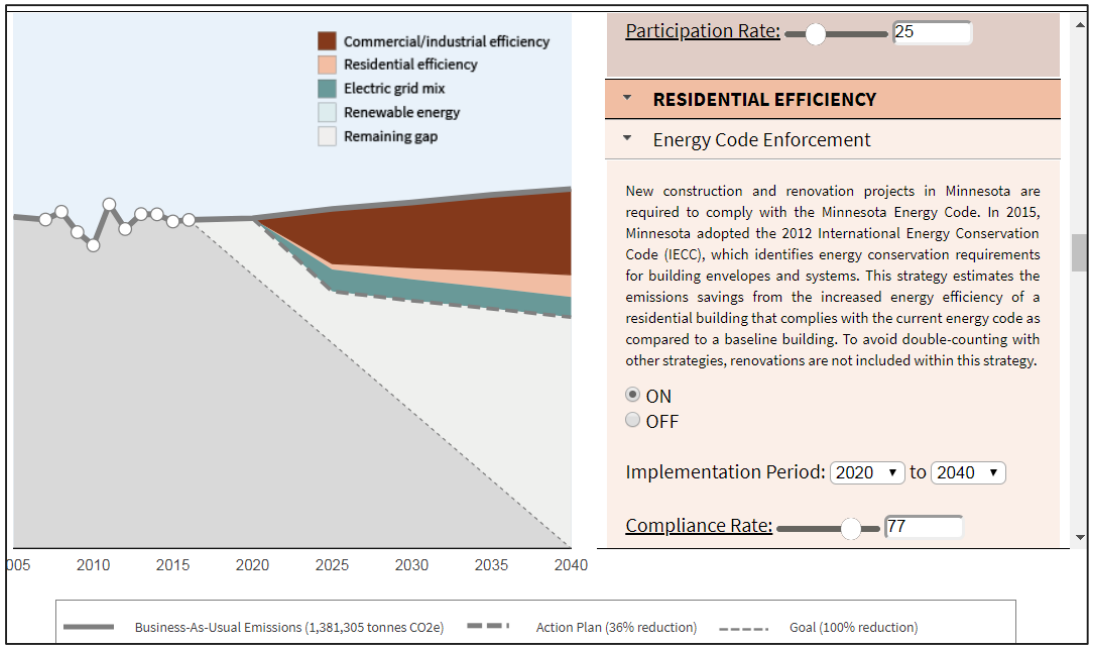
32% savings total, 16% net – require 48% further in savings



DMC / City of Rochester – GHG Levers

Scenario 2: Commercial and Residential Efficiency (Implementation Period 2020-2040)

1. Commercial Efficiency
   - Energy Code Enforcement (~92% meet code) = 5%
   - Stretch Energy Code Adoption (City and TIF-15%) = 2%
   - Building Retrofit (30% adopt) = 1%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 5%
   - Efficient Building Operations (85% adopt) = 8%
   - Behavior Change (25% adopt) = ~1%
2. Residential Efficiency
   - Energy Code Enforcement (~77% meet code) = 2%
   - Retrofit / Weatherization (33% adopt) = 2%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 2%
3. Electric Grid Mix
   - Planned Portfolio Changes = 7%
4. Renewable Energy

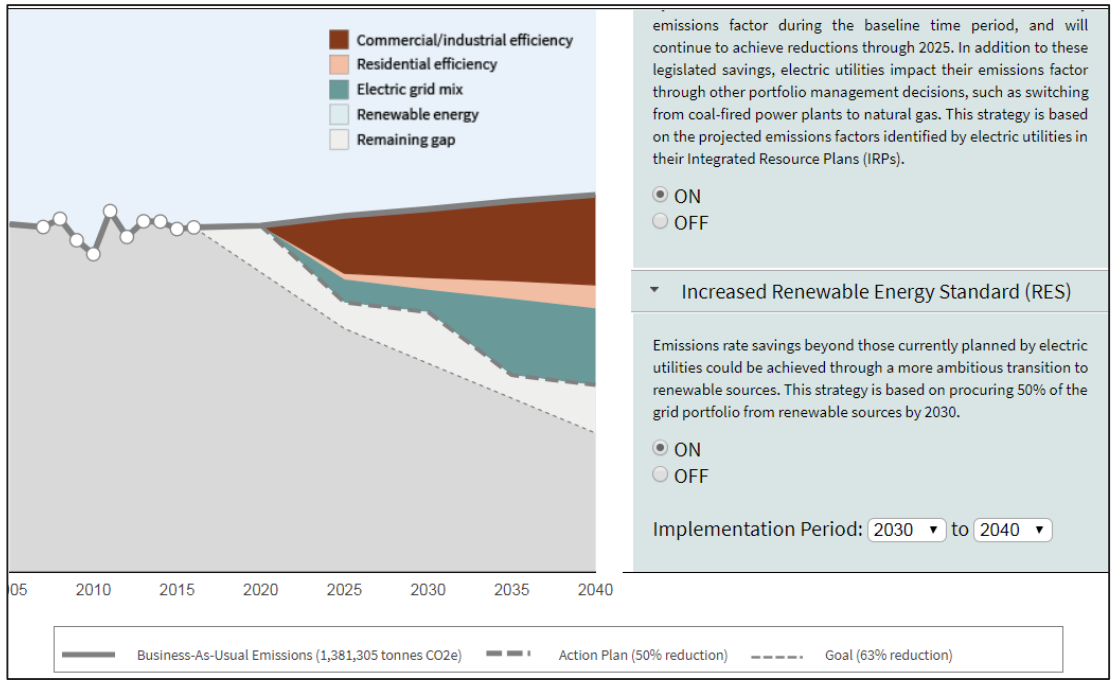


36% savings total, 4% net – require 44% further in savings

DMC / City of Rochester – GHG Levers

Scenario 3: Comm / Res / Grid Efficiency (Implementation Period 2020-2040)

1. Commercial Efficiency
   - Energy Code Enforcement (~92% meet code) = 5%
   - Stretch Energy Code Adoption (City and TIF-15%) = 2%
   - Building Retrofit (30% adopt) = 1%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 5%
   - Efficient Building Operations (85% adopt) = 8%
   - Behavior Change (25% adopt) = ~1%
2. Residential Efficiency
   - Energy Code Enforcement (~77% meet code) = 2%
   - Retrofit / Weatherization (33% adopt) = 2%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 2%
3. Electric Grid Mix
   - Planned Portfolio Changes (25x25) = 7%
   - Increased RES (50% by 2040) = 14%
4. Renewable Energy

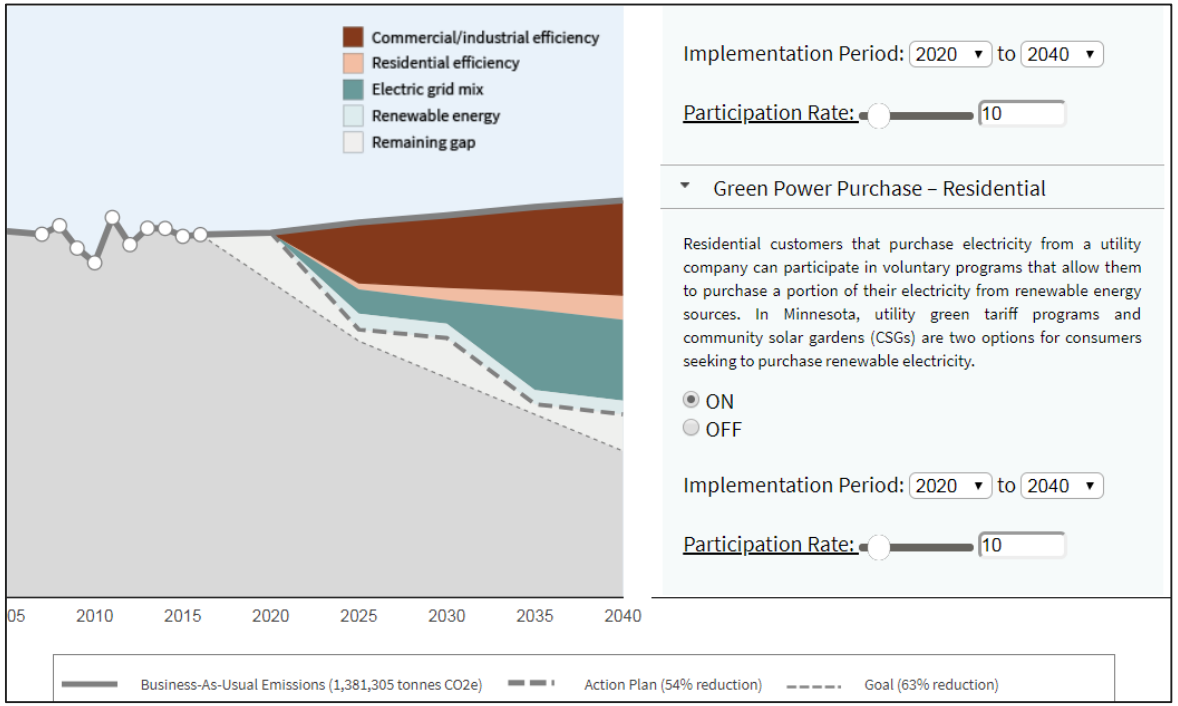


50% savings total, 14% net – require 30% further in savings

DMC / City of Rochester – GHG Levers

Scenario 4: Comm / Res / Grid / Renewables Efficiency (Implementation Period 2020-2040)

1. Commercial Efficiency
   - Energy Code Enforcement (~92% meet code) = 5%
   - Stretch Energy Code Adoption (City and TIF-15%) = 2%
   - Building Retrofit (30% adopt) = 1%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 5%
   - Efficient Building Operations (85% adopt) = 8%
   - Behavior Change (25% adopt) = ~1%
2. Residential Efficiency
   - Energy Code Enforcement (~77% meet code) = 2%
   - Retrofit / Weatherization (33% adopt) = 2%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 2%
3. Electric Grid Mix
   - Planned Portfolio Changes (25x25) = 7%
   - Increased RES (50% by 2040) = 14%
4. Renewable Energy
   - On-Site Photovoltaics (10% of roofs) = 1%
   - Green Power Commercial (10%) = 2%
   - Green Power Residential (10%) = 1%

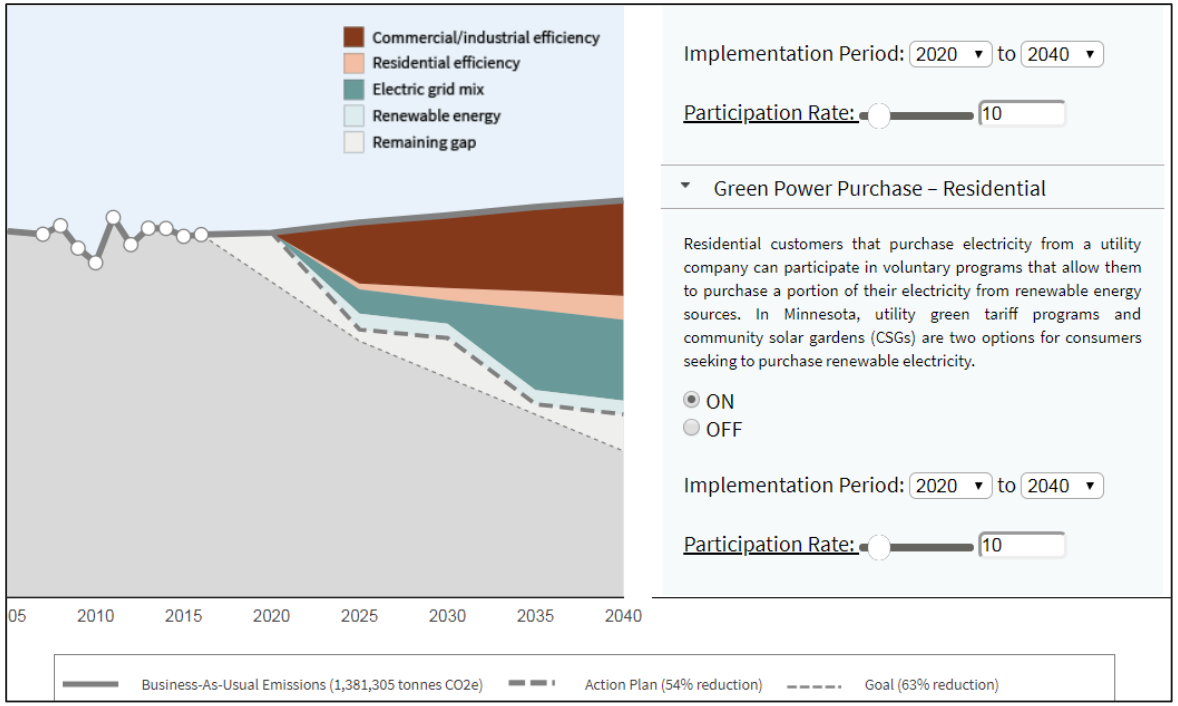


54% savings total, 4% net – require 26% further in savings

DMC / City of Rochester – Ranked GHG Levers

1. Commercial Efficiency (22% savings)
   - Efficient Building Operations (85% adopt) = 8%
   - Energy Code Enforcement (~92% meet code) = 5%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 5%
   - Stretch Energy Code Adoption (City and TIF-15%) = 2%
   - Building Retrofit (30% adopt) = 1%
   - Behavior Change (25% adopt) = ~1%
2. Electric Grid Mix (21% savings)
   - Increased RES (50% by 2040) = 14%
   - Planned Portfolio Changes (25x25) = 7%
3. Residential Efficiency (6% savings)
   - Energy Code Enforcement (~77% meet code) = 2%
   - Retrofit / Weatherization (33% adopt) = 2%
   - Appliance, Equipment, Fixture Efficiency (70% adopt) = 2%
4. Renewable Energy (4% savings)
   - Green Power Commercial (10%) = 2%
   - On-Site Photovoltaics (10% of roofs) = 1%
   - Green Power Residential (10%) = 1%

54% savings total, 4% net – require 26% further in savings



Major Takeaways

1. Green the grid
   - How does this effect future utility infrastructure planning efforts?
   - What other opportunities exist to prepare for infrastructure shifts?
2. Commercial Efficiency
   - Efficient building operations are critical to success
   - Building equipment efficiency is a close second
3. Other concepts
   - Role of AMI in the efficiency effort?
   - Energy code improvements will play a factor, but not a major role
   - Role of incentives in future efficiency, equipment and retrofit efforts