



LEBANON ENERGY ADVISORY COMMITTEE (LEAC)
JUNE 15, 2023 - 4:00 PM
COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE

-
- 1. Call to Order**
 - 2. Approval of Minutes**
 - A. May 18, 2023
 - 3. Old Business**
 - A. Legislation/PUC Regulations/CPCNH/LCP Updates
 - B. Landfill Gas to Energy Updates
 - C. Municipal Solar Updates
 - D. Charging and Fueling Infrastructure(CFI) Grant Application
 - E. Report on Rental Decarbonization Pilot/Weatherization
 - 4. New Business**
 - A. Presentation from SHARC Energy - Wastewater HVAC
 - B. EV Subcommittee Report
 - C. Recent and Upcoming Conferences or Webinars of Note
 - D. EFM Report
 - 5. Open to the Public**
 - 6. Future Agenda Items**
 - 7. Adjournment**

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to LebanonNH.gov/Live where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

AGENDA
LEBANON ENERGY ADVISORY COMMITTEE(LEAC)
June 15, 2023

AGENDA ITEM 2
APPROVAL OF MINUTES:

MAY 18, 2023

DRAFT

**LEBANON ENERGY ADVISORY COMMITTEE
CITY HALL MEETING ROOM #2 OR
REMOTE VIA VIRTUAL PLATFORM
4:00PM, THURSDAY MAY 18, 2023**

MEMBERS PRESENT: Greg Ames (Chair), Jon Chaffee (Vice Chair), Clifton Below (City Council Rep.), Woody Rothe

MEMBERS ABSENT: Devin Wilkie (Alt. Council Rep), Sherry Boschert, Meghan Butts (alt)

STAFF PRESENT: Tad Montgomery (Energy & Facilities Manager)

1. CALL TO ORDER

Chair Ames called the meeting to order at 4:12pm.

2. APPROVAL OF MINUTES – April 20, 2023

A MOTION was made by Mr. Rothe to approve the April 20, 2023 Meeting Minutes as presented. The Motion was seconded by Mr. Below.

** The Vote on the Motion was approved (4-0).*

3. OLD BUSINESS

A. Legislation/PUC Regulations/CPCNH Updates

Mr. Below said that the Community Power Coalition of New Hampshire was awarded the Small Business Energy Champion Award for 2023 during events held for New Hampshire Energy Week.

Mr. Below said he presented to the NH Government Finance Officers Association during that week. He said he found out that the City of Somersworth Finance Officers had been talking about the group, so there will be another presentation to that group.

He talked about one presentation from a group that originated in Massachusetts that had gotten started by looking at methane leaks from natural gas distribution systems. He said the group evolved into an advocacy group that is interested in turning these types of distribution systems into water loops with geothermal heat exchanges for heating and cooling and turning natural gas utilities into geothermal district energy systems. He said the projects included heat pumps that both chill and heat off the water and have geothermal wells in the public right of way. Mr. Rothe said his friend wrote the report for that team and said she'd be happy to come to a City Council meeting and talk about it. Mr. Below said several natural gas companies are starting to pilot this project. Mr. Rothe said utilities are in favor of these kinds of projects because it allows them to replace equipment and infrastructure rather than repair it. He said his friend has also written similar reports for Philadelphia and Maryland.

1 Mr. Below said he thought this kind of project could be included in the downtown
2 redevelopment. Mr. Rothe said there's an active group in Burlington, Vermont that is
3 also talking about this. Mr. Below said some IRA federal funding has been dedicated to
4 these kinds of projects.

5
6 Mr. Below said Dover decided not to join, but Portsmouth and Canterbury are about to
7 launch, so, by the end of June, the group should have about 75,000 customers involved
8 in Community Power, and that will make the Community Power Coalition of New
9 Hampshire the third largest electricity supplier in NH. He said Concord is not ready to
10 join yet.

11
12 He said the Community meeting was held last month where they reconstituted
13 committees and held a Board election. He said they set the limit for Board members at
14 20 and there are 33 members in the group. He said the new CEO starts on Monday. He
15 said the group should have accrued about \$4 million in surplus by the end of July, but
16 because there can be a lag in payment from utilities, it might be a couple of months
17 before it is able to bank the surplus.

18
19 He said they are still in the process of gaining support from other utilities and energy
20 suppliers in NH. He said they did achieve a significant victory with Senate Bill 166,
21 which passed the house unanimously and it expands the type of limited energy producer
22 pilots they can do from 2 megawatts per utility to 25 megawatts per utility. He said the
23 bill also adjusts some language in the statute. He said that opportunity still rests on
24 being able to win the jurisdictional argument with PUC. He said there is also testimony
25 to write for all three utility purchases due for the three Fridays in June. He explained the
26 jurisdictional issue to the Committee members, which he said has arisen out of
27 ambiguities over the jurisdictional delineation between the federal energy agency and
28 state energy agencies.

29 30 **B. Landfill Gas to Energy Updates**

31 Mr. Montgomery said he met with a company called Vespene. He said this company
32 drops temporary data centers to sites that are producing methane gas and have generator
33 equipment on-site. He said they will power the data centers using the generators. He
34 said they use the power to develop AI and cryptocurrency. He said they would not need
35 to bring in large data cables to run the data center. He said they would need a contract
36 for at least a year term for these temporary data centers.

37
38 Vice Chair Chaffee asked about the interconnection agreement that the City had in
39 place with Liberty. Mr. Below said when the City signed an interconnection with
40 Liberty last year, it was supposed to be a 16-month agreement. He said Liberty did not
41 sign the agreement until the end of March, and National Grid said the term is required
42 to be for 18 months. Mr. Below said another complication arises from a decision by
43 previous directors of the City's DPW to install catalytic converters on the City's five
44 stacks to reduce formaldehyde, which has proven to be costly in both costs and time
45 delays. He said that will hopefully get cleaned up soon and get the interconnection
46 project started.

1 Mr. Montgomery said the Vespene company also brokers eRINs (electric Renewable
2 Identification Numbers). He said they are mechanisms to subsidize renewable natural
3 gas used in the transportation sector. He said they are worth 30 cents per kilowatt-hour
4 produced for electric vehicles. He said the regulations for RINs are in the final stages of
5 review and will come into effect January 1, 2024.
6

7 **C. Municipal Solar Updates**

8 Mr. Montgomery said three pre-proposals have been submitted. He said he now needs
9 the value part of the cost/benefit analysis. Mr. Below said the Department of Energy's
10 Energy Resource Study has been updated with 2022 data that will provide excellent
11 tools to access and analyze the data. Mr. Montgomery said he would send Mr. Rothe the
12 list of sites proposed by the three applicants. Mr. Montgomery said the total rate
13 capacity from the phase 3 solar project is 3.4 million kilowatt hours per year.
14

15 **D. EV Charging RFP (Lebanon/Hanover/Hartford)**

16 No updates
17

18 **E. Report on Rental Decarbonization Pilot/Weatherization**

19 Mr. Rothe said he heard that executives at Hodges Companies that weatherization has
20 become a major concern/initiative. He said he was contacted by Hodges for information
21 about the weatherization project.
22

23 Mr. Below said he attended a presentation at the Data Governance Council about doing
24 a GRIP proposal to get funding to expand the use of the data platform to strengthen
25 energy equity. He said the presentation was about using the data to help understand
26 where there's excessive energy use (ex: apartment complexes) and to target underserved
27 communities (low income/poor quality rental housing). He said there may be an
28 opportunity for the Coalition to work with a company like Hodges on a project like that.
29

30 **F. Master Plan Update/Lebanon Strategic Plan**

31 No updates
32

33 **G. LCP Updates**

34 Vice Chair Chaffee asked about an issue that was discussed regarding letters that had to
35 be re-sent to renters and condo owners. Mr. Below said apartment, unit and street
36 numbers were left out of many addresses on the mailing list. He said they also noticed
37 that some addresses from smaller towns/villages were not included. He said they did
38 receive a complete list and are getting ready to send out another 7,000-piece mailing.
39

40 Mr. Below said the new CEO of the Community Power Coalition of New Hampshire is
41 Brian Calnan, formerly vice president of Power Supply and Access at the NH Electric
42 Cooperative. He said it is very exciting to have him onboard.
43
44
45
46

1 **4. NEW BUSINESS**

2 **A. Charging and Fueling Infrastructure (CFI) Grant Application**

3 Mr. Montgomery said several sites have been identified. He said the old Village Market
4 site will have two fast chargers with the potential for two more and two Level 2 charges
5 with the potential for two more. He said he proposed to the City Manager to make an
6 agreement with the owner of the property to add one-megawatt capacity upgrades to use
7 at the downtown fire station in the future. He said one of his tasks is getting the
8 landowners the total project cost estimate. He said he doesn't have that yet. He said the
9 deadline has been pushed back to June 13. He said ChargePoint is very excited to work
10 with the City on this project.

11
12 He said the fast chargers have two ports off one unit that delivers up to 500 kilowatts.
13 He said these chargers are comparable to what has been installed at Walmart. He said
14 they are also looking at installing 2 fast chargers and four Level 2 chargers with the
15 capacity for two more fast chargers at Centerra. He said the last site is in West Lebanon
16 on the southern edge of the property owned by Mascoma Bank. He said two fast
17 chargers would be installed and a row of Level 2 chargers. He noted that the adjacent
18 Twin Pines building has a solar canopy for bikes and he said he is working on a
19 proposal to Twin Pines to install bike chargers under that canopy.

20
21 He said DHMC wants to upgrade their 17 Level 2 chargers to a network and are very
22 interested in solar tracker EV Charger stations. He said DHMC also wants to add 13
23 more Level 2 chargers. He said two more solar tracker charging stations could be
24 installed in the Taylor St. parking lot. He said there is another site at 10 Parkhurst Street
25 with a proposed bank of Level 2 chargers.

26
27 Alternate committee member Meghan Butts arrived at the meeting at 5:35pm.

28
29 Mr. Montgomery said there's another Twin Pines property in West Lebanon on Pine
30 Tree Road that Twin Pines is willing to add a few chargers now with room for more in
31 the future. Mr. Montgomery said demand charges are still being considered, but there is
32 no clear plan on how they would be used.

33
34 Mr. Montgomery asked Vice Chair Chaffee if he could contact the Byrne Foundation to
35 possibly provide match costs for some of the proposed sites because some site owners,
36 particularly Twin Pines, do not have the funds to provide the funding match. He said
37 each fast charger would cost about \$1 million.

38
39 Vice Chair Chaffee asked about the community advocacy role, which is part of the
40 grant. The group discussed possible outreach activities and who could spearhead those
41 activities.

42
43 Mr. Montgomery said he could use help collecting letters of support for the CFI grant.
44 Ms. Butts said she could make a template for letters and Mr. Montgomery said he has a
45 list of organizations to contact. Mr. Montgomery said he would send them both to the
46 LEAC members.

B. Strategic Plan Presentation to Council

Mr. Below said the Strategic Plan is a list of City Council-adopted objectives for City employees to work on over the next three years. Mr. Below read the objectives that are relevant to the work of LEAC.

C. City Greenhouse Gas (GHG) Reduction Plan (Fleet Electrification/Building Conversion)

Mr. Montgomery said he and Mr. Mark Goodwin (GIS Coordinator) gave a presentation on GHG Reduction to the City Council. He said there were some questions. He said it is pretty clear that the City is not on track to meet these goals. He said there are buildings that could be converted, but costs are high and not all buildings are appropriate for conversion. He said this may be added to a CIP for future years.

Ms. Butts and Mr. Below left the meeting at 5:45pm.

Mr. Montgomery said the manager of the Fleet has expressed a desire to limit the make of City vehicles to as few as possible in order to minimize training, tool requirements, etc. He said there may be several vehicles that could be electric over the next six or seven years, but only a fraction may be able to be converted. He said Fleet Conversion is very complex.

D. EV Subcommittee Report

No update

E. Recent and Upcoming Conferences or Webinars of Note

Mr. Montgomery said there is an event on June 9 and the VECAN conference on June 3 at Middlebury College.

F. EFM Report

Mr. Montgomery said he (at Mr. Below's suggestion) has explored trying to have the generators at DPW garage and administration building to operate in coordination with solar power during power outages. He said the generator installer said it would not be possible. He said the DPW Garage has multiple leaks and the cost to fix/reinsulate is very high.

Mr. Montgomery said he got an email from City Councilman Devon Wilkie about whether LEAC would like to be involved in the Social Help and Justice section of the Strategic Plan. He said the objective was to help the region to prepare to adapt to climate change and think about long-term aspects of becoming a destination for climate migrants. The members of LEAC present discussed it and agreed that LEAC would like to be in communication but not necessarily partners in the initiative.

5. OPEN TO THE PUBLIC

None

6. FUTURE AGENDA ITEMS

None

1 **7. ADJOURNMENT**

2
3 *A MOTION was made by Vice Chair Chaffee to adjourn the meeting at 6:16pm. The Motion*
4 *was seconded by Mr. Rothe.*

5
6 ** The vote on the Motion was approved (3-0).*

7
8 **The meeting was adjourned at 6:16pm.**

9
10 Respectfully Submitted,

11 Paula Roux

12 Recording Secretary

AGENDA
LEBANON ENERGY ADVISORY COMMITTEE(LEAC)
June 15, 2023

AGENDA ITEM 4
NEW BUSINESS:

A. PRESENTATION FROM SHARC ENERGY – WASTEWATER HVAC



**We Turn Wastewater
Into Opportunity**



Aaron Miller
Eastern Regional Manager

aaron.miller@SHARCEnergy.com
646-303-1204





Why Wastewater?

- Limitless Energy Source Material
- Consistent Temperatures Year-Round

Reduces

- Energy Loss from Buildings
- GHG Emissions
- Energy Use & Operational Costs
 - CO₂ Tax savings (where applicable)

High Efficiency Electrification

- Market Demand
 - Decarbonization
 - Low GWP Refrigerants
 - Heat Pumps
- Local, State & Federal Legislation
- Incentive Programs





Benefits of a 'WET' Building

Wastewater Energy Transfer...

- **Frees up rooftop for patios, green space, PV solar**
 - ✓ Remove / reduce size of cooling towers
 - ✓ Much quieter than a rooftop air-source heat pump
- **SHARC equipment located in the mechanical room**
 - ✓ Out of sight – Out of mind
 - ✓ Extended life span
 - ✓ Ease of service
- **Hydronic heat takes up less space than traditional air ducts**
 - ✓ Increase the overall sq ft of useable space
- **New building codes are mandating electrification**
 - ✓ WET systems can completely offset the thermal load for a property
 - ✓ Increases Net Asset Value & Net Operating Income of the building

PIRANHA SERIES



- Wastewater-source heat pump
- Active energy recovery
- No filtering needed
- **Small footprint**
- **No odor**

Wastewater Energy Transfer (WET) Market Applications



Residential

- Multi-Family Housing
 - **PIRANHA (50–350 Units)**
 - **SHARC (350+ Units)**
- Student Housing
- Senior Living
- Community Housing



Commercial

- Hospitals
- Micro-Breweries
- Hospitality
- Commercial Laundry & Car Wash



Industrial

- Commercial Food Production
- Pulp and Paper
- Textiles
- **District Energy**

SHARC SERIES



- High capacity
- High volume filtration
- Uses custom heat exchanger
- **Small footprint**
- **No odor**

The PIRANHA Series

The PIRANHA is a self-contained heat pump that uses a specifically designed direct expansion heat exchanger to recover thermal energy from a building's wastewater for domestic hot water heating



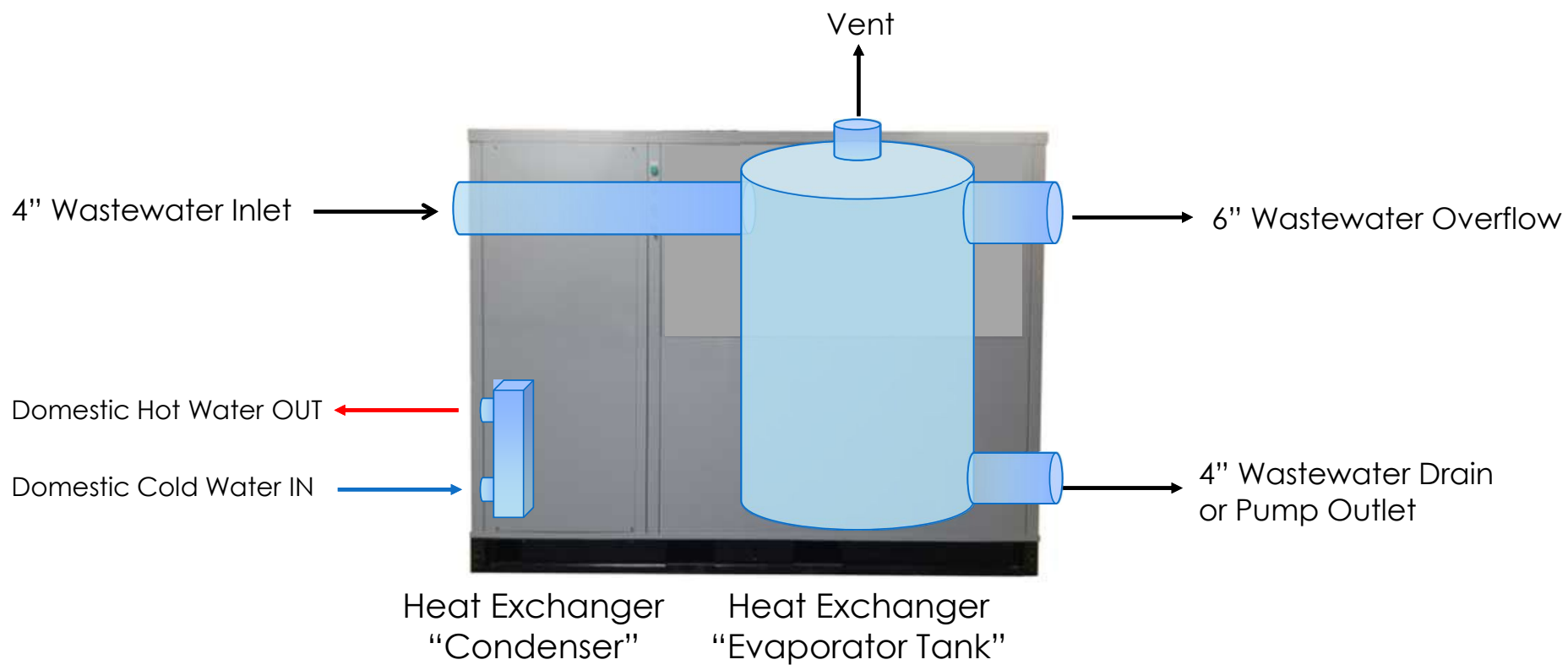
Models: T5 / T10 / T15

- Design heat output
 - **60 / 120 / 180 MBH**
 - Increase output scalable with multiple units
- Designed to fit through standard double door
- Average COP of 3.5*
- DHW production while Cooling Spaces
- **NSF-372 rated BPHE**
 - Double-wall, leak detection
- R-513a
 - 56% Lower GWP than R-134a (573 vs 1,430)
 - Same performance

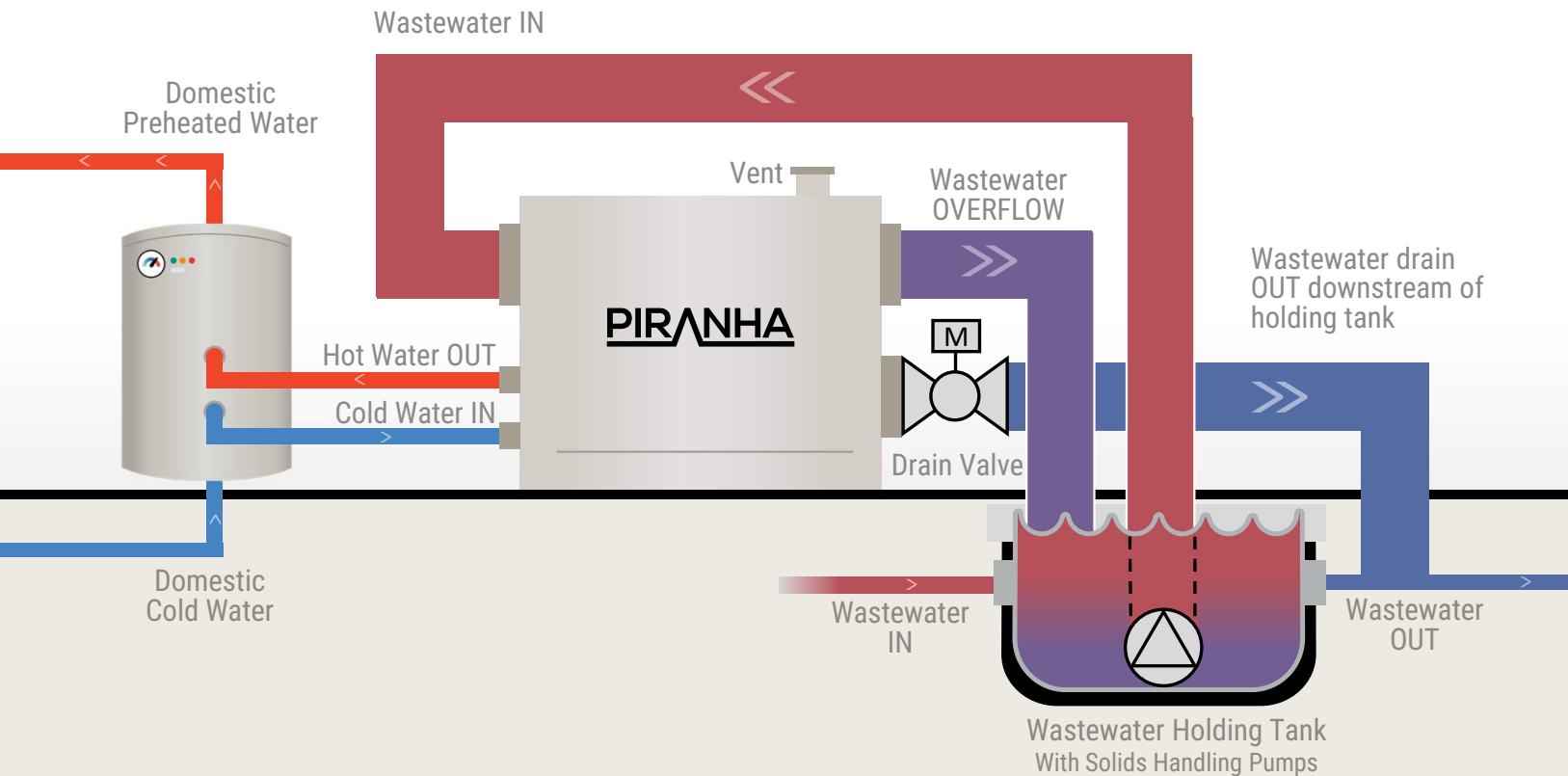
*Average COP across a range of source temperatures, output temperatures and application types.



PIRANHA



Single Building – PIRANHA



PIRANHA project highlight

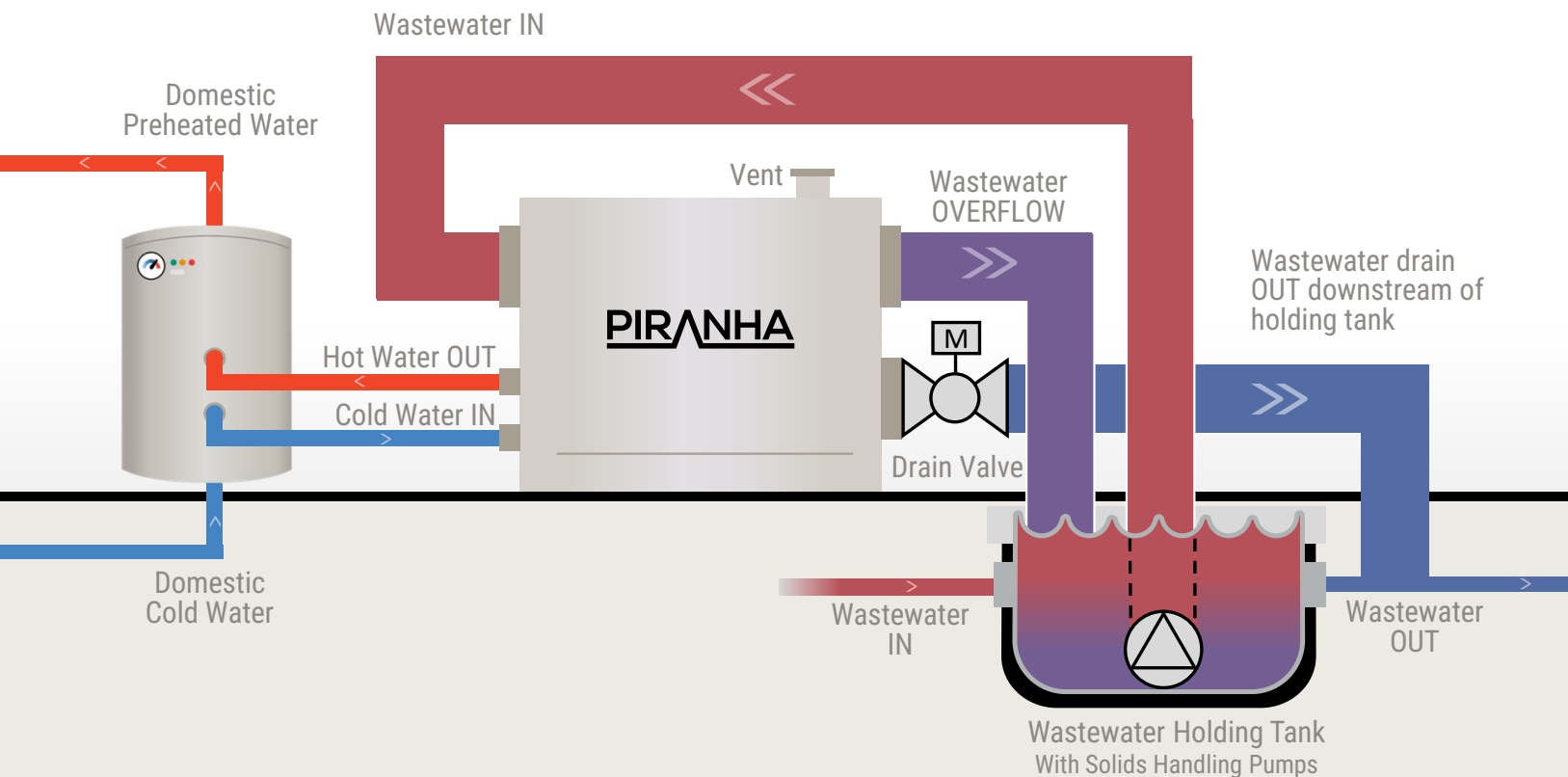


3200 Bluff

- PIRANHA T5
- Providing DHW to 37 residential units
- Main fuel source: Propane
- 3.25 COP
- 44% energy reduction vs baseline (~54 metric t CO₂e/year)

CUSTOMERS.sharcenergy.com

Single Building – PIRANHA



PIRANHA project highlight



Lake Louise Inn

- PIRANHA T10 recovering heat from 4 commercial laundry washing machines
- Main fuel source: Propane
- 60% Reduction in fuel costs
- 5.25 COP

CUSTOMERS.sharcenergy.com

North Vancouver, BC

Seven35

SHARC

CASE STUDY

- The first multi-family LEED® for Homes Platinum building in Canada
- Certified BuiltGreen Gold
- 60 Residential Units
 - PIRANHA T10 Commissioned Spring 2016
 - Natural Gas reduction (820 GJ | 9,350 Thm)
 - GHG Emission reductions of approximately 49.6 t CO2e/year
- PIRANHA preheats domestic hot water
- PIRANHA contributed to LEED® Platinum certification of the building
- Currently PIRANHA HC EPRI Challenge Site



SHARC

SYSTEM

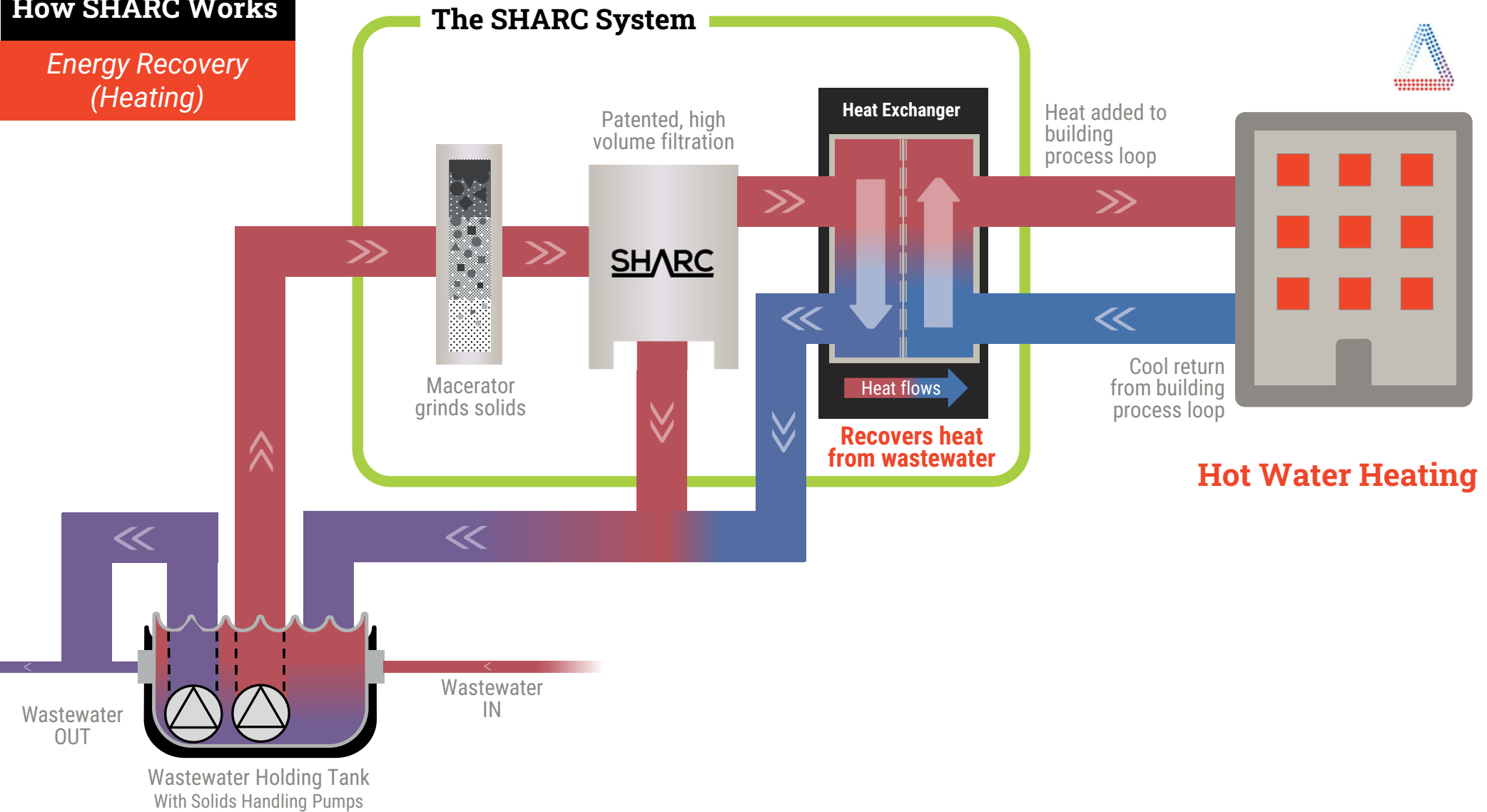


- SHARC Filter Unit
- Support Frames/Skids
- Control Panel
- Macerator/Grinder
- Piping/Valve Assembly
- Plate & Frame Heat Exchanger
 - Wide Gap
- Wastewater Holding Tank & Solids Handling Lift Pumps
Existing Tank can be used
- Heat Pump
 - May not be needed in ambient/low temp systems

*Sourced Separately

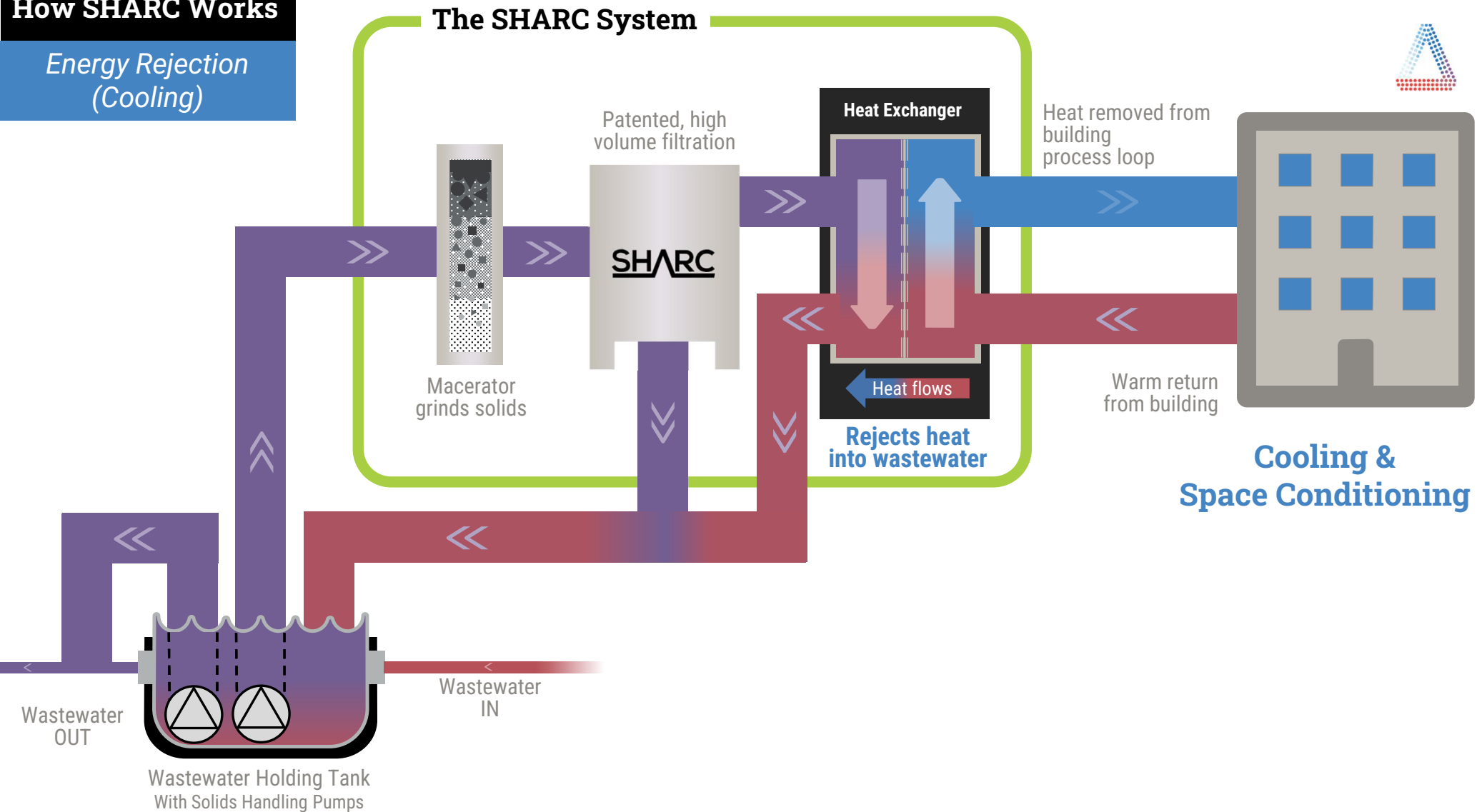
How SHARC Works

*Energy Recovery
(Heating)*



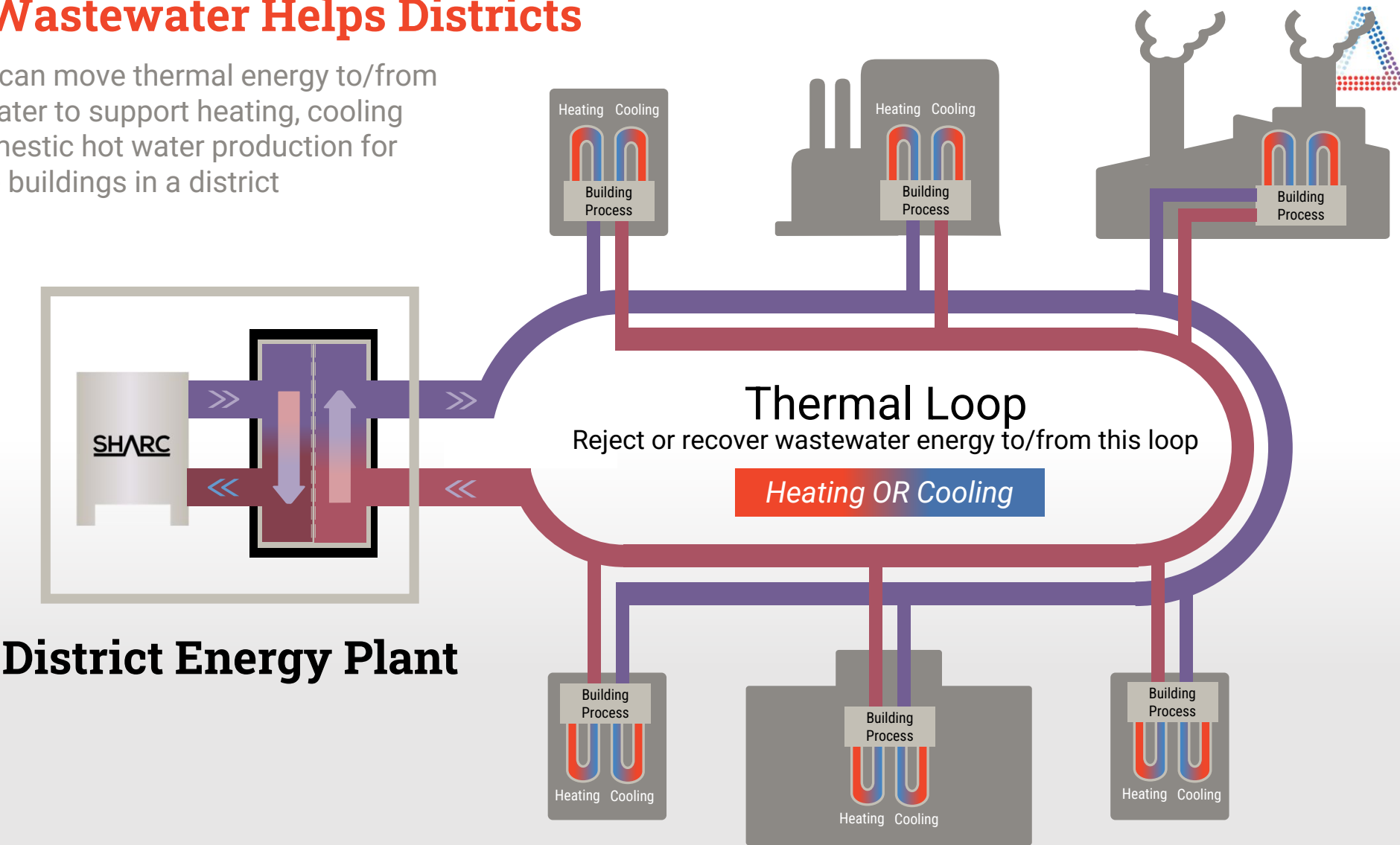
How SHARC Works

*Energy Rejection
(Cooling)*

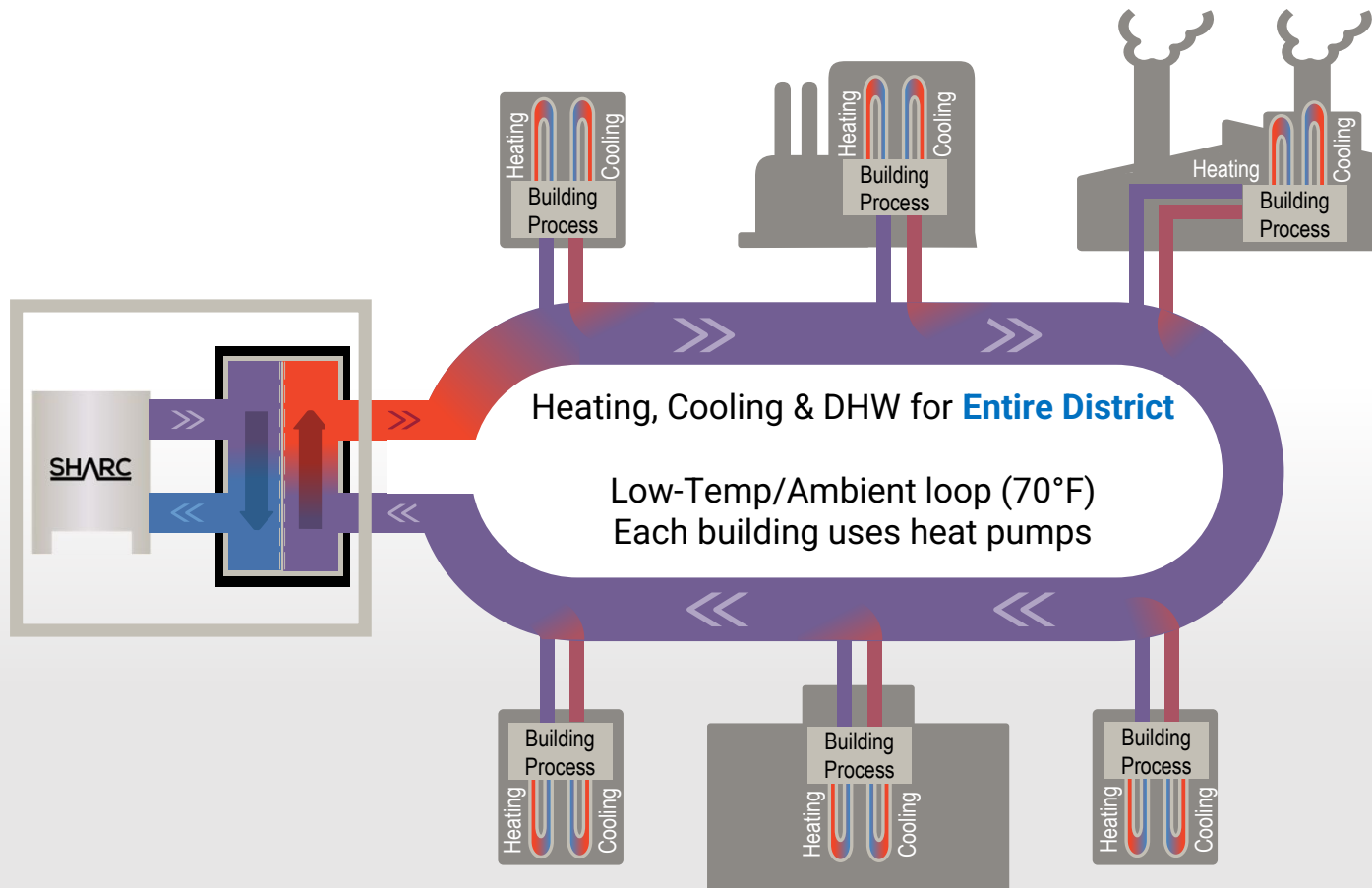


How Wastewater Helps Districts

SHARC can move thermal energy to/from wastewater to support heating, cooling and domestic hot water production for multiple buildings in a district



District Energy – SHARC



SHARC project highlight

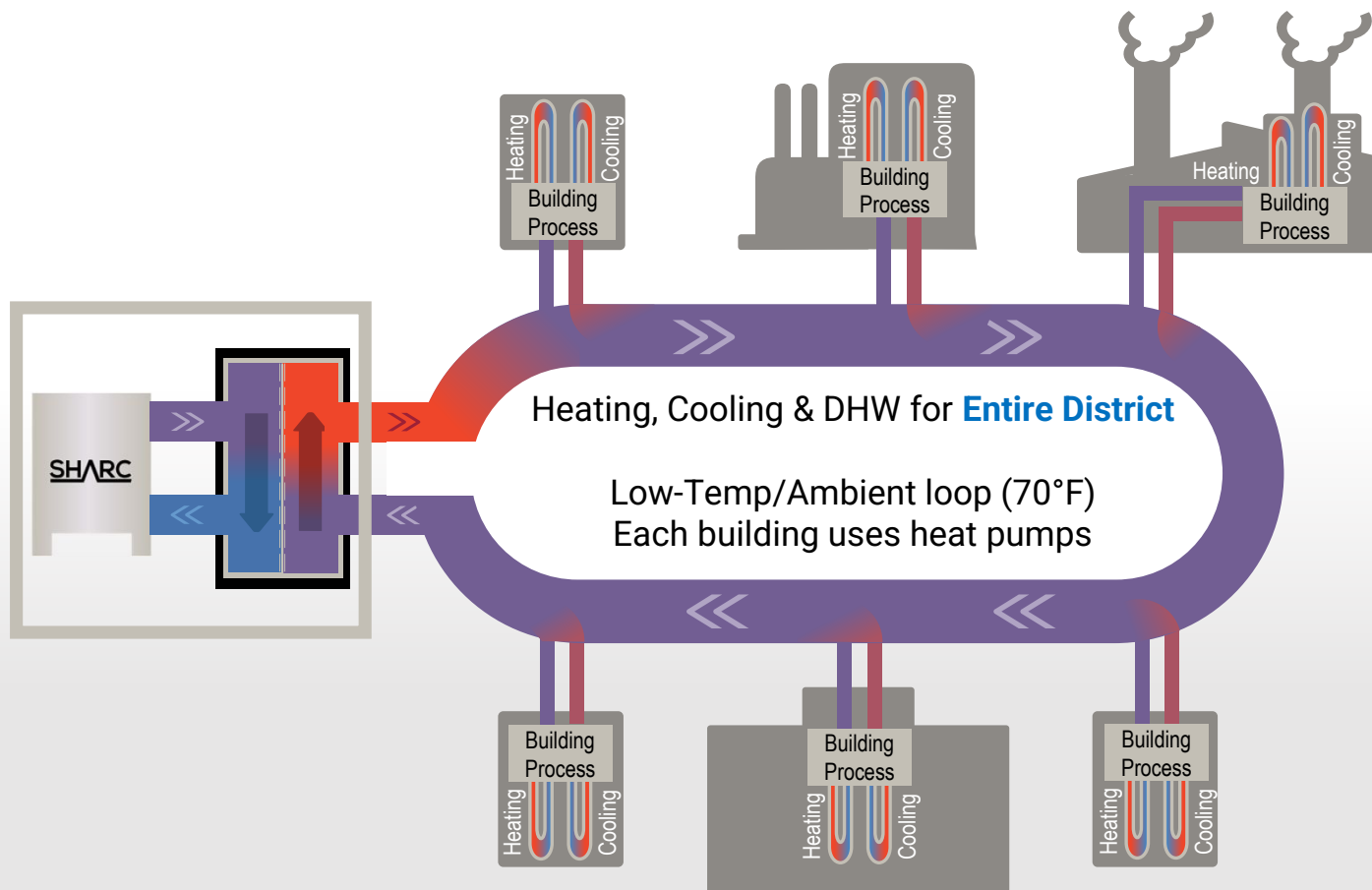


Ielom' living

- 22-acre mixed-use
- 1.3M sq ft indoor space
- 30,000 sq ft retail, including grocery
- 1,300 residences
- 15,000 sq ft community center

CUSTOMERS.sharcenergy.com

District Energy – SHARC



SHARC project highlight



National Western Center

- (2) SHARC 880 provide 3.8MW of thermal transfer
- 90% of total heating & cooling load for 1M sq ft of indoor space
- ~2600 mt CO₂e/yr offset
- Plans to expand plant to 10MW

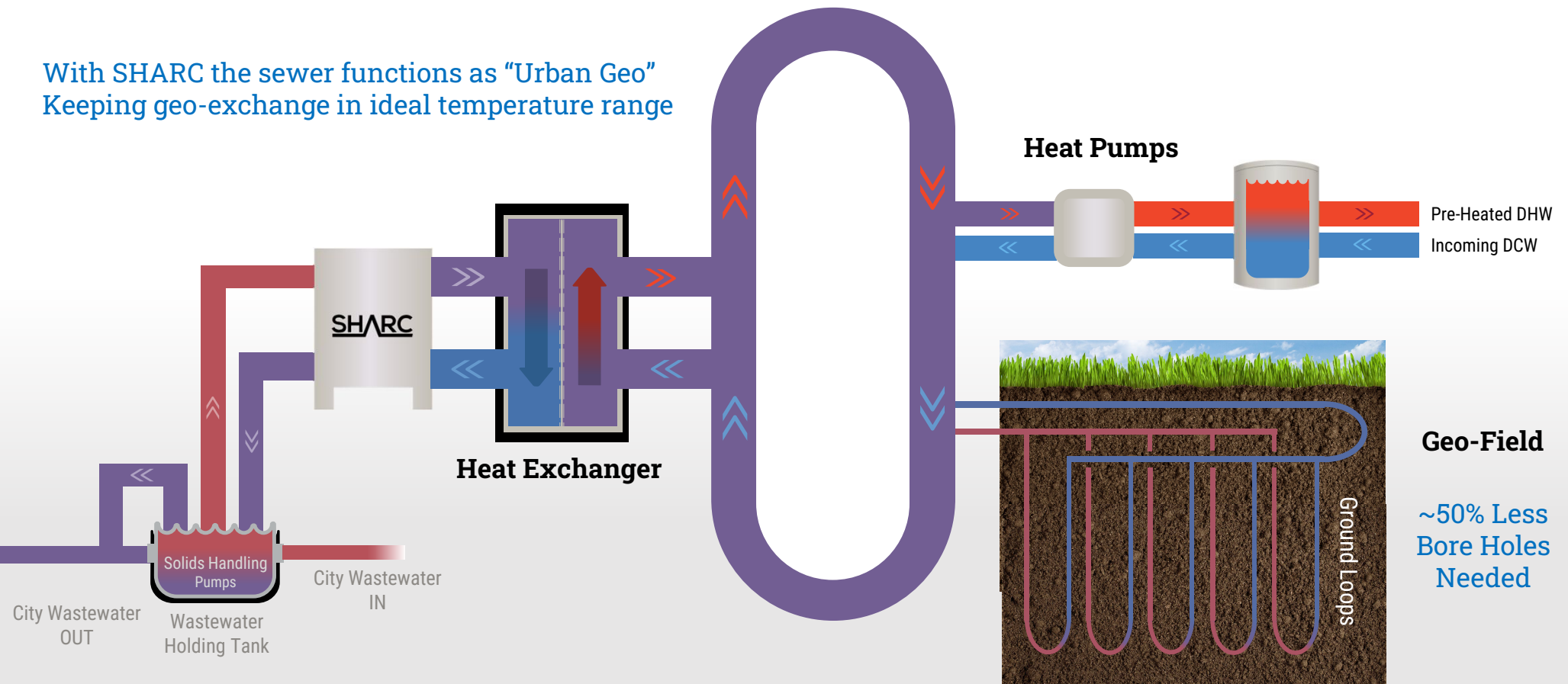
CUSTOMERS.sharcenergy.com



SHARC

Paired with Sewer & Geo-Exchange

With SHARC the sewer functions as “Urban Geo”
Keeping geo-exchange in ideal temperature range





**We Turn Wastewater
Into Opportunity**



Aaron Miller
Eastern Regional Manager

aaron.miller@SHARCEnergy.com
646-303-1204

