

Energy Policy Act 2005

PURPA Standards

Net Metering

Staff Comments

Standard: NET METERING — Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term ‘net metering service’ means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

Recommendation: TVA staff recommends that the Board adopt the following modified version of this standard:

TVA will make available to Distributors of TVA power upon request the option to participate in a dual-metering purchase program modeled after TVA’s current Generation Partners[®] pilot program. Under this dual-metering purchase program, TVA will purchase all electric energy generated by an electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities, and accordingly, two meters will be used to separately measure electricity usage and electricity production. The Board will from time-to-time evaluate the effectiveness of the program and whether it should be modified or discontinued.

Why:

- TVA’s relationship with its wholesale (power distributor) customers is defined under full-requirements contracts which make the purchase of electricity from a supplier other than TVA problematic.
- The design of the Generation Partners demonstration has satisfied previous public calls for net metering and the concept has been adopted by other utilities (We Energies) to facilitate the installation of renewable generation.
- The alternative design of the Generation Partners demonstration has been viewed as a superior approach to net metering in that it compensates consumers for total generation from eligible systems, not just excess generation.
- Power distributors have provided positive feedback on the safety requirements, simplified wiring arrangements, and pass-through purchasing structure of the demonstration.
- The existence of a purchase program helps to lessen the risk of rogue generators connecting onto the distribution grid.
- The Generation Partners model allows TVA to establish a purchase price for consumer-owned renewable generation.

- Establishment of a fixed purchase price enables consumers to make purchase decisions for renewable generation systems which include a definitive revenue stream for the output of their system.

Background: Net metering is typically accomplished via a single meter capable of measuring electricity flow in both directions at the same rate. This can be accomplished using a basic electro-mechanical meter, but, for more detailed data collection, many utilities employ more sophisticated electronic meters.

As of October 2006, the Interstate Renewable Energy Council (IREC) identified fifty-seven net metering programs in forty states and the District of Columbia (see attached *Net Metering Table*). Most of these programs focus on renewables as eligible technologies. Twenty-nine programs (individual states may have multiple utility programs) set total capacity limits; with limitations ranging from 25 customers (Fort Collins Utilities, Colorado) to 2.5% of a utility's peak demand (California). Twenty-eight programs set no limits on total capacity from net metering.

Treatment of net excess generation (NEG) varies from program to program. Compensation for NEG ranges from zero (Delta-Montrose Electric Association, Colorado) to the applicable retail rate. Most apply the credit for NEG to the next month's bill, but several programs grant any surplus at the end of twelve months to the utility.

In response to requests for a net metering program in the TVA service area, TVA initiated the Generation Partners demonstration in Fiscal Year 2003 to provide an alternative. After consultation with the Tennessee Valley Public Power Association and individual power distributors, TVA adopted a dual-meter design under which TVA buys all electricity from eligible consumer-owned renewable generation systems. This design avoids the issue of prohibited power distributor electricity purchases by passing TVA's purchase price for the energy through the distributors in the form of a credit on consumers' monthly electric bills. TVA reimburses participating distributors for these credits on the monthly wholesale power invoice. Since output of the generator is purchased in its entirety, any usage by the consumer is billed at the applicable retail rate by the power distributor. The installation criteria requires the use of a bi-directional billing meter to permit the flow of excess generation onto the distribution grid.

The design of the demonstration focuses on safety to ensure that distributor personnel are not put at risk. One of the motivations for the demonstration was the opportunity to provide an alternative for consumers that might otherwise illegally connect generation resources to the grid by offering them a revenue stream for eligible sources. The design includes automatic safety disconnects in the inverter, isolation disconnects for the generation systems, and a whole-house, lockable disconnect easily accessible by distributor personnel.

Participation in the demonstration is limited to wind and solar photovoltaic systems. This restriction was imposed for consistency with the resource requirements of the

Green Power Switch[®] (GPS) program. Non-demand-metered customers may install wind or solar systems while participation by demand-metered customers is limited to solar systems only. Purchase prices for eligible energy were derived, in part, from estimated resource acquisition costs for solar or wind energy that qualifies under the GPS program. For simplicity, a single price for consumers with billing demands less than 50 kW was established based on the anticipation of significantly more solar installations than wind systems.

Generation Partners pays \$0.15/kWh for wind and solar energy from customers under 50 kW demand and \$0.20/kWh for solar energy from customers with demand of 50 kW or greater. Agreements with consumers guarantee the purchase price for ten years. The size of an individual site is limited to 50 kW and the overall capacity for the TVA system is limited to 5 MW.

As of March 2007, forty power distributors have elected to participate in the voluntary Generation Partners demonstration. There are twenty-six Generation Partners sites in sixteen power distributor service areas. The installations include:

- 20 residential solar systems (49 kW)
- 2 residential wind systems (26 kW)
- 4 commercial solar facilities (82 kW)

Net Metering Commercial Terms and Conditions: As described in the Recommendations section, TVA is proposing that the Generation Partners model be adopted as an alternative to Net Metering.

The primary commercial terms and conditions of the Generations Partners program were developed recognizing the pilot nature of the program. The recommended terms and conditions for the Net Metering alternative program are as follows:

Qualifying System

Means a qualifying photovoltaic or wind turbine electric energy generation system. At TVA's discretion, other renewable sources may be considered based on future needs for renewable generation.

Size

- Individual Qualifying Systems will be limited to a maximum total AC output of 50 kW (exceptions must be agreed to in advance by both TVA and the power distributor).
- Individual Qualifying Systems will have a minimum rated output of 500W AC.
- Total capacity of all Qualifying Systems under this program will not be greater than 5 MW.

Connection Standard

Installation and connection standards will be developed that incorporate the two-meter approach and safety considerations of the Generation Partners demonstration

guidelines, reflect the experience to date in the demonstration, and are consistent with TVA's Small Generator Interconnection Procedures.

Purchase Price

- The current purchase price of \$0.15/kWh (\$0.20/kWh for demand metered customers) will remain in effect for existing customers for the 10 year term of the Pilot Agreement.
- Upon adoption of this recommended standard, a new purchase price for eligible consumer-owned renewable generation will go into effect. This revised purchase price will be the prevailing retail rate plus the then applicable premium paid by GPS customers (currently \$0.0267/kWh).

Term

The term of the purchase agreement is proposed to be 10 years, with an annual renewal thereafter unless canceled by either party.