



## Committed Scheduling for the 2014-15 Rate Period, Version 1

Effective: 7/5/13

This Business Practice implements the two committed scheduling options that are available for customer election in the 2014-2015 rate period. They are Committed 30/30 Scheduling and Committed 30/60 Scheduling (both referred to as Committed Scheduling). Committed 30/30 must schedule in a way that meets or exceeds the accuracy of schedules that use the 30 minute persistence signal for a 30 minute intra-hour schedule. Committed 30/60 must schedule in a way that meets or exceeds the accuracy of schedules that use the 30 minute persistence signal for a 60 minute hourly schedule. Metrics used to compare schedule accuracy are described in this Business Practice.

Under the 2014 Transmission and Ancillary Services Rate Schedules, Ancillary and Control Area Services Rates (ACS-14 Rate Schedule), wind generators that elect Committed Scheduling and meet scheduling accuracy metrics for 30 minute schedules are eligible for a reduced Variable Energy Resource Balancing service (VERBS<sup>1</sup>) rate and are exempt from Persistent Deviation penalties for Generation Imbalance. Wind generators that elect Committed Scheduling and meet scheduling accuracy metrics for 60 minute schedules are exempt from Persistent Deviation penalties for Generation Imbalance. Bonneville Power Administration (BPA) will provide participants with the schedule amount that meets the accuracy standard for each schedule interval.

This Business Practice takes effect on October 1, 2013 and describes BPA's requirements and other details for participation in Committed Scheduling.

### A. Eligible Committed Scheduling Participants and Resources

1. Any Customer<sup>2</sup> that operates a wind facility within BPA's Balancing Authority Area (BAA) and meets the conditions outlined in this Business Practice may participate in Committed Scheduling. For a wind facility being developed in phases, any phase of a wind facility may participate in Committed Scheduling so long as each phase is metered and scheduled independently and is not otherwise interdependent with any other phase. Each subsequent phase will need to prequalify independently if the phase is to be included in Committed Scheduling.

### B. Prequalifying Information Required

1. Potential Participants are required to:

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<sup>1</sup>"Variable Energy Resource Balancing Service" as described in the ACS-14 Rate Schedule and General Rate Schedule Provisions.

<sup>2</sup>Any customer taking service under Use of Facilities (UFT), Formula Power Transmission (FPT), Integration of Resources (IR), Generation Integration Services, Part II or Part III of the OATT.

- a. Notify their BPA Transmission Account Executive in writing of interest in participating.
- b. Identify the Committed Scheduling Resource(s) and provide POR<sup>1</sup> for the wind energy and, if sinking internally to the BPA BAA, POD<sup>2</sup>(s).
- c. If the POD for a Committed 30/30 Scheduling Resource is to load inside BPA's Balancing Authority Area, the Potential Participant must provide their Transmission Account Executive with written confirmation from the load that it has a Balancing Resource that it will schedule on each half hour to the load. The written confirmation must include the resource name and POR. Potential Participants may submit a portfolio of balancing resources.
- d. Provide BPA with details for methods by which the Potential Participant expects to achieve scheduling accuracy that is consistent with or superior to the scheduling accuracy metrics described below in section F. BPA will apply the same scheduling accuracy metric regardless of the scheduling method used.
- e. Prior to BPA allowing a Potential Participant to receive the applicable rate associated with Committed Scheduling, the Potential Participant must demonstrate for at least two calendar weeks its ability to meet the scheduling accuracy metric, regardless of whether the resource is new or existing.
- f. The Uncommitted Scheduling VERBS Base Rate (Section III.E. 2 of BPA's ACS-14 Rate Schedule) will apply during the period that the Potential Participant is providing prequalifying information to BPA and demonstrating the ability to meet the scheduling accuracy metric. If the Potential Participant demonstrates its scheduling ability during September of 2013 (see section G), the applicable VERBS rate from ACS-12 rate schedule will apply during that month.
- g. A resource planned to come on-line during the 2014-2015 rate period that elects to participate in Committed Scheduling will have two calendar weeks from their commercial operations date to test their ability to meet the scheduling accuracy metrics for their elected scheduling option.

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<sup>1</sup>Point of Receipt is an interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available by the Delivering Party: An OASIS field on a TSR that is the scheduling POR.

<sup>2</sup>Point of Delivery is a point on the Transmission Provider's Transmission System where capacity and energy transmitted by the Provider will be made available to the Receiving Party; An OASIS field on a TSR that is the scheduling POD.

- i. The Uncommitted Scheduling VERBS Base Rate will apply until the Participant receives Notification of Participation, as defined in Section G, below.
- ii. The rate for the elected, and qualified for, Committed Scheduling option will take effect the first day of the next billing cycle no sooner than five days following receipt by Participant of Notification of Participation.

### **C. Generation Imbalance and Energy Imbalance**

1. Energy Imbalance<sup>1</sup> risk: For Committed 30/30 Scheduling Resources with wind energy sinking to loads within the BPA BA, a Balancing Resource<sup>2</sup> must be identified, as noted above in B.1.b and B.1.c. If the intra-hour schedule is adjusted for the wind plant without also adjusting the Balancing Resource output, such increases or patterns of imbalance could result in Persistent Deviation penalties for Energy Imbalance.
2. Committed Scheduling Resources and Balancing Resources are subject to Generation Imbalance. Generation Imbalance for Committed Scheduling Resources and Balancing Resources is calculated on the actual schedule interval, 30 minute or 60 minute. (See the Generation Imbalance Business Practice).
3. Committed Scheduling Resources are exempt from Persistent Deviation penalties for Generation Imbalance.
4. Balancing Resources are subject to Persistent Deviation penalties for Generation Imbalance and for Energy Imbalance.

### **D. Compliance with Dispatch Orders**

1. Committed Scheduling participants are subject to Dispatch Orders, including Curtailments, generation limits and Dispatch Standing Order No. 216.

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<sup>1</sup>Difference occurring between hourly scheduled amount and hourly metered (actually-delivered) amount associated with transmission to a load located in the BPA Balancing Authority area or from a generation resource located within BPA's Balancing Authority Area.

<sup>2</sup>A dispatchable resource within or outside of the BPA Balancing Authority that is available to the load served by the Committed Scheduling Resource on the half hour.

2. A Committed Scheduling participant that does not respond appropriately to a Dispatch Order<sup>1</sup> is subject to a Failure to Comply Penalty<sup>2</sup>.

## E. Committed Resource Scheduling for DSO-216, Curtailments, and iCRS System Failures

1. During a DSO-216 limit generation event, the Committed Scheduling Resource is expected to comply with the limit while the DSO-216 is in effect. For the subsequent scheduling interval, the participant should schedule as accurately as possible. In recognition that inaccuracy could result from using the generation value during the DSO-216 limit generation event, intervals for which the generation value for the persistence schedule is set while the generation limit is in effect will be excluded from the scheduling accuracy metrics.
2. During a DSO-216 schedule Curtailment the Committed Scheduling Resource does not need to limit its generation in response to the DSO-216 schedule Curtailment if there are no other transmission Curtailments affecting e-Tags sourced at the Committed Scheduling Resource. In recognition that inaccuracy could result from using the generation value during a DSO-216 schedule Curtailment event, BPA will exclude the period of Curtailment and subsequent schedule interval from scheduling accuracy metrics.
3. During a transmission schedule curtailment, participants are expected to comply and limit generation to not exceed the sum of remaining approved e-Tags during the Curtailment. In recognition that scheduling inaccuracy in subsequent intervals could result from using the generation value during the transmission curtailment, BPA will exclude the period of Curtailment and subsequent schedule interval from scheduling accuracy metrics.
4. During an iCRS<sup>3</sup> Generation Advisor System Failure whereby iCRS ceases to produce the average generation value that BPA will use for determining scheduling accuracy

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<sup>1</sup>An order or directive from Transmission Services to dispatch, curtail, redispatch, limit output, or shed load. Dispatch orders may be communicated by various methods including, but not limited to : phone call (e.g. to redispatch generation up or down); electronic signal (e.g. via direct telemetry or private web application to limit generation according to DSO216); or NERC e-tagging system (e.g. to curtail transmission schedules and the generation using those schedules).

<sup>2</sup>The consequences of non-compliance as defined in the Failure to Comply Business Practice in effect at the time.

<sup>3</sup>BPA's Integrated Curtailment and Redispatch System, as implemented through BPA's Generation Advisor web application.

performance (as explained further in Section F below), the participant should schedule the subsequent scheduling interval as accurately as possible. In recognition that inaccuracy could result from unavailability of the average generation value, BPA will exclude the subsequent schedule interval from scheduling accuracy metrics.

## F. Schedule Accuracy Metrics

### 1. Committed 30/30 Scheduling

- a. BPA will verify on an ongoing basis that the intra-hour schedule is at least as accurate as 30-minute persistence scheduling. The baseline metrics for accuracy comparison include a capacity, energy, and accumulated energy component.
- b. 30-Minute Persistence for 30 minute Scheduling (Committed 30/30): The generator's schedule for the next schedule interval is the generator's 1-minute average of the actual generation 30 minutes prior. For example, the generator's schedule for 2:00 to 2:30 is the generator's actual average generation from 1:29 to 1:30 and the generator's schedule for 2:30 to 3:00 is the generator's actual average generation from 1:59 to 2:00. Through iCRS Generation Advisor, BPA will provide the average generation value that BPA will use for determining scheduling accuracy performance. The average value will be updated within 1 minute after H-x:30 and H-x:00. In the event BPA does not update the average value within 2 minutes of H-x:30 or H-x:00, BPA will deem this a BPA system failure in accordance with Section E.4 of this business practice.
- c. A 20-minute ramp duration is used to ramp from the second half of the hour schedule to first half of the hour schedule beginning at XX:50 and ending at XX:10. A 10-minute ramp duration is used to ramp from the first half of the hour schedule to the second half of the hour schedule beginning at XX:25 and ending at XX:35.
- d. Capacity Component: For the capacity component, the largest absolute value of the actual 1-minute averaged station control error should be less than or equal to the largest absolute value of the 1-minute averaged station control error calculated from 30-minute persistence schedule plus a capacity component dead band over the last seven days. The capacity component dead band is the greater of 1 MW or 2 percent of the largest absolute value of the 1-minute averaged station control error calculated from 30-minute persistence schedule over the last seven calendar days.

$$\begin{aligned}
 & \text{MAX} \left| \text{SCE}_{\text{1min Ave, Actual}} \right| \leq \text{MAX} \left| \text{SCE}_{\text{1min Ave, Persistence}} \right| + \text{DB}_{\text{capacity}} \\
 & \text{DB}_{\text{capacity}} = \text{Greater of 1 MW or 2\% of last 7 day's MAX} \left| \text{SCE}_{\text{1min Ave, Persistence}} \right| \\
 & \text{SCE}_{\text{1min Ave, Actual}} = \text{Last 7 day's actual 1 minute average SCE} \\
 & \text{SCE}_{\text{1min Ave, Persistence}} = \text{Last 7 day's 30-minute persistence schedule's 1 minute average SCE}
 \end{aligned}$$

Equation 1- Capacity Component

- e. Energy Component: For the energy component, the sum of the absolute value of the actual integrated imbalance over each 30-minute schedule interval should be less than or equal to the sum of the absolute value of the integrated imbalance over each 30-minute schedule interval from a calculated 30-minute persistence schedule plus an energy component dead band over the last seven days. The energy component dead band is the greater of 50MWh or 2 percent of the sum of the absolute value of the integrated imbalance over each 30-minute schedule interval from a calculated 30-minute persistence schedule over the last seven calendar days.

$$\sum \left| \frac{SCE_{30 \text{ min Ave, Actual}}}{2} \right| \leq \sum \left| \frac{SCE_{30 \text{ min Ave, Persistence}}}{2} \right| + DB_{\text{energy}}$$

$DB_{\text{energy}}$  = The greater of 50 MWh or 2% of last 7 day's  $\sum \left| \frac{SCE_{30 \text{ min Ave, Persistence}}}{2} \right|$

$SCE_{30 \text{ min Ave, Actual}}$  = Last 7 day's actual 30 minute averaged SCE

$SCE_{30 \text{ min Ave, Persistence}}$  = Last 7 day's 30 - minute persistence schedule's 30 minute average SCE

Equation 2 - Energy Component

- f. Accumulated Energy Imbalance Component: In addition, the absolute value of the bias in energy imbalance accumulation over the last seven calendar days should be less than or equal to the bias resulting from 30-minute persistence scheduling plus an imbalance component dead band.

$$\left| \sum \frac{SCE_{30 \text{ min Ave, Actual}}}{2} \right| \leq \left| \sum \frac{SCE_{30 \text{ min Ave, Persistence}}}{2} \right| + DB_{\text{imbalance}}$$

$DB_{\text{imbalance}}$  = The greater of 50 MWh or 2% of last 7 day's  $\sum \left| \frac{SCE_{30 \text{ min Ave, Persistence}}}{2} \right|$

$SCE_{30 \text{ min Ave, Actual}}$  = Last 7 day's actual 30 minute average SCE

$SCE_{30 \text{ min Ave, Persistence}}$  = Last 7 day's 30-minute persistence schedule's 30 minute average SCE

Equation 3 - Accumulated Energy Imbalance

- g. A Committed 30/30 Scheduling Participant scheduling to the BPA-provided 30-minute persistence value for every 30-minute schedule interval will satisfy the schedule accuracy metrics for capacity, energy, and accumulated Energy Imbalance.
- h. For a Committed 30/30 Balancing Resource scheduling generation to loads within the BPA BA, BPA will also verify that the Balancing Resource is adjusting in conjunction with the wind resource schedule changes. BPA will check the intra-hour change in the

sum of schedules for the Balancing Resource against the intra-hour change for the Committed 30/30 Scheduling Resource to ensure that use of FCRPS balancing reserve capacity is reduced.

## 2. Committed 30/60 Scheduling

- a. BPA will verify on an ongoing basis that the hourly schedule used is at least as accurate as the 30-minute persistence signal. The baseline metrics for accuracy comparison shall include a capacity, energy, and accumulated energy component.
- b. 30-Minute Persistence Signal for 60-minute Scheduling (Committed 30/60): The generator's schedule for the next schedule interval is the generator's 1-minute average of the actual generation 30 minutes prior to the hour. For example, the generator's schedule for 2:00 to 3:00 is the generator's actual average generation from 1:29 to 1:30. Through iCRS Generation Advisor, BPA will provide the average generation value that we will use for determining scheduling accuracy performance. The average value will be updated within one minute after H-x:30. In the event BPA does not update the average value within 2 minutes of H-x:30 or H-x:00, deem this a BPA system failure in accordance with Section E.4 of this business practice.
- c. If a participant that elected Committed 30/60 Scheduling chooses to correct their schedule in mid-hour, the metric for that schedule interval will be the least restrictive of the Committed 30/30 or Committed 30/60 Scheduling Accuracy Metrics.
- d. A 20-minute ramp duration is used to ramp from the end of the previous hour schedule to the next hour schedule beginning at XX:50 and ending at XX:10.
- e. Capacity Component: For the capacity component, the largest absolute value of the actual 1-minute averaged station control error should be less than or equal to the largest absolute value of the 1-minute averaged station control error calculated from 30-minute persistence schedule plus a capacity component dead band over the last seven days. The capacity component dead band is the greater of 1 MW or 2 percent of the largest absolute value of the 1-minute averaged station control error calculated from 30-minute persistence schedule over the last seven days.

$$MAX(|SCE_{1\min Ave,Actual}|) \leq MAX(|SCE_{1\min Ave,Persistence}|) + DB_{capacity}$$

$$DB_{capacity} = \text{Greater of 1 MW or 2\% of last 7 day's } MAX(|SCE_{1\min Ave,Persistence}|)$$

$$SCE_{1\min Ave,Actual} = \text{Last 7 day's actual 1 minute average SCE}$$

$$SCE_{1\min Ave,Persistence} = \text{Last 7 day's 30-minute persistence schedule's 1 minute average SCE}$$

## Equation 1 - Capacity Component

- f. Energy Component: For the energy component, the sum of the absolute value of the actual integrated imbalance over each 60-minute schedule interval should be less than or equal to the sum of the absolute value of the integrated imbalance over each 60-minute schedule interval from a calculated 30-minute persistence schedule plus an energy component dead band over the last seven days. The energy component dead band is the greater of 50MWh or 2 percent of the sum of the absolute value of the integrated imbalance over each 60-minute schedule interval from a calculated 30-minute persistence schedule over the last seven days.

$$\sum |SCE_{60\min Ave,Actual}| \leq \sum |SCE_{60\min Ave,Persistence}| + DB_{energy}$$

$$DB_{energy} = \text{The greater of 50 MWh or 2\% of last 7 day's } \sum |SCE_{60\min Ave,Persistence}|$$

$$SCE_{60\min Ave,Actual} = \text{Last 7 day's actual 60 minute average SCE}$$

$$SCE_{60\min Ave,Persistence} = \text{Last 7 day's 30-minute persistence schedule's 60 minute average SCE}$$

## Equation 2 - Energy Component

- g. Accumulated Energy Imbalance Component: In addition, the absolute value of the bias in Energy Imbalance accumulation over the last seven days should be less than or equal to the bias resulting from 30-minute persistence scheduling plus an imbalance component dead band.

$$|\sum SCE_{60\min Ave,Actual}| \leq |\sum SCE_{60\min Ave,Persistence}| + DB_{imbalance}$$

$$DB_{imbalance} = \text{The greater of 50 MWh or 2\% of last 7 day's } \sum |SCE_{60\min Ave,Persistence}|$$

$$SCE_{60\min Ave,Actual} = \text{Last 7 day's actual 60 minute average SCE}$$

$$SCE_{60\min Ave,Persistence} = \text{Last 7 day's 30-minute persistence schedule's 60 minute average SCE}$$

## Equation 3 - Accumulated Energy Imbalance

- h. A Committed 30/60 Scheduling Participant scheduling to the BPA-provided 30-minute persistence value for every 60-minute schedule interval will satisfy the schedule accuracy metrics for capacity, energy, and accumulated Energy Imbalance.

## **G. Notification of Participant Qualification for Committed Scheduling**

1. A BPA Transmission Account Executive will notify a potential Committed Scheduling participant via email within 5 calendar days of when the potential participant has met the pre-qualification requirements and request written acknowledgment from the Potential Participant that the terms of this Business Practice will govern participation in Committed Scheduling. BPA must receive the written acknowledgement from the Committed Scheduling participant no later than five Business Days before the end of a month in order to apply the Committed Scheduling VERBS Base Rate (Section III.E.2 of BPA's ACS-14 Rate Schedule) beginning on the first day of the next billing cycle.
2. Testing for qualification to start Committed Scheduling on October 1, 2013 will be performed during September of 2013. In planning the time necessary for testing, participants are encouraged to build in time for edits and revisions to systems and processes.
3. BPA encourages Committed Scheduling participants to automate their scheduling at the time they initiate participation.

## **H. Notification of Failure to Meet Scheduling Accuracy and Termination**

1. If the Committed Scheduling participant's scheduling accuracy does not meet the scheduling accuracy metrics, BPA will notify the Committed Scheduling participant within 10 Business Days by e-mail. Upon receipt of such notice, the Committed Scheduling participant is expected to correct the scheduling accuracy within one Business Day.
2. If the failure to meet the scheduling accuracy metrics was caused by factors outside the control of the participant, such as a failure of iCRS or other data acquisition system problems, the participant may submit the reasons and documentation to their Transmission Account Executive and request that BPA waive the failure. Participant must submit the written request within 10 Business Days of receipt of BPA's notice of failure. If BPA grants the request for waiver, BPA will notify the participant within 10 Business Days of receipt of the request and the failure will not count against the participant.
3. After BPA issues two such unwaived failures of a schedule interval for a single performance metric over a rolling 30 calendar day period, the next notice will require the Committed Scheduling participant to automate scheduling to use the BPA-provided persistence value in a manner consistent with applicable DOE cyber security standards. Upon receipt of a notice with this requirement, the committed scheduling participant must notify BPA within five Business Days of its intent to comply and complete the change in its scheduling systems within 30 calendar days of receiving BPA's new signal

providing the persistence value. During the intervening period the committed scheduling participant is expected to exercise due diligence to continue to achieve the expected scheduling accuracy.

- a. If BPA observes during the intervening period that a participant is missing the scheduling accuracy metrics more than once per week or appears to have stopped routinely scheduling to the BPA provided signal, BPA may notify the participant of the temporary suspension of the discount for Committed Scheduling, starting the first day of the following billing cycle and continue until the first day of the billing cycle after automated scheduling is successfully implemented.
4. BPA may initiate moving a committed scheduling participant to a longer scheduling option as defined in VERBS Base Rate Section III.E.2 of the ACS-14 Rate Schedule upon failure to automate scheduling or on the third unwaived failure of performance.
  5. The participant will be billed at the VERBS base rate for the next longer scheduling option starting the first day of the next billing cycle if the Participant fails to convert to automated scheduling of the BPA-provided persistence value within two weeks of receiving the new signal from BPA. Termination of the participant's current VERBS rate will take effect on the last day of the current billing cycle.
  6. A Committed 30/30 Scheduling participant that has been moved to a 30/60 interval option by BPA will be charged the 30/60 VERBS Base Rate, beginning the first day of the next billing cycle, for the remainder of the rate period. A Committed 30/60 Scheduling Participant moved to Uncommitted Scheduling will pay the Uncommitted Scheduling VERBS Base Rate starting the first day of the next billing cycle, for the remainder of the rate period.
  7. A committed scheduling participant moved to a longer schedule interval option by BPA will be directly assigned the cost of acquisitions caused by the unplanned increase in the reserve requirements for the BPA BAA. See the Purchases Charge for Direct Assignment of Costs to a Customer in Section III.E.6.2 of the ACS-14 Rate Schedule.
  8. When a Committed 30/30 Scheduling Resource is sinking to load within the BPA BAA and the Balancing Resource is not changing schedules in response to the intra-hour adjustments, BPA will issue a notice to the Committed Scheduling participant and the Balancing Resource.
    - a. After two such unwaived failures over a 30-day period, BPA may disqualify the poorly performing Balancing Resource upon 14 calendar days notice. During this period the Balancing Resource is expected to exercise due diligence to continue to achieve the

expected response.

- b. Failure to qualify a new Balancing Resource within the 14 calendar days notice period mentioned in a. above will result in termination from participation in Committed Scheduling. During this period the Balancing Resource is expected to exercise due diligence to continue to achieve the expected response.
  - c. BPA may disqualify a non-performing Balancing Resource upon seven calendar days written notice. If the Committed Schedule does not have another qualified Balancing Resource the Committed Scheduling Resource will be billed the uncommitted scheduling rate starting on the first day of the next billing cycle.
  - d. A resource may re-qualify as a Balancing Resource after 30 days and at the start of the next billing cycle by providing documentation to BPA, and receiving approval from BPA, that it has corrected the causes for its disqualification. BPA will work with the Committed Scheduling Resource and the Balancing Resource to develop solutions.
9. When a Committed 30/30 Scheduling Resource is sinking to load within the BPA BAA and the Balancing Resource is not changing schedules in response to the intra-hour adjustments, BPA will issue a notice to the Committed Scheduling participant and the Balancing Resource.
- a. After two such unwaived failures over a 30-day period, BPA may disqualify the poorly performing Balancing Resource upon 14 calendar days notice. During this period the Balancing Resource is expected to exercise due diligence to continue to achieve the expected response.
  - b. Failure to qualify a new Balancing Resource within the 14 calendar days notice period mentioned in a. above will result in termination from participation in Committed Scheduling. During this period the Balancing Resource is expected to exercise due diligence to continue to achieve the expected response.
  - c. BPA may disqualify a non-performing Balancing Resource upon seven calendar days written notice. If the Committed Schedule does not have another qualified Balancing Resource the Committed Scheduling Resource will be billed the uncommitted scheduling rate starting on the first day of the next billing cycle.
  - d. A resource may re-qualify as a Balancing Resource after 30 days and at the start of the next billing cycle by providing documentation to BPA, and receiving approval from

BPA, that it has corrected the causes for its disqualification. BPA will work with the Committed Scheduling Resource and the Balancing Resource to develop solutions.

## I. Additional Information

### Policy Reference

- [2014-2015 Transmission and Ancillary Service Rates](#)

### Related Business Practices

- Redispatch and Curtailment
- Requesting Transmission Service
- Scheduling Transmission Service
- Generation Imbalance
- Failure to Comply
- On Demand Resource Scheduling
- Oversupply Management Protocol

### Version History

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Version 1	07/03/13: new business practice
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