

# 4.1 Regulation Accounting Overview

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Regulation is necessary to provide for the continuous balancing of resources (generation and interchange) with load and for maintaining scheduled Interconnection frequency at 60 cycles per second (60 Hz). PJM commits on-line resources whose output is raised or lowered as necessary to follow moment-to-moment changes in load. Regulation is predominantly achieved using automatic generation control equipment. Regulating resources include both generators and demand side response resources.

PJM operates the Regulation Market where the Regulation Market Clearing Prices are determined based on Regulation offers and opportunity costs. PJM assigns the most economically efficient set of regulating resources available in real-time to separately meet the applicable NERC regions' regulation zone requirements. For more detailed information about how regulating requirements are developed and how Regulation is assigned, see the ***PJM Manual for Balancing Operations (M-12)***. For an overview of the Regulation Market, see the ***PJM Manual for Energy & Ancillary Services Market Operations (M-11)***.

Each PJM load serving entity has an hourly Regulation obligation equal to their regulation zone real-time load ratio share of the applicable Regulation requirement for the hour, prorated to reflect the total amount of Regulation actually supplied.

A market participant's Regulation obligation can be satisfied from their own resources capable of providing Regulation, by contractual arrangements with other Market Participants capable of providing Regulation, and/or by purchases of Regulation from the PJM Regulation Market.

Resource owners supplying self-scheduled Regulation are credited based on the Real-time Settlement Interval (five minute) Regulation Market Capability Clearing Price (RMCCP) and Regulation Market Performance Clearing Price (RMPCP) for each MW of Regulation supplied, with consideration of the resource's Regulation performance, and where applicable, the ~~ratio between the requested mileage for the regulation dispatch signal assigned to the resource and the mileage for the traditional regulation signal (mileage ratio)~~ Regulation Marginal Rate of Technical Substitution (RMRTS), representing the trade-off between the resource following the dynamic regulation signal and the traditional regulation signal. Resource owners supplying pool-scheduled Regulation are credited for each Regulation MW at the higher of the five minute Regulation Market Performance and Capability Clearing Prices, with consideration of the resource's Regulation performance, and where applicable the ~~mileage ratio~~ RMRTS, or their five-minute Regulation offer price (plus real-time opportunity cost including shoulder hours' lost opportunity costs, for generating resources). Regulation buyers are charged an obligation ratio share of the total hourly Regulation Market Capability Clearing Price (RMCCP) credits and Regulation Market Performance Clearing Price (RMPCP) credits plus their percentage share of any Regulation provider's unrecovered costs over and above their total Regulation Clearing Price credits.