	Procedure	
---	------------------	--

Title: Demand Response Procedure **Document Identifier: 240-84729172**

Alternative Reference Number: **Not applicable**

Area of Applicability: **Eskom Holdings SOC Limited**



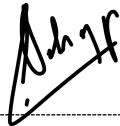
Functional Area: **Transmission**

Revision: **5**

Total Pages: **30**

Next Review Date: **February 2027**

Disclosure Classification: **Controlled Disclosure**

Compiled by	Functional Responsibility	Authorized by
		
Lawrence Padachi Senior Manager Power Systems Reliability Services	Isabel Fick General Manager - System Operator	Segomoco Scheppers Managing Director: Transmission
Date: 05 April 2024	Date: 8 April 2024	Date: 09 Apr 2024

Content

	Page
1. Introduction.....	4
2. Supporting Clauses	4
2.1 Scope.....	4
2.2 Normative/Informative References	4
2.3 Definitions	5
2.4 Abbreviations	6
2.5 Roles and Responsibilities	7
2.6 Process for Monitoring.....	7
2.7 Related/Supporting Documents.....	7
3. Reliability Services Procedure	8
3.1 Develop Reserve Market	8
3.2 Schedule and dispatch of reserves.....	8
3.3 Perform Settlement	13
4. Certification of Reserve Categories	13
4.1 Supplemental DR	13
4.2 Instantaneous DR.....	14
4.3 Self-Generation DR	15
4.4 Day Ahead DR	16
4.5 Emergency DR Loads	16
4.6 Fixed Time DR	16
4.7 NDDR.....	16
5. Performance calculation per Reserve Category.....	16
5.1 Supplemental DR	16
5.2 Instantaneous DR.....	19
5.3 Self-Generation	20
5.4 Day ahead DR.....	22
5.5 Emergency DR.....	22
5.6 Fixed Time DR	23
5.7 NDDR.....	24
5.8 Metering data (related to 30-minute-intevals)	25
6. VENDOR REGISTRATION	26
6.1 The Participant will register as a vendor as set out in the Demand Response Vendor Registration Process attached hereto as Annexure A and B, when applicable	26
6.2 The Participant shall continuously monitor and maintain compliance to the ESKOM's registration requirements as a vendor.	26
7. Settlements	26
7.1 VPS Finance Total Settlement Report.....	26
7.2 VPS Settlement Report Timelines	27
7.3 Authorisation - Employers Agent	28

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

8. Loading of contracts and payment process..... 28

9. Exemptions..... 30

10. Acceptance..... 30

11. Revisions..... 30

12. Development Team 30

13. Acknowledgements 31

ANNEXURE A 32

ANNEXURE B 33

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

1. Introduction

Eskom has different types of reserves essential for the reliable operation of the power system. This procedure provides how different reserve categories will be conducted that meets the System Operator's (SO) reserve requirements.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The objective of this document is to provide the procedure in terms of which Eskom can obtain price incentivised demand response reserves from the entire load base in a standardised way in order to provide a mechanism to the System Operator for meeting reserve requirements and to balance supply and demand in real time.

2.1.2 Applicability

This procedure applies throughout Eskom Holdings SOC Limited divisions and subsidiaries to all Electricity end users in South Africa.

2.1.3 Effective date

The effective date will be from date of signature

2.1.4 Criteria

2.1.4.1 Demand Response

Supplemental DR and Self Generation DR Participants can be dispatched up to seven days per week. Instantaneous DR has limited events per annum. Non Dispatchable Demand Response (NDDR) requires a reduction of load for a minimum of 1 hour up to four consecutive hours between 16:00 and 20:00 Week Days.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] Process control manual for develop Demand Response Market – 240-62624791
- [2] Process control manual for perform Demand Response Settlement – 240-62625359
- [3] Process control manual for schedule and dispatch Demand Response – 240-62625179
- [4] Certification and performance monitoring for demand side reserves procedure–

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

240-84836822

2.2.2 Informative

[1] ISO 9001 Quality Management Systems.

2.3 Definitions

Definition	Explanation
Bid Capacity	Is the capacity in megawatt (MW) indicated by the Participant as available during the next Day.
Bid Price	Is the price (in R/MW/h or R/MW/h & R/MWh) at which the Participant is willing to make the capacity (MW) available to ESKOM
Business Day	Any day, excluding a Saturday, Sunday or official public holiday in the Republic of South Africa
Capacity Payment	Is the payment (in R/MW/h) to the Participant by ESKOM for capacity scheduled and which capacity has been or can be successfully provided on instruction from ESKOM. Such payment is to be made irrespective of whether the Participant was instructed to participate by ESKOM or not.
Certified Capacity	Is the capacity in megawatt (MW), that the Participant has proved to ESKOM on 2 (two) or more occasions that it can achieve the required capacity, and which has subsequently been accepted and certified by ESKOM.
Contract Schedule	Is a schedule sent to the Participant by ESKOM, specifying the capacity (in MW per hour) to be available during each hour of the next Day
Curtailed Day"	A day on which a Participant was requested by ESKOM to make the capacity available.
Customer Base Line (CBL)"	A daily profile representing the amount of electricity the Participant would have consumed in each Integration Period for Week Days and Week-end Days.
Demand Response (DR)	Is an ESKOM initiative through which Participants contract with ESKOM to make agreed capacity available for reduction on instruction from ESKOM.
RS Installation	Any equipment installed by Eskom on the Participant's premises to enable the Participant to participate in different reserve categories, excluding metering equipment used for monthly billing purposes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Energy Payment	Is the payment (in R/MWh) to the Participant by ESKOM for energy savings during an Event
Eskom	Eskom Holdings SOC Limited Divisions and Subsidiaries
Event	Reduction/charge/discharge request by ESKOM.
Load Reduction (LR)	Is a reduction in Participant load or consumption on instruction by ESKOM, measured in MW and/or MWh, over the Integration Period or a period as specifically instructed by the VPS
Participant	A contracted reliability services provider.
Scheduled Capacity	Is the capacity in MW that ESKOM requires the participant to have available the next day
VPS	Virtual Power Station
Week Day	All days, excluding Week-end Days
Week-end Day	Is any Saturday, Sunday, or public holiday.

2.4 Abbreviations

Abbreviation	Explanation
CBL	Customer Base Line
DOA	Delegation of Authority
DR	Demand Response
DRP	Demand Response Product
SDR	Supplemental Demand Response
SO	System Operator
TMR	Ten Minute Response
NDDR	Non Dispatchable Demand Response

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

2.5 Roles and Responsibilities

2.5.1 Participant

- 2.5.1.1 The Participant shall ensure that the capacity (in MW per hour) is available during all hours as indicated in the Schedule, and that such capacity is provided by the specified time or within the agreed upon period of time according to the particular reserve category.
- 2.5.1.2 The Participant may restore to normal levels after the maximum duration as contracted for the particular product or as soon as the incident has been cleared and a restore signal / message has been given by Eskom, whichever comes first.
- 2.5.1.3 The Participant shall provide Eskom with a monthly VAT invoice for the service provided based on the monthly settlement report generated by the VPS.
- 2.5.1.4 The Participant shall pay the supply authority for the normal electricity supply services provided in terms of the electricity supply agreement.

2.5.2 Eskom

- 2.5.2.1 Eskom shall instruct the Participant to make the capacity (MW) available, either by means of a telephone call or an electronic signal provided by Eskom at the RS Installation on the Participant's premises. Eskom shall give the instruction with an adequate notice period as stipulated for the specific reserve category.
- 2.5.1.2 Eskom shall, by the 5th Business Day of the following month, provide the Participant with a settlement report needed for the Participant to invoice Eskom for services provided during the month.
- 2.5.1.3 Eskom shall financially compensate the Participant for the services rendered as per the Participant's tax invoice. Payments to Participants that are not directly supplied by Eskom will be done through the normal procurement processes. Participants supplied directly by Eskom's electricity account will be credited with the amount.

2.6 Process for Monitoring

This procedure shall be implemented in accordance with Eskom's normal practises for billing and metering supplies for services rendered and subject to normal corporate audit procedures.

2.7 Related/Supporting Documents

- Instantaneous DR Proforma Agreement
- NDDR Proforma Agreement
- Supplemental DR Proforma Agreement
- Self-Generation DR Proforma Agreement

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

3. Reliability Services Procedure

3.1 Develop Reserve Market

To ensure that adequate reserves are made available to System Operator, the process is as follows:

- Use appropriate channels to identify potential Participants with reference to a specific reserve category.
- The Participants' intent via electronic media to participate will where applicable trigger the ordering of RS Installation.
- Install and commission RS Installation when applicable.
- Certify Load in MW (Refer to Section 4)
- Once the Participant has agreed to participate a product specific agreement will be concluded.
- Both parties to sign the agreement
- Register Participants that are not supplied by Eskom as an Eskom Vendor with Procurement. The Participant shall provide ESKOM with the following up to date documents:
 - **ORIGINAL** cancelled cheque or stamped letter from bank, verifying the bank details of your business.
 - Tax clearance certificate

3.2 Schedule and dispatch of reserves

- Scheduling of reserve capacities are done by SO day ahead to meet system demand and reserve requirements.
- VPS will aggregate offered reserves in the form of a schedule and submit to the System Operator.
 - The Participant will indicate to the VPS on or before 09:00 of every Day, whether the Certified Capacity will be available for participation in reserves.
- The System Operator will advise VPS how much capacity to schedule based on the system requirements.
- Participants will be notified by VPS to be on standby or not for the next day.
 - VPS shall notify the Participant electronically by 15:00 on day N-1
 - If the Participant did not receive the notification from VPS by 15h30 on day N-1, and the Participant was unsuccessful in contacting the VPS, then:
 - Supplemental and self-generation Participants are deemed not to be on standby
 - Instantaneous Participants are deemed to be on standby

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

- Dispatch scheduled capacities on request from SO by using the VPS.
- DR equipment electronically dispatches scheduled Participants part of Instantaneous DR.
- VPS retrieves metering data via the following:
 - RS Installation
 - Third party
 - MV90 billing meters
- VPS uses product specific formulas to calculate performance results in MW and/or MWh and generates an event performance report which result is accepted by both the Participant and Eskom. (Refer to Section 5)
- VPS generates a monthly performance report per Participant.
- VPS generates a settlement report based on the monthly performance report and product specific and or contracted rates.
- For both Supplemental DR and Instantaneous DR , where the Participant's median performance for a particular month is above 90 % (ninety percent) of the Scheduled Capacity, the Participant shall receive the full Capacity Payment for all scheduled hours.
- If the Participant's median performance for a particular month be equal to or below 90 % (ninety per cent) of the Scheduled Capacity, the Participant shall only receive a portion of the Capacity Payment, based on actual performance for the month.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

- If the Participant's median performance for a particular month be equal to or below 90 % (ninety per cent) of the Scheduled Capacity, the Participant shall only receive a portion of the Capacity Payment, based on actual performance for the month.

Category	Reserves type	Payments
Instantaneous DR	<ul style="list-style-type: none"> • Respond within 6 seconds. • Minimum 1 minute reduction • Maintain reduction up to 10 minutes. • 3 Events per day, or more on voluntary/ contractual basis • Rest period of 1 hour between events. • Up to 200 on target events per annum. 	<ul style="list-style-type: none"> • No Energy payment • Capacity payment rate in R/MW/h for all scheduled hours as approved by relevant committee
Supplemental DR	<ul style="list-style-type: none"> • Respond within 30 min to 120 min from request call • Maintain reduction for 2 hours or up to a maximum of 16 hours • Maximum of one event per day • Up to 150 on target events per annum 	<ul style="list-style-type: none"> • Capacity Payment rate in R/MW/h for all scheduled hours based on a peak rate for system peak hours and an off-peak rate for system off-peak hours. • System peak hours: <ul style="list-style-type: none"> ▪ High season: <ul style="list-style-type: none"> •Months: June – August •Hours: 6-9 & 17-20 ▪ Low season: <ul style="list-style-type: none"> •Months: Sept – May •Hours: 9-12 & 18-21 • Energy Payment rate: lesser of (Participant bid price, cap R/MWh rate) as approved by relevant committee • No Energy Payment shall be made where the Event performance is equal or below to 30%. • The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.
Self-Generation DR	<ul style="list-style-type: none"> • Respond within 30 min from request call 	<ul style="list-style-type: none"> • Capacity Payment = Scheduled Capacity x rate (Rand) x scheduled hours

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Category	Reserves type	Payments
	<ul style="list-style-type: none"> • Maintain generation for 2 hours or up to a maximum of 16 hours • Maximum of one event per day • Up to 150 on target events per annum 	<ul style="list-style-type: none"> • Energy Payment: lesser of (Participant bid price, cap R/MWh rate) as approved by relevant committee • No Energy Payment shall be made where the Event performance is equal or below to 30%. • The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.
Day ahead DR	<ul style="list-style-type: none"> • Request to reduce by 15h00 day N -1 for which day or week • Maintain reduction for 2 hours up to a maximum of 16 hours • Maximum one event per day • Up to 300 hours per annum 	<ul style="list-style-type: none"> • No Capacity payment • Energy Payment: lesser of (Participant bid price, cap R/MWh rate) • No Energy Payment shall be made where the Event performance is equal or below to 30%. • The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.
Emergency DR	<ul style="list-style-type: none"> • Request to reduce today (day N) for Day N or day N+x • Maintain reduction for 2 hours up to a maximum of 16 hours • Maximum event per day not limited 	<ul style="list-style-type: none"> • No Capacity payment • Energy Payment rate capped at R/MWh rate as approved by relevant committee • No Energy Payment shall be made where the Event performance is equal or below to 30%. <p>The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.</p>

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Category	Reserves type	Payments
Fixed Time DR	<ul style="list-style-type: none"> • Reduce load for hours as specified; min 1 hour • A minimum of 1 MW or 15% of normal usage (MW) • CBL predetermined. • No bidding or dispatch request 	<ul style="list-style-type: none"> • No Capacity payment • Energy Payment rate capped at R/MWh rate as approved by relevant committee • No Energy Payment shall be made where the Event performance is equal or below to 30%. • The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%. • The Energy Payment shall be capped to 100% where the monthly total performance is greater or equal to 100%.
Non Dispatchable DR (NDDR)	<ul style="list-style-type: none"> • Reduce load for minimum of 1 hour from 16:00 to 20:00 Week Day. • Participants must be able to reduce at least 15% or 500 kW whichever is greater of their static scaled base load CBL for periods defined by Eskom. • Eskom will create a single consumption base load for summer and winter separately. 	<ul style="list-style-type: none"> • No Capacity payment • Energy Payment rate capped at R/MWh rate as approved by relevant committee – 4 weeks notification period for participation on the 1st business day of the next month. Dispatch period will be for a month. • Energy Payment capped at R/MWh rate as approved by relevant committee – 2 weeks notification period for participation on the 1st business day of the next month. Dispatch period will be for a month. • No Energy Payment shall be made where the Event performance is equal or below to 30%. • The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Category	Reserves type	Payments
		<ul style="list-style-type: none"> The Energy Payment shall be capped to 100% where the monthly total performance is greater or equal to 100%.

3.3 Perform Settlement

3.3.1 Compensate Participants for monthly services rendered:

- Participants will Eskom with a valid TAX invoice.
 - Validate the TAX invoice against the settlement report.
- Approve invoice for payment in line with the DOA.
- Process and approve payment on SAP Adobe Forms for Non-Eskom supplied Participants.
- Eskom supplied Participants' electricity bill will be adjusted with the rebate value at the end of following month.

4. Certification of Reserve Categories

4.1 Supplemental DR

The plant condition shall determine which test option will suit the first time Participant:

- Participant reduces load twice for a minimum of 30 minutes per test period, with at least 6 hours between tests, if on the same day

OR

- Participant reduces once for a minimum of 60 minutes
- The participant can be dispatched by the VPS or the participant may do the test based on the set criteria and provide DR with the date and time slot of the test.

Methodology to calculate the SDR test reduction for certification:

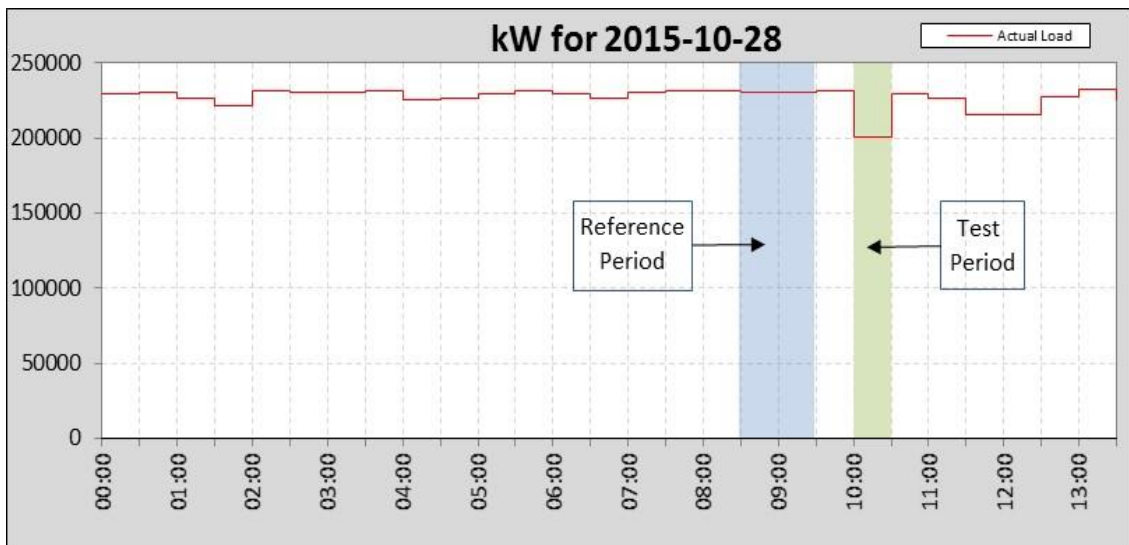
Reduction = Reference load (Ave) – Load maintained over the test period (Ave)

Illustration: Test period

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.



- Use the first event’s result, after a request from an existing Participant for re-certification to a higher value
- Certify the load with reference to the Certification and Performance Monitoring of demand side reserves procedure 240-84836822.

4.2 Instantaneous DR

- A minimum of two 10 (ten) minute load reduction simulations will be done during final commissioning of the DR equipment on site.
- The 4 second metering data will be used to provide DR with the test results

Methodology to calculate the IDR test reduction for certification:

Actual Load reduction (n) = Avg [reduction_{initial} (n), reduction_{sustained} (n)]

Where:

n = applicable test:

reduction_{initial} (n) = [X(a) - X(b)];

reduction_{sustained} (n) = [X(a) - Avg (X (c...d))]

and

X = actual metered four-second integrated Demand

a = the second completed four-second integration period prior to the instructed time of Load Reduction, indicated as time “1” in the illustration.

CONTROLLED DISCLOSURE

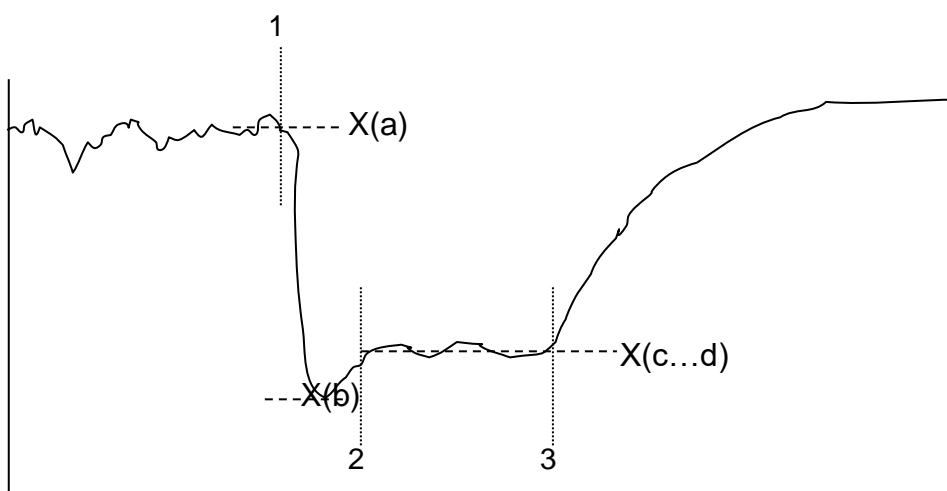
When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

b = completed four-second integration period falling within the first twelve seconds from the time of instruction (period between “1” and “2”) which corresponds with the lowest Demand registered during this period, and

c...d = all completed four-second integration periods falling within the period starting twelve seconds after the time of instruction (“2”) and end at the time of restoration (“3”)

Illustration: Test period



- Use the first event's result, after a request from an existing Participant for re-certification to a higher value
- Certify the load with reference to the Certification and Performance Monitoring of demand side reserves procedure 240-84836822.

4.3 Self-Generation DR

- A preliminary certification value will be issued as agreed with the participant based on a percentage MW generation output of the participating generator.
- The first, generation event performance report will be used to review Certification.
- Use the first event's result, after a request from an existing Participant for re-certification to a higher value
- Certify the loads with reference to the Certification and Performance Monitoring of demand side reserves procedure 240-84836822

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

4.4 Day Ahead DR

- As per sub clause 4.1.

4.5 Emergency DR Loads

- As per sub clause 4.1.

4.6 Fixed Time DR

- As per sub clause 4.1.

4.7 NDDR

- The preceding year summer and winter energy consumption profile must be reflective of normal consumption for the Participant/group.
- Eskom will create a single consumption base load for summer and winter separately.
- Summer profile – summer months (as defined by the tariff) will be utilised to determine the summer profile (or part thereof)
- Winter profile – winter months (as defined by the tariff) will be utilised to determine the winter base load (or part thereof)
- The participating Participant and Eskom must contractually agree on the CBL measurement values.

5. Performance calculation per Reserve Category

5.1 Supplemental DR

5.1.1 If the Participant's median performance for all Load Reductions during a particular Month is above 90 % (ninety percent), the Participant will receive the full Capacity Payment. If the Participant's median performance during a particular Month is equal to or below 90% (ninety percent), the Participant shall only receive a pro rata portion of the Capacity Payment, based on actual performance for the Month.

5.1.2 Load Reduction shall be calculated per Integration Period, subtracting the Actual Load from the scaled CBL and summated for the duration of the Load Reduction request, as instructed by ESKOM.

Formula: $LR = \sum [(Scaled\ CBL\ (n) - Actual\ Load\ (n)) \dots (Scaled\ CBL\ (m) - Actual\ Load\ (m))]$

Where:

n = first Integration Period of the Load Reduction request

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

m = last Integration Period of the Load Reduction request

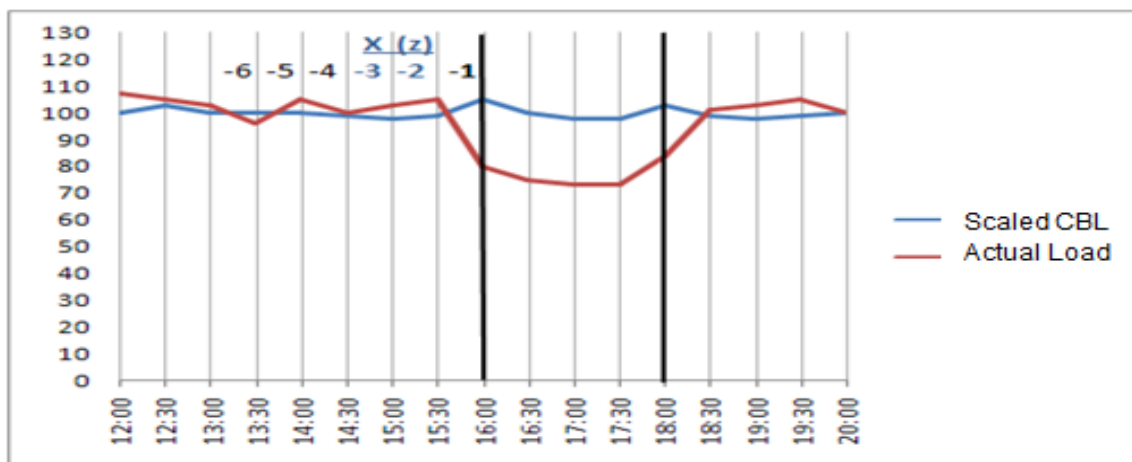
If the Actual Load exceeds the scaled CBL, the said difference shall be a negative variance and if the Actual Load is less than the scaled CBL, the said difference shall be a positive variance. For each load reduction event, the positive variances and the negative variances shall be summated and should the resultant Load Reduction amount be negative, it shall be deemed to be zero.

- 5.1.3 The CBL shall consist of average half-hourly Week Day and Week-end Day profiles. These profiles shall exclude Curtailment Days. A planned and unplanned maintenance Day may be excluded and replaced by ESKOM with a subsequent Day for the purpose of CBL calculations. Should the Participant not query such replacement within 3 Business Days after the receipt of the event performance report, it shall be deemed to be an acceptance thereof.
- 5.1.3.1 For a Week Day profile, ESKOM shall select 3 (three) Week Days prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Days as per clause 5.1.2
- 5.1.3.2 For a Week-end Day, ESKOM shall
- 5.1.3.2.1 Select 3 (three) non-public holiday Saturdays prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Day
- 5.1.3.2.2 Select 3 (three) Sundays prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Days
- 5.1.3.3 **For a “public holiday” Day, ESKOM shall**
- 5.1.3.3.1 Refer to the ESKOM Megaflex public holiday definition table for the Day classification as per ESKOM’s tariff book which can be found at www.eskom.co.za/tariffs under the link “Tariffs”, and then select the three day profiles.
- 5.1.4 For each Load Reduction event, the CBL shall be scaled up or down to match the Actual Load in proportion to the MW difference between the Actual Load and the CBL during the first 2 Integration Periods X(z) of a moving 3 completed Integration Periods immediately prior to the Load Reduction event. To scale, add the calculated MW difference to the CBL.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Illustration

5.1.4.1 It is further agreed that, should the Participant receive a request from the VPS to reduce the Scheduled Capacity and such reduction follows a period of abnormal consumption (either scheduled or unscheduled and agreed to by the Parties not to be representative of the consumption under normal conditions) the reference point $X(z)$ may be moved by ESKOM to a mutually agreed period of normal consumption up to point -6, as indicated in the illustration. The allowed options for such a movement shall be limited to points (-1 & -2), (-3 & -4), (-4 & -5) or (-5 & -6). Should the Participant not query the reference point movement within 3 Business Days after the receipt of the event performance report, it shall be deemed to be an acceptance thereof.

5.1.5 ESKOM shall pay the Participant for all Load Reduction requests, for energy reduced, as follows:

5.1.5.1 An Energy Payment for the actual Load Reduction, metered in MWh.

5.1.5.2 No Energy Payment shall be made where the Event performance is equal or below to 30%.

5.1.5.3 The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

5.1.5.4 Payment rate shall be made at a price equal to the lesser of the Participant's Bid Price, or the capped R/MWh price.

5.1.5.5 Formula: $\text{Price}[n] = \text{Min} (\text{Bid}[n], \text{capped R/MWh})$

5.1.5.6 Where: n = applicable incident that corresponds with "n" in sub clause 5.1.4.

5.1.6 If the Participant accepts ESKOM's request to reduce load on a day not scheduled to be on standby, ESKOM shall pay the Participant a capacity payment and an energy payment at contracted rates.

5.2 Instantaneous DR

5.2.1 No Capacity Payments will be made to the Participant during the hours not scheduled by ESKOM to be available for Load Reduction.

5.2.2 Where the Participant's median performance for a particular month is above 90 % (ninety percent) of the Scheduled Capacity, the Participant shall receive the full Capacity Payment for all scheduled hours. Should the Participant's median performance for a particular month be equal to or below 90 % (ninety per cent) of the Scheduled Capacity, the Participant shall only receive a portion of the Capacity Payment, based on actual performance for the month.

5.2.3 Load Reduction shall be calculated as the average of the Participant's biggest Load Reduction (measured in four-second intervals during the first 12 (twelve) seconds from instruction) relative to the position prior to the instruction (second completed four-second interval) and the average Load Reduction after 12 (twelve) seconds until a Load Reduction restore signal is send by the RS Installation or 10 (ten) minutes after the incident, whichever comes first.

Formula:

Actual Load Reduction (n) = $\text{Avg} [\text{reduction}_{\text{initial}} (n), \text{reduction}_{\text{sustained}} (n)]$

where:

n = applicable incident;

$\text{reduction}_{\text{initial}} (n) = [X(a) - X(b)]$;

$\text{reduction}_{\text{sustained}} (n) = [X(a) - \text{Avg} (X(c...d))]$

and

X = actual metered four-second integrated Demand

a = the second completed four-second integration period prior to the instructed time of Load Reduction, indicated as time "1" in the illustration;

CONTROLLED DISCLOSURE

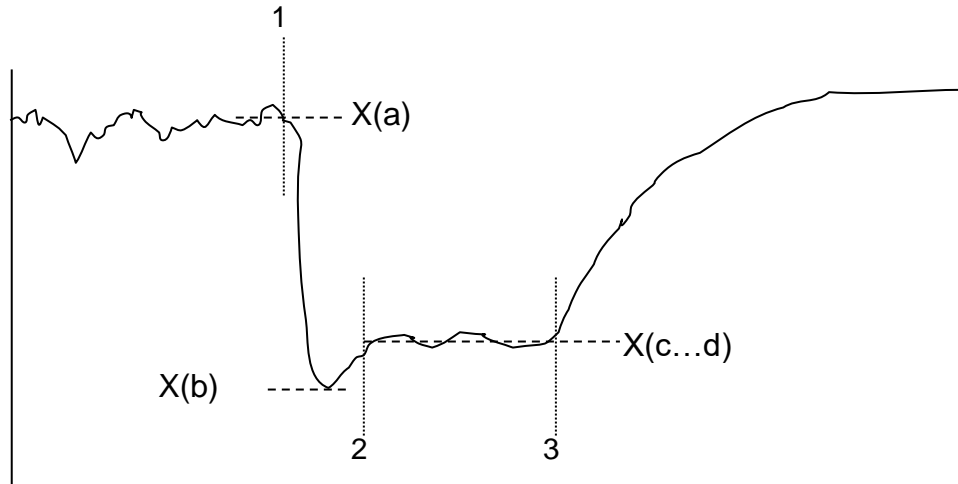
When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

b = completed four-second integration period falling within the first twelve seconds from the time of instruction (period between “1” and “2”) which corresponds with the lowest Demand registered during this period, and

c...d = all completed four-second integration periods falling within the period starting twelve seconds after the time of instruction (“2”) and end at the time of restoration or 10 minutes after the incident (“3”)

Illustration:



5.2.4 If no Event has occurred during a scheduled Month, the median performance percentage of a previous Month with Events shall be used to calculate the Capacity Payment

5.2.5 The Participant has 3 (three) Week Days after receiving an event performance report to query the performance calculation otherwise the result will be deemed accurate.

5.3 Self-Generation

5.3.1 Self-Generation (SG) shall be calculated per Integration Period, subtracting the actual generation output from the CBL and summated for the duration of the generation request, as instructed by ESKOM.

Formula:

$$SG = \text{sum} [(Actual\ Generation\ (n) - CBL\ (n)) \dots (Actual\ Generation\ (m) - CBL\ (m))]$$

Where:

n = first Integration Period of the Self Generation request

m = last Integration Period of the Self Generation request

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

If the Actual Generation exceeds the CBL, the said difference shall be a positive variance and if the Actual Generation is less than the CBL, the said difference shall be a negative variance. For each load reduction event, the positive variances and the negative variances shall be summated and should the resultant Self Generation amount be negative, it shall be deemed to be zero.

5.3.2 The CBL shall consist of average half-hourly Week Day and Week-end Day generation profiles. These profiles shall exclude Curtailment Days. A planned and unplanned maintenance Day may be excluded and replaced by ESKOM with a subsequent Day for the purpose of CBL calculations. Should the Participant not query such replacement within 3 Business Days after the receipt of the event performance report, it shall be deemed to be an acceptance thereof.

5.3.2.1 For a Week Day profile, ESKOM shall select 3 (three) Week Days prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Days as per sub clause 5.3.2.

5.3.2.2 For a Week-end Day, ESKOM shall

5.3.2.2.1 Select 3 (three) non-public holiday Saturdays prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Days as per sub clause 5.3.2.

5.3.2.2.2 Select 3 (three) Sundays prior to the Curtailment Day to calculate the half-hour MW averages over a 24-hour period, excluding Curtailment Days, planned and unplanned maintenance Days as per sub clause 5.3.2.

5.3.2.3 For a "public holiday" Day, ESKOM shall

5.3.2.3.1 Refer to the ESKOM Megaflex public holiday definition table for the Day classification as per ESKOM's tariff book which can be found at www.eskom.co.za/tariffs under the link "Tariffs", and then select the three day profiles as per sub clauses 5.3.2.2.1 or 5.3.2.2.2.

5.3.3 For each Self Generation event, the CBL shall be scaled up or down to match the actual generator output in proportion to the difference between the average of the CBL and the average actual generation output. This will be relative to the average generator output over the two completed Integration Periods immediately prior to the Notification Time for Self Generation. If the Event is from 18h00-20h00 and the Notification Time is:

- 14h15; then X(z) will be from 13h00 to 14h00.
- 14h35; then X(z) will be from 13h30 to 14h30.
- 14h55; then X(z) will be from 13h30 to 14h30.

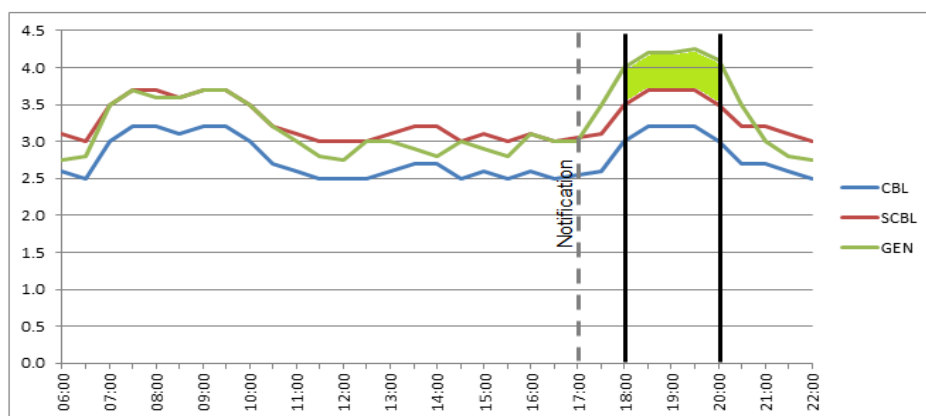
CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

- 17h10; then X(z) will be from 16h00 to 17h00.

Illustration



5.3.4 ESKOM shall pay the Participant for all Events, for energy generated, as follows:

5.3.4.1 An Energy Payment for the actual generation, metered in MWh

5.3.4.2 No Energy Payment shall be made where the Event performance is equal or below to 30%.

5.3.4.3 The Energy Payment shall be capped to 120% where the Event performance is greater or equal to 120%.

5.3.4.4 Payment rate shall be made at a price equal to the lesser of the Participant's Bid Price, or capped R/MWh, and

5.3.4.5 Formula: $\text{Price}[n] = \text{Min}(\text{Bid}[n], \text{capped Rand})$

5.3.4.6 Where: n = applicable incident that corresponds with "n" in sub clause 5.3.3.

5.3.4.7 The Participant has 3 (three) Week Days after receiving an event performance report to query the performance calculation otherwise the result will be deemed accurate.

5.4 Day ahead DR

Performance calculations will be as per sub clause 5.1, with the exception there shall be no Capacity payment.

5.5 Emergency DR

Performance calculations will be as per sub clause 5.1, with the exception there shall be no Capacity payment.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

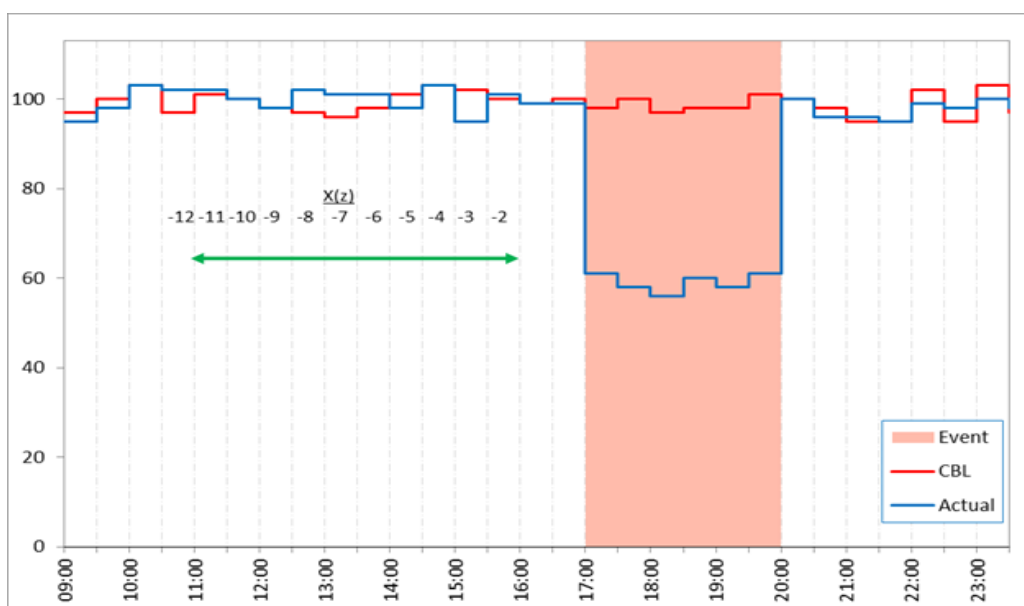
No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

5.6 Fixed Time DR

5.6.1 The CBL shall consist of average half-hourly Weekday and Week-end Day profiles. These profiles shall exclude Curtailment Days.

5.6.2 For each Load Reduction event, the applicable CBL shall be scaled up or down to match the Actual Load in proportion to the difference between the average of the CBL and the average actual load during the first 10 Integration Periods $X(z)$ of a moving 12 completed Integration Periods immediately prior to the Load Reduction event.

Illustration



CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

5.6.3 There shall be no Capacity payment.

5.6.4 ESKOM shall pay the Participant for all Load Reduction requests, for energy reduced, as follows:

5.6.4.1 An Energy Payment for the actual Load Reduction, metered in MWh.

5.6.4.2 No Energy Payment shall be made where the Event performance is equal or below to 30%.

5.6.4.3 The Energy Payment per event shall be capped at 100% where the Event performance is greater than 100%.

5.7 NDDR

- The Participant's demand reduction with respect to the CBL will be monitored per integration period for the duration of the contract.
- Should the Participant production facility be supplied by a municipality or have a production facility within the group in the municipal area, Eskom will monitor the performance, to ensure load is not moved between facilities. The Participant needs to provide Eskom with the relevant metering data for any municipal facility.
 - Eskom will assess the Participant's demand reduction daily in accordance with the agreed upon/contracted load reduction period.
 - For the Participant to qualify for a settlement during the assessment month, they need to meet
 - The minimum performance per event is 30% of contracted MWh target value and the maximum is 120%, however, at month end, total performance will be limited to 100%.
 - Eskom will provide an event performance report and a monthly performance report to the Participant.

Rate Calculation

- Energy Payment capped at an energy rate (R/MWh) as approved by relevant committee – **4 weeks notification** period for participation on the 1st business day of the next month. Dispatch period will be for a month.
- Energy Payment capped at an energy rate (R/MWh) as approved by relevant committee – **2 weeks notification** period for participation on the 1st business day of the next month. Dispatch period will be for a month.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

- Participants will not receive a capacity payment.

5.8 Metering data (related to 30-minute-intervals)

5.8.1 Eskom supplied participant

ESKOM's metering data will be used to calculate the Participant's performance. If the discrepancy between ESKOM's standard metering and the Participant's own metering is greater than 2% (two percent) of the ESKOM metered value, the Participant will refer the metering discrepancy to the relevant authority for resolution pursuant to clause 10.

5.8.2 Non-Eskom supplied participant

5.8.2.1 3rd Party's metering data will be used to calculate the event performances.

5.8.2.2 The metering installation, maintenance, data collection and validations shall conform to the requirements of SANS474.

5.8.2.3 Eskom reserves the right to audit the metering data and meter installation/s and request calibration certificates from time to time.

Should an audit finding be that a meter or the metering data has been tampered with in any way, Eskom reserves the right to recover PART of or ALL payments made. Additionally, Eskom reserves the right to cancel the contract or request remedial conditions which must be adhered to, to continue with the contract.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

6. **VENDOR REGISTRATION**

6.1 The Participant will register as a vendor as set out in the Demand Response Vendor Registration Process attached hereto as Annexure A and B, when applicable

6.2 The Participant shall continuously monitor and maintain compliance to the ESKOM's registration requirements as a vendor.

6.2.1 Provide Eskom Vendor Management via email on a quarterly basis (April, July, October, and January) with the latest Tax clearance certificate.

6.2.2 Send attached certificate to vendormdm@eskom.co.za with the subject line indicating the Vendor name and number.

6.2.3 Should the Participant at any time fail to comply with any of the ESKOM's registration requirements as a vendor, ESKOM shall immediately stop the Participant's participation in DR and withhold any payment due to the Participant until the Participant complies with the said requirement(s).

7. **Settlements**

7.1 **VPS Finance Total Settlement Report**

The VPS Finance Report will be named "VPS Finance Total Settlements Report".

NOTE: This is due to the fact that for a dispatch month, a Participant's settlement reimbursement can be spread over different months (as adjustments) due to the financial close off. It may not reflect the correct actual dispatch MW etc. month information all in the correct month it occurred, so should not be used for non-financial reporting.)

7.1.1 The VPS Finance Total Settlements Report now replaces any other VPS Total Settlement reports that were previously created.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

7.2 VPS Settlement Report Timelines

Timing	Who	What
Previous Month	VPS Operations	VPS Operations release Participant event performance reports as soon as possible after each event occurs.
Current Month.	VPS Operations	VPS Operations release the previous month's Participant monthly event performance reports as soon as possible after all previous months Participant event performance reports released.
Current Month. Business Day 2 COB	SO	SO to determine estimate figures to be used to create the VPS Settlement accrual.
Current Month. Business Day 5 COB	VPS Settlements	<p>VPS Settlements issue the Participant settlement reports, for the previous month's performance.</p> <ul style="list-style-type: none"> • If only some event information available – Eskom still wants the report to go out with the available information. • There will only be one adjustment line item per report – showing the total of any month's adjustments applicable in the current month, for prior months. • If applicable there needs to be supporting information send with settlement report to show how the line-item adjustment value was calculated. E.g. table with info typed, previous months adjusted settlement report with "Adjustment" watermark across etc. <p>The Participant settlement report for the previous month's performance is locked.</p> <ul style="list-style-type: none"> • If there are changes required for the previous month's performance the new report will NOT be sent to the Participant. (The updated/adjusted settlement report can be provided to the Participant on request). • Any settlement modification instructions received after the COB 4th working day of the current month, for the previous month, will be reflected as adjustments in the subsequent months (current month plus 1) Participant settlement report

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

Timing	Who	What
Current Month. Business Day 5 COB	VPS Settlements	<p>VPS Settlements lock the VPS Finance Total Settlement Report for the previous month's performance.</p> <ul style="list-style-type: none"> Only one VPS is required on the VPS Finance Total Settlement Report <p>VPS sends VPS Finance Total Settlement Report to Eskom SO, Finance, System Operator, Top Customer and Energy Trader</p> <p>The VPS Finance Total Settlement Report for the previous month's performance is locked.</p> <ul style="list-style-type: none"> Any settlement modification instructions received after the COB 9th working day of the current month, for the previous month, will be reflected as adjustments in the subsequent months (current month plus 1 VPS Finance Total Settlements Report.
Current Month. Business Day 10 Onwards	Participants	Participants to submit an invoice to Eskom based on the settlement report send on the 5 th business Day , for the previous month's performance.

7.3 Authorisation - Employers Agent

- 7.3.1 Employers Agent for VPS Aggregator Service Contract will be the only point of contact to VPS Team for any instructions.
- 7.3.2 All Eskom requests e.g. work, performance, settlement, technical etc. must be sent to Employers Agent for approval and consolidation, prior to submitting to VPS.

8. Loading of contracts and payment process

- Submit investment committee submission and extract of minutes to Procurement – Demand Response (Chief advisor)
- Submit relevant Delegation of Authority for signing Enabling agreements– Demand Response Officer
- Receive signed enabling contracts from Participants – Demand Response Officer
- For Participants that are not direct Eskom Participants, the following:

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

- Submit relevant Delegation of Authority for approval of payments to Procurement – Demand Response Officer
- Create Purchase Requisition (PR) on SAP for signed and new contracts requiring additional funds - Demand Response Officer
- The PR should be created with the prevailing rate for that financial year with an estimate contract value – Demand Response Officer
- Send copies of the following up to date documentation to Financial Officer
 - **ORIGINAL** cancelled cheque or stamped letter from bank
 - Tax clearance certificate
- Approval of PR on SAP by end user and finance – Power Systems Reliability Services Senior Manager and finance official
- Send signed hard copy PR and corresponding enabling contract to Procurement - Demand Response Officer
- Allocation of PR to Buyer – Procurement Manager
- Create contract number on SAP and provide Demand Response Officer with a 46.. No. - Buyer
- Create Purchase Release order (PO) based on contract no. and Participant invoice – SO Officer Projects
- Create Service Entry (SE) based on Participant invoice - Demand Response Officer
- Approve Service Entry (SE) - Power Systems Reliability Services Senior Manager
- Submit Original Invoice to FSS document centre for payment - Demand Response Officer
- File copy of Invoice and supporting documents - Demand Response Officer

- For directly supplied Eskom Participants, the following:

Eskom will credit the electricity account following a receipt of a valid tax invoice of Participants that are directly supplied with electricity by Eskom. If the Parties agree on the amount payable, the Participant shall provide ESKOM with a tax invoice by the 10th (fifteenth) Business Day of the same Month, reflecting the agreed amount. Such tax invoice shall comply with the South African Revenue Services' requirements. ESKOM shall settle the tax invoice by crediting the Participant's electricity account following the Month of participation (e.g. the May electricity account will be credited for participation in April). It is specifically agreed that the amount invoiced by the Participant shall be as calculated by ESKOM and verified by the Participant, unless the Parties agree in writing on another amount in which case ESKOM shall issue a new calculation.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

9. Exemptions

Any deviations from the procedure must be approved by the relevant management committees

10. Acceptance

This document has been seen and accepted by:

Name	Designation
Siju Joseph	Ancillary Services Manager
Isabel Fick	General Manager System Operator

11. Revisions

Date	Rev.	Compiler	Remarks
Jan 2015	1	LEF Becker	New DR products and changes to existing DR products
Oct 2019	2	ALS Gildenhuys	New DR products and updates to existing DR products
Feb 2020	3	H Umley	Updating of signatories and existing DR products
Feb 2021	4	ALS Gildenhuys	Updating departments from Integrated Demand Management to System operation
Feb 2024	5	Development Team	New DR products and updates to existing DR products

12. Development Team

The following people were involved in the development of this document:

- Lawrence Padachi
- Ferdi Becker
- Hitesh Umley
- Renos Ioannou
- Raj Pandaram
- Siju Joseph
- Marathon Ntusi
- Andries Gildenhuys
- Lee Napo

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

13. Acknowledgements

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

ANNEXURE A

Demand Response Vendor Registration

Vendor registration is the process that a new DR Vendor goes through to capture their business information with Eskom.

Registration Process:

1. DR participant shall provide ESKOM's Demand Response Department via DRVendor@eskom.co.za the following documents:
 - 1.1 Stamped letter from bank, verifying the bank details of your business.
 - 1.2 Tax clearance certificate
2. ESKOM Demand Response Department will forward the abovementioned documents and the fully signed DR Agreement to ESKOM Vendor Management for registration.
3. ESKOM will review the registration and if approved, notify, and provide the DR participant with a vendor registration number. This number must be used on all invoices to Eskom.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.

ANNEXURE B

Registered name of business: _____

Business Registration number (if applicable): _____

Tax number of business: _____

Physical address of business:

Building / complex name: _____

Street name and number: _____

Suburb: _____

City: _____

Code: _____

Postal address of business:

P O Box / Private Bag: _____

City/Town: _____

Code: _____

Telephone numbers of business: Code: _____ Number: _____

Alternative number of business: Code: _____ Number: _____

Business contact person: (Recipient of the Vendor Registration number)

Name and surname: _____

Email address: _____

Contact number: _____

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/06.