

## **503 EMPRESS AREA OPERATION**

### **1. Purpose**

To define the policies and procedures for the ISO to manage motor starts in the Empress area.

### **2. Background**

The ISO must coordinate the simultaneous starts of multiple motors, 25,000 hp or larger, in order to control under voltage conditions in the area. Specific operating conditions must be met before starting the 54,000 hp motor at Sand Hills to limit the effect of under voltage in the area. If specific conditions are not met, starting the motor may affect the reliability of the system.

Figure 1 shows the transmission system in the Empress area.

### **3. Policy**

#### **3.1 Switching Amoco Empress (T163S) capacitor banks**

- (a) Depending on the real-time system conditions and when practical, one capacitor bank at Amoco Empress (T163S) must be put into service when any of the following conditions occurs:
  - One Sheerness unit is out of service.
  - Before starting 54,000 hp motor at Sand Hills 341S.
  - Before starting 30,000 hp or 25,000 hp motors simultaneously at Amoco Empress 163S.
- Depending on the real-time system conditions and when practical, the second capacitor bank at Amoco Empress (T163S) must be put into service when both Sheerness units are out of service.

#### **3.2 Motor starting in the Empress area**

With the exception of the Sand Hills motor, motor starts in the Empress area are not considered to be an issue with the transmission system intact. However, simultaneous starts of large motors could result in low voltage in the area. To avoid two or more large motors starting at once, the SC must coordinate the starting of all motors, 25,000 hp or larger. The intent is to delay motor starts only for the time required to avoid simultaneous starts.

- Empress area DTS customers must seek approval from the SC to start any motors 25,000 hp or larger.
- The SC must grant approval to start the motor unless the SC is aware of:
  1. Another motor start, 25,000 hp or larger, that is in progress.
  2. System conditions that would not allow a motor start.
- When the attempt to start the motor has been completed, whether successful or not, the customer requesting for motor starting must inform the SC.

### **3.3 Motor starting at Sand Hills**

- The DTS customer at Sand Hills (T341S) must seek approval from the SC to start their 54,000 hp motor.
- The ISO must deny the request for approval to start the 54,000 hp motor at Sand Hills if the motor starting could adversely affect system reliability or if the following conditions are not met:
  1. 944L, 945L, 951L and the Amoco Empress (T163S) 240/138 kV transformer are in service.
  2. The McNeill converter station (A840S) is not ramping an energy schedule.
  3. Both Sheerness generators are on line, unless the SC approves starting the motor with one generator off line. (See Section 5.1 and Section 5.2).
  4. No other motors are known to be starting in the area.
  5. One capacitor bank at Amoco Empress (T163S) is in service.
- The SC must notify the AltaLink operator and the ATCO Electric operator of the request to start the motor and confirm that they are not aware of any reason to not start the motor.
- If the motor starting could not adversely affect system reliability and all of the above conditions are met the SC must grant the customer permission to start the motor.
- When the attempt to start the motor has been completed, whether successful or not, the customer must inform the SC who must then inform the AltaLink operator and the ATCO Electric operator.

## **4. Responsibilities**

### **4.1 ISO**

The ISO must:

- Outline, in the System Coordination Plan submitted to the SC, transmission facility owners (TFOs) and generation facility owners (GFOs), any transmission outages that would affect the motor starting capabilities in the area.

### **System Controller**

The SC must:

- Determine the available transfer capability (ATC) on the Alberta-Saskatchewan interconnection based on the AIES conditions in real-time and then do both of the following:
  1. Adjust the ATC posted on the ISO's web site, if required by system conditions in real-time; and
  2. Inform the SaskPower system operator of any adjustment to the ATC on the Alberta-Saskatchewan interconnection, based on system conditions in real-time.
- Approve or deny motor starts of 25,000 hp or larger.
- Coordinate motors starts of 25,000 hp or larger.

### **4.2 Empress area DTS customers**

Empress area DTS customers or their designated operational contact personnel must:

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- Phone the SC to seek approval to start motors, 25,000 hp or larger.
- Inform the SC when the motor start is complete.

The following is a list of DTS customers in the Empress area:

<b>Substation (point of delivery)</b>	<b>DTS Customer</b>	<b>Operational Contact Personnel</b>
275S Jenner	FortisAlberta	AltaLink South Transmission (speed dial)
164S Empress Liquid		
204S Sandy Point		
163S Amoco Empress/ 341S Sand Hills		
394S Empress		
394S Empress	Provident Energy	Provident Energy Control
163S Amoco Empress	Foothills Pipeline	BP Empress Control
230S Wardlow	Kinder Morgan Canada	Express Pipeline Control Centre
914S Bindloss	ATCO Electric	ATCO Electric System Control Centre

Confidential Table 1 provides contract levels for DTS customers and Confidential Table 2 provides customer contact information.

## **5. System Controller Procedures**

### **5.1 Starting motors, 25,000 hp or larger, in the Empress area**

The SC will:

1. Ensure that no other motors, 25,000 hp or larger, have requested a start at that time.
2. Ensure the system voltages are normal and that system conditions will support a large motor start.
3. Give approval to start the motor.

### **5.2 Starting the 54,000 hp motor at Sand Hills with two Sheerness units on line**

The SC must:

1. Ensure all required system conditions are met for the motor start.
2. Deny any request for a motor start if any of the conditions stated in Section 3.3 are not met, or if the ISO assesses that the motor start could adversely affect system security.
3. If all the conditions are met:
  - a. Notify the ATCO Electric operator and the AltaLink operator of the pending motor start and confirm they have no concerns about starting the motor.
  - b. Give approval to the customer to start the motor.

### **5.3 Starting the 54,000 hp motor at Sand Hills with one Sheerness unit on line**

The SC must:

1. When the customer at Sand Hills requests approval to start the motor, ensure the conditions stated in Section 3.3 are met.
2. Deny the customer's request for a motor start, with the exception of both Sheerness generators online, if any of the conditions stated in Section 3.3 are not met, or if the ISO assesses that the motor start could adversely affect system security.
3. Notify the ATCO Electric operator and the AltaLink operator of the pending motor start and confirm they have no concerns about starting the motor with one Sheerness generator off line.
4. If either the ATCO Electric operator or the AltaLink operator has a concern that starting the motor will have detrimental effect on the transmission system, and the SC agrees, contact the customer and deny the request to start the motor.
5. If neither the ATCO Electric operator nor the AltaLink operator has a concern regarding the starting of the motor, contact the customer and approve the request to start the motor.

## **6. Figures and Tables**

### **Figure 1**

Transmission system in the Empress area



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## 7. Revision History

<b>Issued</b>	<b>Description</b>
2010-01-28	Supersedes 2009-09-01
2009-09-01	Supersedes 2007-12-03
2007-12-03	Supersedes 2006-09-29
2006-09-29	Supersedes 2006-05-16
2006-05-16	Supersedes 2006-02-21
2006-02-21	Supersedes 2003-09-30
2003-09-30	Supersedes 2003-07-28
2003-07-28	Revised to ISO Operating Policies and Procedures