

SECOND AMENDMENT TO CHILLED WATER SERVICE AGREEMENT

This Second Amendment to Chilled Water Service Agreement (“Second Amendment”) is made by and between Public Service Company of Colorado, a Colorado corporation (“Supplier”), and the City and County of Denver, a municipal corporation of the State of Colorado (“Customer”). This Second Amendment shall be effective on the date set forth on the City and County of Denver’s signature page (“Effective Date”).

WHEREAS, Customer and Supplier are parties to that Chilled Water Service Agreement dated June 13, 2000, which provides for the purchase of chilled water service by Customer from Supplier for use by Customer in cooling space in certain of Customer's buildings in Denver, Colorado, including the Colorado Convention Center;

WHEREAS, Customer and Supplier entered into a First Amendment to Chilled Water Service Agreement dated December 12, 2001 (together with the Chilled Water Service Agreement, the “Agreement”), pursuant to which Supplier agreed to reduce the Contract Capacity Charge Rate applicable for chilled water service to the Premises as a partial inducement for Customer to purchase from Supplier chilled water service to cool space within certain other buildings owned and operated by Customer; and

WHEREAS, as part of Customer’s plans to expand the Colorado Convention Center (“Roof-Top Expansion”), Customer desires to purchase and Supplier desires to supply an additional 750 tons of Contract Capacity under the Agreement.

NOW WHEREFORE, in consideration of the premises and mutual covenants herein contained, the parties hereby agree to amend the Agreement as follows:

1. Capitalized terms not otherwise defined herein shall have the meaning set forth in the Agreement.
2. A new Section 1.21 is added to Article I of the Agreement as follows:

“1.21 “Additional Facilities” means Supplier’s Interconnection Facilities necessary to provide chilled water service to the Roof-Top Expansion.”

3. Section 1.8 of Article I is amended by deleting the Section in its entirety and replacing it with the following:

“1.8. “Contract Capacity” means 5,820 Tons of chilled water service which Supplier is obligated by this Agreement to make available to Customer. In no event shall the Contract Capacity exceed 5,820 Tons. In the event this Agreement is partially terminated pursuant to Section 6.3(c) or 9.3 hereof, then the Contract Capacity shall equal the sum of the assigned capacities, as set forth in Part F of Schedule B hereto, for all Buildings for which the Commencement Date or Roof-Top Expansion Commencement Date has occurred and this Agreement has not been so terminated.”

4. Section 1.24 of Article I is amended by adding the following sentence to the end of the Section:

“For the avoidance of doubt, upon its completion and connection by Supplier to the On-Site Chiller Plant the Roof-Top Expansion shall be part of the Premises.”

5. A new Section 1.241 is added to Article 1 of the Agreement as follows:

“1.241 “Roof-Top Expansion” means Customer’s expansion of the Colorado Convention Center anticipated to be completed in or before the month of December of 2023.”

6. Section 1.25 in Article I is amended by adding the following sentence to the end of the Section:

“For the avoidance of doubt, the Additional Facilities are part of Supplier’s Interconnection Facilities.”

7. A new Section 1.242 is added to Article 1 of the Agreement as follows:

“1.242 “Roof-Top Expansion Commencement Date” means 26 weeks after the Effective Date or such other date mutually agreeable to Customer and Supplier.”

8. A new Section 2.8 shall be added to Article II of the Agreement as follows:

“2.8 Customer Payment for Design and Construction of Supplier’s Additional Facilities. Customer agrees to pay Supplier in two separate installments for the design and construction of the Additional Facilities. The first installment shall be payment for Supplier’s design of the Additional Facilities. The second installment shall be payment for Supplier’s construction of the Additional Facilities. Customer or its authorized agent shall pay the first installment in the amount of Forty-Six Thousand Seven Hundred Seventy-Five Dollars and No Cents (\$46,775.00) on or before April 15, 2021 or thirty (30) days after the Effective Date of the Second Amendment, whichever is later. Supplier shall then construct the Additional Facilities for a not to exceed amount of Two Hundred Fifty-Seven Thousand Seven Hundred Fifty-Five Dollars and No Cents (\$257,755.00). Upon completion of construction of the Additional Facilities, Supplier shall provide Customer a payment breakdown, by category, of the not to exceed amount. Supplier shall also provide Customer with a second breakdown, by category, of the actual costs incurred to construct the Additional Facilities plus the associated markups. Supplier’s second invoice to Customer for the second installment payment shall be the lesser of the actual costs incurred to construct the Additional Facilities, plus the associated markups, or the not to exceed amount of Two Hundred Fifty-Seven Thousand Seven Hundred Fifty-Five Dollars and No Cents (\$257,755.00). Customer or its authorized agent shall pay such invoice thirty (30) days after Customer’s receipt of such invoice from Supplier.”

9. A new Section 3.6 is added to Article III of the Agreement as follows:

“3.6 Construction of Additional Facilities Necessary to Provide Chilled Water Service to the Roof-Top Expansion. Twenty-Six (26) weeks after the Effective Date or such other date

mutually agreeable to Customer and Supplier, Supplier shall, at Customer's expense as provided in Section 2.8, construct the Additional Facilities.”

10. Schedule B shall be replaced in its entirety with the new Schedule B attached hereto and incorporated by reference herein.

11. Other Terms and Conditions.

- a. Effect of Second Amendment. The Agreement remains in effect in accordance with its terms. If there is any conflict between the Agreement and this Second Amendment, this Second Amendment shall control.
- b. Entire Agreement. This Second Amendment and the Agreement constitute the entire agreement between the Parties relating to the subject matter thereof and shall supersede all other prior and contemporaneous understandings or agreements, both written and oral, between the Parties relating to the subject matter thereof.
- c. Captions, Construction. The headings used for the sections and articles herein are for convenience and reference purposes only and shall in no way affect the meaning or interpretation of the provisions of this Second Amendment or the Agreement. Any term and provision of this Second Amendment shall be construed simply according to its fair meaning and not strictly for or against any Party. The Parties collectively have prepared this Second Amendment, and none of the provisions hereof shall be construed against one Party on the ground that such Party is the author of this Second Amendment or any part hereof.
- d. Counterparts. This Second Amendment may be executed in counterparts, each of which is an original and all of which constitute one and the same instrument. A manually signed copy of this Second Amendment, or a copy of this Second Amendment signed with an electronic or digital signature, delivered by e-mail shall be deemed to have the same legal effect as delivery of an original signed copy of this Second Amendment. No legally binding obligation shall be created with respect to a Party until such Party has delivered or caused to be delivered a signed copy of this Second Amendment.
- e. Any Amendments or Modifications. This Second Amendment may only be amended or modified in writing signed by both the Parties.
- f. City Approvals. This Second Amendment will not be effective or binding on Customer until it has been fully executed by all required signatories of the City and County of Denver, and if required by Charter, approved by the City Council.

[Signature Pages to Follow]

Contract Control Number: GENRL-202158839-02 [CE0Y011-02]
Contractor Name: PUBLIC SERVICE COMPANY OF COLORADO

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By:

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

Attorney for the City and County of Denver


By:

By:

By:

Contract Control Number:
Contractor Name:

GENRL-202158839-02 [CE0Y011-02]
PUBLIC SERVICE COMPANY OF COLORADO

By:  F60AEAFD0BB543C...

Name: Alice Jackson
(please print)
Title: President
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)

SCHEDULE B

Interconnection Specifications

FOR

The Colorado Convention Center and The Denver Performing Arts Complex

A. General

1. This specification describes Supplier's district cooling interconnection to the Colorado Convention Center, the DPAC and Yasui Plaza. It includes the (1) design parameters, (2) materials to be used, (3) work to be performed by the Supplier to complete the district cooling interconnections, and (4) work to be performed by the Supplier to operate and maintain the district cooling interconnection.
2. The Supplier will provide chilled water service to buildings located in Denver, including the Colorado Convention Center, the DPAC and Yasui Plaza from a chilled water plant located at 500 15th Street and the Leased Facilities located at the Colorado Convention Center and the DPAC. The chilled water will be distributed to the Buildings from the chilled water plants through a direct buried supply and return piping system. The Supplier intends to construct additional cooling plants, which will be connected to this distribution system. A variable flow pumping system will provide the chilled water flow requirement at the incoming chilled water service to each building.

B. Basic System Description

1. Mechanical: The Supplier's incoming chilled water service will interconnect with the Customer's Internal Cooling Systems at the Colorado Convention Center , at the DPAC and at Yasui Plaza.
2. Electrical: The Supplier will provide electricity sub-meters for the equipment contained in the Leased Facilities, including the interconnection control panels. The sub-meter data will be used to calculate the amount of electricity demand and consumption during each billing period. Supplier will modify electrical service to existing chillers in the Colorado Convention Center Chiller Plant, such that all three existing chillers can be run on normal electrical power.

C. PUBLIC SERVICE COMPANY OF COLORADO RESPONSIBILITIES

1. Distribution Piping Connections: The Supplier will provide supply and return pipes, with quick couplings and valves for connection to rental chillers, from the fittings on the main distribution pipes to the primary side (Supplier's side) of the

heat exchangers, which will be located at the Colorado Convention Center and the DPAC.

2. **Equipment:** The Supplier will be responsible for providing all materials for the modifications to the Leased Facilities, including piping, pumps, isolating valves, thermometers, control valves, controls, the control interface that responds to the "cooling on" control signal from Customer's Internal Cooling Systems, the electricity sub-meters and the chilled water meters.
3. **Design:** The Supplier will be responsible to properly design the interconnections. The interconnection design at the Colorado Convention Center will include the Energy Transfer Station, pumps, pipes, controls and control valves to connect to the existing chiller plant supply and return headers; and a chilled water meter at the point of delivery to the Customer's Internal Cooling System at the Colorado Convention Center. The interconnection designs at the DPAC will include the Energy Transfer Stations, pumps, pipes, controls and control valves to connect to the existing chiller plant supply and return headers at the Buell Theater, the Boettcher Concert Hall, the Helen Bonfils Theater, the DCPA Administration Building; and chilled water meters at the points of delivery to the Customer's Internal Cooling Systems at the DPAC. The interconnection designs at the Yasui Building will include the Energy Transfer Station, pumps pipes, controls and control valves to connect to the existing chiller plant supply and return headers; and a chilled water meter at the point of delivery to the Customer's Internal Cooling System at the Yasui Building.
4. **Installation:** The Supplier's contractors will install the modifications required to interconnect the Supplier's distribution pipe and make modifications to the Leased Facilities, to the Supplier's specifications. The Supplier will install controls for the modifications to the Leased Facilities control system, including a terminal strip for the Customer's use for connecting the control wiring for the "cooling on/off" control signal from the Customer's cooling system.
5. **Commissioning:** In cooperation with the building superintendent, the Supplier will commission the primary system. This will include the flushing of the supply and return distribution piping system and start-up of the control equipment.
6. **Make-up Water:** The Supplier will provide the make-up water for the primary side of the system, including any required water treatment.
7. **Primary Side Service:** The Leased Facilities will be operated and maintained by the Supplier to provide chilled water service to Customer's Internal Cooling Systems in response to the Customer's "cooling on" signal(s).
8. **Water Treatment:** Supplier will test without charge the water in Customer's Internal Cooling Systems and report the results to the building operator. Such tests will be performed monthly, or as required.

D. CUSTOMER RESPONSIBILITIES

1. **Space Requirements:** The Customer will provide, at no cost to the Supplier, suitable space for the installation of Supplier's Interconnection Facilities and other required equipment to complete the district cooling interconnection. This will include space for the (1) supply and return primary lines, (2) heat exchangers, (3) supply and return connections to Customer's Internal Cooling Systems, and

- (4) all required auxiliary equipment. The Supplier and the Customer shall agree on the routing of the pipes through the building and the location of the heat exchangers to determine the most effective solution from a cost and performance standpoint. The Supplier and the Customer shall agree on a strategy to modify Customer's Internal Cooling Systems to match the requirements for the district cooling system.
2. The Customer will provide the controls, temperature sensor equipment and control wiring for the control of Customer's Internal Cooling System, which will include a "cooling on" control signal to the Lease Facilities.
 3. Building Modifications: In cooperation with the building operating staff, the Supplier will be willing, upon request, to help address the necessary modifications to optimize operation of Customer's Internal Cooling Systems. A properly functioning building cooling system will benefit both the Customer and the Supplier. Generally, these modifications involve changes that will increase district cooling return water temperature.
 4. Commissioning: During commissioning, the building operator shall be responsible for Customer's Internal Cooling System.
 5. Changes to the System: Any changes to Customer's Internal Cooling System that will impact the district cooling system shall be reported to the Supplier. When a material change to the operation of the Leased Facilities can result, these changes must be approved by the Supplier.
 6. Make-up Water: The building or secondary side of the interconnection will be drained and filled as required by the work. The filling and draining of the secondary side will be the responsibility of the Supplier.
 7. Water Treatment: The Supplier will maintain the water in the building cooling system. The pH level will be maintained between 9.0 and 10.0 and the total bacteria count of less than 100 cfu/ml. Makeup water chloride level shall not exceed 300 ppm at 60°F. Maximum particle size shall be 0.10 inches. Maximum concentration of solids shall be 10%.
 8. Connection Equipment: The building operator will maintain Customer's Internal Cooling System.

E. CODES AND STANDARDS

1. Denver Building Code / Uniform Building Code.
2. Latest issue of American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Handbooks on "Fundamentals" and "Systems".
3. ASHRAE Energy Standard 90-80.
4. National Fire Protection Association (NFPA).
5. Underwriters' Laboratories (UL).
6. Air Conditioning and Refrigeration Institute (ARI).
7. American National Standards Institute (ANSI).

8. American Society of Mechanical Engineers (ASME).
9. American Society of Testing and Materials (ASTM).
10. National Electrical Manufacturer's Association (NEMA).
11. ANSI-MSS SP-58-1983, Pipe Hangers and Supports - Materials, Design and Manufacturer.
12. Standards of Tubular Heat Exchanger Manufacturers Association (TEMA).

F. SYSTEM PARAMETERS

1. Chilled Water Design Temperatures:

Colorado Convention Center Customer Supply	42° F
Colorado Convention Center Customer Return	56° F
Buell Theater Customer Supply	42° F
Buell Theater Customer Return	56° F
Boettcher Concert Hall Customer Supply	42° F
Boettcher Concert Hall Customer Return	56° F
Helen Bonfils Theater Customer Supply	42° F
Helen Bonfils Theater Customer Return	56° F
DCPA Administration Building Supply	42° F
DCPA Administration Building Return	56° F
Yasui Plaza Supply	42° F
Yasui Plaza Return	56° F

2. Chilled Water Contract Capacity:

Colorado Convention Center Customer Supply	1,500 Tons
Buell Theater Customer Supply	400 Tons
Boettcher Concert Hall Customer Supply	200 Tons
Helen Bonfils Theater Customer Supply	300 Tons
DCPA Administration Building Supply	100 Tons
Yasui Plaza Supply	300 Tons

3. Maximum Chilled Water Pressures:

Operating	150 psig Primary
	150 psig Secondary
Design	150 psig Primary
	150 psig Secondary

4. Incoming Service Room Indoor Conditions:

The Supplier shall maintain a secured room where the heat exchanger is to be located. The room shall remain clean and the following shall apply:

Winter	55° F minimum
Summer	Ventilated, as required by Code and/or load

5. Pipe Sizing Criteria:

- a.) Primary

All piping will be sized to accommodate maximum velocity of 13 feet/second.

G. ENERGY TRANSFER STATION DESCRIPTION

1. Supplier Chilled Water:

- a.) Supplier's chilled water supply and return to each will be from an off-site chilled water plant.
- b.) The Energy Transfer Station will include a plate and frame type heat exchanger (see Section H.5 for more details).
- c.) The Leased Facilities will include electric control valves, strainer, valving, piping, and controls. The heat exchanger selection criteria will allow for future expansion capability.
- d.) Gauges, gauge cocks, thermometers, thermowells, shut-off valves, and other instruments will be provided for on the primary side of each heat exchanger for operation, maintenance and balancing purposes.
- e.) The chilled water control valves will be of 2-way modulating type and will be selected to close against the differential pressures involved.
- f.) All piping systems included with this work, will be thoroughly cleaned and flushed with the proper chemicals, as required.
- g.) The Leased Facilities control will include ton-hour metering, reset capability, trending and logging capabilities, pressure and temperature displays, capacity and consumption displays, customer adjustable chilled water supply reset, and read only data interface with customer control system (if required).

The system will include all computer software and hardware, sensors, transmission equipment for interface with Supplier's central district cooling control center, required wiring, piping, control panel, and standby power source for uninterrupted memory operation. The primary chilled

water system flow will be modulated to maintain constant return temperature or secondary chilled water reset temperature.

H. MATERIALS

1. Heat Exchangers:

- a.) The plate and frame exchangers shall be shipped to the site as completely assembly units. The heat exchangers shall be pressure tested and flushed clean at the factory prior to shipment. All nozzle connections shall be sealed by the factory prior to shipment to prevent foreign matter from entering into the heat exchangers during shipment, storage and installation.
- b.) The plate and frame heat exchangers shall be factory tested in accordance with the requirements of Section VIII, Division I of the ASME Code.
- c.) The flanged nozzle connections shall conform to ASA Standards, and shall be of the pressure rating design as indicated on the schedule. Studded port construction is also acceptable.
- d.) The heat exchanger design is to be of diagonal flow to optimize fluid flow distribution across the plate surfaces.
- e.) The plates shall be fabricated from SA312-304 stainless steel. Pattern shall be chevron and shall be a minimum thickness for the following design/test pressure requirements:
 - 150 psi design/225 psi test - .5 MM minimum plate thickness.
- f.) Gaskets shall be of a one-piece molded design formulated of Nitrile rubber (NBR). Gaskets shall be encapsulated by the plate gasket grooves to prevent movement during exchanger tightening and to prevent the gasket from being forced out of the groove under pressure.
- g.) Heat exchanger frames shall have a minimum of two external lifting lugs per frame designed to support twice the dry weight of the heat exchanger.
- h.) Frame tightening bolts shall receive a rust-protective coating of molybdenum grease or other appropriate coating and shall also be covered with plastic sleeves.
- i.) All exposed frame parts shall be surface prepared to SSPC-SP-6 finish prior to painting. Frame coating shall be: two prime coats of a glycerophthalic zinc chromate primer, and two finish coats of an epoxy enamel; or Aliphatic urethane coating; or baked epoxy enamel coating. Minimum coating thickness shall be 2.5 mils dry thickness.

- j.) Standard of Acceptance: Alfa-Laval, Tranter Supercharger, or Mueller Accu-Therm or APV Heat Transfer Technologies.

Heat Exchanger Schedule			
CCC Leased Facilities		Quantity 2 @ 750 tons each	
DPAC Leased Facilities:			
- Buell Theater		Quantity 1 @ 400 tons	
- Bonfils Theater		Quantity 1 @ 300 tons	
- Boettcher Concert Hall		Quantity 1 @ 200 tons	
- DCPA Administration Building		Quantity 1 @ 200 tons	
Yasui Plaza Leased Facilities		Quantity 1 @ 300 tons	
Plant Side		On-Site Plant Side	
Supply temperature	40°F	Supply temperature	42°F
Return temperature	54°F	Return temperature	56°F
Design pressure	150 psig	Design pressure	150 psig
Flow through Heat Exchanger	0% propylene glycol	Flow through Heat Exchanger	0% propylene glycol except CCC (25% propylene glycol)
Max pressure drop	12 psig	Max pressure drop	12 psig
Min pressure drop	8 psig	Min pressure drop	8 psig
Frame Sizing	Plate and Frame: For future expansion flexibility, allow for 20 percent additional plates.		

2. Insulation

- a.) Fiberglass type pipe insulation with all-service jacket will be provided for the chilled water piping system. Average thermal conductivity will be 0.25 Btu/hr/sq. ft/°F at 100°F mean temperature per inch of thickness, as follows:
- | | |
|-------------------------------------|---------------|
| Chilled water piping 4" and smaller | 1" thickness |
| Chilled water piping 6" and larger | 1½" thickness |
- b.) Primary side piping insulation will be 1½" thick fiberglass type with tight vapor barrier at joints and feed throughs. Thermometers etc., shall have an insulating cap.

I. Roof Top Expansion

- To meet the required 750 tons of additional chilled water Contract Capacity for the Roof Top Expansion Supplier will furnish, install, own and operate a fourth flat plate heat exchanger and all primary side supporting equipment to its existing Energy Transfer Station serving the Colorado Convention Center Expansion.
- The New flat plate heat exchanger will be in accordance with Tranter's technical specification # 1004561, see the attachment.
- The primary side of this fourth heat exchanger will be connected in parallel with the existing three heat exchangers by Supplier.
- Supplier intends to use their existing metering devices to meter this additional chilled water usage.