The Future of Sustainability in Rochester

Rochester City Council

August 8, 2016

Presented by

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EDF ENVIRONMENTAL DEFENSE FUND | CLIMATE CORPS

THE McKNIGHT FOUNDATION

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Objectives

- Intro to “Sustainability”
- Rochester Current State
- Project Overviews
  - Goals and Objectives
  - Findings
  - Recommendations
- Case for Sustainability Coordinator
- Sustainability Office in the Future

Defining Sustainability

- Buzz word…
- Areas of Impact:

"… the deliberate effort to ensure that community development not only **enhances the local economy**, but also the **local environment** and **quality of life**."

Why Sustainability in Rochester?

- Economic Case
  - Energy Cost Savings
  - Revenue growth from new business
  - Attract and retain top talent
- Social/Environmental Case
  - National and global trend
  - Create a more vibrant and livable community
- Local Case
  - DMC Planning
  - Comprehensive Plan
  - Growth trajectory of Rochester
- Legal
  - Ordinance 19A

Significant Goals have been Set

- MN Next Gen Energy Action Goals:
  - 1.5% annual retail energy savings
  - 25% renewable energy by 2025
  - State-wide GHG emission reductions of:
    - 15% GHG reduction of 2005 levels by 2015
    - 30% GHG reduction of 2005 levels by 2025
    - 80% GHG reduction of 2005 levels by 2050

1st GHG inventory completed in 2014

- 2015 Proclamation
  - Strive for

renewable energy by 2031

Rochester Sustainability Progress

- Rochester Energy Commission
  - Energy Action Plan, GHG inventory
- Inclusion in planning
  - COMP, DMC Plan
- RPU
  - Conservation Improvement Program, efficiency and solar rebates, community solar
- B3 Benchmarking data
  - City buildings
- Some energy efficiency projects underway

Leadership, coordination, and commitment needed to move forward

Rochester Sustainability Gaps

- City lacks
  - Ability to execute on goals
  - Dedicated city personnel
    - Internal operations and community engagement
- GHG reduction goals
  - No progress yet
- EAP implementation is highly uncertain
- Fragmented community organizations

Project Overviews

Internal City Operations

Goal:

Reduce the City's total energy consumption at municipal owned properties and adopt sustainable practices throughout the City's operations

Objectives:

- Identify energy efficiency and cost saving measures
- Present funding opportunities

Long-term Strategy

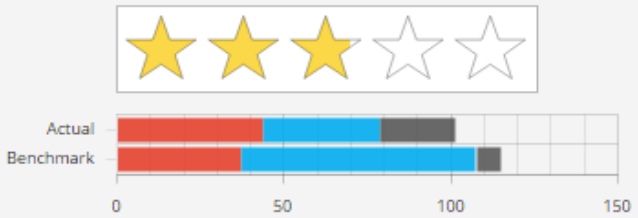
- Energy Action Plan implementation
- Community engagement

Sustainability Coordinator

- Build the economic and environmental case for a FT position
- Project Management
- Implementation

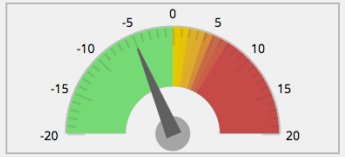
Current State

- B3 Benchmarking
  - 17 buildings
  - 1.8 million square feet
- Avg. Annual Energy Spend
  - $4 million
  - $1.2 million in Demand Charges
- Avg. Annual Energy Consumption
  - 200,000,000 kBtu



Actual Meter Total ..... 101.34 kBtu/SF/Yr
Benchmark ..... 114.93 kBtu/SF/Yr
Index Ratio 0.88
Potential Savings ..... 53,989,000 kBtu/Year | 35.7% | $1,075,000

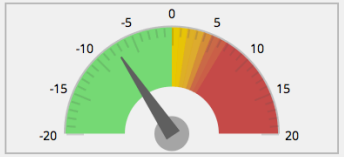
Consumption (kBtu/SF/Yr)



	Actual	Baseline	Change
⊞ Total	105.06	110.65	-5.59

-5.05%

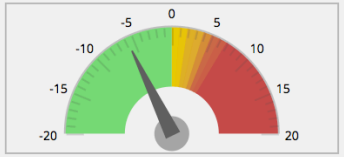
Dollars ($/SF/Yr)



	Actual	Baseline	Change
Total	$2.06	$2.23	$-0.17

-7.49%

Carbon (CO_2 Pounds/SF/Yr)



	Actual	Baseline	Change
Total	30.27	32.12	-1.85

-5.77%

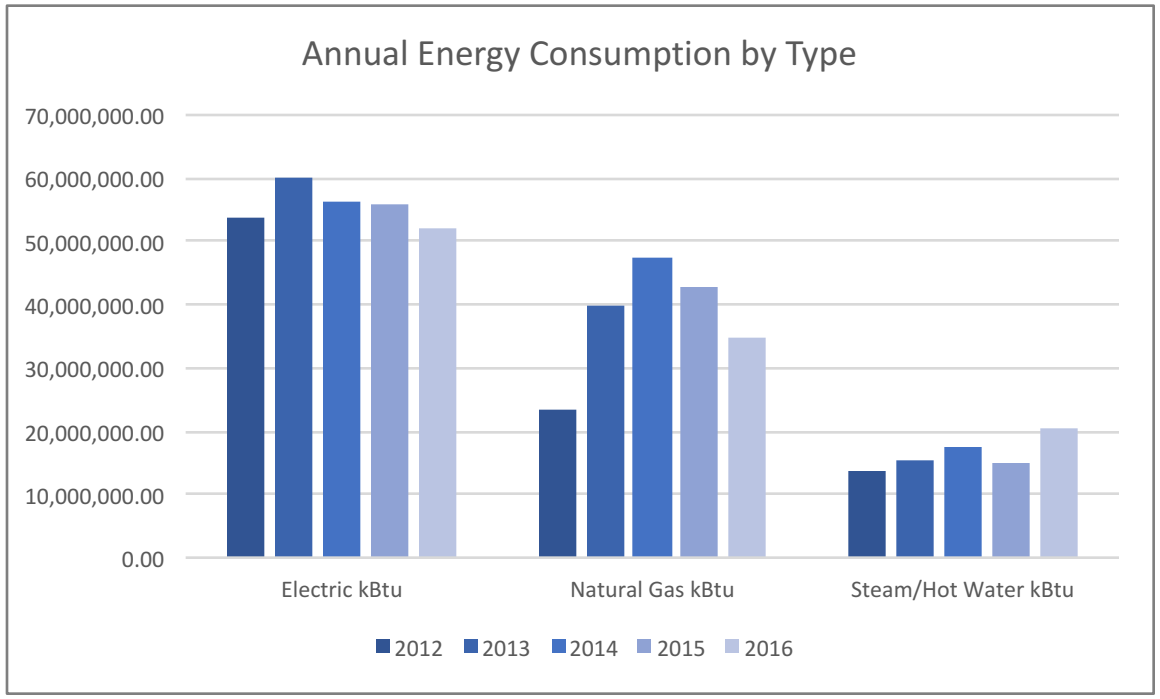
Sites (14 of 17 sites are baseline-complete)

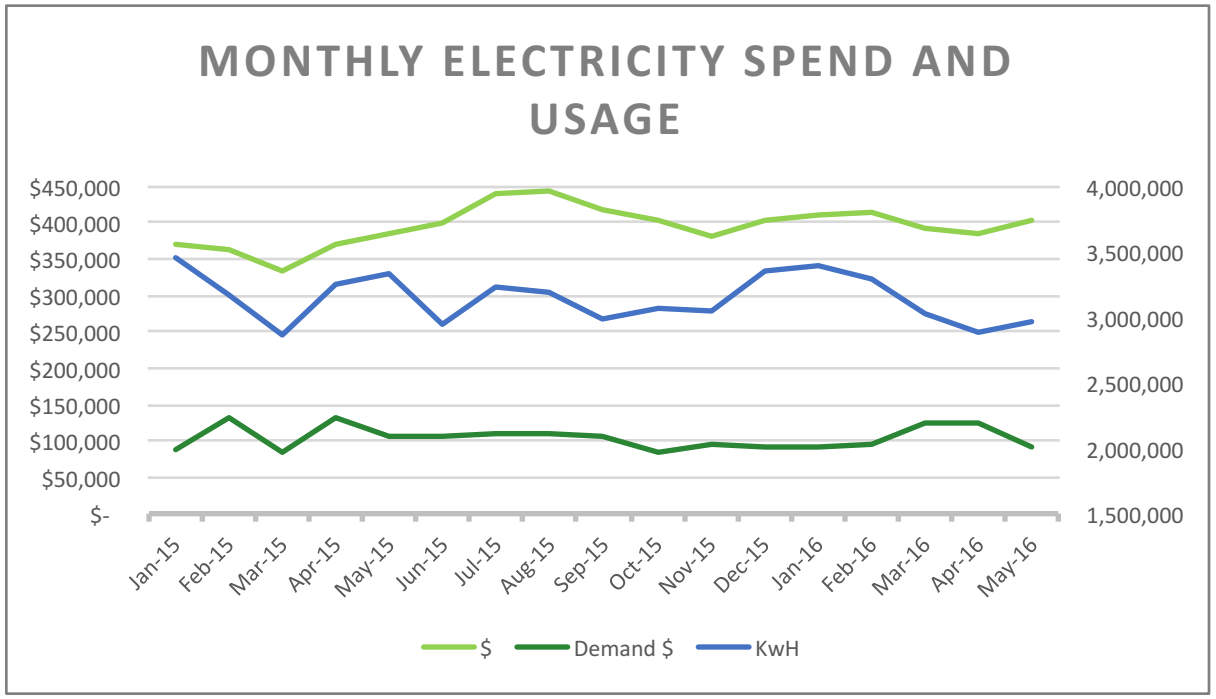
☐ Include decommissioned sites ☐ Map

Site Name	Status	Building Type	Square Footage	Actual kBtu/S...	Actual Period	Baseline kBtu/S...	Baseline Period	Baseline Rating
Mayo Civic Center	✔	Audit...	243,558	123.28	Jul 2015 - Jun 2016	92.44	Aug 2012 - Jul 2013	33.36%
Public Works TOC	✔	Main...	319,562	57.3	Jul 2015 - Jun 2016	44.03	Aug 2012 - Jul 2013	30.14%
Graham Arena Co...	✔	Ice A...	162,325	56.89	Jul 2015 - Jun 2016	47.85	Aug 2012 - Jul 2013	18.89%
Library	✔	Libra...	84,000	110.85	Jul 2015 - Jun 2016	98.39	Aug 2012 - Jul 2013	12.66%
MN BioBusiness C...	✔	Office	110,952	110.64	Jun 2015 - May 20...	101.8	Aug 2012 - Jul 2013	8.68%

Current State

- Energy usage down-trending, but marginally





Identified Areas of Opportunity

1. Identification of Energy Efficiency Opportunities
2. Measurement and Verification
3. Planning and Funding

A Sustainability Coordinator would help to manage these issues

Energy Efficiency

- EE is the easiest and most effective way to reduce energy while realizing financial benefits
- One-off projects have already been completed
  - *Summary in report*

- 2 Major areas of opportunity identified
  - Recommissioning of existing buildings
  - More aggressive LED Street Light conversion plan

*The **cheapest and cleanest** power is that which we don't need to produce in the first place.*

Energy Efficiency

- Recommissioning
  - Every 3-5 years
  - 10-15% improvement in efficiency estimated
  - Survey conducted with building Facility Managers – identified opportunities
  - 2 facilities analyzed
    - $53,882 *estimated* annual savings

- Street Lights
  - 11% conversion currently
  - 100 street lights are converted to LEDs annually
    - Will take 77 years to convert all lights at this rate
  - Energy savings of 2.4 million kWh/year
  - Energy cost savings of $360,000*/year after full conversion possible

*Based on 2016 rates

*Commissioning is arguably the **single-most cost-effective** strategy for reducing energy, costs, and greenhouse gas emissions in buildings today*

Recommended Projects	Partners	Total Project Cost	Rebates	Total Annual $ Savings	Annual realized $ Savings	Payback Period	Energy Savings
Street Light Conversion	Lumeo, RPU	$2.35 million	N/A	$360,948	TBD on Contract structure	6.4 years	2.26 million kWh 7,711,440 MBtu
Energy Audit: City Hall	Integrated Technologies	$2,280	$250	TBD			
Energy Audit: MN BioBusiness Center	Integrated Technologies	$3,040	$250	See below			
Retro-commissioning MN BioBusiness Center	Integrated Technology	$29,957 Based on estimate of $0.27/sq foot	TBD	$21,000* Based on an estimated 10% improvement	TBD on Contract structure	Estimated 1.5 years	1,188 MBtu Based on estimated 10% energy Savings
Energy Audit: Library	Integrated Technologies	$2,280	$250	See below			
Retro-commissioning Library	Integrated Technology	TBD	TBD	$32,882 Based on an estimated 15% improvement	TBD on Contract structure		1,423 MBtu Based on estimated 15% energy Savings
Totals		~$2.5 million	TBD on project scope	~$420,000			

All numbers are estimates provided by Industry experts

Measurement and Reporting

- City currently lacks process to measure and verify projects
- Measurement and Verification (M&V) imperative for a successful energy management strategy

- Recommendation:
  - Utilize B3 data
  - Track all projects and record results
    - Utilize the GRITs system
  - Create best practices and design guidelines through learnings

You can not manage what you do not measure…

Planning and Funding

- Short and Long-term planning and strategies needed for energy management and sustainability goals
- Nexus of Comprehensive Plan, DMC, and expected 2040 community growth
- Lacking cohesion across departments and facilities
- Coordinator's role is to coordinate, strategize, monitor, measure, and execute

A strategy is key, but only if it can be implemented and executed...

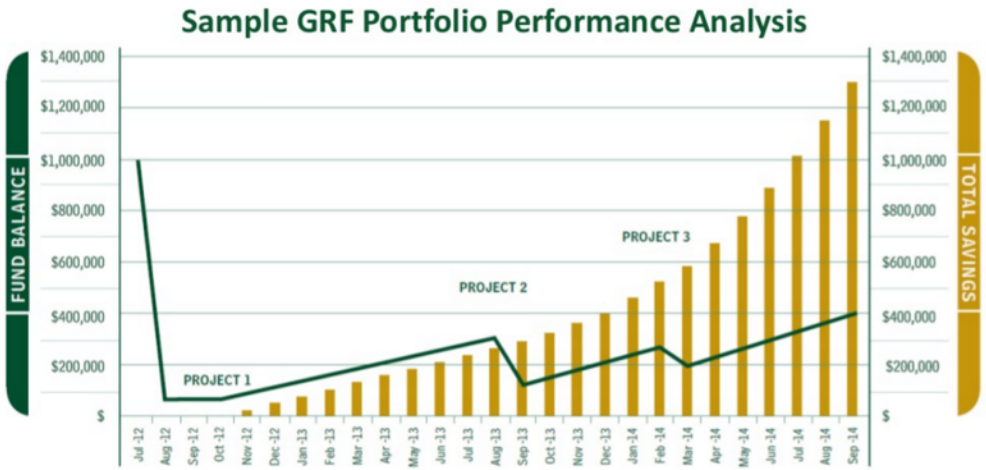
Planning and Funding

- Opportunities for $$$
  - Grants
    - Require time and expertise to find and secure funding
    - Many require a Sustainability Coordinator to be in position
  - Rebates and Incentives
    - Unclaimed rebates = loss in cash flow
    - Identifying appropriate incentives to utilize

Title	Description	Due Date
Public Entity Energy Audit and Renewable Energy Feasibility Study Loan Program	This loan program offers low-cost loans to public entities seeking to complete an energy audit or a renewable energy feasibility study.	2020
CERTS Seed Grants	The Minnesota CERTs seeks applications for energy efficiency and/or renewable energy projects requiring technical assistance.	Oct 2016
Partners for Places Fund	Supports collaborations between a city and a local funder to build stronger relationships across sectors and support adoption of innovations in urban sustainability	Rolling
MN Clean Diesel Grants	The Minnesota Pollution Control Agency (MPCA) will be offering its largest clean diesel grant funding amount in five years. Awards are expected to be ~$50,000	Fall 2016
Cities Leading through Energy Analysis and Planning (Cities-LEAP)	Intends to solicit applications to advance data-driven decision-making by local governments in support of their climate and energy goals.	Nov 2016
Congestion Mitigation and Air Quality Improvement (CMAQ) Program	Transit system capital expansion and improvements to increase ridership; travel demand management strategies; pedestrian and bicycle facilities and promo activities that encourage bicycle commuting.	Fall 2016
Bus and Bus Facilities Program	Provides capital assistance for new and replacement buses, related equipment, and facilities.	Ongoing
Revolving Loan Fund (RLF) Grant Program	These grants of up to $1 million provide funding to capitalize a revolving loan fund.	Ongoing
Scaling up the Next Generation of Building Efficiency Packages	The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue a Funding Opportunity Announcement.	Oct 2016

Planning and Funding

- Green Revolving Fund (GRF)
  - Used to finance energy efficiency projects
  - Energy savings used to replenish the fund
- Sustainability Coordinator to manage
- Gaining traction in cities
  - Duluth, MN
  - Asheville, NC
  - Dubuque, IA – coming soon



St.Cloud
Burnsville
St.LouisPark
St.Paul
ElkRiver
EdenPrairie
Oakdale
Maplewood
Asheville
Dubuque
Hutchinson
AppleValley
Minneapolis
Duluth

Sustainability Coordinator

Environmental, Social, and Local necessity for an increased focus on Sustainability and Energy Management in the City of Rochester

- Benefits:
  - Provide holistic management for Energy Efficiency and Sustainability projects
  - Ability to connect teams and departments and identify synergies
  - Manage funding and financing
  - In-house expertise
    - Able to advise and make informed decisions
  - Point person for concerned parties
    - Rochester Energy Commission
    - Community groups
    - Energy Integration Committee (DMC related coordination group)

Sustainability Coordinator

- Environmental, Social, and Local necessity for an increased focus on Sustainability and Energy Management in the City of Rochester

- Benefits:
  - Information Management
    - Within the community and from other Sustainability Offices
  - Ability to find and secure external funding
    - Execution of projects based on this
  - Managing Rochester's participation in initiatives (GreenStep, SolSmart) and exchanges
  - Manage sustainability outreach and communications

3 Phases

Phase 1

- Near Future
- City Operations

Phase 2

- Expand Scope
- Community Engagement

Phase 3

- Beyond Environmental Sustainability
- +Resiliency

Phase I

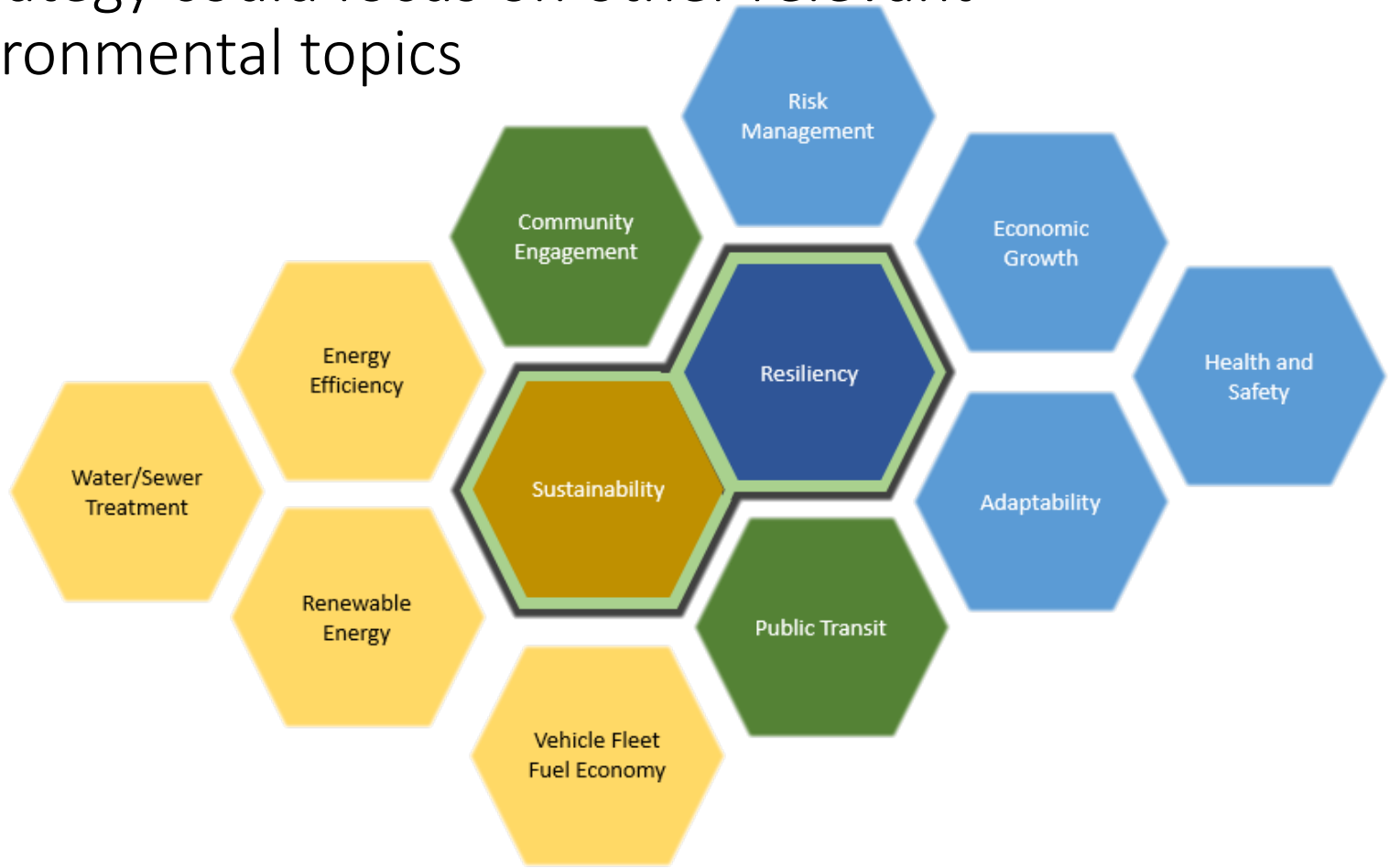
- Near Future
  - Energy Efficiency
  - City operations projects
  - The “Low-hanging Fruit”
- Imbue sustainability to city departments, thinking, and decision making
- Begin information management, participation in initiatives, gathering community input (~20%)
- Sustainability projects depend on external funding, government and community support, stakeholder/partners initiatives etc.

Phase 2

- Gets more interesting- the role diversifies
- Continuing 1st phase – city operations
- Based on funding, personnel, and direction from REC
  - Pilot neighborhood awareness energy conservation campaign through neighborhood association
  - MN GreenCorps member with small scale commercial energy efficiency experience
  - Cooperate with Mayo's future sustainability personnel to take advantage of the momentum
  - Community input
- Updating GHG inventory

Phase 3

- Look beyond just environmental sustainability…
- The City's sustainability strategy could focus on other relevant economic, social, and environmental topics
  - Built environment
  - Social equity
  - Economic growth
  - Transportation
  - Health and wellbeing
  - Adaptability/Resiliency



Phase 3

- Cities develop a vision based on ideas and principles
- It guides them through decision making and planning
- Combination of economic, environmental, and social causes and ideas
- Cities have different priorities
  - Vision
  - Goals
  - Strategies
  - Implementation plans
- RST should start with energy management

Options for Coordinator Position

	3rd Party	Current Staff	MN Extension Program	Temporary Staff	Full Time Staff
	Seek Consulting Services	Add sustainability responsibilities to existing staff members scope		2-3 year appointment AmeriCorps, MN GreenCorps	Sustainability Coordinator
	Budget	Funding N/A	General Funds, shared cost with County	General Funds, Grants	General Funds or Utility Funded
Benefits	●No formal or long-term commitments (risk) ●Industry specific expertise	●No added headcount or personnel costs ●Full departmental participation	●Access to Univ network and industry specific expertise ●Travel, networking, and professional development managed by UofMN	●Temporary – can assess impact ●Minimal financial investment	●Point person for REC, and other community groups ●Ability to influence City operations ●Signals City's commitment
Risks	●Expensive ●Lacking in cohesive strategy, continuous effort ●Project specific, not holistic approach ●Saves energy, not money	●Lack of time, expertise, and resources from current staff	●Lack influence with City Departments ●Possible competing priorities	●Potentially reliant on 3rd party funding ●Scope will be restricted due to condition of the grant and the volunteers level of expertise	●Financial Commitment, but best ROI

Summary of Findings

- Many opportunities to **save Energy**
- Many opportunities to **save Money**
- Need to demonstrate **City's commitment**
- Unclaimed **grant** opportunities
- Unique **financing** structures available
- Limited community engagement
- Broad **peer-network** for support and ideation
- **Data ready** to be harnessed and utilized
- Little evidence of **recommissioning existing buildings**
- **Street lighting** opportunities offer huge savings potential
- Little short-term financial gains on past energy projects
- Lack of cohesion across departments
- Lacking process for **Measurement and Verification**
- **No strategy** for achieving City's goals
- No **green building codes** or mandates for city buildings
- Opportunity for DMC partnerships
- Lagging behind local, national, and international communities

In Conclusion