

## TAC Recommendation Report

PRR Number	756	PRR Title	Distributed Renewable Generation Modifications	
Timeline	Urgent	Recommended Action	Approval	
Date of Decision		May 8, 2008		
Protocol Sections Requiring Revision		2.1, Definitions 2.2, Acronyms 11, Data Acquisition and Aggregation 11.4.4.2, Adjustment for Energy Exports of PV Generation Behind the Meter (new) 11.4.4.3, Adjustment for Energy Exports of Non-PV Renewable Generation Behind the Meter (new) 18, Load Profiling 18.2, Methodology 18.2.2, Load Profiles for Non-Interval Metered Loads Without Distributed Renewable Generation 18.2.3, Load Profiles for Non-Interval Metered Loads With Distributed Renewable Generation (new) 18.2.9, Adjustments and Changes to Load Profile Development		
Proposed Effective Date		January 1, 2009		
Priority and Rank Assigned		Priority of 1-Critical and Rank 2 under Project 80028_01, Small Renewables – RMWG/Distributed Generation		
Revision Description		This Protocol Revision Request (PRR) proposes changes to allow for the Load Profiling and Data Aggregation methodology to better represent output of distributed renewable generation Resources with a capacity of less than 50 kW. This PRR complies with HB 3693.		
Overall Market Benefit		Allows for settlement of distributed renewable generation Resources with a capacity of less than 50 kW.		
Overall Market Impact		Minimal until the population of renewable Resources becomes significant.		
Consumer Impact		Enables settlement of renewable generation values that are not recorded on a 15 minute basis.		
Credit Impacts		ERCOT credit staff and the Credit Work Group (Credit WG) have reviewed PRR756 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.		
Procedural History		<ul style="list-style-type: none"><li>➤ On 2/29/08, PRR756 was posted.</li><li>➤ On 3/05/08, PRS did not grant Urgent status to PRR756 via email vote.</li><li>➤ On 3/11/08, COPS comments were posted.</li><li>➤ On 3/19/08, Reliant Energy comments were posted.</li><li>➤ On 3/20/08, PRS reconsidered Urgent status for PRR756.</li><li>➤ On 3/20/08, PRS considered PRR756.</li><li>➤ On 4/08/08, preliminary Impact Analysis (IA) and Cost Benefit Analysis (CBA) were posted.</li></ul>		

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	<ul style="list-style-type: none"> <li>➤ On 4/10/08, COPS comments were posted.</li> <li>➤ On 4/15/08, an IA and revised CBA were posted.</li> <li>➤ On 4/16/08, CenterPoint Energy comments were posted.</li> <li>➤ On 4/17/08, an updated IA and updated CBA were posted.</li> <li>➤ On 4/18/08, PRS considered the PRS Recommendation Report, the CBA and IA.</li> <li>➤ On 4/25/08, an updated IA and updated CBA were posted.</li> <li>➤ On 4/30/08, updated IA and updated CBA were posted.</li> <li>➤ On 5/8/08, TAC considered PRR756.</li> </ul>
<b>PRS Decision</b>	<p>On 03/20/08, PRS unanimously voted to grant PRR756 Urgent status. All Market Segments were present for the vote.</p> <p>On 03/20/08, PRS unanimously voted to recommend approval of PRR756 as revised by Reliant Energy comments and as amended by PRS. All Market Segments were present for the vote.</p> <p>On 04/18/08, PRS unanimously voted to recommend approval of PRR756 as amended by CenterPoint Energy comments and as revised by PRS. All Market Segments were present for the vote.</p> <p>On 04/18/08, PRS voted to forward the CBA and the IA, as revised by PRS, to TAC for approval. There was one abstention from the Consumer Market Segment. All Market Segments were present for the vote.</p>
<b>Summary of PRS Discussion</b>	<p>On 03/20/08, concerns were expressed regarding market impacts, specifically system, settlement and Unaccounted for Energy (UFE) impacts, as the population of renewable Resources increases. Participants discussed setting a MW cap. It was requested that COPS and the Profiling Working Group (PWG) provide an annual analysis after the implementation of PRR756, to determine if the profiling proposed by PRR756 is still appropriate.</p> <p>On 04/18/08, concerns were expressed by ERCOT Staff that CenterPoint Energy comments create a gap in how to deal with BUSIDRRQ Electric Service Identifiers (ESI IDs) that install distributed renewable generation below 50 kW. It was asked that the Profiling Working Group (PWG) address this gap and take appropriate action. Participants pointed out that impacts on some ERCOT business processes such as the 867_03, Monthly Usage, as well as impacts of creating and supporting the new distributed renewable generation Load Profiles were not captured in the CBA and IA. Modifications were made to the CBA and IA to include these impacts.</p>
<b>TAC Decision</b>	<p>On 5/8/08, TAC unanimously voted to recommend approval of PRR756 as recommended by PRS. All Market Segments were present for the vote.</p>

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<b>TAC Discussion</b>	On 5/8/08, participants opined that the associated costs for this PRR were significant considering the number of ESI IDs being affected and the timeline. It was emphasized that PRR756 has to be implemented to become compliant with a Public Utility Commission of Texas (PUCT) rule. It was explained that the details of the new Load Profiles are provided in the associated Load Profiling Guide Revision Request (LPGRR) 030.
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Quantitative Impacts and Benefits			
Assumptions	1		
	2		
	3		
	4		
Market Cost		Impact Area	Monetary Impact
	1	Data Aggregation process	Minimal ERCOT cost of less than \$50k
	2	867 process	Project with estimated cost of \$450k
	3	Creation of new Load Profiles for Premises with renewable generation Resources	Minimal ERCOT Operations and Maintenance (O&M) costs
	4		
Market Benefit		Impact Area	Monetary Impact
	1	Consumer	Allows for settlement benefit
	2	REP	Minimal settlement benefit
	3		
	4		
Additional Qualitative Information	1	HB 3693 compliance	
	2		
	3		
	4		
Other Comments	1		
	2		
	3		
	4		

Comments Received	
Comment Author	Comment Summary
COPS 031108	Supported PRR756 as submitted and recommended Urgent status.
Reliant 031908	Proposed adding a definition/acronym for "Distributed Renewable Generation (DRG)"; clarified that PRR756 applies only to DRG of 50 kW or less; and that excess energy from ESI IDs with Interval Data Recorders (IDRs) or advanced meters may also have their usage reduced by the amount of energy produced by DRG that is delivered to the ERCOT System.
COPS 041008	Endorsed PRR756, its Preliminary Impact Analysis (PIA) and its CBA. Suggested modifications to the PIA and the CBA.
CenterPoint Energy	Proposed definitions and language changes related to advanced

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Original Sponsor	
Name	Ernie Podraza on behalf of the Profiling Working Group (PWG)
E-mail Address	<a href="mailto:Ernest.Podraza@directenergy.com">Ernest.Podraza@directenergy.com</a>
Company	Direct Energy
Market Segment	Independent Retail Electric Providers

Proposed Protocol Language Revision
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## 2.1 Definitions

### Advanced Meter

Any new or appropriately retrofitted meter that functions as part of an Advanced Metering System and deployed pursuant to PUC SUBST. R. 25.130, Advanced Metering.

### Advanced Metering System (AMS)

A system, including Advanced Meters and the associated hardware, software, and communications devices, that collects time-differentiated energy usage and is deployed pursuant to PUC SUBST. R. 25.130.

### Distributed Renewable Generation

Electric generation with a capacity of not more than 2,000 kW provided by a renewable energy technology that is installed on a retail electric customer's side of the meter.

### PhotoVoltaic

Of or pertaining to a material or device in which electricity is generated as a result of exposure to light.

## 2.2 Acronyms

<u>AMS</u>	<u>Advanced Metering System</u>
<u>DRG</u>	<u>Distributed Renewable Generation</u>
<u>PV</u>	<u>PhotoVoltaic</u>

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## 11.4.4.2 Load Reduction for Excess PhotoVoltaic Renewable Generation

Adjusted Metered Load for ESI IDs with PhotoVoltaic (PV) generation shall be adjusted as follows:

- (1) Prior to the application of item (2) of this Section, Adjusted Metered Load shall be reduced for excess generation from ESI IDs with PhotoVoltaic (PV) generation of less than 50 kW behind the meter where there is a meter that measures excess energy flow into the gridERCOT System in a separate register. Only ESI IDs that have been assigned a PV profile segment as specified in Load Profiling Guide Appendix D, Profile Decision Tree, shall be eligible for this reduction.

Intervals beginning 11:00 A.M. and ending 3:00 P.M. CPT (spanning 16 15-minute intervals) shall be reduced by the following amount:

$$\text{PV adjust}_i = \text{kWh Gen} / (\text{read days} * 16)$$

Where:

PV adjust<sub>i</sub>                      Reduction for PV excess generation for interval i  
kWh GenActual (measured) kWh flowing into the Distribution System (outflow  
from the Premise)  
Read days                      Number of days in meter read period

- (2) The PV reduction adjustment for ESI IDs, which have PV generation of less than 50 kW behind the meter and that have an Advanced Metering System (AMS) integrated meter that measures ~~and settles~~ the excess energy flow into the ERCOT System in 15-minute intervals, shall be determined using the actual 15-minute interval data, if available.

## 11.4.4.3 Load Reduction for Excess Non-PhotoVoltaic Renewable Generation

Adjusted Metered Load for ESI IDs with non-PhotoVoltaic (PV) renewable generation shall be adjusted as follows:

- (1) Prior to the application of item (2) of this Section, Adjusted Metered Load shall be reduced for excess generation from ESI IDs with non-PV renewable generation of less than 50 kW behind the meter where there is a meter that measures excess energy flow into the gridERCOT System in a separate register. Only ESI IDs that have been assigned a non-PV renewable distributed generation profile segment as specified in Load Profiling Guide Appendix D, Profile Decision Tree, shall be eligible for this reduction.

All intervals in the meter read period shall be reduced by the following amount.

$$\text{REn adjust}_i = \text{kWh gen} / \text{read ints}$$

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Where:

REn\_adjust: Reduction for non-PV excess renewable generation for interval i  
kWh\_gen Actual (measured) kWh flowing into the Distribution System (outflow  
from the Premise)  
read\_ints Number of 15-minute intervals in the meter read period

- (2) The renewable energy reduction adjustment for ESI IDs, which have renewable generation of less than 50 kW behind the meter and have an Advanced Metering System (AMS) integrated meter that measures ~~and settles~~ the excess energy flow into the ERCOT System in 15-minute intervals, shall be determined using the actual 15-minute interval data, if available.

## 18.2 Methodology

ERCOT will develop Load Profiles for both non-interval metered loads and Non-Metered Loads. A Load Profiling Methodology is the fundamental basis on which Load Profiles are created. The implementation of a Load Profiling Methodology may require statistical Sampling, engineering methods, econometric modeling, or other approaches.

The following Load Profiling methods will be used ~~for market open~~:

Type of Load	Load Profiling Methodology
<del>N</del> <u>non-I</u> <del>n</del> <u>terval</u> <del>M</del> <u>metered</u>	<del>A</del> <u>adjusted</u> <del>S</del> <u>static</u> <del>M</del> <u>models</u>
<u>non-interval metered with distributed renewable generation</u>	<u>adjusted static models and engineering estimates</u>
<del>N</del> <u>non-M</u> <del>e</del> <u>tered</u>	<del>E</del> <u>ngineering</u> <del>E</del> <u>stimates</u>

Load Profiles will also be developed for Interval Data Recorders (IDRs) for use in settlements when actual IDR data is not available. All Load Profiles will conform to the ERCOT-defined Settlement Interval length.

~~Any change from one~~ Adoption of a new methodology ~~to another will~~ requires approval of TAC, without the necessity of complying with the procedures in Section 21, Process for Protocols Revision. TAC shall establish the implementation date for approved changes, as TAC deems appropriate, recognizing the magnitude of the impacts on Market Participants.

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## **18.2.2 Load Profiles For Non-Interval Metered Loads Without Distributed Renewable Generation**

Load Profiles for non-interval metered loads will be created using statistical models developed from appropriate load research sample data. These models are referred to as “adjusted static.” These model equations will relate daily Settlement Interval load patterns to relevant weather descriptors such as maximum and minimum dry-bulb temperature and humidity. Other daily characteristics such as day-of-the-week and sunrise/sunset times will also be employed.

**[PRR478: Replace Section 18.2.2 above with the following upon system implementation:]**

For market open, Load Profiles for non-interval metered loads were created using statistical models developed from appropriate load research sample data. These models are referred to as “adjusted static.” These model equations relate daily Settlement Interval Load patterns to relevant weather descriptors such as maximum and minimum dry-bulb temperature and humidity. Other daily characteristics such as day-of-the-week and sunrise/sunset times are also employed.

Following market open, new Load Profile segments may be introduced. After these Load Profile segments receive final approval under the provisions of the Load Profiling Guides, Section 12, Request for Profile Segment Changes, Additions, or Removals, they may be settled by using appropriately sized and representative lagged dynamic samples or adjusted static models. The decision to use a lagged dynamic sample or adjusted static model shall be based on the judgment of ERCOT’s Load Profiling Department, subject to TAC approval.

## **18.2.3 Load Profiles For Non-Interval Metered Loads With Distributed Renewable Generation**

Load Profiles for non-interval metered Loads that utilize ~~D~~istributed ~~R~~enewable ~~G~~eneration (DRG) (e.g., PhotoVoltaic or wind) will be created using a hybrid approach. At least a portion of the Load Profile will be based on adjusted static models, while engineering estimates and/or generation models may be integrated as well or otherwise utilized.

## **18.2.9 Adjustments and Changes to Load Profile Development**

ERCOT and the appropriate ERCOT TAC subcommittee will conduct an ongoing evaluation of the current Load Profiling Methodology. Together they will determine whether appropriate changes to the methodology should be made or whether another approach or combination of approaches is warranted. Any Market Participant may request a review of the Load Profiling Methodology. ~~A change from one Adoption of a new Load Profiling Methodology to another~~ must be approved by TAC, as provided in Section 18.2, Methodology.

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Any Market Participant may petition ERCOT for adjustments to the existing Load Profiles and for development of new Load Profiles. The Market Participant making the request shall submit their proposal in writing to ERCOT. ERCOT will post to the Market Information System (MIS) the request and respond to such requests within sixty (60) days. ERCOT shall coordinate with the appropriate ERCOT TAC subcommittee for each change request. ERCOT shall strive to make the necessary changes within a reasonable period of time.

ERCOT, in coordination with the appropriate ERCOT TAC subcommittee, may make changes to existing Load Profiles and establish additional Load Profiles. All changes to Load Profiles shall adhere to these Protocols. When additional Load Profiles are established, ERCOT shall evaluate the impact on existing Load Profiles and associated load research samples.

A Market Participant may submit a request to ERCOT for conditional approval of a new Load Profile segment following the approval process as specified in the Load Profiling Guides, Section 12, Request for Profile Segment Changes, Additions, or Removals. In conjunction with this request, ERCOT staff shall specify the requirements for additional Load research sampling and shall define specific and objective criteria to be met by the analysis of this Load research data to meet the requirements for final approval. Provided the request for conditional approval has received the appropriate ERCOT committee approval and ERCOT staff determines the specified criteria are met, the request shall be granted final approval. If ERCOT staff determines the specified criteria are not met, the request shall be denied.

Section 9.9, Profile Development Cost Recovery Fee for a Non-ERCOT Sponsored Load Profile Segment, describes the process for compensating the originator of a profile segment change request by REPs wishing to subscribe to the profile segment.

ERCOT shall give at least one hundred fifty (150) days notice to all Market Participants prior to market implementation of any change in Load Profile Methodology, existing Load Profiles, or when any additional Load Profiles are developed. This notice shall include a Load Profile change implementation timeline, which specifies dates on which key events during the Load Profile change process will take place. Upon any change in Load Profile Types, TDSPs shall send any revised ESI Load Profile assignments required by the change to the registration system within the implementation timeline. After the new Load Profile(s) becomes available, changes to Load Profile Types will be effective on the next meter read date for each ESI ID.

If one or more Load Profiles require changes to reduce excessive UFE, as determined by the appropriate ERCOT TAC subcommittee, TAC may provide a shorter notice period and implementation date, than otherwise provided herein, for such required changes to Load Profiles. If the Load Profile Methodology requires changes to reduce excessive UFE, as determined by the appropriate ERCOT TAC subcommittee, TAC may provide an expedited notice period and implementation date. TAC may require the standard Load Profile revision process follow such expedited revisions for long-term resolution.