



## AGENDA ITEM COVER SHEET

CONSENT AGENDA

No. 03

Meeting Date: August 7, 2018  
Requesting Department: Administration  
Presenter(s): Drew Havens

### ITEM DESCRIPTION *(Brief)*

Motion to amend electric utility/finance policies to allow for residential solar photovoltaic installations up to 20 kW, allow the customer to choose between a time of use or standard rate schedule, and remove the annual reset of energy credits under the net meter renewable energy facilities credit rider.

### ITEM DETAIL *(Expanded from Item Description)*

Approval Recommended? Yes By: Finance Committee

In response to two studies performed by the Clean Energy Center at NC State University aimed at suggesting ways the Town of Apex could become more solar PV friendly, staff recommended, and the Finance Committee concurs with the following policy changes:

Change our system size limit for residential rooftop systems from 10 kW to 20 kW. This would align with the size limit imposed by Duke Energy on their customers. We support the installation of solar PV systems on residences and support the increase in the size of permitted systems to 20 kW. Our approval process will continue to have to include an evaluation of the facilities at each installation to ensure they are properly sized. Any required upgrade to facilities to handle the newly installed solar generation should be borne by the customer.

Make changing to the Time of Use rate optional for solar PV customers. Our current policy states that they must be on the TOU rate and this has been an issue raised by some citizens who have recently installed systems. Staff is not opposed to allowing customers the option to be on a TOU rate or stay on the traditional rate. The customer can make the determination which rate is best for them.

Allow customers to carry credit for energy produced for as long as they maintain their account. While current policy indicates that there will be an annual "reset" for these credits, our practice has been to not reset until the account is closed. This change will simply align policy and practice to the benefit of the customer.

### ATTACHMENTS *(Number items if more than one)*

1. Net Metering for Renewable Energy Facilities Rider - amended
2. Bilateral Metering for Renewable Energy Facilities Credit Rider - amended
3. Town of Apex Photovoltaic (PV) Interface Criteria - amended

## TOWN OF APEX

### NET METERING FOR RENEWABLE ENERGY FACILITIES RIDER

#### AVAILABILITY

This Rider is available in conjunction with any of the Town's ~~TOU (Time of Use)~~ Electric Rate Schedules to Customers who operate a photovoltaic, wind-powered, or biomass-fueled generating system, without battery storage, located and used at the Customer's primary residence or business where a part or all of the electrical requirements of the Customer can be supplied from the Customer's generating system. Net Metering utilizes one meter which shall be on any of the Town's ~~TOU~~ Electric Rate Schedules with charges for on-peak and off-peak determined as described in the section below titled "Monthly Credit" if on a Time of Use rate schedule. The rated capacity of the generating system shall not exceed ~~10-20~~ kilowatts for a residential system or 100 kilowatts for a non-residential system. The generating system that is connected in parallel operation with service from the Town and located on the Customer's premises must be manufactured, installed, and operated in accordance with governmental and industry standards and must fully conform with the Town's applicable renewable energy interconnecting interface criteria. Net metering systems may not apply for NC Green Power credits.

This Rider is available on a first-come, first-serve basis, except that the aggregate capacity of all of the Customer-generators shall not exceed 5% of the Town's retail peak load for the prior calendar year.

#### TYPE OF SERVICE

This Rider is applicable to all electric service of the same available type supplied to Customer's premises at one point of delivery.

#### MONTHLY BILLING

An amount computed under the applicable rate schedule and any other applicable riders with which this Rider is used, as adjusted to reflect excess energy delivered to Town as follows:

- I. For electric service under only either a Residential time-of use (TOU) schedule or Small General Service time-of use (TOU) schedule ~~as~~ per the respective schedule:
  1. Customer's on-peak usage for service rendered shall be reduced by the sum of (a) any on-peak excess energy delivered to Town in the current month plus (b) any accumulated on-peak excess energy balance from prior months. In no case shall the on-peak kWh billed be less than zero.
  2. Customer's off-peak usage for service rendered shall be reduced by the sum of (a) any off-peak excess energy delivered to Town in the current month plus (b) any accumulated off-peak excess energy balance from prior months plus (c) any accumulated on-peak excess energy balance in the current or prior months that was not used to reduce on-peak usage. In no case shall the off-peak kWh billed be less than zero.
  3. Customer's on-peak and off-peak demands for service rendered shall be billed pursuant to the applicable schedule. In months when demand charges are prorated based upon seasonal on-peak usage and the usage to be billed exceeds the excess energy available to reduce such usage, excess energy delivered to Town shall be used to reduce billed kWh usage based upon the ratio of on-peak energy consumed in each season.
  4. Excess energy not used in the current billing month to reduce billed kWh usage shall be accumulated and used to reduce usage in future months for as long as the customer maintains the account; however, any accumulated excess energy not used to reduce billed kWh usage shall be set to zero each May 31<sup>st</sup>. Excess energy delivered prior to May 31<sup>st</sup> will be used to reduce energy usage provided by the Town prior to May 31<sup>st</sup>. There will be no compensation paid to Customer for excess energy granted to Town nor may credits be transferred to another customer.

- II. For electric service under only either a Medium General Service time-of use (TOU) schedule or Large General Service time-of use (TOU) schedule as per the respective schedule, all kWh is billed at the same rate regardless of the time of day or the time of year.

### *DEFINITIONS*

1. The on-peak and off-peak periods and seasons shall be defined in the applicable time-of-use rate schedule.

All participants in the Net Metering For Renewable Energy Facilities Rider that have any Residential Rate Schedule shall use the Residential Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.

All participants in the Net Metering For Renewable Energy Facilities Rider that have any Small Commercial Rate Schedule shall use the Small General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.

All participants in the Net Metering For Renewable Energy Facilities Rider that have any Medium Commercial Rate Schedule shall use the Medium General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.

All participants in the Net Metering For Renewable Energy Facilities Rider that have any Large Commercial Rate Schedule shall use the Large General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.

### *SPECIAL CONDITIONS*

1. The Customer must complete an applicable alternative energy interconnection request (“Application”) and submit same to the Town of Apex prior to receiving service under this Rider.
2. The Customer’s service shall be metered with a TOU (Time-of-Use) meter if they opt to use the time of use schedule. For this service, the Basic Customer Charge is that of the applicable ~~TOU~~-Electric Rate Schedule with charges for on-peak and off-peak determined as described in the section above titled “Monthly Credit” instead of by the applicable Electric Rate Schedule ~~TOU Electric Rate Schedule~~.
3. In the event the Town determines that it is necessary to install a dedicated transformer or other equipment to protect the safety and adequacy of electric service provided to other customers, the Customer shall pay a Monthly Facilities Charge of 2% of the total installed cost of the additional facilities except that the Monthly Facilities cannot be less than \$25.00.
4. The Town reserves the right to test the Customer’s alternative energy generator for compliance with the applicable interface criteria. Should it be determined that Customer’s installation is in violation the Town will disconnect the alternative energy generator from the Town’s distribution system and it will remain disconnected until the installation is brought back into compliance.

### *CONTRACT PERIOD*

The Contract Period for service under this Rider shall be one year and thereafter shall be renewed for successive one-year periods. After the initial period, Customer may terminate service under this Rider by giving at least sixty (60) days previous notice of such termination in writing to the Town.

The Town may terminate service under this Rider at any time upon written notice to Customer. In the event that Customer violates any of the terms or conditions of this Rider, or operates the generating system in a manner which is detrimental to the Town or its customers, service under this Rider may be terminated immediately.

Effective with billing after August 7, 2013.

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## TOWN OF APEX

### BILATERAL METERING FOR RENEWABLE ENERGY FACILITIES CREDIT RIDER

#### AVAILABILITY

This Rider is available in conjunction with any of the Town's ~~TOU (Time-of-Use)~~ Electric Rate Schedules to Customers who operate a photovoltaic, wind-powered, or biomass-fueled generating system, without battery storage, located and used at the Customer's primary residence or business where a part or all of the electrical requirements of the Customer can be supplied from the Customer's generating system. Bilateral Metering utilizes two meters. The Utility meter may be on any of the Town's TOU or non-TOU Electric Rate Schedules, ~~and but~~ the Customer's Generating System meter shall be set up on the same rate schedule as the utility meter as a TOU Electric Meter with charges for on-peak and off-peak determined as described in the section below titled "Monthly Credit". The rated capacity of the generating system shall not exceed the lesser of the Customer's estimated maximum annual kilowatt demand or ~~10-20~~ kilowatts for a residential system or 100 kilowatts for a non-residential system. The generating system that is connected in parallel operation with service from the Town and located on the Customer's premises must be manufactured, installed, and operated in accordance with governmental and industry standards and must fully conform with the Town's applicable renewable energy interconnecting interface criteria. Customers with qualified systems may apply for NC Green Power credits.

This Rider is available on a first-come, first-serve basis, except that the aggregate capacity of all of the Customer-generators shall not exceed 5% of the Town's retail peak load for the prior calendar year.

#### TYPE OF SERVICE

This Rider is applicable to all electric service of the same available type supplied to Customer's premises at one point of delivery.

#### MONTHLY CREDIT

An amount computed under this rider based on the amount of energy delivered to the Town during specific times as stated below.

- I. For electric service under only either a Residential time-of use (TOU) schedule or Small General Service time-of use (TOU) schedule ~~as~~ per the respective schedule:
  1. The Customer will receive credit for all **on-peak** kWh delivered to the Town during the current month at a rate of \$0.095 per kWh. In no case shall the on-peak kWh billed be less than zero.
  2. The Customer will receive credit for all **off-peak** kWh delivered to the Town during the current month at a rate of \$0.041 per kWh. In no case shall the off-peak kWh billed be less than zero.
  3. In no event will energy delivered to the Town be used to offset purchases in a different period or a different season.
- II. For electric service under only either a Medium General Service time-of use (TOU) schedule or Large General Service time-of use (TOU) schedule as per the respective schedule, all kWh is billed at the same rate regardless of the time of day or the time of year.

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## DEFINITIONS

1. The on-peak and off-peak periods and seasons shall be defined in the applicable time-of-use rate schedule.
  - All participants in the Bilateral Metering For Renewable Energy Facilities Credit Rider that have any Residential Rate Schedule shall use the Residential Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.
  - All participants in the Bilateral Metering For Renewable Energy Facilities Credit Rider that have any Small Commercial Rate Schedule shall use the Small General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.
  - All participants in the Bilateral Metering For Renewable Energy Facilities Credit Rider that have any Medium Commercial Rate Schedule shall use the Medium General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.
  - All participants in the Bilateral Metering For Renewable Energy Facilities Credit Rider that have any Large Commercial Rate Schedule shall use the Large General Service Time-of-Use Rate Schedule to determine on-peak and off-peak times if they opt to use the time of use schedule.

## SPECIAL CONDITIONS

1. The Customer must complete any applicable alternative energy interconnection request (“Application”) and submit same to the Town of Apex prior to receiving service under this Rider.
2. The Customer’s service shall be metered with two meters – the Utility Meter and the Customer’s Generating System Meter. The Utility meter may be on any of the Town’s TOU (Time-of-Use) or non-TOU Electric Rate Schedules, ~~but and~~ the Customer’s Generating System meter shall be set on the same rate schedule as the utility meter, up as a TOU Electric Meter. For this service, the Basic Customer Charge is that of the applicable ~~non-TOU~~ Electric Rate Schedule with charges for on-peak and off-peak determined as described in the section above titled “Monthly Credit” instead of by the applicable TOU Electric Rate Schedule. ~~“Monthly Credit” instead of by the applicable TOU Electric Rate Schedule.~~
3. In the event the Town determines that it is necessary to install a dedicated transformer or other equipment to protect the safety and adequacy of electric service provided to other customers, the Customer shall pay a Monthly Facilities Charge of 2% of the total installed cost of the additional facilities except that the Monthly Facilities Charge cannot be less than \$25.00.
4. The Town reserves the right to test the Customer’s alternative energy generator for compliance with the applicable interface criteria. Should it be determined that Customer’s installation is in violation the Town will disconnect the alternative energy generator from the Town’s distribution system and it will remain disconnected until the installation is brought into compliance.

## CONTRACT PERIOD

The Contract Period for service under this Rider shall be one year and thereafter shall be renewed for successive one-year periods. After the initial period, Customer may terminate service under this Rider by giving at least sixty (60) days previous notice of such termination in writing to the Town.

The Town may terminate service under this Rider at any time upon written notice to Customer. In the event that Customer violates any of the terms or conditions of this Rider, or operates the generating system in a manner which is detrimental to the Town or its customers, service under this Rider may be terminated immediately.

Effective with billing after January 20, 2009.

## **Town of Apex**

### **Photovoltaic (PV) Interface Criteria**

The Town of Apex supports the development of renewable resources for generation of electric power. In order to maintain current levels of safety and power quality for the general public, electric system employees and customers certain criteria must be applied to all alternative sources of electric power.

Specific criteria applying to photovoltaic (solar panel) installations are as follows:

PV installations may be connected to the Town's electric system using either Bilateral Metering or Net Metering. For Bilateral Metering, a second meter is added with the PV system connected to the Line (top) side of the additional meter and the Utility connected to the Load (bottom) side of the additional meter. For Net Metering, the PV System is connected directly to the customer's premises wiring system and no additional meter is required. The customer's premises wiring system shall comply with the Bilateral Metering or Net Metering criteria as applicable and as detailed below. See attached installation illustrations and single-line diagrams.

All PV equipment must comply with the requirements of and be labeled under Underwriters Laboratories Standard 1741 "Inverters, Converters, Controllers, and Interconnection Systems Equipment for Use with Distributed Energy Resources".

All PV installations must comply with IEEE Standard 929 "IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems".

All PV systems must comply with IEEE Standard 1547 "IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems".

All PV systems must comply with IEEE Standard 1547.1 "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems".

All PV installations shall be made in accordance with the National Electrical Code (NFPA 70). Specific compliance with Article 690 and Article 705 is required. Installations shall be inspected and approved by the local Authority Having Jurisdiction.

All PV installations shall have a service disconnect installed immediately adjacent to and within 6 feet of the customer's meter. The service disconnect shall be a lockable, heavy duty, fused disconnect sized per the National Electrical Code (NFPA 70). The disconnect shall be fully accessible to and operable by the Town's personnel at all times. The disconnect shall include provisions for locking in the open position. The disconnect shall be labeled in accordance with NEC 705.10.

All PV installations are subject to review and testing by the Town's Electric Utilities Department prior to connection and at subsequent times of their choosing.

All interconnected PV systems shall produce no voltage at the isolation switch when disconnected from the electric utility distribution system. Systems found to produce voltage at the isolation switch when disconnected from the electric utility distribution system will be disconnected without notice and will remain disconnected until the systems are brought into compliance with specified standards.

PV systems shall not interfere with the power quality of any customer of the Town's electric distribution system. PV systems found to interfere with utility industry-accepted power quality standards will be disconnected from the system.

The Town's Electric Utilities Department will design and install reasonable and practical modifications to the electric distribution system to allow the interconnection of PV resources which would otherwise interfere with power quality delivered to other connections. In such cases, the PV system owner shall make an advance payment to the Town in an amount equal to the cost of the required facility modifications.

All PV systems shall operate within the range of 0.90 lead to 0.90 lag power factor.

Residential PV systems shall be limited to ~~10~~20 kW maximum ac output. Special provision may be negotiated for larger PV installations on an independent connection basis. PV systems larger than ~~10~~20 kW maximum ac output capacity may require special review, additional testing and special interconnection facilities.

Residential Owners of PV systems shall obtain, and retain in effect as long as the PV system is interconnected, standard homeowner's liability insurance with limits of at least \$100,000 per occurrence which protects the owner from claims for bodily injury and/or property damage. This insurance shall be primary for all purposes. The owner shall provide certificates evidencing this coverage as required by the Town. The Town reserves the right to refuse to establish or to continue the interconnection of the PV system if such insurance is not in effect.

The rules and references cited above represent the state of PV technology in 2014. Information available subsequent to this writing may result in changes by the Town of Apex in order to protect the safety of the public and the Town's employees; as well as to maintain appropriate levels of power quality for all electric customers.