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## 705 SHORT TERM ADEQUACY ASSESSMENTS

### 1. Purpose

To define the policy and procedures for the System Controller (SC) when determining the short-term adequacy (STA) of available supply to meet the Alberta Interconnected Electric System (AIES) demand requirements and requesting for or directing available supply.

### 2. Background

On occasion there has been insufficient energy offers in the energy market merit order to meet the load requirements of the AIES. The SC follows the steps identified in OPP 801 Supply Shortfall to manage this condition. OPP 801 identifies a number of steps to be taken to reduce the possibility of shedding firm load.

In order to further reduce the possibility of having to shed firm load during a supply shortfall event and to comply with NERC's Capacity and Energy Emergencies Standard (EOP-002-0), ISO Rules have been added to ensure that all available capability (AC) is offered into the energy market. Participants with a generating unit 5 MW or greater will enter their AC for each asset on an hourly basis into the Energy Trading System (ETS) for the next trading day. Generating assets, except for Rosssdale, with start-up times greater than 1 hour that have not provided an indication of their intention to start, will be included in the long-lead-time energy list or Table 2. Table 2 includes assets that have long lead times greater than 1 hour that may not be able to declare all their generation as AC in the ETS. If the anticipated supply shortfall is significant enough, generating assets from the long-lead-time energy list and available generation from Table 2 will be requested to start by the SC. Energy acquired from directing Rosssdale generators is referred to as out-of-market energy.

Due to the long start-up times of some generating assets, it is necessary to forecast the requirement for this energy by performing a STA assessment. If the STA assessment indicates additional energy is required, then sufficient notice needs to be given to allow for the start-up times of the generating assets in the long-lead-time energy list, assets from Table 2 and the Rosssdale generators, STA assessments will look ahead for a period of 7 days.

Generating assets that have a start-up time greater than 1 hour and have not entered a start time in automated dispatch and messaging system (ADAMS) that is earlier than the period being assessed, except for Rosssdale generators, will be prioritized in the long-lead-time energy list or included in Table 2. The SC will request generating assets to start from the long-lead-time energy list and available generation in Table 2 according to the requirements of the supply adequacy assessment. If it is anticipated that the AIES will be in a supply shortfall after requesting these generating assets to start and including ILRAS load as a factor for determining import ATC on the Alberta-BC interconnection, then the SC will direct Rosssdale generators to start. The SC will direct energy from Rosssdale generators in accordance with OPP 801.

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<#>Category I – 20 minutes or less  
<#>Category II – 60 minutes or less  
Category III – greater than 60 minutes (Cloverbar and Rosssdale generators only)

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greater than 60 minute advance lead required for the delivery of SSE...in Category III ...for the SC (... [3])

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The SC will also perform short term adequacy assessments to determine if and when to issue directives for SSE in Category II with supply times betw (... [6])

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### 3. Policy

- To the extent possible, impacts on the market of SC out-of-market actions, will be minimized.
- STA assessments will be performed to determine if there will be a shortfall in supply to meet AIES demand that may require:
  - Issuing a message to participants that a supply shortfall is anticipated and wait for voluntary commitment of generation.
  - Requesting generating assets in the long-lead-time energy list and available generation in Table 2 to start.
  - Directing Rossdale generators to start.
- If the amount of out-of-market energy required changes due to such things as a change in operating conditions or an inaccuracy in the load forecast and Rossdale generators that were directed to start are no longer required, then directives issued by the SC to start Rossdale generators will be cancelled.
- Generating assets in the long-lead-time energy list and Table 2 will not be requested to start if the required start-up time of the generating asset is greater than the time remaining to when the generating asset is forecast to be required during a forecasted supply shortfall event.
- Rossdale generators will only be directed to start if their start-up time is less than the time remaining to when the energy will be required during a forecasted supply shortfall event.
- If a generating asset is directed on by the SC, the generator will remain at its minimum stable load level until further directed by the SC.
- The following energy will be taken into account when making a short-term adequacy assessment of available supply to meet AIES demand that could lead to requesting generating assets from the long-lead-time energy list, Table 2 or directing Rossdale generators to start:
  - AC from all generating assets in Alberta > 5 MW with a start-up time ≤ 1 hour or with a start time at or before the period being assessed.
  - Estimated output from wind generators (Table 1).
  - Estimated amount of price responsive load that will reduce demand (Table 1).
  - Estimated amount of Demand Opportunity Service (DOS) load that will be curtailed (Table 1).
  - Estimated amount of on-site generation that supplies behind the fence load and submits AC as a net to grid value (Table 3).
  - Import to forecast available transfer capability (ATC) level on the Alberta-BC Interconnection. When considering to start Rossdale generators, ILRAS load will be used as a factor for determining import ATC on the Alberta-BC interconnection.
  - Import to forecast ATC level on the Alberta-Sask Interconnection.
  - Reducing exports on the Alberta-BC and Alberta-Sask Interconnections to 0 MW.
  - All supplemental and excess spinning reserves delivered.

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- Generation or import ATC that can be obtained by cancelling transmission maintenance.
- Unavailable energy from generation due to transmission constraints will be subtracted.
- Generating assets in the long-lead-time energy list are sorted according to the following priority order:
  - Shortest start-up time
  - Largest incremental AC
  - Minimum run time
  - Loss factor
  - Alphanumeric order based on asset id
- Requests for energy from the long-lead-time energy list, available energy from assets in Table 2 and directives for energy from Rossdale generators, will be made commensurate with the longest lead time of these generating assets, that are available to deliver energy by the time the energy is required, plus 1 hour if conditions permit.
- The STA assessment will use the peak forecast load (10 minute average) in each hour.
- When a generating asset from the long-lead-time list decides to start or agrees to a request by the SC to start, they will submit their start time through ADAMS and will be dispatched according to their offer(s) in the energy market merit order.
- When a generating asset in Table 2 decides to start or agrees to a request by the SC to start, they will restate their AC and will be dispatched according to their offer(s) in the energy market merit order.
- When a Rossdale generating asset, that was directed on to provide out-of-market energy, synchronizes to the system, it will ramp up to its minimum stable load level and remain there until a directive is made by the SC to provide energy at a higher level.

#### 4. Responsibilities

##### 4.1 ISO

- The ISO will update the ISO Rules and the Operating Policy and Procedure (OPP) as required.

##### System Controller

- The SC will perform STA assessments to determine, if generating assets in the long-lead-time energy list or Table 2 need to be requested to start or Rossdale generator assets need to be directed to start.
- The SC will request generating assets in the long-lead-time-energy list to start according to the prioritization order and if generating assets identified in Table 2 are available to start he will include them in the prioritization order with the assets in the long-lead-time-energy list.
- If a supply shortfall condition is forecast, then the SC will request the required amount of generating assets in the long-lead-time energy list and in Table 2 to start and then if required, direct Rossdale generators to start.

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Routine System Operations  
OPP 705 Short Term Adequacy Assessments

- If operating conditions unexpectedly change or the load forecast is inaccurate and Rosssdale generators that were directed on are affected, then the SC will cancel or adjust directives to Rosssdale generators as required.
- The SC will not request a generating asset from the long-lead-time energy list or from Table 2 to start or direct a Rosssdale generator to start, if the required start-up time of the generating asset is greater than the time remaining to when the generating asset is forecast to be required during a forecast supply shortfall event.
- The SC will direct energy from Rosssdale generators in accordance with OPP 801.

#### 4.2 Generating Assets

- If a participant decides to start a generating asset or agrees to a request from the SC to start a generating asset from the long-lead-time energy list, then the participant will submit a start time for their generating asset in ADAMS equal to or greater than the required lead time to start the generator.
- If a participant with an aggregated asset decides to start a generating asset(s) or agrees to a request from the SC to start a generating asset and the available capability of their offer in the ETS does not include the amount of generation being started, then the participant will restate their available capability for the applicable hours and submit the restatement equal to or greater than the required lead time to start the generator(s).
- If a Rosssdale generator is directed on by the SC, in accordance with OPP 518, to provide out-of-market energy, then a start time will not be submitted in ADAMS, but the Rosssdale plant operator will notify the SC prior to synchronizing the generator to the AIES. When the generator comes on-line it will ramp to its minimum stable load level and remain there until further directed by the SC.

### 5. System Controller Procedures

#### 5.1 STA Assessment

When the STA program issues an alarm, the SC will perform the following STA assessment to determine the amount of energy required from the long-lead-time energy list, assets in Table 2 and Rosssdale generators:

1. If there is a change to the import ATC on either the BC or Saskatchewan interconnection then repost ATC.
2. Ensure that a transmission limiter has been entered in the dispatch tool (DT) for any generation that has been limited due to a transmission constraint.
3. From the Dispatch Tool (DT) open the on demand supply adequacy report and observe the supply adequacy value provided for each hour that is calculated based on the following:
  - The AC from all available generating assets greater than 5 MW in Alberta with a start-up time  $\leq 1$  hour or with a submitted start time at or before the period being assessed, minus;
  - 3.5% of forecast load to account for ancillary service requirements and directing supplemental and excess spinning reserves, plus;
  - Estimated amount of price responsive load (Table 1), plus;
  - Estimated amount of DOS load (Table 1), plus;

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Routine System Operations  
**OPP 705 Short Term Adequacy Assessments**

- Estimated amount of wind generation (Table 1), plus;
  - Estimated amount of behind the fence load supplied by on-site generation that provides AC as a net to grid value (Table 3), plus;
  - Import ATC on the BC and Saskatchewan interconnections, minus;
  - The peak forecast load (10 minute average) from the day ahead forecast AIES demand.
4. If all of the hourly supply adequacy values calculated in the supply adequacy report are positive then no additional generating assets are required.
  5. If any of the hourly supply adequacy values from the supply adequacy report are negative then notify the AESO personnel as per Table 1 in OPP 1303 that a supply shortfall is forecast.
  6. Issue the following message from ADAMS corresponding to the first hour that has a negative supply adequacy value: "A supply shortfall is forecast starting at hh:mm on yyyy-mm-dd. Any generator that is planning to start, notify the SC as soon as possible. Refer to supply adequacy report on the AESO website."
  7. If any of the hourly supply adequacy values from the supply adequacy report are negative and transmission maintenance can be canceled as per Section 5.1 in OPP 801, then add the amount of increased generation and/or increase in import ATC to the supply adequacy value.
  8. If it is forecast that all energy from the long-lead-time energy list, the assets identified in step 9 below, incremental import ATC available on the AB-BC interconnection by arming available ILRAS and Rossdale will be required, then refer to Section 5.1 in OPP 801 to ensure the planning steps for managing a supply shortfall are completed. To determine the incremental Alberta-BC import ATC using ILRAS load as a factor for the period being assessed perform the following:
    - multiply the forecast load by 0.023 to get an estimated ILRAS load value.
    - Refer to Table 1 in OPP 312 to determine the import ATC level corresponding to the combined ILRAS and LSS value and forecast system load.
    - Refer to OPP 304 and take the lesser of the import ATC transfer limit and the import ATC limit determined with the use of ILRAS and LSS and subtract the forecast import ATC limit for the period being assessed.
  9. Go to Table 2 and look up the EMS display for each plant as indicated in Table 2 and if any of the generators listed in Table 2 are off-line then phone the plant and ask if they have any additional energy available above their offered available capability in the energy market merit order. Advise them that this is not a request to start available generation. If additional generation is available, then ask:
    - What amount of additional energy would be available;
    - What lead time is required to start the generator(s); and
    - What is the minimum run time of the generator(s)?If there is sufficient time to start the generator(s) to assist in the anticipated supply shortfall, then include this amount when making the assessment in step 8.
  10. Wait a reasonable amount of time as conditions permit for any voluntary response to the ADAMS message issued in step 6. If a participant notifies the SC that it is planning to start a generating asset, then request the participant to enter the generating asset start time in ADAMS

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3. For the hours where the supply adequacy value calculated in step 2 are negative, perform the following calculation:  
 <#>Supply adequacy value (negative number) from step 2, plus;  
 <#>AB-BC Import ATC, plus;  
 <#>AB-Sask Import ATC

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 6. Issue the following message from ADAMS corresponding to the first [34]

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Routine System Operations  
OPP 705 Short Term Adequacy Assessments

as soon as possible with the exception of aggregated assets identified in Table 2. If a participant with an asset identified in Table 2 is planning to start a generator with a start-time greater than 1 hour, then the participant will restate their AC as applicable for the appropriate hours to reflect their new offer amount. When a generating asset has submitted a start time or restated their AC, then their AC will be used in the supply adequacy calculation and a new supply adequacy value will appear in the supply adequacy report.

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11. If there is sufficient response from participants and the supply adequacy values become positive, or at any time the supply shortfall is no longer forecast, then:

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- Issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to web option: "A supply shortfall is no longer forecast."

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- Go to step 21 below.

12. If there is insufficient response from participants and the supply shortfall is still anticipated, then in the supply adequacy report double click on the line of the first hour with a negative supply adequacy value to open the long-lead-time energy list of generating assets.

13. Select generating assets to request to start from the long-lead-time energy list that is prioritized according to the order in which they are to be requested to start (from bottom to top). If additional energy is also available from the aggregated assets identified in Table 2, then request these assets and the assets in the long lead time energy list to start based on the following prioritization order indicated below:

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- Shortest start-up time

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- Largest incremental AC

- Minimum run time

- Loss factor

- Alphanumeric order based on asset id

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14. Perform the following when selecting and requesting a generating asset to start:

• Make requests to start generating assets equal to 1 hour plus the longest start-up time of the available generating assets to start (including Rossdale generators) before the forecast supply shortfall. If conditions do not allow time for the additional 1 hour notice, then immediately make requests to start generating assets that can deliver energy during the forecast supply shortfall.

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• Only request to start a sufficient amount of generating assets to turn the supply adequacy value to a positive number.

• Request the generating asset(s) to start at the time they are required, in order of priority according to step 13 above.

• If the participant chooses to start a generating asset, request the participant to either enter the start time in ADAMS for generators in the long-lead-time-energy list or restate their available capability for generators identified in Table 2 as soon as possible.

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• If the participant rejects the request to start their generating asset then select the next generating asset according to the priority order in step 13 above.

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Routine System Operations  
OPP 705 Short Term Adequacy Assessments

15. Make a note in the Shift Log of the generating assets that were requested to start and their reply and do not post it to the web.

16. If insufficient generating assets are committed to start from the long-lead-time energy list and Table 2, then add the incremental import ATC available on the Alberta-BC interconnection by including ILRAS load as a factor, as determined in step 7, to the supply adequacy number.

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17. If the supply adequacy number is negative, then plan to direct on the number of Rossdale generators required commensurate with their start-up time plus 1 hour, to turn the supply adequacy value to a positive number.

18. Immediately before directing on a Rossdale generating asset(s) (refer to step 17) issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to WEB option: "A directive will be issued to start Rossdale generation for a forecasted supply shortfall starting at hh:mm on yyyy-mm-dd."

19. At the determined time, as identified in step 17 above, issue directives for the selected Rossdale generating asset(s) to start. (Note: When the Rossdale generating asset(s) synchronize to the AIES they will ramp to minimum stable load and remain there until further directed by the SC in accordance with OPP 801 Supply Shortfall.)

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20. Record in the Shift Log the Rossdale generating assets that were directed to start, but do not post it to the web.

21. In the supply adequacy report double click on the line of the next hour with a negative supply adequacy value and repeat steps 12 to 21.

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22. Dispatch the generating assets that are started according to their in-merit offer(s) in the energy market merit order.

23. Direct out-of-market energy from the Rossdale generators in accordance with OPP 801.

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24. Make a note in the Shift Log identifying the time, assets and amount of out-of-market energy directed from Rossdale generators, but do not post it to the web.

25. If there is an unanticipated reduction in supply then repeat the short term adequacy assessment.

26. If there is an unanticipated increase in supply, such as a large thermal generator coming back on-line earlier than expected, and if generating asset(s) from the long-lead-time energy list were requested to start or Rossdale generator(s) were directed to start and are no longer required, then:

- Cancel directives issued to start Rossdale generators.

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- If directives were issued to start Rossdale generators, then issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to WEB option: "The directive for Rossdale generating assets has been cancelled and the supply shortfall event is no longer forecast."

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- Notify the AESO personnel in accordance with Table 1 in OPP 1303 that the directive to start Rossdale generators was cancelled.

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- If generating assets from the long-lead-time energy list were requested to start and directives were not issued to start Rossdale generators, then issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to WEB option: "A supply shortfall is no longer forecast."

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Routine System Operations  
**OPP 705 Short Term Adequacy Assessments**

27. If the STA assessment for the next day requires Rossdale generators to be on-line again, then direct the asset to its minimum stable load level according to the procedure step in Section 5.3 of OPP 801.

28. Cancel directives for out-of-market energy from Rossdale generators when this energy is no longer required in accordance with Section 5.3 of OPP 801.

**6. Revisions and Approval**

Issued	Description
	<u>Supersedes 2007-01-17</u>
<u>2007-01-17</u>	<u>Approved for interim implementation; supercedes 2005-03-30</u>
2005-03-30	Supersedes 2004-12-22
2004-12-22	New Issue, approved for interim implementation 2004-12-21

**Table 1**

Values to use in short term adequacy calculation

Item	Value (MW)*
Price Responsive Load	200 <sup>1</sup>
DOS Load	20 <sup>1,2</sup>
Wind Generation	80 <sup>1</sup>

1. These values are based on experience or best judgment and will be changed if values closer to actual are identified.
2. Most DOS loads are price responsive therefore, this number is less than the actual amount that is normally on the system.

**Table 2**

Aggregated assets that have long lead times greater than 1 hour that may not be able to declare all their generation as AC in the energy trading system.

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**Table 3**

Behind-the-fence load supplied by on-site generation that provide AC as a net-to-grid value.

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[View confidential tables](#)

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 7. For the hour with the largest negative supply adequacy value from step 3, log into the ETS and go to the Submission Information Display, select customer name, asset ID and click on the tab for the TDE section and compare the TDE value submitted by each asset in **Table 2** with their total plant generation identified in **Table 2**¶  
 8. If the TDE for any asset is less than their total plant generation by more than 10 MW in **Table 2** then phone the Plant Operator and tell him the AESO is anticipating a supply shortfall event starting at hh:mm on month-day. Ask the Plant Operator if they have any generation that is not included in their TDE submit (... [35])

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direct the assets

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on commensurate with the required lead time

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The SC will use reasonable best efforts to perform a short term adequacy assessment by 18:00 on the day ahead and then on a continual basis as system operating conditions unexpectedly change to determine if and when to issue directives for SSE in Category III

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The SC will also perform short term adequacy assessments to determine if and when to issue directives for SSE in Category II with supply times between 20 and 60 minutes. T

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SSE from Category I with supply times of 20 minutes or less based on the requirements in

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on

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a day ahead basis

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<b>Page 2: [14] Deleted</b> Category III	<b>gardnek</b>	<b>2005-09-28 10:27:00 AM</b>
<b>Page 2: [14] Deleted</b> or until the generating asset becomes eligible to be offered into the energy market in accordance with the ISO Rules on "Supply Shortfall Directive".	<b>gardnek</b>	<b>2005-10-11 5:02:00 PM</b>
<b>Page 2: [15] Deleted</b> ed for in order to supply AIES demand prior to	<b>gardnek</b>	<b>2005-10-13 11:17:00 AM</b>
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<b>Page 2: [19] Deleted</b> AB	<b>rkhan</b>	<b>2005-12-16 11:07:00 AM</b>
<b>Page 3: [20] Deleted</b> If a supply shortfall condition is forecast, then a STA assessment for directing Category II assets needs to be performed between 1 and 2 hours before the forecast time that all offers will be dispatched in the energy market merit order. Further assessments for	<b>gardnek</b>	<b>2005-09-28 1:20:00 PM</b>

directing Category II assets will be made until either directives have been issued for all SSE in Category II or until the peak forecast load (10 minute average) during the period of the supply shortfall has been included in the assessment.

The STA assessment for directing Category II assets is based on forecasting the increase in demand between the current load level and the 10 minute average peak load level during the supply shortfall event. The amount of energy to be directed from Category II assets will be required if the forecast increase in demand is greater than the total amount of energy available from the following sources:

Amount of energy remaining in the energy market merit order.

Estimated amount of remaining price responsive load that will reduce demand.

Estimated amount of Demand Opportunity Service load that will be curtailed.

Reducing exports on the AB-BC and AB-Sask Interconnections to 0 MW.

Either the difference between the Import ATC limit on AB-BC Interconnection and the current import level or if import offers are known for the forecast hour then the difference between the current import level and the import level for the forecast hour.

Either the difference between the Import ATC limit on AB-Sask Interconnection and the current import level or if import offers are known for the forecast hour then the difference between the current import level and the import level for the forecast hour.

Amount of SSE available from Category III assets that were directed on.

Amount of SSE available from Category I assets.

Should energy be delivered from Category II before all offers are dispatched in the energy market merit order the SC will minimize the amount of energy directed from Category II until it is required.

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lead time to

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If a supply shortfall condition is forecast, then between 1 and 2 hours before the forecast time that all energy offers will be dispatched in the merit order, the SC will perform a STA assessment to determine the amount of Category II assets that needs to be directed.

The SC will make STA assessments for directing SSE from Category II assets whenever a supply shortfall event is in effect and will issue directives for this energy provided the lead time required for delivering the energy will be within the forecast time frame that the energy will be required during the supply shortfall event.

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SSE

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assets according to the requirements in

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Category I, II and III generating assets will comply with directives from the SC to supply energy within their designated supply time, unless there is an exceptional circumstance related to operational problems or safety of the asset, environment, staff, or the public.

When a Category III generating asset is directed on by the SC, the generator will remain at its minimum stable load level until further directed by the SC or until the

generating asset is eligible to be offered into the energy market in accordance with the ISO Rules on “Supply Shortfall Directive”.

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Alberta Interconnected Electric System (

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**and Directing on Category III Assets**

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Between 14:00 and 18:00 of the preceding day the

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SSE

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from Category III assets to direct on

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, select the date to be assessed from the drag down menu

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Total SSE in Category III (assets not in merit order), plus;  
Amount of supplemental load in the ancillary service merit order, minus;

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- Issue the following message from ADAMS corresponding to the first hour in step 3 that has a negative supply adequacy value: “A supply shortfall is forecast starting at hh:mm on yyyy-mm-dd.”

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7. For the hour with the largest negative supply adequacy value from step 3, log into the ETS and go to the Submission Information Display, select customer name, asset ID and click on the tab for the TDE section and compare the TDE value submitted by each asset in Table 2 with their total plant generation identified in Table 2.
8. If the TDE for any asset is less than their total plant generation by more than 10 MW in Table 2 then phone the Plant Operator and tell him the AESO is anticipating a supply shortfall event starting at hh:mm on month-day. Ask the Plant Operator if they have any generation that is not included in their TDE submission that they will make available during the time of the forecast supply shortfall event. If so, ask the Plant Operator to identify the additional amount of generation (MW) above their TDE amount that they will provide from their plant during the forecasted supply shortfall event.
9. If the plants identified in Table 2 will provide more energy to the grid during the forecasted supply shortfall event than what is indicated in their TDE then add the incremental amount of energy to the supply adequacy value identified in step 7.
10. For the hour with the largest negative supply adequacy value from step 3, log into the ETS and go to the Submission Information Display, select customer name, asset ID and click on the tab for the TDE section and compare the TDE value submitted by each asset in Table 4 with the net to grid comparison value in Table 4.
11. If the TDE for each asset is less than the net to grid comparison value in Table 4, then phone the Plant Operator and advise him the AESO is anticipating a supply shortfall event starting at hh:mm on month-day. Ask the Plant Operator if they have any generation that is not included in their TDE submission that they will make available during the time of the forecast supply shortfall event. If so, ask the Plant Operator to identify the additional amount of generation (MW) above their TDE amount that they will provide from their plant during the forecasted supply shortfall event.
12. If the plants identified in Table 4 will provide more energy to the grid during the forecasted supply shortfall event than what is indicated in their TDE then add the incremental amount of energy to the supply adequacy value identified in step 9.
13. Log into the ETS and identify the amount of TDE provided by the plant in Table 5 for the hour with the largest negative supply adequacy value from step 3. (Refer to step 7 for instructions on how to access this information from ETS.)
14. Phone the Plant Operator and advise him the AESO is forecasting a supply shortfall event starting at hh:mm on month-day and ask him if they have any generation that is not included in their TDE submission that they will make available during the time of the forecasted supply shortfall event. If so, ask the Plant Operator to identify the additional amount of generation (MW) above their TDE amount that they will provide from their plant during the forecasted supply shortfall event.
15. If the plant in Table 5 will provide additional generation (MW) above their TDE amount then add this incremental amount to the supply adequacy value calculated in step 12.
16. If the supply adequacy value calculated in step 15 is less than -20 MW (e.g., -35 MW, etc) then go to the next step as Category III assets will need to be directed, otherwise go to Section 5.2 and Section 5.3.
17. Save a hard copy (print screen) of the Supply Adequacy Report and make note in the shift log of the following for the time when Category III assets are forecast to be directed on and do not post to the web:

Energy that cannot be delivered due to transmission constraints from step 2.

Import ATC on the interconnections with BC and Saskatchewan from step 3.

Amount of additional energy accounted for from plants identified in [Table 2](#), [Table 4](#) and [Table 5](#).

18. Refer to the list in DT for Category III assets and select the asset(s) to direct on that will supply the amount of SSE required (as calculated in step 15) according to the following criteria, but do not direct assets on until step 22:
  - a. Start-up times of generators selected plus 1 hour is less than the time until the SSE is required during the forecasted supply shortfall. (e.g., start-up time is 12 hours and time until SSE is required during supply shortfall is 15 hours, then  $12 \text{ hours} + 1 \text{ hour} < 15 \text{ hours}$ , therefore it is acceptable to select this generator.)
  - b. Cloverbar generators are to be directed first followed by the Rossdale generators.
  - c. Only direct on the minimum number of asset(s) required to meet the required amount of SSE.
19. Determine when to issue directives for the selected Category III generating asset(s) to start by subtracting the (start-up time plus 1 hour) from the time when the supply shortfall is forecast. (e.g., Start-up time = 12 hours,  $12 \text{ hours} + 1 \text{ hour} = 13 \text{ hours}$ , if energy is required for 17:00, then the asset needs to be directed on at  $17:00 - 13:00 = 04:00$ )
20. If it is forecast that all available SSE from Category III assets will be directed, then also refer to [Section 5.1 in OPP 801](#) to ensure the planning steps for managing a supply shortfall are completed.
21. Immediately before directing on Category III generating asset(s) issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to WEB option: “A Category III directive will be issued for a forecasted supply shortfall starting at hh:mm on yyyy-mm-dd.”
22. At the determined time issue directives for the selected Category III generating asset(s) to start. (Note: When the Category III generating asset(s) come on-line they will ramp to minimum stable load and remain there until directed further by the SC unless they have restated into the energy market in accordance with the ISO Rules on “Supply Shortfall Directive”.)
23. Record in the shift log the Category III generating assets that were directed on, but do not post it to the web.
24. Notify the AESO personnel as per Table 1 in [OPP 1303](#) that STA Category III generating assets were directed on.
25. If circumstances change, such as a large thermal generator coming back on-line earlier than expected then perform the STA assessment again and if generating assets are no longer forecast to be required then:

Cancel the directive for the Category III generator(s) to start.

Issue the following message in ADAMS to all participants and enter it into the SC Shift Log and select the post to WEB option: “The Category III directive has been cancelled and the supply shortfall event is no longer forecast.”

Notify the AESO personnel as per Table 1 in [OPP 1303](#) that the directive to start STA Category III generating assets was cancelled.

26. Direct Category III generating asset(s) for SSE above their minimum stable load level according to the procedures in [OPP 801](#).

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28. Cancel directives for SSE from Category III assets according to the procedure steps in [Section 5.3 of OPP 801](#).

## 5.2 STA Assessment and Directing Energy from Category II Assets

Between 1 and 2 hours before the forecast time of reaching the top of the merit order the SC will perform the following STA assessment to determine the amount of SSE from Category II assets to direct:

1. Open the “STA” spreadsheet.
2. Enter the date of the similar load day provided in the load forecast into the designated cell.
3. Find the largest ‘forecast change in load’ on the spreadsheet, this is the 10 minute average of the amount that the load will change from the current level.
4. Determine the ‘amount of available energy’ without committing Category II assets by calculating the sum of:

Amount of energy remaining in the energy market merit order.

Approximate amount of price responsive load that has not yet responded, i.e. refer to table 1 for the total amount expected to respond and subtract the amount that appears to have responded by observing current day load graph.

Estimated amount of DOS load available (use value from [Table 1](#)).

Amount of current hour exports schedules to BC and Saskatchewan.

Difference between Import ATC limit on AB-BC Interconnection and current import level. If import offers are known for the forecast hour then use the difference between the current import level and the import level for the forecast hour.

Difference between Import ATC limit on AB-Sask Interconnection and current import level. If import offers are known for the forecast hour then use the difference between the current import level and the import level for the forecast hour.

Remaining amount of SSE available from Category III assets that were directed on.

Amount of SSE available from Category I assets.

5. Subtract the ‘forecast change in load’ from the ‘amount of available energy’ (calculated in step 1). If this is a positive number do not direct SSE from Category II assets otherwise continue.
6. If the calculated amount in step 5 is a negative number, then this is the amount of SSE required to be directed from Category II. Select the Category II assets to direct according to the following criteria.
  - a. The SSE from Category II assets is forecast to be required in one hour.
  - b. Asset(s) with the closest capacity to the amount of SSE required that results in the minimum number of assets directed.

