THE NATIONAL WESTERN CENTER

DISTRICT ENERGY SYSTEM BRIEFING

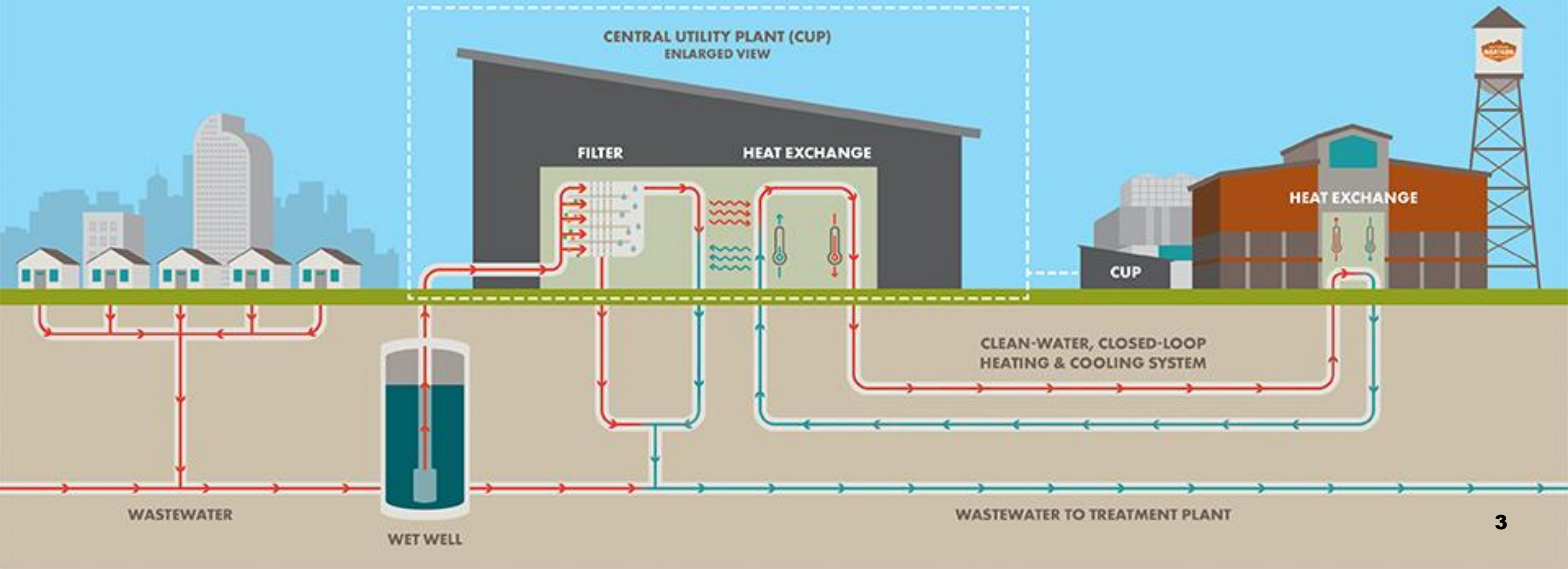
FINGOV APRIL 4, 2023

DISTRICT ENERGY AT THE NATIONAL WESTERN CENTER

- The District Energy System concept was described in the National Western Center's Framework Agreement.
- The system uses recycled thermal energy from underground sewer/wastewater pipes and converts it to heating and cooling for campus buildings.
- Council approved the Contingent Commitment Agreement with the National Western Center Authority in July 2020 to support financing the District Energy System.
  - The District Energy System infrastructure was completed on April 22, 2022.
- The system, along with the campus's solar garden system, provides many environmental benefits to the campus and to the community, which helps meet the sustainability goals of the National Western Center and the City and County of Denver.

DISTRICT ENERGY SYSTEM

HEATING AND COOLING USING A RECYCLED SOURCE OF THERMAL ENERGY — WASTEWATER



NWC CAMPUS PLAN

1. RTD Transit Station
2. Brighton Blvd. – 47th to Race Court
3. South Platte Riverfront
4. New National Western Drive
5. Stockyards Event Center
6. The Yards Multi-Use Space
7. Campus-related transit-oriented development (TOD)
8. New Bridges Near 48th & 51st Avenues
9. Livestock Center
10. Equestrian Center
11. District energy system's central utility plant (CUP)
12. CSU Spur: Vida (health)
13. CSU Spur: Hydro (water)
14. CSU Spur: Terra (food)
15. Maintenance & Operations Facility
16. DRIR Rail Corridor
17. WSSA Legacy Building HQ
18. Pedestrian Bridge
19. Arena
20. Expo Hall
21. 1909 Building rehabilitation
22. Supporting development

DISTRICT ENERGY SYSTEM

DISTRICT ENERGY SYSTEM BENEFITS

- Not reliant on natural gas for heating and cooling of NWC buildings, and when fully connected:
  - Will provide nearly 90% of Phase 1 and 2 campus heating and cooling requirements and scalable to any future building needs.
  - Provides price certainty and is cost comparable to traditional energy systems
  - Avoids almost 2,600 metric tons of CO_2 emissions each year or 6.6 million vehicle passenger miles annually.
  - The campus will conserve 3,168 kgal water each year, the equivalent of more than five Olympic-size swimming pools.
- System serves as a micro-grid at National Western Center campus to enhance community resiliency.
  - Potential place of refuge during extreme weather events or outages.
- Project buried two 7’ above-ground legacy sewer pipes that ran along the South Platte River.
  - Helped open access to the river for the campus and community.
  - Eliminates potential spills and mitigates sewer odor.

2018

2022

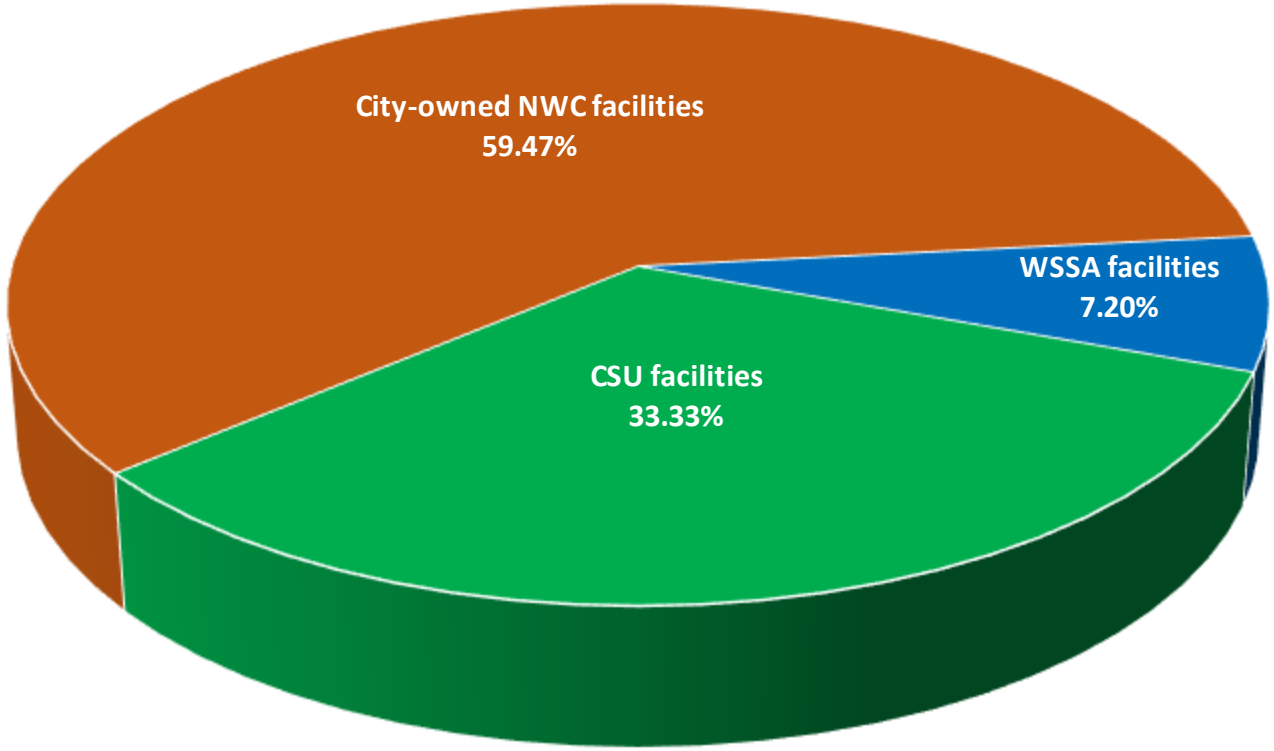
DISTRICT ENERGY SYSTEM PERFORMANCE

- Building Design:
  - MWBE goals met or exceeded.
  - Interactive building design for "see in, see out" tours.
- Construction:
  - MWBE goals met or exceeded.
  - On time, on budget.
- Community:
  - Contributions to Community Investment Fund (CIF) in 2022 and 2023 so far.
- Tours and educational opportunities – local, regional, national and international interest.
- Winner of 2022 Engineering News Record "Project of the Year" for Rocky Mtn. Region.
- Connected to CSU Vida, Terra and Hydro – operational.
- Connected to Stockyards Event Center – operational.
- Forwarding Campus, City and Partner sustainability goals.

DISTRICT ENERGY DEAL STRUCTURE

- The NWC Authority entered into a Campus Energy Agreement for 40 years plus construction with EAS Energy Partners, LLC to provide recycled thermal energy for the campus.
- Total estimated project cost: $185.6 million over 40 years.
  - Includes $32 million in design/build costs.
  - Includes financing costs, replacement costs, EAS utilities, insurance, 40 years of operations and maintenance, and required handback standards.
- To make payments to EAS, the Authority charges campus users, including building owners and event operators, to use the campus energy system.
- Fees are charged based on building capacity loads and are sized to cover the energy payments.

PAYMENT PERCENTAGES ARE BASED ON CAPACITY LOADS FOR THEIR BUILDINGS



CONTINGENT COMMITMENT AGREEMENT

Agreement between the City and the Authority signed on July 23, 2020

- Because the Authority is a new entity, the city agreed to provide credit support through the Contingent Commitment Agreement enabling EAS to finance the project.
- The city will seek to provide loans to the Authority to help cover annual energy payment shortfalls in the early years of campus operations and/or unplanned supplemental expenses.
  - The city loan covers any shortfalls between what the Authority owes to EAS for city-owned and WSSA-owned facilities and what is collected from users.
  - Projections indicate need for city loan support for first 10 years as new buildings and events come online.
- The city may terminate the Contingent Commitment Agreement under certain conditions such as the Authority reaching specified measures of financial maturity.

DISTRICT ENERGY LOANS FROM CITY TO AUTHORITY

Year	Estimated loan advances to Authority to cover scheduled annual energy payments 2022 – 2032
2021	0
2022	$928,000
2023	$1,473,000
2024	$1,126,000
2025	$1,103,000
2026	$786,000
2027	$705,000
2028	$579,000
2029	$437,000
2030	$319,000
2031	$180,000
2032	$90,000
Total	**$7,726,000**

- Any financial support the City provides through the Credit Support Agreement will be appropriated through the annual and supplemental budget processes.
- City loans under the CCA will be paid back through excess Authority revenues.

DISTRICT ENERGY LOANS FROM CITY TO AUTHORITY- ACTUALS TO-DATE

Year	2020 Loan Projections	Actuals to date	Variance	Loan Variance related to Vida Temp	Net Variance	Variance Explanation
2021	$0	$680,000	$680,000	$680,000	$0	Temporary services due to Vida online early
2022	$928,000	$1,538,064	$610,064	$399,138	$210,926	Vida temp services and pandemic-induced construction delays
2023	$1,473,000	$1,939,565	$466,565	$0	$466,565	Continuation of construction delays
	$2,401,000	$4,157,629	$1,756,629	$1,079,138	$677,491	

Timing of campus buildings coming online account for the variance in what was projected and the actuals. Vida came online earlier than planned and there were delays in Livestock, Equestrian, and Legacy buildings.

TRUE TO OUR ROOTS

True to the National Western Center's master plan, the sewer-heat recovery system is:

- Reliable and resilient
- Price-certain and cost-effective
- Low-carbon and sustainable
- Healthier for our communities
- A source of career and educational benefits
- Inclusive of the founding partners
- Aligned with the NWC mission and vision

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