

# DOWNTOWN BUILDING HEATING AND COOLING UPDATE

JANUARY 26, 2021 ROCHESTER PUBLIC UTILITY BOARD





#### Why Building Heating and Cooling

- 1. 5 City buildings are heated (and cooled) by a steam line connected to the Olmsted County Waste to Energy Facility (OWEF)
- 2. Steam line has reached the end of its useful life and costs (\$30M) to replace
- 3. County decision not to replace the current steam line and to stop providing Steam October 2023





#### **Purpose**

- 1. Provide an overview of the building heating and cooling options being considered by the Council.
  - a. Gas Steam Heat and Electric Cooling Building Based
  - b. Gas Hot Water Heat and Electric Cooling Building Based
  - b. 180 Degree District Heating and Cooling City Buildings
  - c. 180 Degree District Heating and Cooling City and County (downtown) Buildings
- 2. Answer Questions
- 3. Seek the Boards consensus



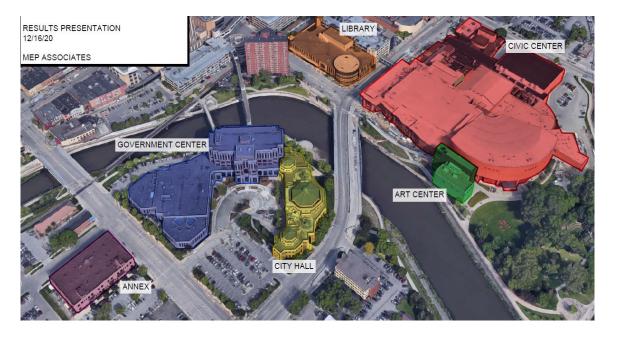
## **Study Evaluations**

- 1. Building-Based Solutions
  - Install steam boilers and steam-driven chillers (where needed)
  - Install high efficiency gas boilers, hot water heat and electric-driven chillers (where needed)
- 2. District Energy Solutions (DES)
  - 180 deg F hot water and chilled water loop system (City Only)
  - 180 deg F hot water and chilled water loop system, including county buildings

(Gov. Center /Annex)

Note: DES business case includes a \$2M contribution from DMC Funds.







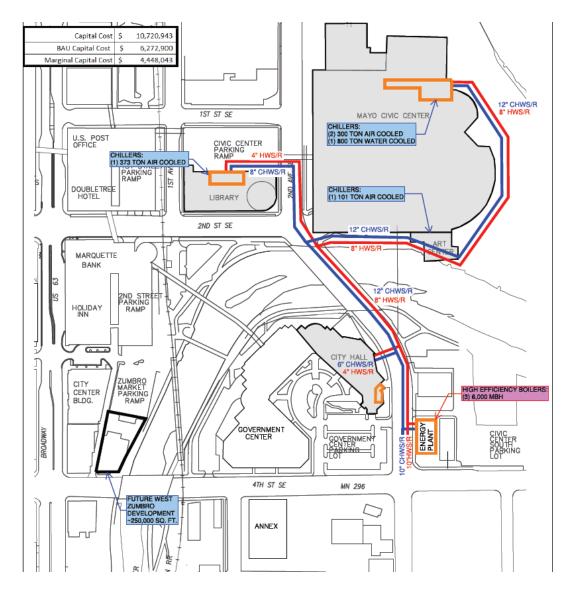
# **Business Case Results**

PROJECT APPROACH (CITY BUILDING COSTS ONLY)	CAPITAL COST (\$)	DEBT SERVICE & OPERATING COST/YR (\$000)	PV OF COST  DIFFERENCE  (30 YRS @3%)	CARBON EMISSIONS (METRIC TONS)
BUILDINGS – GAS STEAM HEAT AND COOLING	\$6.3M	\$1,317	-	4,647
BUILDINGS – GAS HOT WATER HEAT AND ELECTRIC COOLING	\$6.6M	\$1,320	\$181K (AVE \$6K/YR)	3,814 (17.9%) \$217/TON
DES – 180 DEG F SYSTEM CITY BUILDINGS ONLY	\$10.7M	\$1,552	\$5,192K (AVE \$173K/YR)	3,563 (23.3%) \$4,790/TON
DES – 180 DEG F SYSTEM – CITY + COUNTY BUILDINGS	\$14.2M	\$1,348	\$722K (AVE \$24K/YR)	3,563 (23.3%) \$666/TON



## Benefits to the City of Rochester - DES

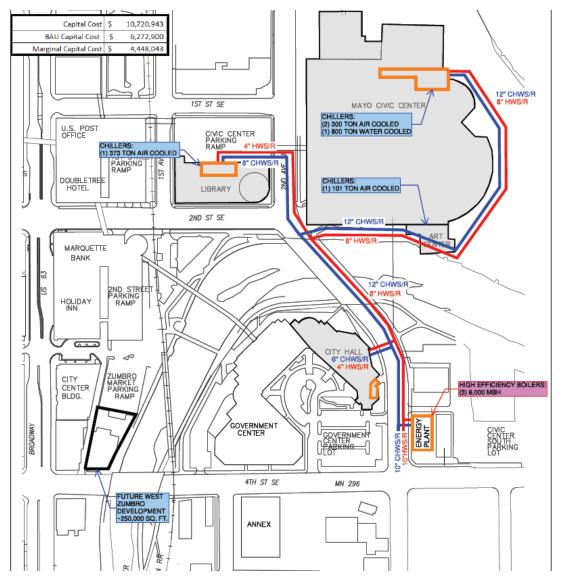
- 1. Aligns with City Council Priorities: manage growth, fiscal responsibility, sustainability
- 2. Value of local control run by municipal utility
- Use of proven and safe technology that has been applied across US
- Future chilling equipment will be electrified, contributing further to RPU's 100% renewable commitment
- Increases system redundancy, efficiency, and reduces maintenance routines across facilities
- 6. Increases individual building performance
- 7. Anticipated utility rates are comparable to current heating rates, outperform current cooling rates, will fall with additional buildings
- 8. Ability to add private development to system to meet other objectives: transit station development, affordable housing goals, environmental goals





#### Risks to the City of Rochester - DES

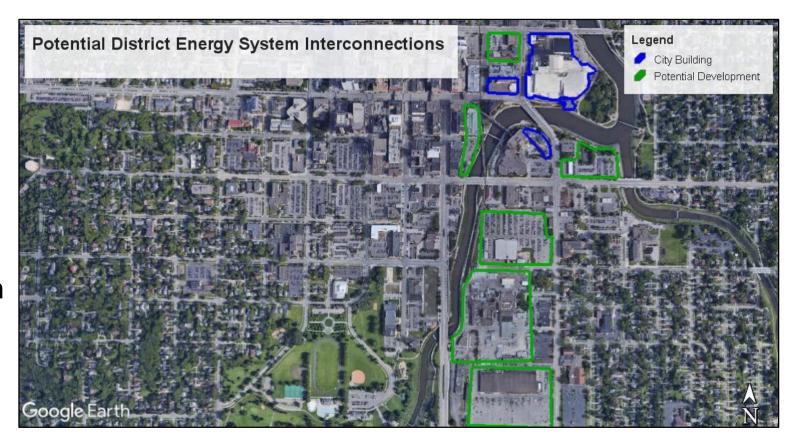
- Initial cost of installation of DES Capital Costs exceed projection. (street excavation)
- No additional growth or expansion of the system for an extended period.
- 3. Rapid growth of the system would require significant capital investment.
- 4. Premature failure of cooling assets in the civic center and library that would be connected to the DES and become a utility asset.
- 5. Cost of capital rises significantly. Initial start up capital (\$16 \$20M for DES)
- 6. County decides not to participate in DES (Increases the operating cost for City significantly)
- 7. Utility assets located in non-utility buildings (Access, Insurance, future dissolution or withdrawal)
- Assume no additional capital cost for land and location of the energy plant.





# Benefit to Development of District Energy System

- 1. Reduced capital cost
- 2. Reduced ongoing operations and maintenance cost, performed by third party
- 3. System redundancy and reliability
- 4. Reduced project design costs
- 5. More building space for program
- 6. Furthers progress toward City's environmental goals





## **Next Steps**

- Continue discussion with County regarding DES including County buildings.
   (County Feb 19 discussion)
- 2. Update and make recommendation to City Council
  - a. City Council Approves building heating and cooling option
  - b. City Council directs management to implement approved option.
- 3. Move to implementation phase



#### **RPU Board Recommendation**

- Council Selects Building Based Option
   No Action needed by RPU Board.
- 2. Council Selects District Heating and Cooling Option (DES)

RPU Board express support for Council delegating the implementation and operating of the DES to Rochester Public Utilities by ordinance.

Note: Actions if DES is approved

- a. Approve a new enterprise fund (by the Council)
- b. Secure long term service contracts from City and County (30 year)
- c. Obtain funding (\$20 Million Bonds)
- d. Detailed construction and operational planning and execution.

#### **Questions?**

#### Thank You

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