



## Energy Imbalance Service Business Practice

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## 1. Preamble

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Energy and scheduling imbalances are measures of how well a Transmission Customer is meeting its balancing obligations at a specific point or points on SaskPower’s transmission system. Such imbalances are calculated as the difference between the “actual” and “scheduled” energy at a Point of Delivery over a monthly scheduling period.

In accordance with Schedule 4 of the SaskPower OATT, SaskPower must offer Energy Imbalance Service when the transmission service is used to serve load within the SaskPower Balancing Authority Area. The Transmission Customer must either purchase this service from SaskPower or make alternative comparable arrangements to satisfy its Energy Imbalance obligation.

SaskPower offers the same Energy Imbalance Service as an alternative service when independent generators using transmission service under the SaskPower OATT serve load outside the SaskPower’s Balancing Authority Area and Transmission Customers do not wish to purchase Energy Imbalance from the host Balancing Authority.

## 2. Definitions

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### A. Energy Imbalance

Energy imbalance is the difference between the “actual” energy delivered at the POD and the “scheduled” energy estimated at the Point of Delivery (POD).

## B. On-Peak and Off-Peak

On-Peak and Off-Peak are specific time periods. SaskPower follows the North American Electric Reliability Corporation (NERC) Reliability Standards definition for On-Peak and Off-Peak hours. On-Peak hours are from Monday through Saturday starting at 6:00 until 22:00 Central Standard Time (CST). All other times are Off-Peak hours, including NERC defined Statutory Holidays. Please refer to NERC's website for defined Statutory Holidays. SaskPower does not change to daylight savings time but remains on CST throughout the year.

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## 3. Energy Imbalance Calculations

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As per SaskPower's OATT, Schedule 4, energy imbalance service is provided when a difference occurs between the scheduled and actual delivery of energy to a load within a control area over a single hour. An example of the energy imbalance calculation is provided in Attachment A below.

A deviation bandwidth of +/-1.5% (with a minimum of 2 MW) to the scheduled transmission shall be applied hourly to any energy imbalances that occur as a result of the Transmission Customer's scheduled transaction(s). The Transmission Customer should attempt to eliminate energy imbalances within the limits of the deviation band within thirty (30) days or within such other reasonable period as generally accepted by SaskPower.

The energy imbalance cost shall be calculated using SaskPower's hourly incremental cost at the time of occurrence. The SaskPower OATT reference to the "MAPP filed rate for Emergency Energy Interchange Service" is no longer available.

Energy Imbalance charges are calculated as follows:

- Energy Imbalances are calculated hourly and determined to be either an On-Peak- or Off-Peak hour according to NERC Reliability Standards.
- A bandwidth of +/- 1.5% with a minimum of 2 MW will be used to determine how the Transmission Customer shall repay the energy imbalance, whether it is in-kind or through financial charges.
- For energy imbalances within the +/- 1.5% deviation bandwidth:
  - The Transmission Customer shall repaid any energy imbalances (within the +/-1.5% bandwidth – with a minimum of 2 MW) in-kind for each occurrence from the previous month.
  - In-kind means that the energy imbalance owing from the previous month shall be scheduled to be returned to SaskPower within the next thirty (30) days. Repayment in kind of the energy imbalance must be coordinated with

SaskPower prior to the repayment and repayment should occur either On-Peak or Off-Peak according to when the original energy imbalance occurred.

- The bandwidth is calculated using the higher of the “scheduled” Point of Receipt (POR) or “scheduled” Point of Delivery (POD) with a minimum of 2 MW.
  - If the Transmission Customer has not repaid the energy imbalance in-kind to SaskPower for the previous month, the Transmission Customer shall then be invoiced by SaskPower at 110% of SaskPower’s incremental cost at the time of the occurrence.
  - If the energy imbalance is owing from SaskPower, SaskPower shall repay in-kind the energy imbalance within thirty (30) days of the current month. Otherwise SaskPower shall repay the energy imbalance at 90% of the SaskPower’s decremental cost to the Transmission Customer.
- For energy imbalances outside the +/- 1.5% deviation bandwidth:
    - The Transmission Customer shall be invoiced for any energy imbalance in the current month that falls outside the +/-1.5% deviation bandwidth at 110% of SaskPower’s incremental cost.

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#### **4. Administration Fee**

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For any billing period a Transmission Customer uses SaskPower Energy Imbalance Service a fee of \$250.00 will be charged to cover administration costs. This fee shall be net billed with other charges or refunds for the billing period.

Reviewed: July 9, 2014

## 5. Attachment A

### Example of SaskPower Energy Imbalance Charge

|                                                                                                                                                                     |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------|--|--|--|--|--|--|--|-----------------------------------------------|------|--|--|--|
| Allowable Bandwidth (Percentage of Schedule)                                                                                                                        | +/- | 1.5% MIN OF 2 MW |  |  |  |  |  |  |  |                                               |      |  |  |  |
|                                                                                                                                                                     |     |                  |  |  |  |  |  |  |  | Deviations > Bandwith (BW) Imbalance Charges: |      |  |  |  |
|                                                                                                                                                                     |     |                  |  |  |  |  |  |  |  | Transmission Customer:                        | 110% |  |  |  |
|                                                                                                                                                                     |     |                  |  |  |  |  |  |  |  | Transmission Provider:                        | 90%  |  |  |  |
| <b>Notes:</b>                                                                                                                                                       |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| Energy Imbalance fees are calculated on an hourly basis using on-peak and off-peak hours                                                                            |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| IN-KIND REPAYMENTS: If Energy Imbalances are less than +/- 1.5% (min. 2 MW) repayment is required IN-KIND within 30 days                                            |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| CHARGES: If Energy Imbalances are greater than +/-1.5% (min. +/-2 MW) in any month charges will be incurred by Transmission Customer                                |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| Energy imbalances greater than +1.5% (Transmission Customer receives at the POD more than scheduled) charged at 110% of TP's incremental cost at time of occurrence |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| NON PAYMENT OF IN-KIND REPAYMENTS: Energy Imbalances not repaid in-kind within 30 days are subject to following charges:                                            |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| 1. Transmission Customer to pay 110% of TP's incremental cost at time of occurrence                                                                                 |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| 2. Transmission Provider to pay Transmission Customer at 90% of TP's decremental cost.                                                                              |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |
| Administration fee of \$250.00/monthly shall apply                                                                                                                  |     |                  |  |  |  |  |  |  |  |                                               |      |  |  |  |

| Period 1 - Current Month Energy Imbalance Calculations                   |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             |                                                                                                                                                                   |                  |
|--------------------------------------------------------------------------|------------|-------|----------------------------|--------|--------------------------------------------|----------------------------------------------|----------------------------------------------------------------------|-----------------------|--------------------------------------------|---------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| TIME                                                                     | SCHEDULED  |       |                            | ACTUAL |                                            | IMBALANCE                                    | DEVIATION                                                            |                       |                                            |               | ENERGY IMBALANCE COST                                       |                                                                                                                                                                   |                  |
|                                                                          | Generation | Load  |                            | Load   |                                            |                                              | MW Owing IN-KIND within 30 days                                      |                       | Deviation >BW, Energy Imbalance Cost Owing | SPC           | Charge for Energy Imbalance > Deviation Bandwidth (+/-1.5%) |                                                                                                                                                                   |                  |
| Date/Time                                                                | (POR)      | (POD) | Scheduled Losses (POR-POD) | (POD)  | Actual Losses (Scheduled POR - Actual POD) | Imbalance = Actual load minus scheduled load | Bandwidth (Bandwidth % * higher of Scheduled POR/POD) - Minimum 2 MW | On-Peak Deviation< BW | Off-Peak Deviation<BW                      | Deviation >BW | SPC Incremental cost as per date and time                   | Additional Costs/Refunds for Energy Imbalance of Deviations> BW. CALCULATION = Deviation>BW * SPC Incremental Cost * (either Positive Balance 110% or SPC at 90%) |                  |
| On-Peak hour                                                             | 203        | 198   | 5                          | 197    | 6                                          | 1                                            | 3                                                                    | 1                     | 0                                          | 0             | \$38.04                                                     | \$ -                                                                                                                                                              |                  |
| On-Peak hour                                                             | 220        | 216.5 | 3.5                        | 213    | 7                                          | 3.5                                          | 3                                                                    | 3                     | 0                                          | 0.5           | \$39.57                                                     | \$ 21.76                                                                                                                                                          |                  |
| On-Peak hour                                                             | 215        | 217   | -2                         | 208    | 7                                          | 9                                            | 3                                                                    | 3                     | 0                                          | 6             | \$46.04                                                     | \$ 303.86                                                                                                                                                         |                  |
| On-Peak hour                                                             | 220        | 215   | 5                          | 213    | 7                                          | 2                                            | 3                                                                    | 2                     | 0                                          | 0             | \$46.04                                                     | \$ -                                                                                                                                                              |                  |
| Off-Peak hour                                                            | 94         | 100   | -6                         | 99     | -5                                         | 1                                            | 2                                                                    | 0                     | 1                                          | 0             | \$52.81                                                     | \$ -                                                                                                                                                              |                  |
| Off-Peak hour                                                            | 99         | 100   | -1                         | 104    | -5                                         | -4                                           | 2                                                                    | 0                     | -2                                         | -2            | \$46.04                                                     | \$ 101.29                                                                                                                                                         |                  |
| <b>Sub-Totals</b>                                                        |            |       |                            |        |                                            |                                              | 16                                                                   | 9                     | -1                                         | 4.5           |                                                             | <b>\$ 426.92</b>                                                                                                                                                  |                  |
| <b>Administration Fee:</b>                                               |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             |                                                                                                                                                                   | <b>\$ 250.00</b> |
| <b>TOTAL CURRENT MONTH CHARGES FOR FIRST MONTH OF ENERGY IMBALANCES:</b> |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             | <b>\$ 676.92</b>                                                                                                                                                  |                  |
| Total Energy Imbalance In-Kind owed within 30 days:                      |            |       |                            |        |                                            |                                              |                                                                      | 9                     | -1                                         |               |                                                             |                                                                                                                                                                   |                  |

## 5. Attachment A (continued)

### Example of SaskPower Energy Imbalance Charge

| Period 2                                                    |                                                  |  |  |  |                                                           |      |                |                  |  |
|-------------------------------------------------------------|--------------------------------------------------|--|--|--|-----------------------------------------------------------|------|----------------|------------------|--|
| <b>MW Payback Balance owing from previous month</b>         |                                                  |  |  |  | <b>Amount Owing in Current Month from Previous Month:</b> |      |                |                  |  |
| ON-PEAK: Previous month MW carry forward                    |                                                  |  |  |  | ON-PEAK: Owing from previous month (not repaid in kind):  |      |                |                  |  |
| [In this example if 6 MW were paid back in kind in 30 days] | ON-PEAK REPAYMENT IN KIND: within past 30 days:  |  |  |  | 6                                                         | 1 MW | \$ 46.04       | \$ 50.64         |  |
|                                                             | ON-PEAK BALANCE OWING:                           |  |  |  | 3                                                         | 2 MW | \$ 46.04       | \$ 101.29        |  |
| OFF-PEAK: Previous month MW carry forward                   |                                                  |  |  |  | OFF-PEAK: Owing from previous month (not repaid in kind): |      |                |                  |  |
| [In this example if 1MW was paid back in kind in 30 days]   | OFF-PEAK REPAYMENT IN KIND: within past 30 days: |  |  |  | -1                                                        | 0 MW | \$ 46.04       | \$ -             |  |
|                                                             | OFF PEAK BALANCING OWING:                        |  |  |  | 0                                                         |      |                |                  |  |
|                                                             |                                                  |  |  |  |                                                           |      | <b>TOTAL =</b> | <b>\$ 151.93</b> |  |

| Period 2 - Current Month Hourly Energy Imbalance Calculations     |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             |                                                                                                                                                                   |
|-------------------------------------------------------------------|------------|-------|----------------------------|--------|--------------------------------------------|----------------------------------------------|----------------------------------------------------------------------|-----------------------|--------------------------------------------|---------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TIME                                                              | SCHEDULED  |       |                            | ACTUAL |                                            | IMBALANCE                                    | DEVIATION                                                            |                       |                                            |               | ENERGY IMBALANCE COST                                       |                                                                                                                                                                   |
|                                                                   | Generation | Load  |                            | Load   |                                            |                                              | MW Owing IN-KIND within 30 days                                      |                       | Deviation >BW, Energy Imbalance Cost Owing | SPC           | Charge for Energy Imbalance > Deviation Bandwidth (+/-1.5%) |                                                                                                                                                                   |
| Date/Time                                                         | (POR)      | (POD) | Scheduled Losses (POR-POD) | (POD)  | Actual Losses (Scheduled POR - Actual POD) | Imbalance = Actual load minus scheduled load | Bandwidth (Bandwidth % * higher of Scheduled POR/POD) - Minimum 2 MW | On-Peak Deviation< BW | Off-Peak Deviation<BW                      | Deviation >BW | SPC Incremental cost as per date and time                   | Additional Costs/Refunds for Energy Imbalance of Deviations> BW. CALCULATION = Deviation>BW * SPC Incremental Cost * (either Positive Balance 110% or SPC at 90%) |
| On-Peak hour                                                      | 210        | 196.5 | 13.5                       | 204    | 6                                          | -7.5                                         | 3                                                                    | -3                    | 0                                          | -4.5          | \$ 47.23                                                    | \$ 233.79                                                                                                                                                         |
| On-Peak hour                                                      | 220        | 210   | 10                         | 213    | 7                                          | -3                                           | 3                                                                    | -3                    | 0                                          | 0             | \$ 47.23                                                    | \$ -                                                                                                                                                              |
| Off Peak hour                                                     | 100        | 95    | 5                          | 97     | 3                                          | -2                                           | 2                                                                    | 0                     | -2                                         | 0             | \$ 50.27                                                    | \$ -                                                                                                                                                              |
| Off-Peak hour                                                     | 95.3       | 100   | -4.7                       | 100.3  | -5                                         | -0.3                                         | 2                                                                    | 0                     | -0.3                                       | 0             | \$ 46.46                                                    | \$ -                                                                                                                                                              |
| <b>Sub-Totals</b>                                                 |            |       |                            |        |                                            |                                              | 9                                                                    | -6                    | -2                                         | -5            |                                                             | <b>\$ 233.79</b>                                                                                                                                                  |
| <b>Administration Fee:</b>                                        |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             | <b>\$ 250.00</b>                                                                                                                                                  |
| <b>Total Cost for Energy Imbalance &gt; +/- 1.5%:</b>             |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             | <b>\$ 717.58</b>                                                                                                                                                  |
| Total Energy Imbalance In-Kind owed within next thirty (30) days: |            |       |                            |        |                                            |                                              |                                                                      | -6                    | -2                                         |               |                                                             |                                                                                                                                                                   |
| <b>Previous Month's Energy Imbalance charges owing:</b>           |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             | <b>\$151.93</b>                                                                                                                                                   |
| <b>TOTAL CHARGES FOR CURRENT MONTH:</b>                           |            |       |                            |        |                                            |                                              |                                                                      |                       |                                            |               |                                                             | <b>\$869.51</b>                                                                                                                                                   |

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