

RESOLUTION #2021- 04

**A RESOLUTION ESTABLISHING THE PRICE CITY POLICY REGARDING THE INSTALLATION AND REGULATION OF CUSTOMER OWNED/OPERATED ONSITE POWER GENERATION SYSTEMS**

**WHEREAS**, Price City is desirous of adopting an official policy to supersede any previous official and unofficial City level regulations regarding the safe, satisfactory, and regulated installation and operation of electrical power generation systems owned and/or operated by Utility customers receiving electrical services from Price City; and

**WHEREAS**, Price City has a need to intently regulate the installation and operation of these power generation systems due to a rapidly increasing interest of investment and installation from City electrical utility customers and activity from associated industry sales representatives and solicitors, to ensure the safety of life, health, and property of City employees, contractors, and occupants of premises within the City; and

**WHEREAS**, Price City has a need to further regulate the installation and operation of these power generation systems to maintain the integrity of the City's electrical distribution system and associated components as well as manage required upgrades, repairs, and alterations to continue desirable operations; and

**WHEREAS**, Price City has need to emphasize responsibilities of City electrical utility customers desiring to install these power generation systems to ensure that all aspects of the design, purchase, installation, operation and maintenance are done in accordance with all applicable laws, codes, ordinances, and City policies; and

**WHEREAS**, to establish that City has the right to prevent the operation of these systems in the event that the City has to take actions to collect payment from the customer if they fail to make payments or uphold payment commitments for past due Utilities bills, have fines levied against them by the city, or are taken to claims court by the City.

**NOW, THEREFORE BE IT HEREBY RESOLVED BY THE PRICE CITY COUNCIL AS FOLLOWS:**

**Section 1.** THAT the Customer Owned/Operated Onsite Power Generation within Price City Policy, a copy of which is attached hereto as Exhibit A, be hereby adopted as official policy for Price City;

**Section 2.** THAT the said policy be reviewed and updated as deemed necessary by the City Governing Body and employees affected by its implementation and/or tasked with its enforcement;

**Section 3.** THAT the Price City Mayor, Council and staff be directed to implement the Customer Owned/Operated Onsite Power Generation within Price City Policy.

**PASSED AND ADOPTED** by the City Council of Price City, State of Utah, this 24 day of March 2021.

**PRICE MUNICIPAL CORPORATION**

By Michael Kourianos  
Michael Kourianos, Mayor

ATTEST:

Sherrie Gordon  
Sherrie Gordon, City Recorder



EXHIBIT "A"  
CUSTOMER OWNED/OPERATED ONSITE POWER GENERATION WITHIN PRICE CITY POLICY

## Customer Owned/Operated Onsite Power Generation within Price City Policy

The basis of the Customer Owned/Operated Onsite Power Generation within Price City Policy is to define acceptable methods for customer owned/operated onsite power generation within Price City, Price City installation requirements, and the appropriate utilization and distribution of that generated power. This policy covers both on-site backup power and renewable energy power generation system regulations, their utilization, and Price City installation requirements.

1. **Definitions** - For the purpose of this Policy, the following shall apply:
  - a. **Authority Having Jurisdiction** - (AHJ) is the person that is trained, certified, and authorized to interpret codes, ordinances, and requirements then to enforce those interpretations during inspection of the construction, installation, or operation of power generation systems.
  - b. **Backup Generation System** - is an electrical generation system that utilizes a combustion engine, battery storage, or other types of generation approved by the City to produce electricity and is designed to operate while not under Normal Circumstances and is *not* interconnected with the utility electrical distribution grid.
  - c. **City** - is Price Municipal Corporation in general, any department or employee of the City that is authorized to represent the city in applicable situations.
  - d. **Conditional Use Permit** - (CUP) is the permission granted to a Customer that allows them to use a parcel or premises within city limits for a purpose other than that which it is zoned or regulated for. CUPs are obtained by the process specified by the Price City Planning and Zoning Committee. The Committee will grant CUPs at their discretion.
  - e. **Customer** - is any person, persons, or legal entity that occupies, rents, leases, utilizes, or owns a premise within the incorporated limits of Price City that has a utility metered physical connection to the electrical distribution system and pays Price City for electrical utility services.
  - f. **Electrical Utility Rate Plans** - (Rate or Rate Schedule) is the Resolution approved by the Price City Governing body that defines the billing rates applied to the electric energy consumption portion of the Customer's monthly utility bill based on the nature of their residence or business and average energy consumption.
  - g. **Interconnected** - is the condition in which a Customer's renewable power generation system has a physical connection to the utility electrical grid through the premises wiring on the customer side of the electrical service. This connection allows Energy produced by the renewable power generation system to be transmitted on to the City's electrical distribution system.
  - h. **Normal Circumstances** - is the condition in which the City's electrical utility grid is operational and able to deliver the correct nominal voltages under load to each line or phase of the electrical service that it serves.
  - i. **Renewable Energy Credit** - (REC or RECs) is the right to claim the renewable energy attributes of the renewable energy power generation system.
  - j. **Renewable Generation System** - is an electrical generation system that utilizes solar, wind, or other types of renewable energy approved by the City to produce electricity and is designed to be operated under Normal Circumstances.

## 2. Program Eligibility

- a. Approved Customers receiving power services from Price City are eligible for this onsite power generation program, up to installation levels set by the City. Each Customer wishing to install onsite power generation shall be required to complete and submit an application and pay any assessed fees. The application shall be reviewed by the City for compliance. Applications found not to be completed or not to comply with this policy shall be denied.
- b. Eligible onsite backup systems include Combustion Engine Generators utilizing any type of gaseous or liquid fuel as intended by the manufacturer, Natural Gas Turbine, or Battery Storage System not operated with a renewable energy system. Eligible onsite renewable energy systems include photovoltaic solar and wind driven generators. As technologies evolve and innovations are made, the City may approve or deny methods as it deems necessary. Only approved projects are allowed to be interconnected with the City's electrical distribution system.
- c. All installations must comply with and meet or exceed the requirements in this policy and any codes, laws, or requirements that are being enforced by the Authority Having Jurisdiction. If at any time, any requirement becomes contradictory, impracticable, or unfeasible, the City may make exceptions or stipulate alternate requirements. Once installed, any modifications to or changes in operation shall require another application to be completed and approved by the City before the modifications or changes may be commenced.

## 3. Program Stipulations

- a. Each installation must be on a Customer's premises within Price City's Incorporated limits and receiving electrical services from Price City's electrical distribution system. Customer premises within Price City's Incorporated limits that do not receive electrical services from Price City are not eligible for this program and must contact their service providers for information for any programs they may offer.
- b. Customer utility usage information requested from the City shall not be provided over the phone. A customer may request this information and receive a printed history, with ID verification, at the Utilities Collections Office in Price City Hall at 185 East Main Street in Price, Utah.
- c. The Customer is responsible for obtaining the Customer Owned/Operated Onsite Power Generation application from the City. It is also their responsibility to ensure that they, a contractor, or designer contact the City to determine if a CUP will be required for the installation and that all applications are completed, all fees paid, all equipment installed according to all requirements, and that they have permission from the City to begin operation.
- d. Power generation systems shall not exceed 1,000 kW nor can exceed 1,000 kW per parcel or premises. Each Customer shall not exceed 1,000 kW total across multiple parcels and/or installations. Systems must further meet the requirements defined in Section 6 of this policy.
- e. Interconnections are achieved by a physical point of connection at each premise or parcel where the power generation system is installed and operated. Connections shall be made in accordance with manufacturers specifications, codes and laws currently being enforced by the Authority Having Jurisdiction and in Section 6 of this policy.

- f. The owner/operator of the on-site power generation system must also be the Customer listed on the Utility bill for the premises or parcel where the system is installed and is responsible for ensuring that the Utilities Collections Office is notified immediately of any changes to contact information for the account. If the owner/operator transfers the responsibility of operating the system by sale of the system to be relocated to a different premises or parcel within the incorporated boundaries of Price City, renting out, leasing, or selling the property on which the system is installed and remains, they must notify the Utilities Collections Office and the new operator must take responsibility for the parcel or premises utility bill, complete a new on-site power generation application and receive approval before resuming operation. The City, at its sole discretion, may turn off and lock out any power generation systems located on property where a change of operator is taking place until the process has been completed.
- g. All installations are subject to any applicable Electric Utility Rates as determined by Price City ordinances. (the current Resolution defining Electric Utility Rates can be found at [www.pricecityutah.com](http://www.pricecityutah.com) in the "Utilities and Online Payment" section in the Departments drop-down menu.)
- h. All Customers that have onsite power generation systems installed must take delivery of electrical services from Price City.
- i. The customer must have completed any corrective measures required by the Authority Having Jurisdiction or the City prior to beginning operation.
- j. The City shall periodically review its average wholesale electricity costs including transmission and may re-adjust rate schedules with approval from its governing body.
- k. All installations must be operational within 6 (six) months of approval of the installation by both the Utilities and Building Departments.
- l. The City will retain all RECs resulting from each installation.
- m. Applications are accepted on a first-come, first-serve basis up to the capacity limit of the circuit or the distribution system, as determined by the City. The City may require the customer to pay for any improvements to City owned property that need to be made to accommodate their onsite power generation system. If the Customer declines to do so, the City may deny them approval for their installation or the Customer will be required to have the project redesigned in such a manner that the improvements would not be needed.
- n. Any credit or surplus production of interconnected renewable energy cannot be transferred between accounts, properties, utilities, providers, customers, services, or electric meters and cannot be used as proof of credit or as part of payment arrangements.
- o. The City strongly recommends that Customers obtain insurance coverage or plan to self-insure the operation of the Customer owned/operated on-site power generation system in perpetuity and while it is connected to the premises through any transfer switches or inverters and associated wiring.
- p. Customers shall be required to hold the city harmless and to indemnify the city against any harm, loss or damage resulting from the Customer operating their onsite power generation system.

**4. General Information**

- a. The City reserves the right to deny a customer's installation at its sole discretion.

- b. The City reserves the right to alter this policy and to enforce different or additional requirements on new and existing Customer Owned/Operated Onsite Power Generation Systems as deemed necessary.
- c. Failure to meet the requirements in this policy shall result in delays or the disqualification of the Customer from participating.
- d. This policy conveys the RECs of any renewable energy power generation systems to the City to be used toward compliance with current or future Renewable Energy Standards.
- e. If the Customer's Utility account becomes delinquent, the City at its sole discretion may shut down and lock out any onsite power generation systems as part of any of the collections process.
- f. Each parcel or premises including any structures where a customer intends to install, or has installed an onsite power generation system is subject to inspection by the Authority Having Jurisdiction and the City to determine if the premises conditions shall allow the generation system to be operated safely. If it is determined that conditions exist that may cause the operation of the power generation system to be unsafe, the City shall deny the installation or require the Customer to take corrective actions before allowing them to continue with the installation or operation of the onsite power generation system.
- g. The City and the City's Utility Customer's may enter into an agreement for the Customer to appropriately operate an onsite power generation system in the form of a completed and approved application and the Customer's continued fulfillment of their associated responsibilities. The Customer may enter into agreements with onsite power generation developers or contractors for the installation of an onsite power generation system, which may also include financing, lease-purchase and rooftop property leasing, any terms of which shall be independent of the Customer's agreement with the City or their monthly utility billing rate.
  - i. In lieu of a Net Metering agreement for interconnected power generation systems, the City may provide, at the Customer's request, a letter stating that they have completed the installation, have begun operation on a Net Metering Utility Rate schedule, and the status of their standing with the Utility Collections Office.
- h. The energy output of the Customer's onsite renewable energy power generation system can be used to provide power to part or the whole of the premises and transmit power onto the electrical distribution system during times when it is operating under normal circumstances. The power generated will be measured and recorded monthly and will reflect within the electric portion of the Customer's utility bill as set forth by the electric rate schedule.
- i. The energy output of the Customer's onsite backup power generation system can be used to provide power to part or the whole of their premises during times when the City's electrical distribution system is not operating correctly and unable to deliver the normal nominal voltages to all lines or phases of the premises electrical service. The power generated shall not be transmitted back onto the electrical distribution system and is not measured and recorded.

**5. A complete application submittal shall include:**

- a. A completed application, including all required documentation.
- b. Installation Electrical one-line diagram. See example in Section 7

- c. Site/Facility diagram. See example in Section 7
  - d. Examples of required markings or signage and their locations indicated on the Site/Facility layout diagram.
- 6. System Installation Requirements** - The following requirements are for Customer owned on-site power generation systems. If at any time, any requirement becomes contradictory, impracticable, or unfeasible, the City may make exceptions or stipulate alternate requirements. All installations must meet or exceed these requirements and any other applicable requirements that are currently being enforced by the Authority Having Jurisdiction.
- a. **Power Generation System output, rating and capacity:**
    - i. The final output voltage and phasing shall be produced, regulated, and/or transformed to match the voltage of that which is provided to the premises through the electrical service from the electric utility grid.
      - 1. The final output voltage, phasing, and/or frequencies may be different from that provided by the premises electrical service if its purpose is to serve dedicated circuits that utilize that same voltage and phasing after being transformed or regulated through on-site equipment that is installed after the premises electrical service. See Sections 6(b)(ii)(3) and 6(c)(iii)(2) for additional requirements.
    - ii. The final output voltage shall be produced and/or regulated to an alternating current frequency of 60 Hz and be synchronized to be in phase with the frequency of the electric utility grid if it is to be interconnected and operational under normal circumstances.
    - iii. The final output product shall maintain a maximum deviation of  $\pm 5\%$  of 100% power factor if it is interconnected with the electrical utility grid. Systems are required to automatically shut down if they exceed  $\pm 5\%$ .
    - iv. The total of all manufacturers output rating of customer owned electrical generation equipment shall not exceed more than 1,000 kilowatts or 50% of the premises electrical service overcurrent device rating, whichever is less.
      - 1. *Example: Residential electrical service operates at 120/240 volts nominal and has a 150 Amp rated main circuit breaker (36 kilowatts). Total of all manufacturers output rating of customer owned electrical generation equipment shall not exceed 75 amps (18 kilowatts).*
      - 2. *Example: Residential Electric service operates at 120/240 volts nominal and has a 200 Amp rated main circuit breaker (48 kilowatts). The total of all manufacturers output rating of customer owned electrical generation equipment shall not exceed 100 Amps (24 kilowatts).*
  - b. **Connection to the premises electrical system** - The main circuit breaker or disconnect shall remain as the ultimate disconnect device between the Utility Meter and premises including any customer owned power generation equipment. Devices designed to be installed in the Utility Meter socket and act as the point of interconnection between the premises and any customer owned power generation equipment are strictly prohibited for use as they may create hazardous conditions for Emergency Services and Utility personnel.

- i. **Renewable generation systems connections:** The final output product of the electrical equipment shall be physically connected to the electrical system of the premises after any required regulation or transformation has been completed and through an appropriately rated overcurrent device and enclosure after the main utility disconnect on the customer side of the Electric Utility Meter. The renewable generation system shall have an automatic means by which the system shall rapidly shut down and disconnect from the premises wiring in the event of an electrical utility grid outage. The renewable generation system shall remain disconnected until grid power has been restored to the premises for a minimum of five minutes. Overcurrent and disconnect devices for customer owned interconnected systems shall be of the manual operation and resetting type. All overcurrent and disconnect devices shall have a means to be operated manually and conspicuous markings or indicators to allow for visual confirmation of operational state and must also have a means by which they can be locked in the off, open or disconnected position by a standard padlock.
- ii. **Backup generation system connections:** The final output product of the electrical equipment shall be physically connected to the electrical system of the premises through an appropriately rated and listed transfer switch which shall operate by breaking the connection of all lines (Phases, Legs) of the load from all lines of the source before making the connection to the lines of the backup source. The transfer switch shall be installed after the main utility disconnect on the customer side of the Electric Utility Meter and shall isolate the premises electrical service from any and all premises wiring connected to the backup electrical generation. All transfer switches shall have the means to be operated manually and have conspicuous markings or indicators to allow visual confirmation of operational state. All electrical sources shall have means by which the main disconnect or overcurrent device can be locked in the off, open, or disconnected position.
  - 1. **Transfer switches** for electrical grid outage backup systems may be of the automatic type if the emergency or backup source has been manufactured to be installed, and configured to automatically start or stop and/or connect to or disconnect from the premises electric system based on a sensed state of the Utility Electrical grid. Automatic transfer switches shall break the connections of all lines (Phases, Legs) of the load from all lines of the source before making connection to the lines of the backup source. The automatic transfer switch shall be installed after the main utility disconnect on the customer side of the Electric Utility Meter and shall isolate the premises electrical service from any and all premises wiring connected to the backup electrical generation. Automatic transfer switches shall have means to allow them to be operated manually and to visually verify operational state.
  - 2. **Combination Renewable and Backup generation** systems such as photovoltaic or windmill with battery storage or



combustion engine generators that are designed to be activated upon electrical grid outage shall utilize manual or automatic devices that will isolate any and all of the premises electrical wiring from the Utility Electrical service before allowing backup stored or generated power to connect to the premises wiring. These devices shall be installed after the main utility disconnect on the customer side of the Electric Utility Meter and shall have a means to allow them to be operated manually and to visually verify operational state. They shall also have a means by which they can be locked in the off, open, or disconnected position by a standard padlock.

3. **Backup generation systems that produce voltages, phasing, and/or frequencies that are different than that delivered to premises electrical service by the utility electrical grid** shall have the transfer switch located on the load side of (after) any transforming or regulating equipment that changes the power to that of the backup system. The transfer switch shall be installed in such a manner that the backup generation power cannot back feed through the transforming or regulating equipment.

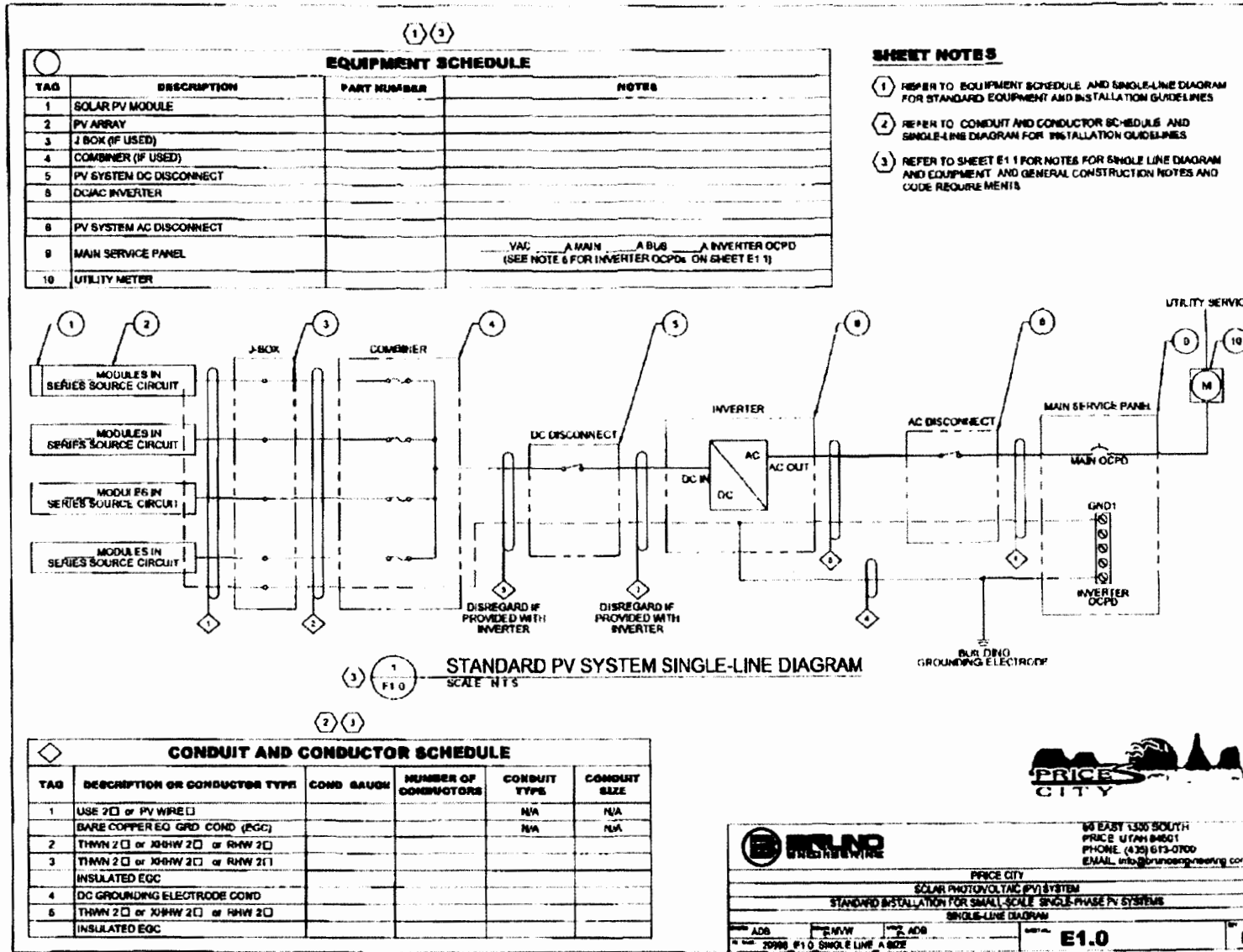
c. **Markings, and signage**

- i. All signs and markings shall be conspicuous, weather/sunlight resistant, permanent and made from phenolic (engraved plastic). They shall be red in color with white lettering. The lettering shall be no smaller than ¼ inch in height. The signs and markings shall meet the applicable requirements of the NFPA 70 National Electric Code in addition to the City required signs and markings.
- ii. The premises electrical service equipment shall be marked with a sign on the exterior cover that identifies that an interconnected electrical generation system is on-site and that all power sources must be disconnected before servicing. The markings shall include the location(s) of all disconnects or circuit breakers that will disconnect the interconnected electrical generation system from the premises wiring. In addition, the exterior of any disconnects and or circuit breaker panels shall be marked with a sign that identifies it as the interconnected electrical generation system disconnect or that it contains the interconnected generation system disconnect circuit breaker(s). The interior of any circuit breaker panel shall also have any interconnected generation system disconnect circuit breakers clearly, conspicuously, and permanently marked.
- iii. The premises electrical service equipment shall be marked with a sign that identifies a backup electrical generation system is on-site. The markings shall include the location of the transfer switch, generator, and fuel supply and type (ex. Diesel, Gasoline, LPG, NG), or other energy source, and any disconnects or circuit breakers that will disconnect the system from the premises wiring. In addition, the exterior of any disconnects and or circuit breaker panels shall be marked with a sign that identifies it as the backup electrical generation system disconnect or that it contains the backup generation system disconnect circuit breaker(s)

1. The required sign may only indicate that a backup electrical generation system is on-site if the transfer switch(s), generator, fuel shutoff valves or other energy sources are within 10 feet of and visible from the premises electrical service and accessible without having to cross or go around obstacles which include any type of fencing or other barriers.
  2. Transfer switches for backup generation systems that produce voltages, phasing, and/or frequencies that are different than that delivered to premises electrical service by the utility electrical grid shall be marked with a sign that identifies the voltage, phasing, and frequency. The premises electrical service shall also be marked with a sign that identifies the electrical service voltage, phasing, and frequency.
- iv. If the Customer Owned/Operated Onsite Power Generation system is no longer being operating and is completely removed from the premises, all signs associated with it including those required in this policy must be removed.
- d. Access**
- i. The Customer shall be responsible for allowing and maintaining clear, unrestricted, and reasonable access to the premises' electrical service meter, on-site electrical generation system disconnects or breakers, and fuel valves for Utility Personnel. Interconnected renewable energy electrical generation systems shall have a manually operated disconnect installed in a conspicuous location that shall be accessible at any time of day and night throughout the year. The Customer shall not store or place any items within 36 inches of the premises' electrical service, on-site electrical generation disconnects or breakers, or fuel valves. This 36 inch area shall extend horizontally from the equipment in all reasonable directions and from the floor or ground to 6 feet above or to the top of the equipment if greater than 6 feet.
  - ii. The Customer shall allow any and all portions of the customer owned generation system or device to be inspected by the City or it's contractors with reasonable notice given to the customer prior to the inspection.
  - iii. The customer shall allow emergency services (Fire, Police, EMS, etc.) to access the premises' electrical service disconnect, customer owned electrical generation system disconnects, breakers, controls, and fuel sources.
- e. Operation**
- i. The operation of the interconnected electrical generation system or backup electrical generation system shall not interfere with the normal operation of the utility electrical grid. It shall not prevent other customers from receiving the normal operating electrical power that has been provided to them. It shall not create harmonic or power factor disturbances that may cause the system to begin operating undesirably. It shall not pose a risk to health, life or property
  - ii. The City shall be able to, at its discretion, disconnect, shutdown, or prevent from operating a Customer owned or operated electrical

- generation system if the City electrical utility grid or the transmission feed is destabilizing, or if they are found to be causing disruptions or faulty in any way. The Customer may resume operation of their electrical generation system upon notification from the City, and if needed, after corrections or repairs have been made, it has been re-inspected and permitted to do so by the City and their contractors.
- iii. The customer *shall not* use a backup electrical generation system to provide power to the premises if they have had their electrical service disconnected by the City for failure to pay their Utility Bill or other fines and fees. The City shall be able to lock off, open, or disconnect any backup or interconnected electrical generation system when they disconnect the premises electrical service.
  - iv. The Customer Shall be responsible for any damage caused by the customer's on-site backup or interconnected electrical generation system to the City's electrical transmission and distribution system and/or neighboring premises electrical systems and equipment in perpetuity.
  - v. The customer shall be responsible for maintaining, servicing, and routinely ensuring correct operation of all portions of the backup or interconnected electrical generation systems on their premises in perpetuity. The customer shall notify the City in the event that the interconnected electrical generation system on their premises malfunctions, fails to produce energy, or has to be shut-down or disconnected. The customer shall notify the city when they intend to resume normal operation and what, if any, repairs or replacements were required.
  - vi. The City shall not be liable directly or indirectly for permitting or continuing to allow interconnection of a customer owned or operated electrical generation system, or for any acts or omissions of the Customer that cause loss or injury, including death, to any other party(ies).

7. Exhibit 1  
Sample One-line diagram



**PV MODULE RATINGS @ STC**

MODULE MAKE	
MODULE MODEL	
MAX POWER POINT CURRENT (I <sub>mp</sub> )	A
MAX POWER POINT VOLTAGE (V <sub>mp</sub> )	V
OPEN-CIRCUIT VOLTAGE (V <sub>oc</sub> )	V
SHORT-CIRCUIT CURRENT (I <sub>sc</sub> )	A
MAX SERIES FUSE (OCPD)	A
MAX POWER (P <sub>max</sub> )	W
MAX VOLTAGE (TYP 600V <sub>DC</sub> )	V
VOC TEMP COEFF (mV/°C) or A/C (%)	
IF COEFF SUPPLIED, CIRCLE UNITS	

**NOTES FOR ALL DRAWINGS**

OCPD = OVERCURRENT PROTECTION DEVICE  
 NATIONAL ELECTRICAL CODE® REFERENCES SHOWN AS (NEC XXXXX)

**INVERTER RATINGS**

INVERTER MAKE	
INVERTER MODEL	
MAX DC VOLT RATING	V
MAX POWER @ 48 C	W
NOMINAL AC VOLTAGE	V
MAX AC CURRENT	A
MAX OCPD RATING	A

**NOTES FOR ARRAY CIRCUIT WIRING**

- 1) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP \_\_\_\_\_ C
- 2) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMPERATURE \_\_\_\_\_ C
- 3) 2005 ASHRAE FUNDAMENTALS 5.2.4 DESIGN TEMPERATURES DO NOT EXCEED 47 C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1 C). FOR LESS THAN 8 CURRENT-CARRYING CONDUCTORS IN ROOF MOUNTED SUNLIT CONDUIT AT LEAST 0.6' ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47 C OR LESS (ALL OF UNITED STATES)
  - a) 12 AWG 90 C CONDUCTORS ARE GENERALLY ACCEPTABLE FOR MODULES WITH I<sub>sc</sub> OF 7.68 AMPS OR LESS WHEN PROTECTED BY A 12-AMP OR SMALLER FUSE
  - b) 18 AWG 90 C CONDUCTORS ARE GENERALLY ACCEPTABLE FOR MODULES WITH I<sub>sc</sub> OF 8.6 AMPS OR LESS WHEN PROTECTED BY A 15-AMP OR SMALLER FUSE

**NOTES FOR INVERTER CIRCUITS**

- 1) IF UTILITY REQUIRES A VISIBLE BREAK SWITCH DOES THIS SWITCH MEET THE REQUIREMENT? YES  NO  N/A
- 2) IF GENERATION METER REQUIRED DOES THIS METER SOCKET MEET THE REQUIREMENT? YES  NO  N/A
- 3) SIZE PHOTOVOLTAIC POWER SOURCE (DC) CONDUCTORS BASED ON MAX CURRENT ON NEC 690.63 SIGN OR OCPD RATING AT DISCONNECT
- 4) SIZE INVERTER OUTPUT CIRCUIT (AC) CONDUCTORS ACCORDING TO INVERTER OCPD AMPERE RATING (See Under Section 6)
- 5) TOTAL OF INVERTER OCPD(S) ONE FOR EACH INVERTER. DOES TOTAL SUPPLY BREAKERS COMPLY WITH 120% RULE/BAH EXCEPTION IN 690.64(B)(2)(a)? YES  NO

**SIGNS**

**SIGN FOR DC DISCONNECT**

PHOTOVOLTAIC POWER SOURCE	
RATED MPP CURRENT	A
RATED MPP VOLTAGE	V
MAX SYSTEM VOLTAGE	V
MAX CIRCUIT CURRENT	A
WARNING ELECTRICAL SHOCK HAZARD-LINE AND LOAD MAY BE ENERGIZED IN OPEN POSITION	

**SIGN FOR INVERTER OCPD AND AC DISCONNECT (IF USED)**

SOLAR PV SYSTEM	
AC POINT OF CONNECTION	
AC OUTPUT CURRENT	A
NOMINAL AC VOLTAGE	V
THIS PANEL FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)	

**GENERAL NOTES**

1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, ALL UTAH STATE AND LOCAL CODES AND ALL NATIONAL FIRE PROTECTION ASSOCIATION RULES AND REGULATIONS (NFPA 70)
2. THE CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO AND COMPLY WITH REQUIREMENTS OF ARTICLE 690 SOLAR PHOTOVOLTAIC (PV) SYSTEMS OF LATEST EDITION OF THE NATIONAL ELECTRICAL CODE
3. THE CONTRACTOR SHALL VERIFY EQUIPMENT DIMENSION AND LOCATIONS BEFORE BEGINNING ROUGH IN
4. THE CONTRACTOR SHALL VERIFY ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF ACTUAL EQUIPMENT FURNISHED WITH APPROVED CONSTRUCTION DRAWINGS BEFORE BEGINNING ROUGH-IN
5. ALL PENETRATION OF FIRE RATED FLOORS, WALLS AND CEILING SHALL BE SEALED WITH APPROVED MATERIAL TO MAINTAIN FIRE RATING OF SURFACE PENETRATION
6. INSTALL ALL SURFACE MOUNT EMT CONDUIT PARALLEL TO FINISHED FLOOR AND TIGHT AGAINST WALL. USE ONE HOLE STRAPS AND BOX OFFSETS AT OUTLET BOXES
7. ALL BURIED CONDUIT SHALL BE SCHEDULE 40 PVC
8. ALL BRANCH ELECTRIC CIRCUITS INSTALLED OUTSIDE THE BUILDING SHALL BE ENCASED IN ELECTRICAL METALLIC TUBING (EMT) CONDUIT EXCEPT FOR CONNECTIONS TO VIBRATING EQUIPMENT. ALL CONNECTIONS TO VIBRATING EQUIPMENT SHALL BE MADE WITH LIQUID-TIGHT FLEXIBLE METAL CONDUIT. ALL WIRING METHODS SHALL COMPLY WITH SECTIONS 518.4(A)(B)(C) OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC)
9. ALL COMPONENTS SHALL BE SUITABLY GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250 AND ARTICLE 690
10. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE #10 AWG MINIMUM COPPER BARE OR GREEN THWN-2
11. EQUIPMENT MAY BE GROUNDED WITH EXTERNAL GROUND CONDUCTORS OR INSTALLED IN RACEWAYS WITH POWER CONDUCTORS. EXTERNAL GROUND CONDUCTORS SHALL BE #6 AWG
12. A SITE PLAN MUST BE SUBMITTED THAT ACCURATELY REPRESENTS THE PLANNED PV INSTALLATION. REFER TO SHEET E1.2 FOR THE FORM TO BE USED AND SHEET E1.3 FOR SAMPLE SITE DIAGRAM
13. ADDITIONAL CODES AND STANDARDS THAT MUST BE COMPLIED WITH:
  - a. UNIFORM SOLAR ENERGY CODE ICC
  - b. BUILDING CODES ICC ASCE 7-05
  - c. UL STANDARD 1703 FLAT PLATE PHOTOVOLTAIC MODULES AND PANELS
  - d. IEEE 1547 STANDARD FOR INTERCONNECTING DISTRIBUTED RESOURCES WITH ELECTRIC POWER SYSTEMS
  - e. UL STANDARD 1741 STANDARD FOR INVERTERS, CONVERTERS, CONTROLLERS AND INTERCONNECTION SYSTEM EQUIPMENT FOR USE WITH DISTRIBUTED ENERGY RESOURCES



	80 EAST 1300 SOUTH PRICE, UTAH 84501 PHONE: (435) 613-0700 EMAIL: info@brunnengineering.com
	PRICE CITY SOLAR PHOTOVOLTAIC (PV) SYSTEM STANDARD INSTALLATION FOR SMALL SCALE SINGLE-PHASE PV SYSTEMS NOTES FOR SINGLE-LINE DIAGRAM
REVISED 2008 E1.1 NOTES A SIZE	0

Sample Site Diagram

