	© ISO New England Inc. 2022	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026


SOP-OUTSCH.0030.0065

Short Term Outage Economic Analysis


Contents

1. Objective.....	3
2. Background/Introduction	3
3. Responsibilities	5
4. Controls	5
5. Instructions	6
5.1 Set Up Initial PROBE Look Ahead Case.....	6
5.1.1 Create Case Folder	6
5.1.2 Review Transmission Outages for Desired Operating Day	6
5.1.3 Create PROBE input files	7
5.1.4 Modify Interface Limits	8
5.1.5 Add Required Manual Constraints.....	10
5.1.6 Identify Must Run Resource.....	10
5.1.7 Manually Change Device Status.....	11
5.1.8 Enter any Applicable Abnormal Limits or NX9 Limit Changes	11
5.1.9 Set Up PROBE Options	11
5.2 Run the Initial Day-Ahead Study Basecase With Outages Modeled	12
5.2.1 Run PROBE	12
5.3 Determine Incremental Production Costs	14
5.3.1 Run Additional PROBE Cases to Determine Incremental Production Costs 14	
5.4 Archive Study Results	15
5.4.1 Archive Results	15
6. Performance Measures	16
7. References.....	16
8. Revision History	16

*This document is controlled when viewed on the ISO New England Internet web site. When downloaded and printed, this document becomes **UNCONTROLLED**, and users should check the Internet web site to ensure that they have the latest version.*

	© <i>ISO New England Inc. 2024</i>	<i>Procedure: Short Term Outage Economic Analysis</i>
	<i>Process Name: Capture and Evaluate Outage Requests</i>	
	<i>Procedure Number: OUTSCH.0030.0065</i>	<i>Revision Number: 11</i>
	<i>Procedure Owner: Maya Ault</i>	<i>Effective Date: January 17, 2024</i>
	<i>Approved By: Director, OSS</i>	<i>Valid Through: January 17, 2026</i>

9. Attachments.....	18
Attachment A - Short Term Outage Economic Analysis Checklist.....	19
Attachment B - PROBE Look Ahead Study Options Set-up	23
Attachment C - Casebuilder Set-up and Operation	40
Attachment D - PROBE Batch Mode Set-up and Operation	47


	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

1. Objective

1. Evaluate short term transmission outages for a given Operating Day based on anticipated loads, network configuration and Resource outages and to determine production cost increase for those outages not selected for Financial Transmission Right (FTR) annual or monthly auctions.
2. Evaluate repositioning transmission outages that exceed an incremental production cost of \$200,000 per week and that are at risk for economics based on the “Perform Short Term Outage Coordination” processes.

2. Background/Introduction

1. This procedure is intended to provide instructions for performing a market simulation to support economic analysis of transmission outages in the Short Term using the Portfolio Ownership Bid Evaluation (PROBE) program.
2. The Short Term Outage Economic Analysis is based on a one day or multi-day case that looks from one to five days in advance. This analysis will determine the production cost impact of the particular outage under study, and projections of the Locational Marginal Price (LMP) and Resource commitment. By providing an assessment of potential market inefficiencies a few days before the actual transmission outage, System and Market Operations is afforded an opportunity to evaluate actions that could alleviate the economic exposure, such as committing long run-time units, cancelling the transmission outage, or sending out notifications.
3. This procedure is not intended to evaluate moving transmission outage time frames. Instead, Short Term Outage Economic Analysis is intended to evaluate shorter term issues such as high LMPs and Production Cost issues caused by scheduled transmission and Resource outages. Also, because this analysis procedure is performed only a few days in advance of the actual Operating Day, there are fewer assumption uncertainties. This is especially true for the load forecast; therefore, this procedure will use the latest actual forecasted load, and not a statistical representation of the load curve.
4. Triggers:
 - Transmission outages categorized as Approved, Interim Approved, Submitted, Negotiate and Study in the Outage Scheduler application may be evaluated. This procedure is performed as desired, Monday through Friday, excluding weekends and holidays.

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5. Inputs:


- Resource offers
- Demand bids
- Asset Related Demand bids
- Increment offers and decrement bids
- Transmission outages
- Resource outages
- Load Forecast
- Operating Reserve Requirements
- Interface limits
- External tie-line bids
- Resource requirements for reliability/voltage

6. Outputs:

- Outage cost determination
- PROBE case reports
- STEconAnalysisLog
- Completed Short Term Outage Economic Analysis Checklist – Attachment A

7. Applications/Systems/Tools

- ISO Outage Scheduling software
- EMS WebFG
- EMS DOUBLC
- TTC Calculator
- PROBE
- Casebuilder
- GRT spreadsheet

	© <i>ISO New England Inc. 2024</i>	<i>Procedure: Short Term Outage Economic Analysis</i>
	<i>Process Name: Capture and Evaluate Outage Requests</i>	
	<i>Procedure Number: OUTSCH.0030.0065</i>	<i>Revision Number: 11</i>
	<i>Procedure Owner: Maya Ault</i>	<i>Effective Date: January 17, 2024</i>
	<i>Approved By: Director, OSS</i>	<i>Valid Through: January 17, 2026</i>

3. Responsibilities

1. Outage Coordination performs this procedure.


4. Controls

1. System Access

PROBE, Casebuilder, and TARAENFP1A access is required and obtainable through the Access Management database with the appropriate approvals.

2. Efficiency/Effectiveness

This procedure is periodically reviewed for best business practices and accuracy.

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5. Instructions

5.1 Set Up Initial PROBE Look Ahead Case

5.1.1 Create Case Folder


NOTE

The folder created will contain electronic documents pertaining to relevant case inputs. For specific individual economic outage studies, the checklist should be retained in \\rtsmb\oasis\Outage Coordination\Common\Short Term Economic Analysis. For routine daily market runs, hard copies do not need to be printed and retained.

1. CREATE a new case folder in the “filepath” as follows:
\\Iso-ne.com\shares\outage\TARA Results\Probe Results
 - A. START “Remote Desktop Connection”
 - B. LOG IN to the PROBE/TARA Analysis software production server “taraenfp1a”
 - C. NAVIGATE to appropriate user directory on the (D:) drive
 - D. CREATE study folder with appropriate name with sufficient information to identify the outage that the study was performed for (e.g., “Jan2-Jan5 337 Analysis” etc.)

5.1.2 Review Transmission Outages for Desired Operating Day

1. LOG IN to ISO Outage Scheduling software and generate the transmission outage report:
 - A. SELECT “ISO Report” on the Transmission Outage reports menu
 - B. CLICK the “Custom” bullet in the “Date Range” section and ENTER desired “Start Date On or Before” and “End Date On or After”
 - C. VERIFY “Submitted, Negotiate, Study, Interim Approved, Approved and Implemented” are selected in the “Outage Status” box
 - D. CLICK “Generate”
 - E. CLICK “addins”, CLICK “CROW” and then CLICK “Filters/Summary Lines”

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

F. If desired, SAVE as .an .xlsx file with the appropriate name, i.e., “CROWmm_dd_yyyy” or “CROWJan21-Jan25 2012”, etc., in the case folder

2. REVIEW each outage and IDENTIFY those that should be excluded based on overruns, deadbuses, Trip Tests, etc.
3. IDENTIFY each outage to be studied and RECORD on Attachment A - Short Term Outage Economic Analysis Checklist


5.1.3 Create PROBE input files

1. CREATE PowerWorld model and contingency database files for the PROBE market runs as follows:
 - A. LOAD all-lines-in basecase to EMS powerflow and RUN the solution
 - B. CLICK “Data Retrieval” and ENTER the appropriate Savecase Title that includes the network model number and date (e.g., ALI_2.3.15_Jan26)
 - C. CLICK “Model File” to generate the PowerWorld Model file and VERIFY the letters “model_pf_pwrflow” are automatically appended
 - D. COPY the “EMS all-lines-in basecase” into STCA and RUN the solution
 - E. CLICK “Data Retrieval” and enter appropriate Savecase Title to include the network model number and date (e.g., ALI_2.3.15_Jan26)
 - F. CLICK “Generate PowerWorld Contingency File”

NOTE

Casebuilder will create a folder for each study day selected (e.g., if 5 day spread is selected, 5 separate daily folders will be created with custom files for that day). Only one market (source) day is allowed per casebuilder run. If more than one source day is desired for batch run studies, casebuilder will need to be run as many times as market (source days) are needed.

2. Refer to Attachment C – Casebuilder Set-Up and Operation” and RUN “Casebuilder” to create input files for PROBE as follows:
 - A. START the casebuilder application by DOUBLE CLICKING the “casebuilder.exe” icon

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

- B. CLICK excel icon in upper left hand corner
- C. SELECT PROBE Short Term Outage Coordination Study Mode
- D. SELECT data source (market) day for bids and offers
- E. SELECT study day or spread of study days
- F. NAVIGATE to “casebuilder manual files” folder and SELECT the Contingency, model (created earlier in this step) and appropriate monthly zonal factors files
- G. CLICK “RUN” to create input files for PROBE
- H. PLACE casebuilder output folder (PROBE input files) into study day case folder

NOTE


The following codes apply to the unit_status.csv file:

- A = Available, or offered in economics
- P = Pool scheduled, will appear if unit_status.csv file is produced from a solved Day-Ahead case
- M = Must run, meaning self-schedule
- U = Unavailable
- S = Manually scheduled

- I. If a unit is to be manually committed (e.g., for reliability), SET the unit status as “S” for each hour the unit is to be committed

5.1.4 Modify Interface Limits

1. REVIEW outage notes for any interface limit or other restrictions.
2. PRODUCE interface limits using the TTC Calculator as follows:
 - A. If using an EMS basecase:
 - (1) COPY an appropriate basecase into EMS Powerflow and VERIFY a “Valid Solution”
 - (2) CLICK Data Retrieval
 - (3) ENTER desired Name in the “Enter Savecase Title” box using the form: mm_dd_yyyy_“optional” (e.g., 07_29_2011_base case)
 - (4) CLICK “Model File” to generate and EXPORT a PowerWorld model file

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

- a. If more than one case will be evaluated, COPY model file and PASTE into the

\\rtsmb\TTC_Calc_BatchMode_InputFiles directory

(5) CLICK “OK”

B. If using TARA basecases:

(1) CREATE basecases in TARA using AMB

(2) COMPRESS basecases in a .zip file

(3) COPY file and PASTE into the
\\rtsmb\TTC_Calc_BatchMode_InputFiles directory


C. START TTC calculator

D. ENTER ID and password as needed and CLICK on “OK”

E. PERFORM the following:

- (1) If evaluating more than one basecase, SELECT “Batch Mode” in upper right hand corner
- (2) SELECT Hour Ending (normally the peak hour but can be an off peak hour)
- (3) SELECT Target Application “DayAhead”
- (4) CLICK “OPEN” in the “Study Case:” selector and either:
 - SELECT the case to be evaluated
 - or if more than one case is to be evaluated, NAVIGATE to the \\rtsmb\TTC_Calc_BatchMode_InputFiles directory
- (5) ENTER a description for the case
- (6) SELECT desired study basecase
- (7) IDENTIFY a single interface or all interfaces for processing
- (8) CLICK “Run”
- (9) Click “Yes” to confirm that all interfaces should be run if prompted

F. Once the TTC calculator has finished, PRINT the report that is automatically generated and/or SAVE as a .pdf document to case folder

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

G. REVIEW each interface calculation for validity and COPY those values to be used in the DASS GRT sheet

3. COPY desired interface limits and proxy limits into “Flowgate_Override.csv” file.
4. If desired, SAVE copy of GRT sheet as .xlsx file with a filename such as GRT.

5.1.5 Add Required Manual Constraints


1. ENTER any constraints, such as stability limits or unit limits as determined by a review of the outage applications, into the “Flowgate_Override.csv” file.

5.1.6 Identify Must Run Resource

NOTE

Any units designated as “Must Run” for 1st or 2nd contingency reliability based on outage record information may be entered into the “unit_status.csv” file with a designation of “S” for the hours desired.

1. If desired, IDENTIFY 2nd contingency units using the EMS “Double C” program.
 - A. ENTER the Line/Gen and Line/Line limits, identified in step 5.1.5 above, into the “Double C” program in EMS in “Study” mode
 - B. ENTER peak load for the Operating Day to be studied
 - C. CLICK on “Execute”
 - D. COMMIT units on the bottom of the display until the “Required increase in resources” is negative
2. If desired, IDENTIFY 2nd contingency units using the CapAnalysis software:
 - A. ENTER forecast peak load for desired Operating Day in the “Data” tab
 - B. UPDATE each interface tab with generation that will be available during the Operating Day
 - C. ENTER the 2nd Gen and 2nd Line limits in each interface limit tab and COMMIT non-fast start units until the “deficiency” value is positive
3. If necessary, ENTER any identified non fast start units with a designation of “S” in the “unit_status.csv” file.

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	
	Procedure Owner: Maya Ault	
	Approved By: Director, OSS	Revision Number: 11
		Effective Date: January 17, 2024
		Valid Through: January 17, 2026

5.1.7 Manually Change Device Status


1. IDENTIFY any breakers or disconnects that need to be manually entered by reviewing outage records for desired Operating Day.
 - A. ADD a breaker or disconnect as a new line in the “Breaker_Override.csv” file

5.1.8 Enter any Applicable Abnormal Limits or NX9 Limit Changes

1. If necessary, ENTER branch limit changes as new lines in the “Branch_Override.csv” file

5.1.9 Set Up PROBE Options

1. SET UP PROBE options and SELECT reports:
 - A. REFER to Attachment B - PROBE Look Ahead Study Options Set-up
 - B. VERIFY options set as shown or import options file for custom studies
 - C. CLICK to select desired reports from the tabs on the left of the PROBE Simulator tab

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5.2 Run the Initial Day-Ahead Study Basecase With Outages Modeled

5.2.1 Run PROBE

1. If running a one day solution, PERFORM the following:
 - A. From the PROBE “Input Files” tab, NAVIGATE to the study folder in the “Data Directory” window


NOTE

When selecting the study folder in the “Data Directory” the pertinent files are automatically loaded. Any files that PROBE cannot find will be highlighted in pink. For Look Ahead study mode, the final_dispatch, demand_dispatch and cleared_transactions files are **not** needed and should be pink.


- B. VERIFY “Use Date” is **NOT** selected
 - C. SET the study date in the “StudyWindow” tab in Simulator Options
 - D. CLICK “Create Reports” for only the reports showing or “Create Reports from ALL Tabs” for all reports selected
 - E. When the case has solved:
 - (1) REVIEW the input warnings summary for any input file errors
 - (2) CLICK “Create Custom ISO-NE Reports” button, SELECT the desired reports and file path and CLICK “Create”
 - (3) MODIFY input files as necessary and RE-RUN case
2. If running batch mode solutions, REFER TO Attachment D “Batch Mode Set-Up” and PERFORM the following:
 - A. From the PROBE “Input Files” tab, NAVIGATE to the study folder in the “Data Directory” window
 - B. VERIFY “Use Date” is **not** selected
 - C. SET the study date in the “StudyWindow” tab in Simulator Options

NOTE

When selecting the study folder in the “Data Directory” the pertinent files are automatically loaded. Any files that PROBE cannot find will be highlighted in pink. For Look Ahead study mode, the final_dispatch, demand_dispatch and cleared_transactions files are not needed and should be pink.

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

- D. CREATE reports results folders for each study day in the batch run
- E. NAVIGATE to the “BatchProcess” tab of the PROBE excel spreadsheet and ENTER the file paths of each day’s input file folders, results locations, study dates and scenario name
- F. SELECT “Probe Simulator” tab and CLICK on “Create All Selected Reports in Batch Mode” button.
- G. CLICK “Validate All Input Files”, RESOLVE any input file issues and then REPEAT
- H. CLICK “Run Batch Process Consecutively” button or SPECIFY the number of processor cores to work simultaneously and CLICK “Run Batch Process on Multiple Processors Simultaneously” button
- I. When all study cases have solved:
 - (1) REVIEW the input warnings summary for any input file errors
 - (2) MODIFY input files as necessary and RE-RUN cases
 - (3) CLICK “Create Custom ISO-NE Reports” button
 - (4) SELECT the desired reports and filepath/filename, and CLICK “CREATE”
 - (5) REVIEW all selected reports, MAKE adjustments and RE-RUN cases and reports as necessary
 - (6) When satisfied, RECORD Bid Production Costs on Attachment A - Short Term Outage Economic Analysis Checklist


	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5.3 Determine Incremental Production Costs

5.3.1 Run

Additional PROBE Cases to Determine Incremental Production Costs

1. SET UP incremental market case as follows:
 - A. MAKE CHANGES to input files to remove the outage related limits and topology. “SAVE-AS” modified input files with outage name appended (e.g., “Trans_Outage_328.csv”)
 - (1) RESTORE any interface limits in “Flowgate_Override.csv” file
 - (1) RESTORE any breakers manually positioned due to the outage to be studied in “Breaker_Override.csv” file
 - (2) RESTORE any branch limits manually changed for the outage to be studied in “Branch_Override.csv file
 - (3) DELETE record for outage to be studied in “Trans_Outage.csv” file
 - (4) MODIFY “Outage_override_csv” file to reflect modified Branch, Breaker or Trans Outage or Override files
 - (5) CLICK “Enforce Engine Restart”
 - B. CLICK “Create Reports” or “Run Batch Process...” to execute PROBE incremental case(s)
 - C. When complete, ENTER production costs on Attachment A
 - D. To evaluate production cost, SUBTRACT the incremental production cost from the Basecase value (less positive or more negative is better production cost)
 - E. If incremental production cost is greater than \$200,000 per week (extrapolated from a 1 day run), NOTIFY the Supervisor, Short-Term Outage Coordination
 - F. If desired, CONTACT the affected LCC and DISCUSS potential reschedule dates

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5.4 Archive Study Results

5.4.1 Archive Results

NOTE


The Archive location for the working case folder copy is on the **taraenfpla** server in the following directory: C:\IT DA Supported Apps\PROBE Production\ST PROBE Production\Economic Studies.

1. COPY the electronic working case folder to the Archive directory location on the **taraenfpla** server.

NOTE

In accordance with RSKMGT.0020.0010 - Manage Records Retention, the hardcopy checklist and any other paperwork filled in the Short Term Outage Economic Analysis file cabinet are to be retained per the ISO-NE Records Retention Schedule.

2. FILE the completed checklist and any other desired documents in \\rtsmb\oasis\Outage Coordination\Common\Short Term Economic Analysis .

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

6. Performance Measures

1. This procedure is properly followed when the Short Term Outage Economic Analysis Checklist and study folders are satisfactorily completed, archived and the applicable notifications are made.

7. References

ISO New England - ISO New England Inc. Transmission, Markets, & Services Tariff
Section III, ISO New England Market Rule 1 - Standard Market Design (Market Rule 1)

ISO New England Operating Procedure No. 3 - Transmission Outage Scheduling


SOP-OUTSCH.0030.0020 - Perform Short Term Outage Coordination

RSKMGT.0020.0010 - Manage Records Retention


Annual Maintenance Schedule (AMS)

8. Revision History

Rev. No.	Date	Reason	Contact
0	09/03/08	Initial release of new procedure.	Peter Harris
1	12/15/08	Minor editorial corrections. This is the first version developed as an SOP, there was no Rev 0 SOP.	Peter Harris
2	03/26/09	Header modified to reflect organizational changes; Header Process changed to "Capture and Evaluate Outage Requests"; Modified Background information; Revised step 5.1.3; Minor edit of step 5.1.4; Modified step 5.1.11; Deleted step 5.1.13.A; Clarified step 5.1.14; Added new steps 5.2.4 thru 5.3.7; Modified step 5.2.8.B; Added new step 5.3.1.6; In Attachment A, revised step 3; and added lines to steps 12. & 16 check boxes	Lee Blaede
3	04/13/10	Biennial review by procedure owner; Section 3 changed title to "Short Term Economic Outage Coordinator/Engineer"; Global changes for clarification and process refinement given operating experience	Lee Blaede

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

Rev. No.	Date	Reason	Contact
4	04/14/11	Biennial review by procedure owner; Updated copyright date in headers; Replaced page numbers with Page X of Y; Complete revision to support use of PROBE - for Short Term Economic Analysis - replacing AREVA Day Ahead Study System; Corrected Market Rule 1 title in Section 7; Added new Attachment B	Lee Blaede
5	04/02/12	Biennial review by procedure owner; Header, updated copyright date; 1 st page Footer, deleted disclaimer 2 nd paragraph; Section 1 Objectives, Revised Objective descriptions Global, Incorporate new steps for Casebuilder and PROBE batch mode functionality. Deleted steps no longer necessary with latest version of Casebuilder.; New Attachment C, Added Attachment C to describe Casebuilder setup and operation with screenshots; New Attachment D, Added Attachment D to describe PROBE batch mode setup and operation with screenshots	Norm Sproehnle
6	01/09/13	5.1.1, Changed name of new production server and study folder example; 5.1.4, Added steps for using TARA AMB basecases in TTC Calculator; 5.2.1, Added step to create ISO Custom Reports; 5.4.1, Added section to describe archive steps; Section 7, Added RSKMGT.0020.0010; Att A, Modified steps for new taraenfpd1 server and production cost tables	Norm Sproehnle
7	03/05/14	Biennial review by procedure owner: Added sub- steps in step 5.1.4. for evaluating more than one basecase in TTC Calculator using “Batch Mode.”	Norm Sproehnle
8	02/19/16	Biennial review by procedure owner; Section 3, Responsibility changed position title; Globally, minor format and editorial changes;	Norm Sproehnle
8.1	01/26/18	Biennial review by procedure owner requiring no changes; Made administrative changes required to publish a Minor Revision (including adding corporate identity to all footers)	Norm Sproehnle
9	01/24/20	Biennial review by procedure owner; Responsibility changed to Transmission Coordinator; Minor administrative changes; Updated location of folder for PROBE set up; Removed step I of 5.1.3.2; Removed the word “auto” placed before TTC calculator; Removed setp G of 5.3.1; Removed reference to “STeconANALYSISlog; Removed step21 in attachment A;	Maya Ault
10	01/19/22	Updated owner to current owner; replaced generator with Resource; Updated server from TARAENFPD1 to TARAENFP1A	Maya Ault

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	
	Procedure Owner: Maya Ault	
	Approved By: Director, OSS	Revision Number: 11
		Effective Date: January 17, 2024
		Valid Through: January 17, 2026

Rev. No.	Date	Reason	Contact
11	01/17/24	Updated owner to current owner; Minor administrative changes; Updated process to change from printing and retaining data, to saving data in a designated folder; Updated process to allow for saving reports digitally, vice printing;	Maya Ault


9. Attachments

Attachment A - Short Term Outage Economic Analysis Checklist

Attachment B - PROBE Look Ahead Study Options Set-up

Attachment C - Casebuilder Set-Up and Operation

Attachment D - PROBE Batch Mode Set-up and Operation


	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

Attachment A - Short Term Outage Economic Analysis Checklist

Outage Coordinator _____ **Today's Date** _____ **Operating Day** _____

Though out the case, provide any additional comments related to the scenarios in the daily write-up:


Step	Complete	
1.	_____	Determine Outages to be analyzed. Refer to transmission outage report for desired Operating Day from Outage Scheduling software. Outages to be Analyzed: _____
2.	_____	Login to PROBE/TARA/Casebuilder server "taraenfp1a"
3.	_____	Create working electronic case folder in the desired user directory - C:\IT DA Supported Apps\Users Name the working folder for the outage(s) to be studied Name of study folder _____
4.	_____	Adjust Reserve Requirements and zonal factors files as desired in casebuilder_manual_files folder
5.	_____	Execute Casebuilder run for selected Study day(s) to create input files for PROBE
6.	_____	If desired, set each unit startup and notification times to zero in "bid_data.csv" file for study day or study day one of batch run
7.	_____	Determine interface limits using TTC calculator, or manual studies, and enter into DASS-GRT.
8.	_____	Copy GRT limits into "Flowgate_Override.csv" file.
9.	_____	Enter any applicable Manual Limits into "Flowgate_Override.csv" as determined using the ISO Outage Scheduling software.
10.	_____	Identify any must run Resources for Reliability from the ISO Outage Scheduling software. Enter a status of "S" for the hours desired on "unit_status.csv" file.
11.	_____	If necessary, enter manual breakers or disconnects into the "Breaker_Override.csv" file as determined from the ISO Outage Scheduling software.
12.	_____	If necessary, enter any applicable branch limit changes into the "Branch_Override.csv" file as determined from the ISO Outage Scheduling software.
13.	_____	Set up PROBE simulator options using attachment B and select the study day or beginning study day if performing a multi-day batch run.
14.	_____	If running PROBE in batch mode, set up "BatchProcess" tab and perform data validation. using Att. D
15.	_____	Execute PROBE case(s)
16.	_____	Exclude the outage to be studied by deleting the outage record in "Trans_Outage.csv" file. Revise interface limits, branch limits as necessary for outages placed back in-service

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis Revision Number: 11 Effective Date: January 17, 2024 Valid Through: January 17, 2026
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	
	Procedure Owner: Maya Ault	
	Approved By: Director, OSS	

Step	Complete	
17.	_____	Execute each incremental case. Analyze case and make adjustments as necessary as in step 16. When complete, record Production Cost.
18.	_____	Compare Production Costs between the BASECASE and the Incremental Cases.
19.	_____	For cases with incremental production cost greater than \$200.000 notify Supervisor, Short Term Outage Coordination.
20.	_____	Save working case folder to PROBE production archive directory - C:\IT DA Supported Apps\PROBE Production\ST PROBE Production\Economic Studies.

Production Cost - Single Day Analysis

	Case Name	Production Cost	Difference	Comments
Basecase				
Scenario 1				
Scenario 2				
Scenario 3				
Total				

	© <i>ISO New England Inc. 2024</i>	<i>Procedure: Short Term Outage Economic Analysis</i>
	<i>Process Name: Capture and Evaluate Outage Requests</i>	
	<i>Procedure Number: OUTSCH.0030.0065</i>	<i>Revision Number: 11</i>
	<i>Procedure Owner: Maya Ault</i>	<i>Effective Date: January 17, 2024</i>
	<i>Approved By: Director, OSS</i>	<i>Valid Through: January 17, 2026</i>


Production Cost - Multi-Day (batch run) Analysis

Basecase Name:

Day	Basecase Production Cost	Comments
Total		

Case/Scenario Name:

Day	Production Cost	Difference	Comments
Total			


	© <i>ISO New England Inc. 2024</i>	<i>Procedure: Short Term Outage Economic Analysis</i>
	<i>Process Name: Capture and Evaluate Outage Requests</i>	
	<i>Procedure Number: OUTSCH.0030.0065</i>	<i>Revision Number: 11</i>
	<i>Procedure Owner: Maya Ault</i>	<i>Effective Date: January 17, 2024</i>
	<i>Approved By: Director, OSS</i>	<i>Valid Through: January 17, 2026</i>

Case/Scenario Name:

Day	Production Cost	Difference	Comments
Total			

Case/Scenario Name:

Day	Production Cost	Difference	Comments
Total			

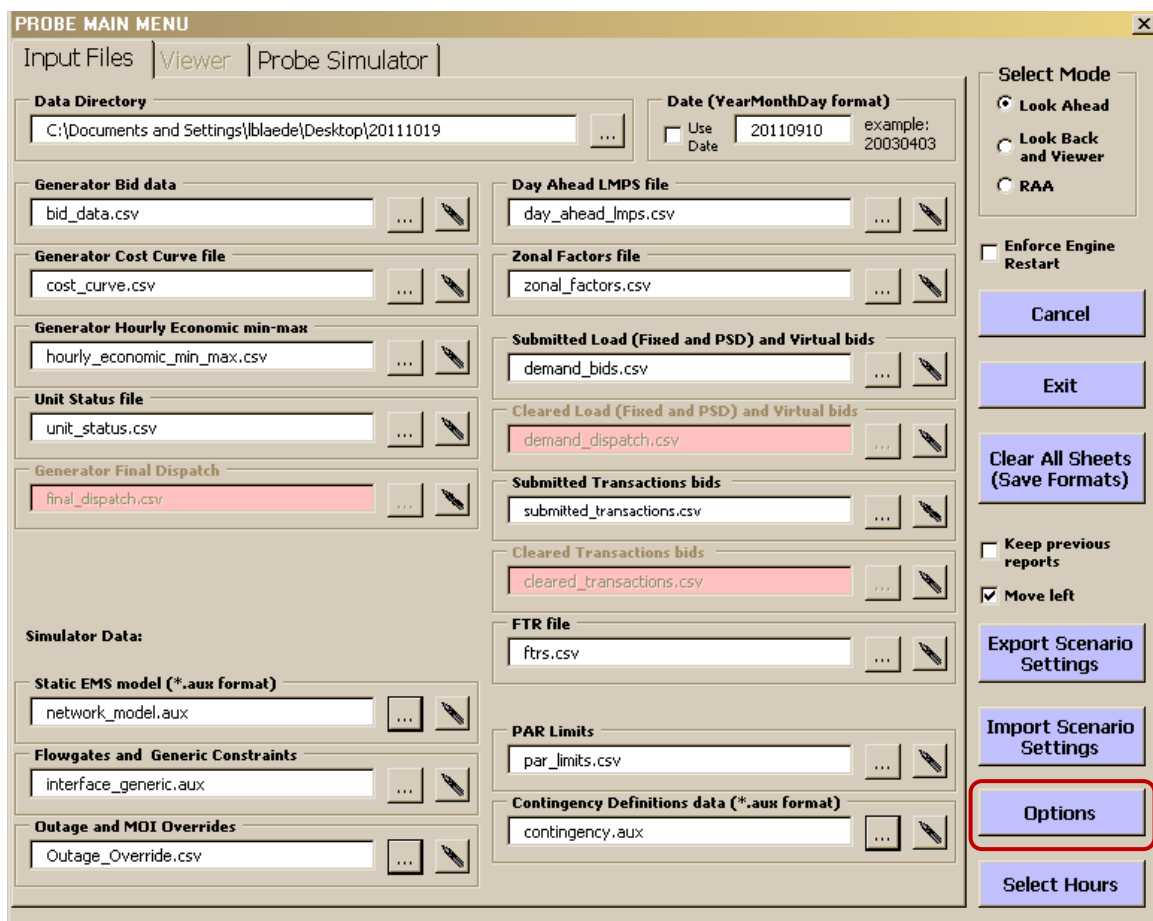
	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

Attachment B - PROBE Look Ahead Study Options Set-up

The following steps are used to set up PROBE for a Look Ahead study using fixed load forecast.


PROBE General Options:

Once PROBE has been saved, these options will also be saved.



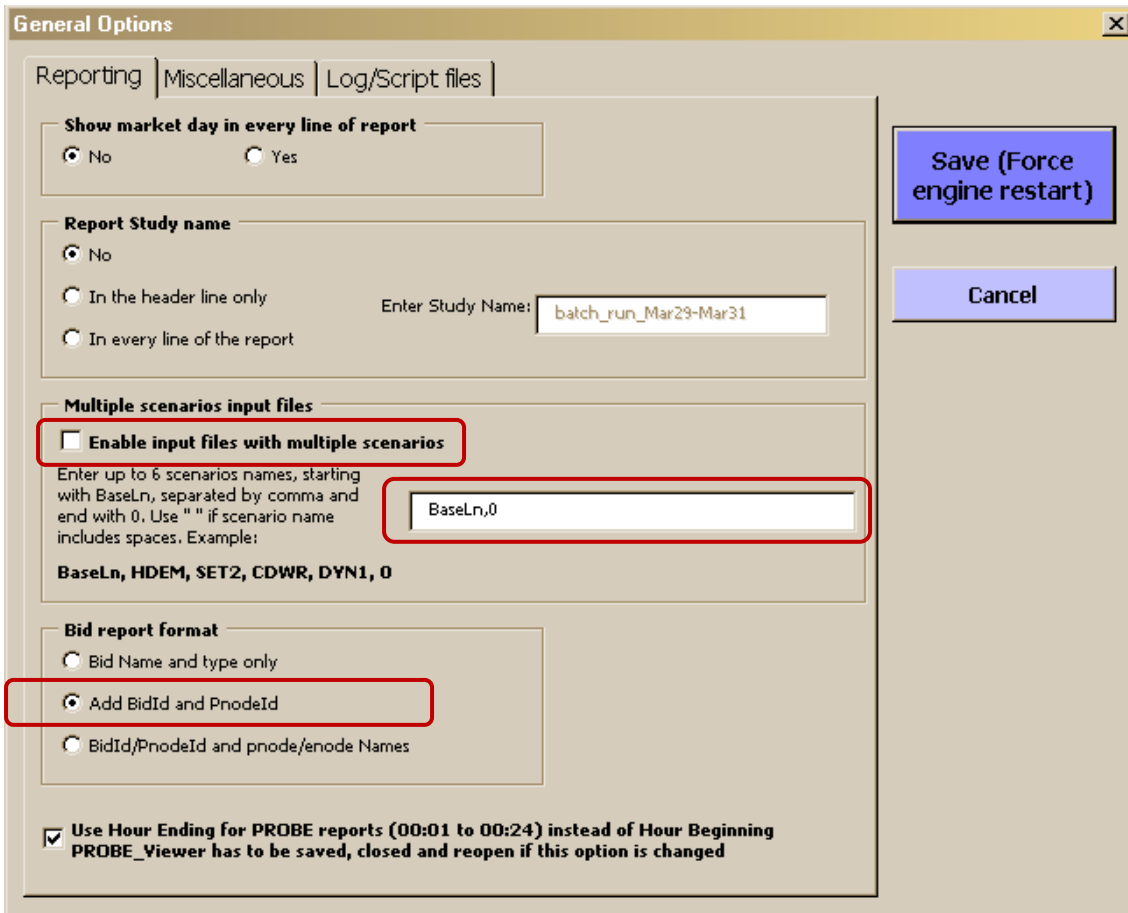
The screenshot shows the PROBE MAIN MENU interface with the following sections:

- Input Files** (selected tab):
 - Data Directory:** C:\Documents and Settings\blae\l\Desktop\20111019
 - Date (YearMonthDay format):** Use Date: 20110910, example: 20030403
 - Generator Bid data:** bid_data.csv
 - Generator Cost Curve file:** cost_curve.csv
 - Generator Hourly Economic min-max:** hourly_economic_min_max.csv
 - Unit Status file:** unit_status.csv
 - Generator Final Dispatch:** final_dispatch.csv
 - Day Ahead LMPs file:** day_ahead_lmps.csv
 - Zonal Factors file:** zonal_factors.csv
 - Submitted Load (Fixed and PSD) and Virtual bids:** demand_bids.csv
 - Cleared Load (Fixed and PSD) and Virtual bids:** demand_dispatch.csv
 - Submitted Transactions bids:** submitted_transactions.csv
 - Cleared Transactions bids:** cleared_transactions.csv
 - FTR file:** ftrs.csv
 - PAR Limits:** par_limits.csv
 - Contingency Definitions data (*.aux format):** contingency.aux
 - Static EMS model (*.aux format):** network_model.aux
 - Flowgates and Generic Constraints:** interface_generic.aux
 - Outage and MOI Overrides:** Outage_Override.csv
- Simulator Data:**
 - Static EMS model (*.aux format):** network_model.aux
 - Flowgates and Generic Constraints:** interface_generic.aux
 - Outage and MOI Overrides:** Outage_Override.csv
- Right Sidebar:**
 - Select Mode:** Look Ahead (selected), Look Back and Viewer, RAA
 - Enforce Engine Restart:** (unchecked)
 - Buttons:** Cancel, Exit, Clear All Sheets (Save Formats), Export Scenario Settings, Import Scenario Settings, Options (highlighted with a red rectangle), Select Hours
 - Keep previous reports:** (unchecked)
 - Move left:** (checked)

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

1. Reporting Tab

- SET selections as shown. If it is desired to use multiple scenarios ENTER scenario names and check the box.



General Options

Reporting | Miscellaneous | Log/Script files

Show market day in every line of report

☒ No ☐ Yes

Report Study name

☒ No
☐ In the header line only
☐ In every line of the report

Enter Study Name:

Multiple scenarios input files

☒ **Enable input files with multiple scenarios**

Enter up to 6 scenarios names, starting with BaseLn, separated by comma and end with 0. Use " " if scenario name includes spaces. Example:
BaseLn, HDEM, SET2, CDWR, DYN1, 0


Bid report format

☒ Add BidId and PnodeId
☐ Bid Name and type only
☐ BidId/PnodeId and pnode/enode Names

☒ **Use Hour Ending for PROBE reports (00:01 to 00:24) instead of Hour Beginning**
PROBE_Viewer has to be saved, closed and reopen if this option is changed

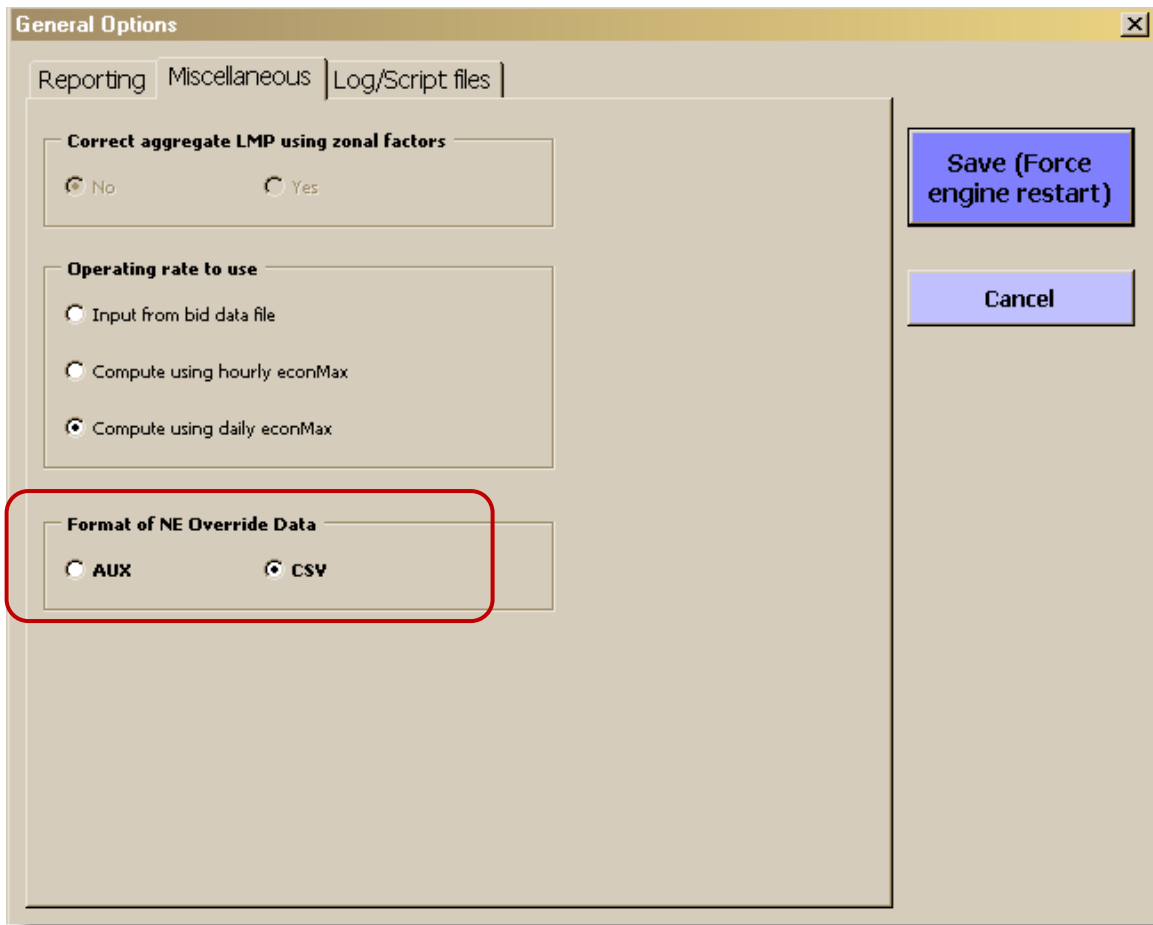
Save (Force engine restart)

Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

2. Miscellaneous Tab

a. USE .csv as format for override data



General Options [X]

Reporting | **Miscellaneous** | Log/Script files

Correct aggregate LMP using zonal factors

☒ No ☐ Yes

Operating rate to use

☐ Input from bid data file

☐ Compute using hourly econMax


☒ Compute using daily econMax

Format of NE Override Data

☐ AUX ☒ CSV

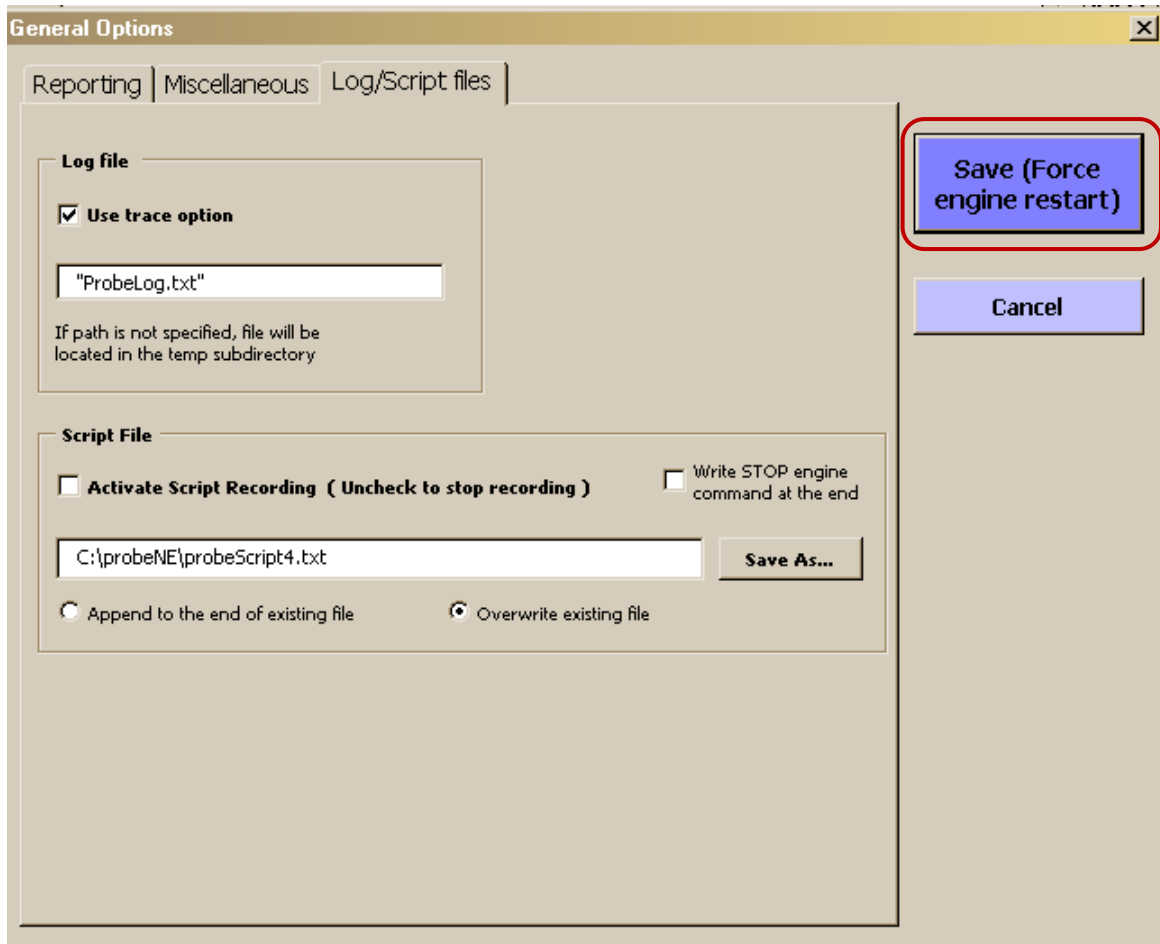
Save (Force engine restart)

Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

3. Log/Script files

- a. When done CLICK “Save (Force engine restart)”



General Options

Reporting | Miscellaneous | **Log/Script files**

Log file

☒ Use trace option

"ProbeLog.txt"

If path is not specified, file will be located in the temp subdirectory

Script File


☐ Activate Script Recording (Uncheck to stop recording) ☐ Write STOP engine command at the end

C:\probeNE\probeScript4.txt **Save As...**

☐ Append to the end of existing file ☒ Overwrite existing file

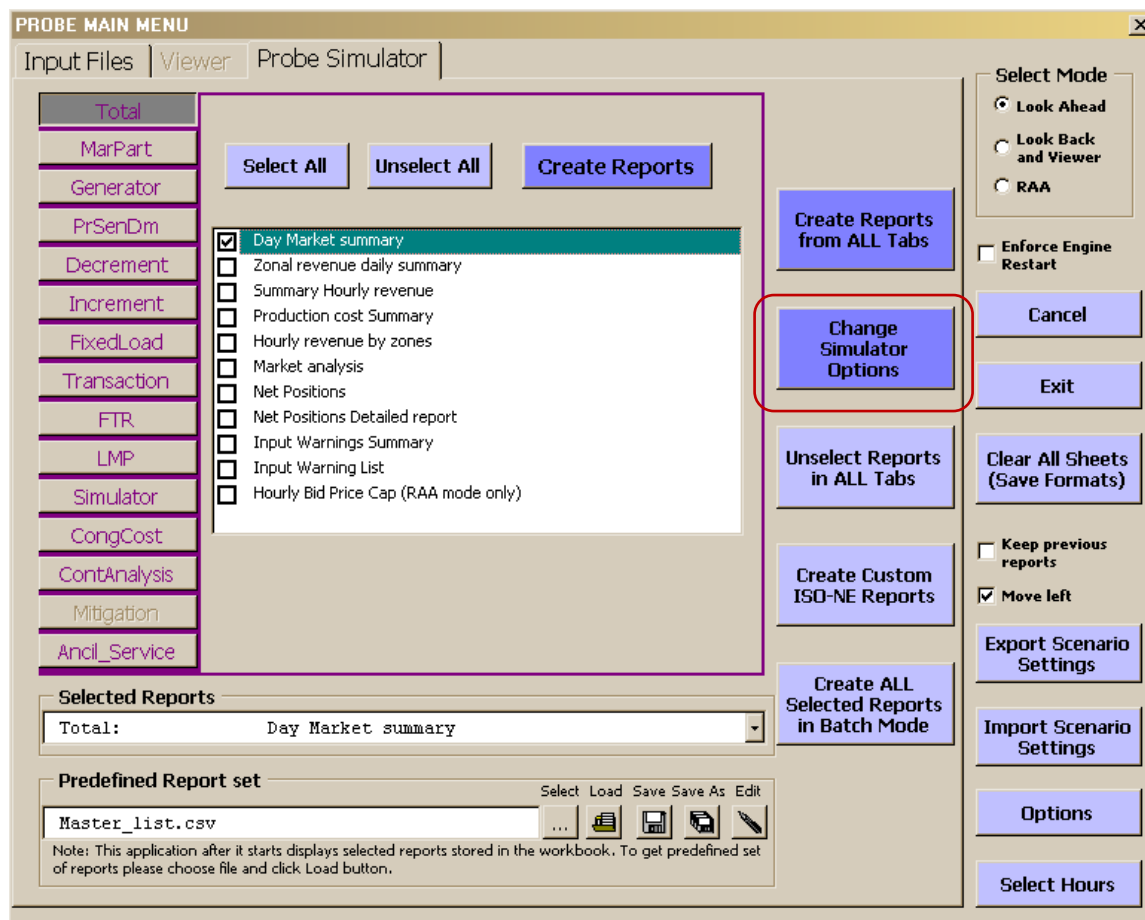
Save (Force engine restart)


Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

4. PROBE Simulator Options

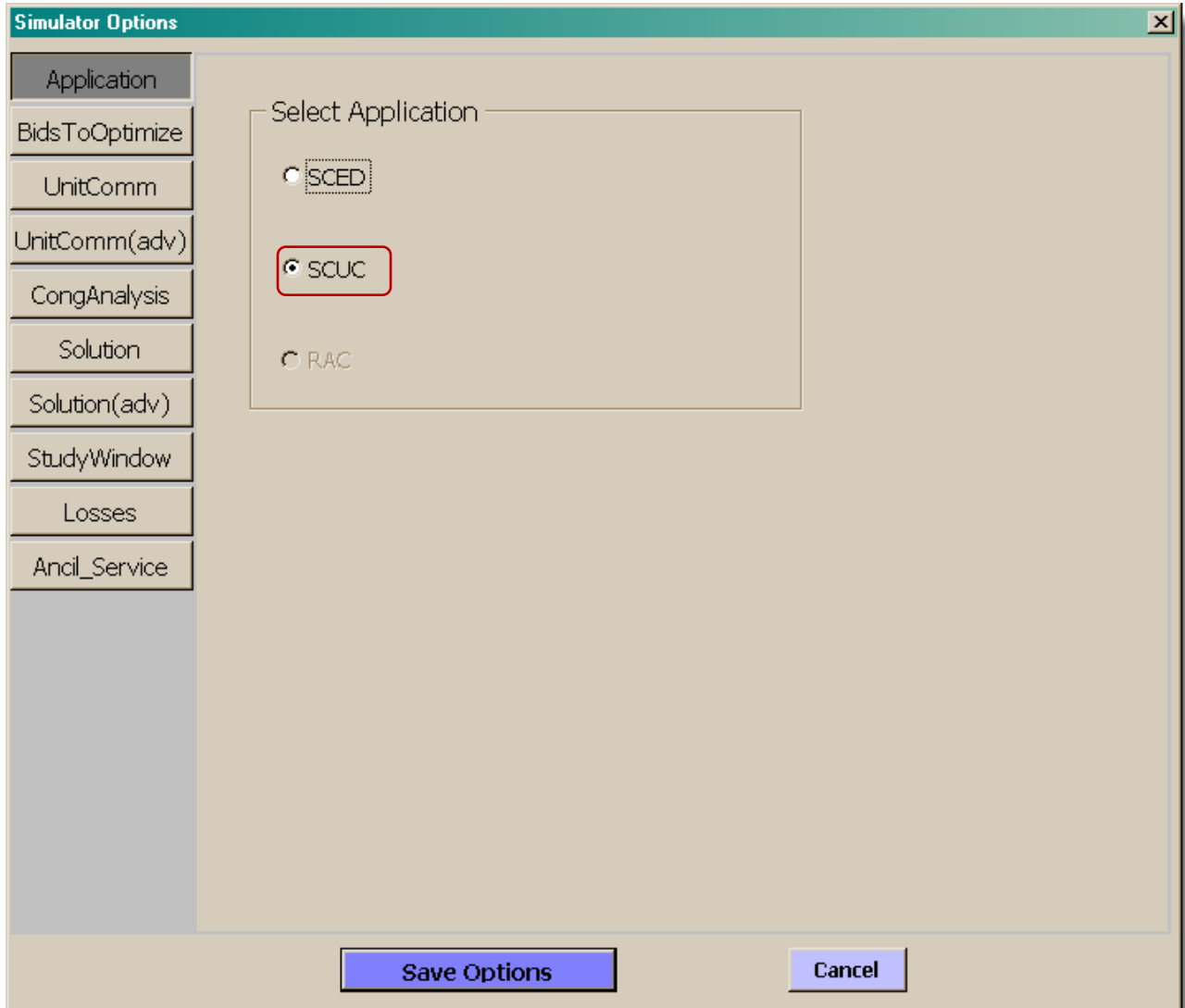
a. These options should be set for each PROBE run.



	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5. Application tab

a. SET “SCUC” for unit commitment from scratch



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

StudyWindow

Losses

Ancil_Service

Select Application


☐ SCED

☒ SCUC

☐ RAC

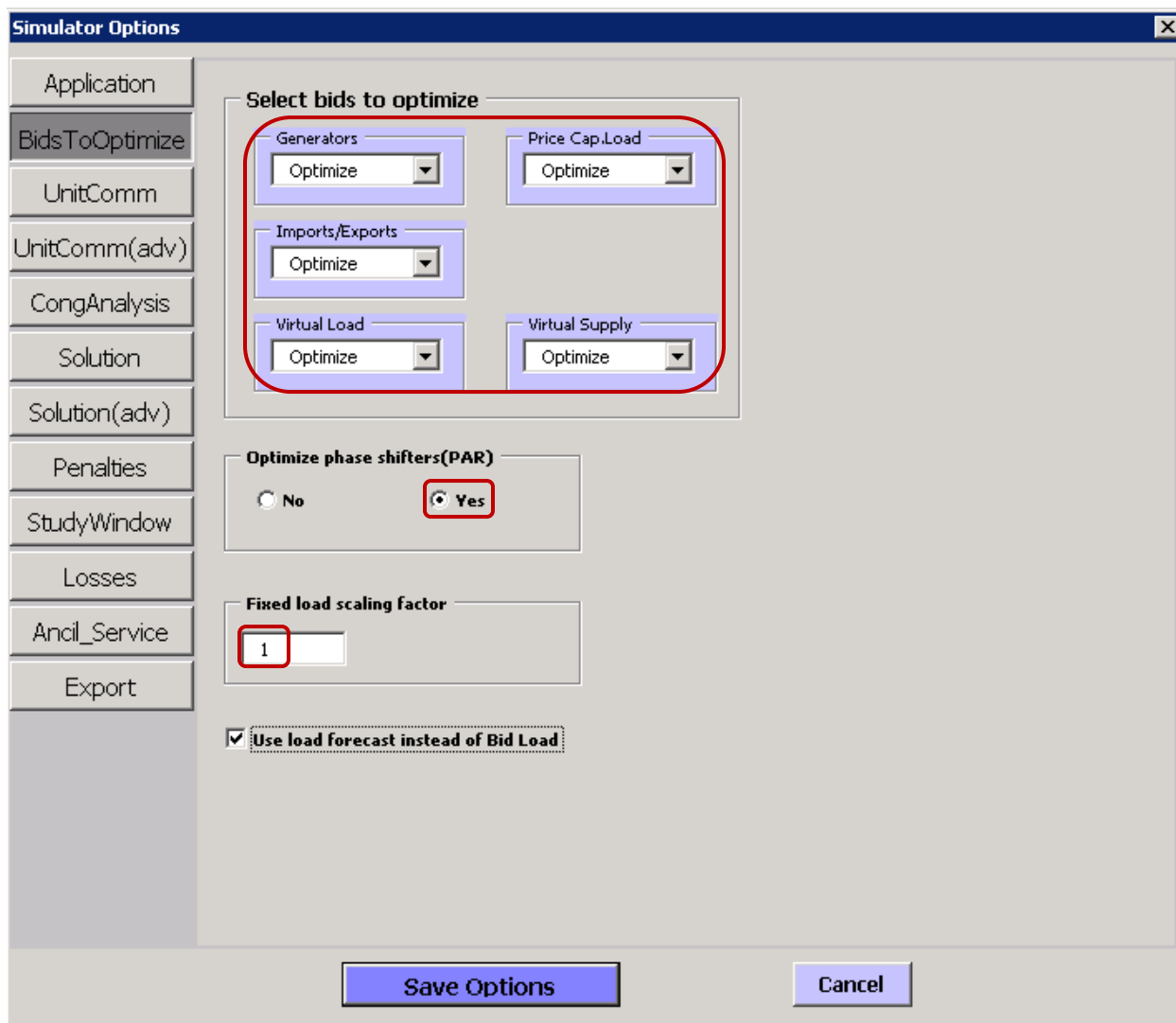
Save Options

Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

6. Bids ToOptimize tab

- SET “Select bids to optimize” to “Optimize”
- SET “Optimize phase shifters(PAR)” to “Yes”
- SET “Fixed load scaling factor” to “1” to account for losses as the load forecast includes them, but it is desired that PROBE calculate marginal losses separately.
- SELECT “Use load forecast instead of Bid Load”



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

Penalties

StudyWindow

Losses

Ancil_Service

Export

Select bids to optimize

Generators: Optimize

Price Cap.Load: Optimize

Imports/Exports: Optimize

Virtual Load: Optimize

Virtual Supply: Optimize

Optimize phase shifters(PAR)


☐ No ☒ Yes

Fixed load scaling factor

1

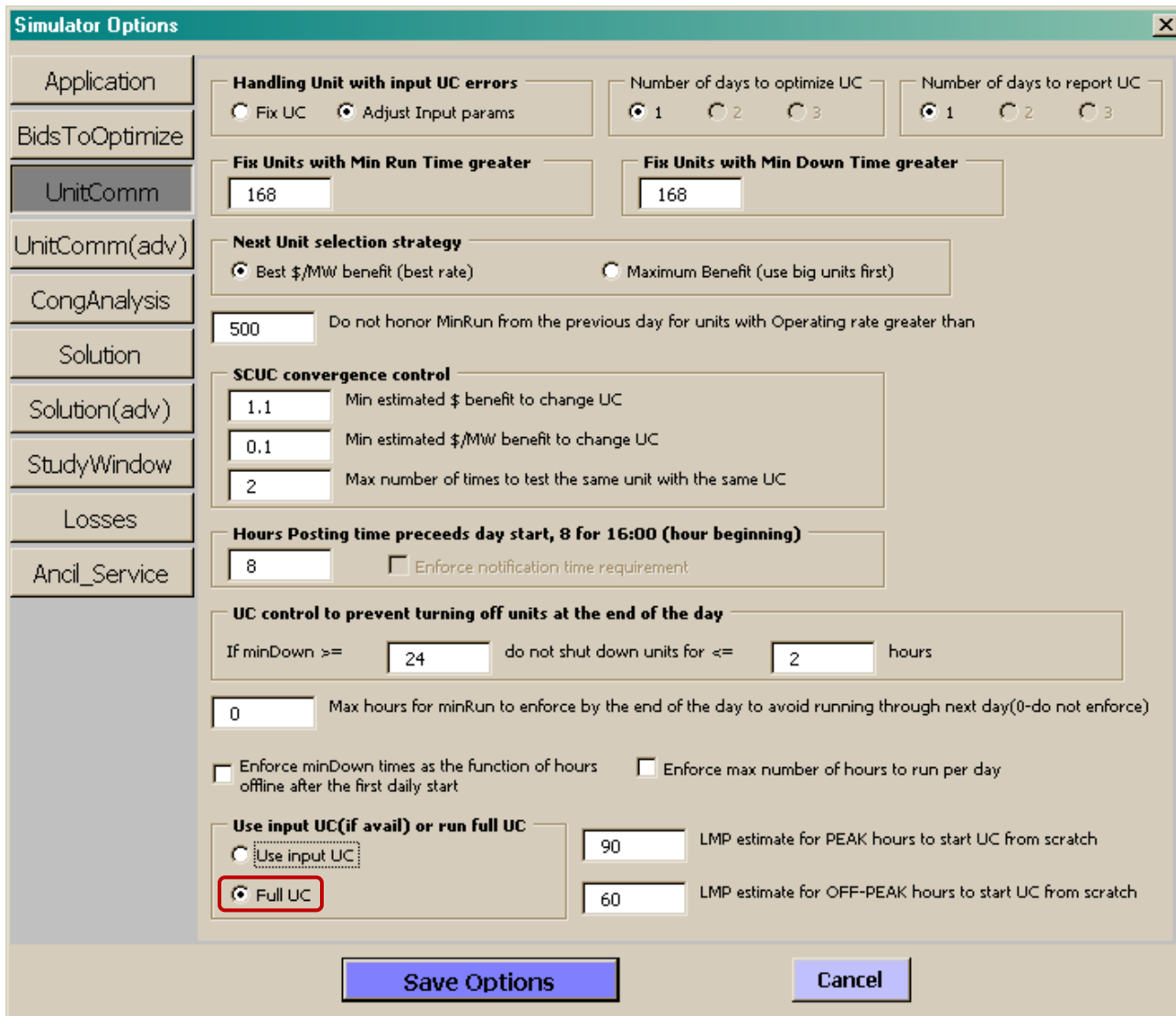
☒ Use load forecast instead of Bid Load

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

7. UnitComm tab

- SELECT “Full UC” to perform unit commitment from scratch.
- All other settings as shown. Adjustments may be made as analysis shows need.



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

StudyWindow

Losses

Ancil_Service

Handling Unit with input UC errors

☐ Fix UC ☒ Adjust Input params

Number of days to optimize UC: ☒ 1 ☐ 2 ☐ 3

Number of days to report UC: ☒ 1 ☐ 2 ☐ 3

Fix Units with Min Run Time greater: 168

Fix Units with Min Down Time greater: 168

Next Unit selection strategy

☒ Best \$/MWh benefit (best rate) ☐ Maximum Benefit (use big units first)

500 Do not honor MinRun from the previous day for units with Operating rate greater than

SCUC convergence control

1.1 Min estimated \$ benefit to change UC

0.1 Min estimated \$/MWh benefit to change UC

2 Max number of times to test the same unit with the same UC

Hours Posting time precedes day start, 8 for 16:00 (hour beginning)

8 ☐ Enforce notification time requirement

UC control to prevent turning off units at the end of the day

If minDown >= 24 do not shut down units for <= 2 hours

0 Max hours for minRun to enforce by the end of the day to avoid running through next day(0-do not enforce)

☐ Enforce minDown times as the function of hours offline after the first daily start ☐ Enforce max number of hours to run per day


Use input UC(if avail) or run full UC

☐ Use input UC ☒ Full UC

90 LMP estimate for PEAK hours to start UC from scratch

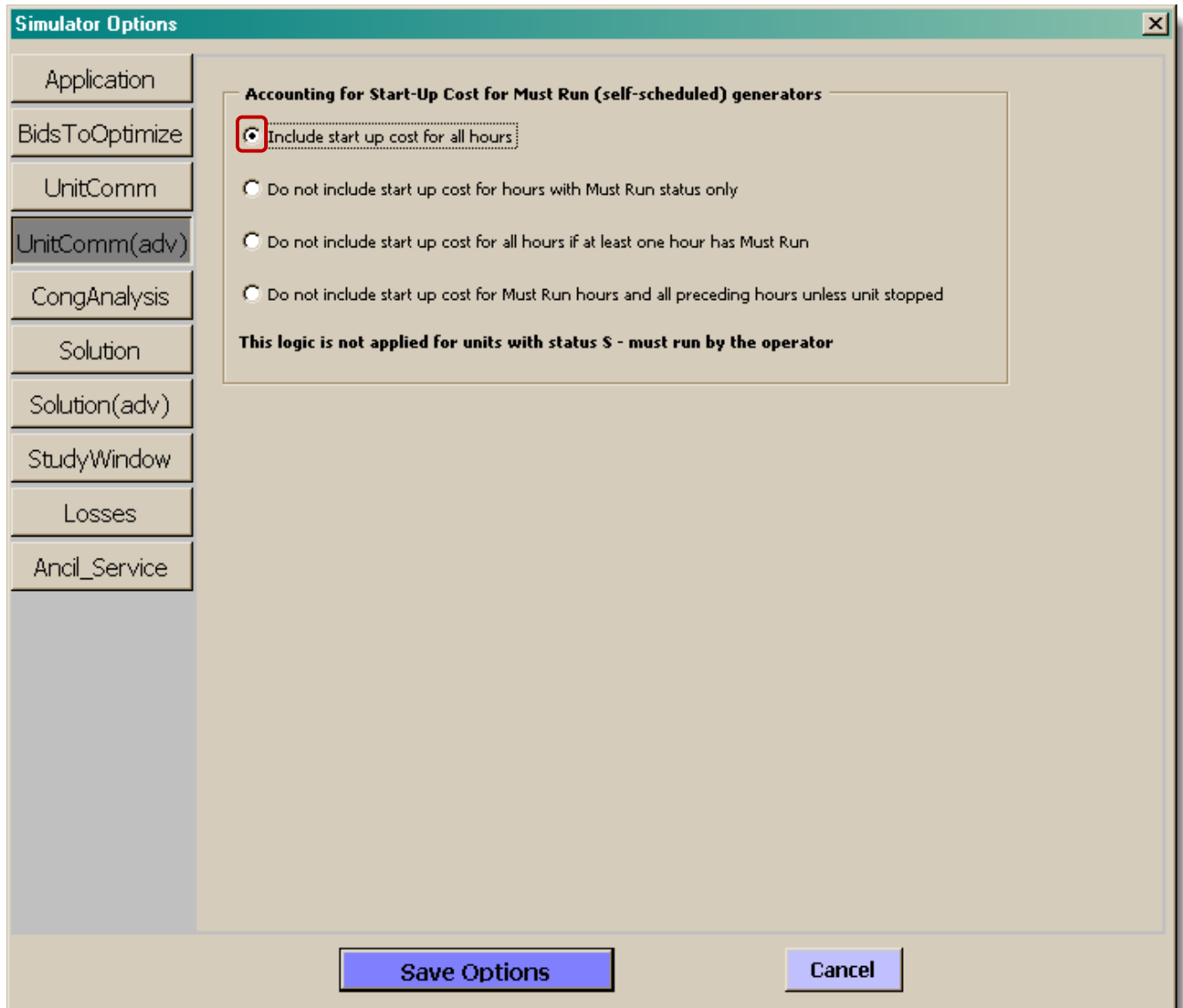
60 LMP estimate for OFF-PEAK hours to start UC from scratch

Save Options **Cancel**

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

8. UnitComm(adv) tab

a. SELECT “Include start up cost for all hours”



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

StudyWindow

Losses

Ancil_Service

Accounting for Start-Up Cost for Must Run (self-scheduled) generators

☒ Include start up cost for all hours

☐ Do not include start up cost for hours with Must Run status only


☐ Do not include start up cost for all hours if at least one hour has Must Run

☐ Do not include start up cost for Must Run hours and all preceding hours unless unit stopped

This logic is not applied for units with status S - must run by the operator

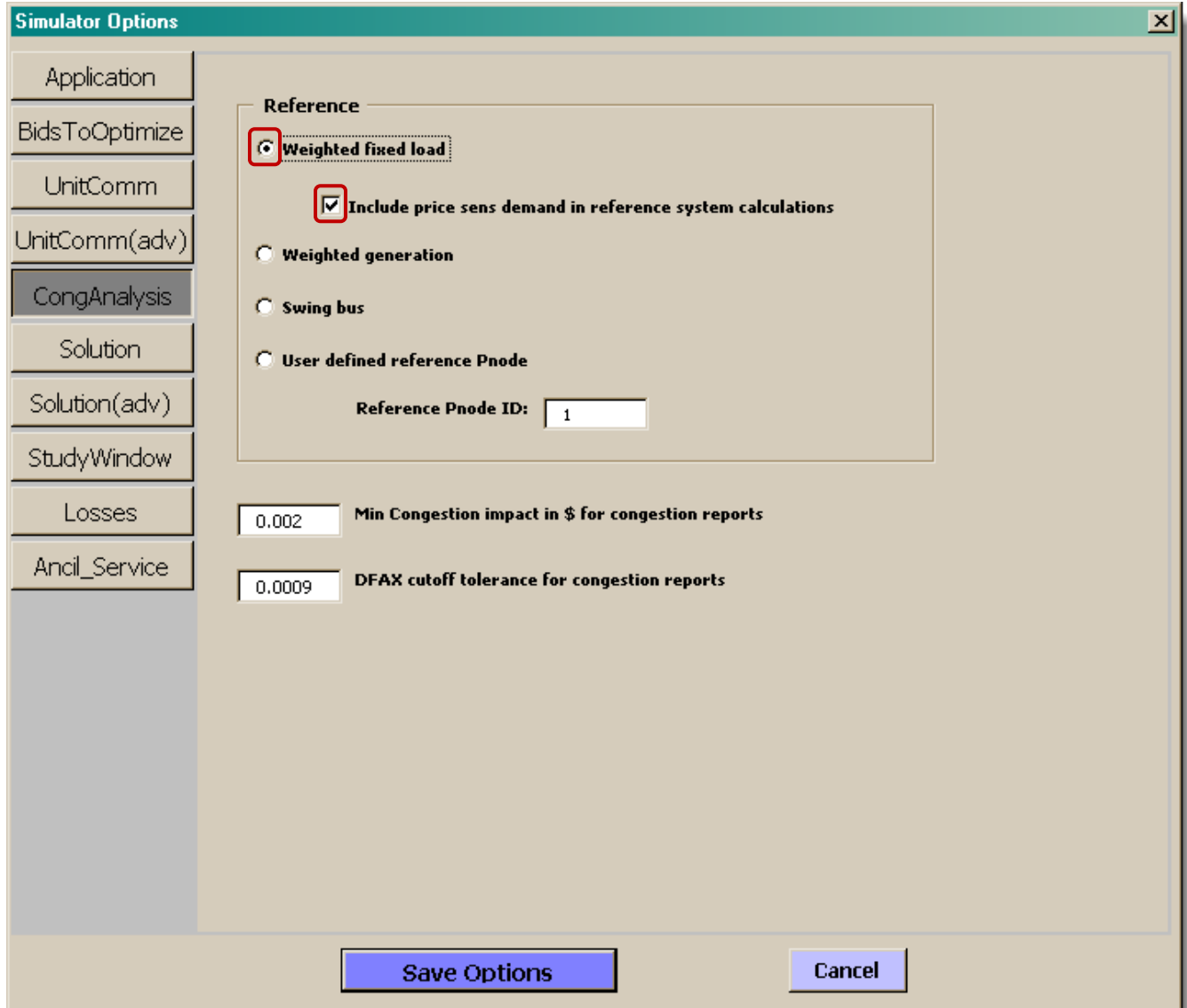
Save Options

Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

9. CongAnalysis tab

- a. SELECT “Weighted fixed load” and SELECT “Include price sens demand in reference system calculations”
- b. Other selections as shown



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

StudyWindow

Losses

Ancil_Service

Reference

☒ **Weighted fixed load**

☒ **Include price sens demand in reference system calculations**

☐ **Weighted generation**

☐ **Swing bus**


☐ **User defined reference Pnode**

Reference Pnode ID: 1

0.002 **Min Congestion impact in \$ for congestion reports**

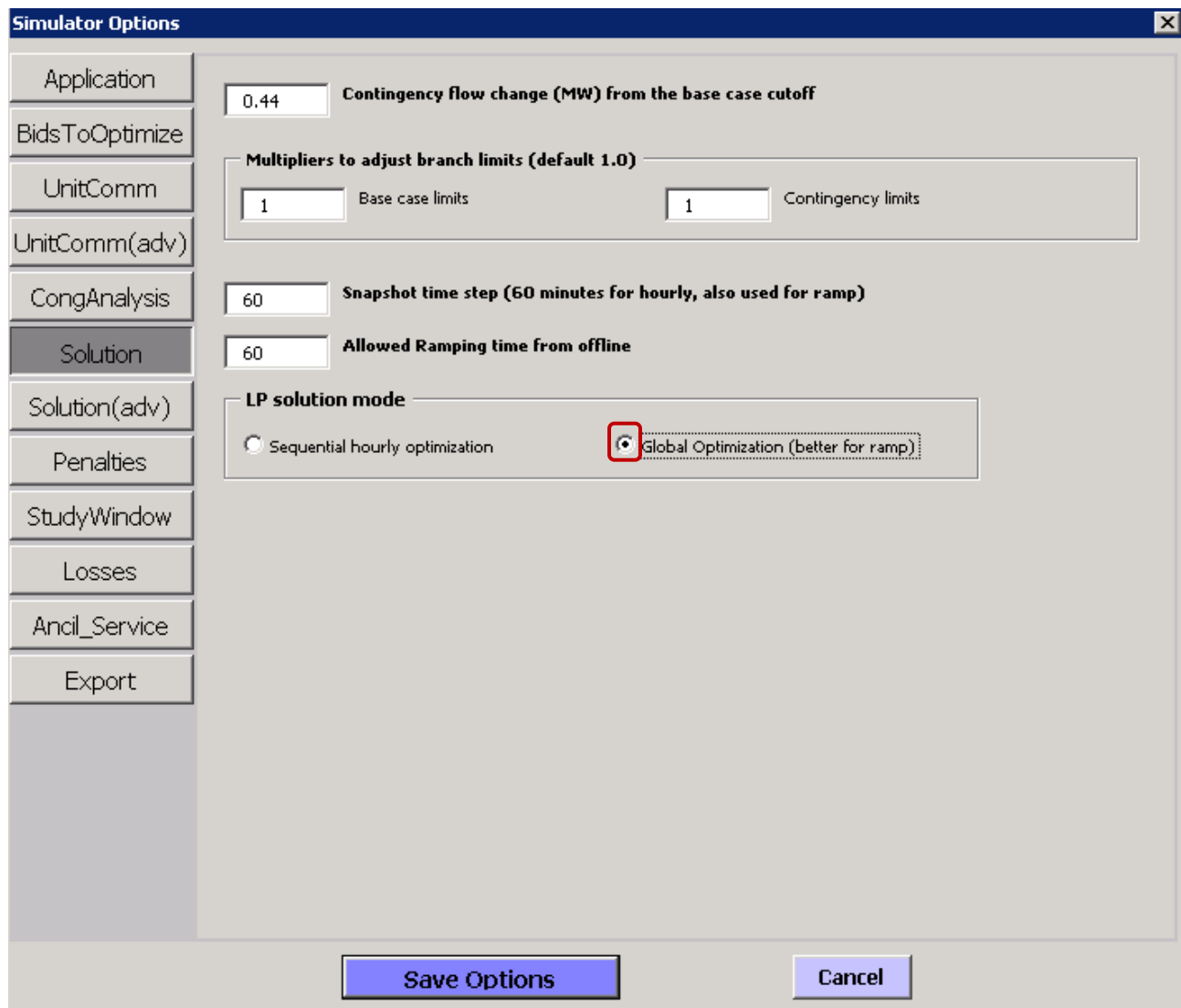
0.0009 **DFAX cutoff tolerance for congestion reports**

Save Options **Cancel**

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

10. Solution tab

- a. SELECT “Global Optimization (better for ramp)”
- b. Other selections as shown



Simulator Options

Application: 0.44 Contingency flow change (MW) from the base case cutoff

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

Penalties

StudyWindow

Losses

Ancil_Service

Export

Multipliers to adjust branch limits (default 1.0)

1 Base case limits 1 Contingency limits


60 Snapshot time step (60 minutes for hourly, also used for ramp)

60 Allowed Ramping time from offline

LP solution mode

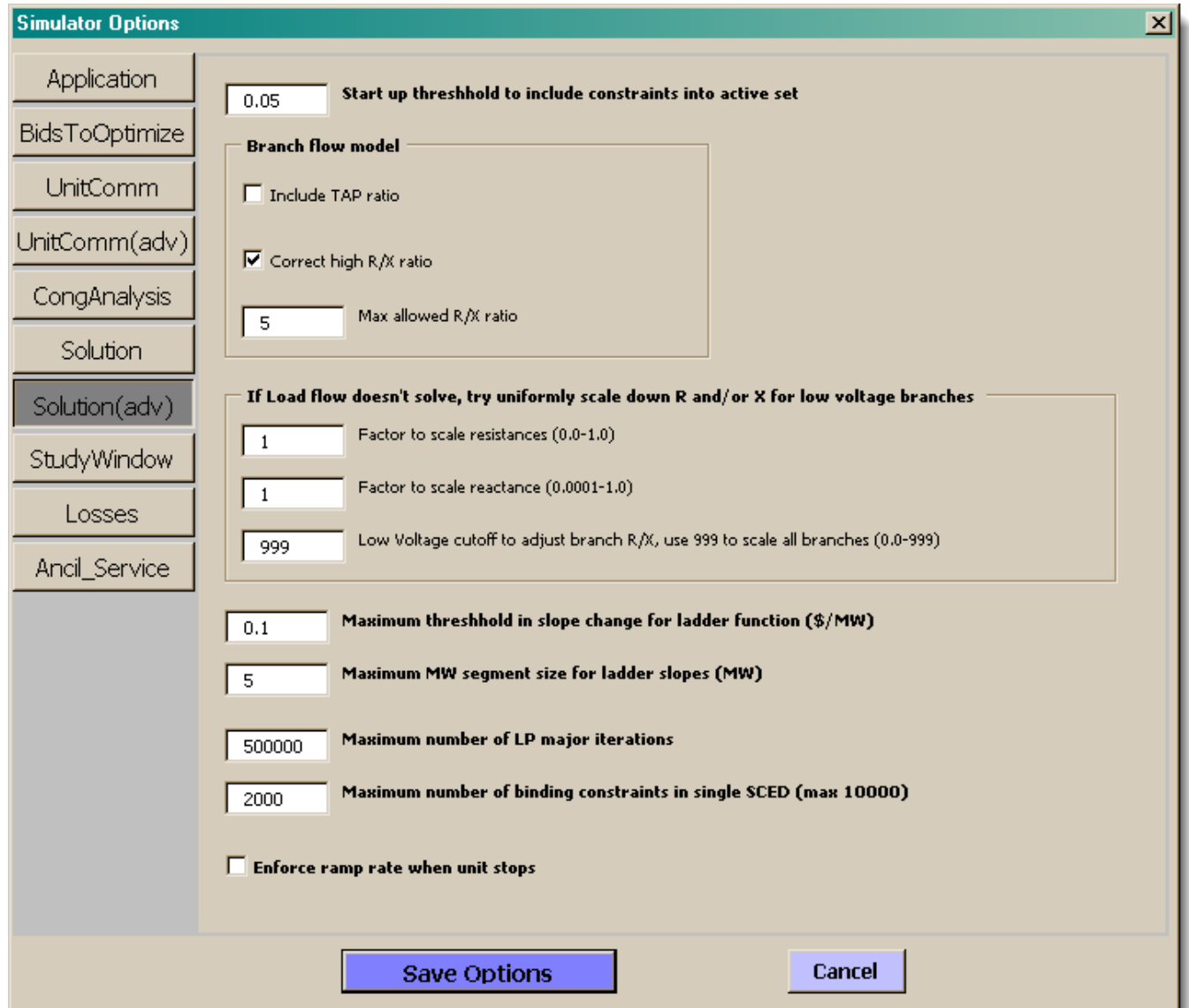
☐ Sequential hourly optimization ☒ Global Optimization (better for ramp)

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

11. Solution(adv) tab

a. Other selections as shown



Simulator Options

Application: 0.05 Start up threshold to include constraints into active set

Branch flow model

☐ Include TAP ratio

☒ Correct high R/X ratio

5 Max allowed R/X ratio

If Load flow doesn't solve, try uniformly scale down R and/or X for low voltage branches

1 Factor to scale resistances (0.0-1.0)

1 Factor to scale reactance (0.0001-1.0)

999 Low Voltage cutoff to adjust branch R/X, use 999 to scale all branches (0.0-999)

0.1 Maximum threshold in slope change for ladder function (\$/MW)


5 Maximum MW segment size for ladder slopes (MW)

500000 Maximum number of LP major iterations

2000 Maximum number of binding constraints in single SCED (max 10000)

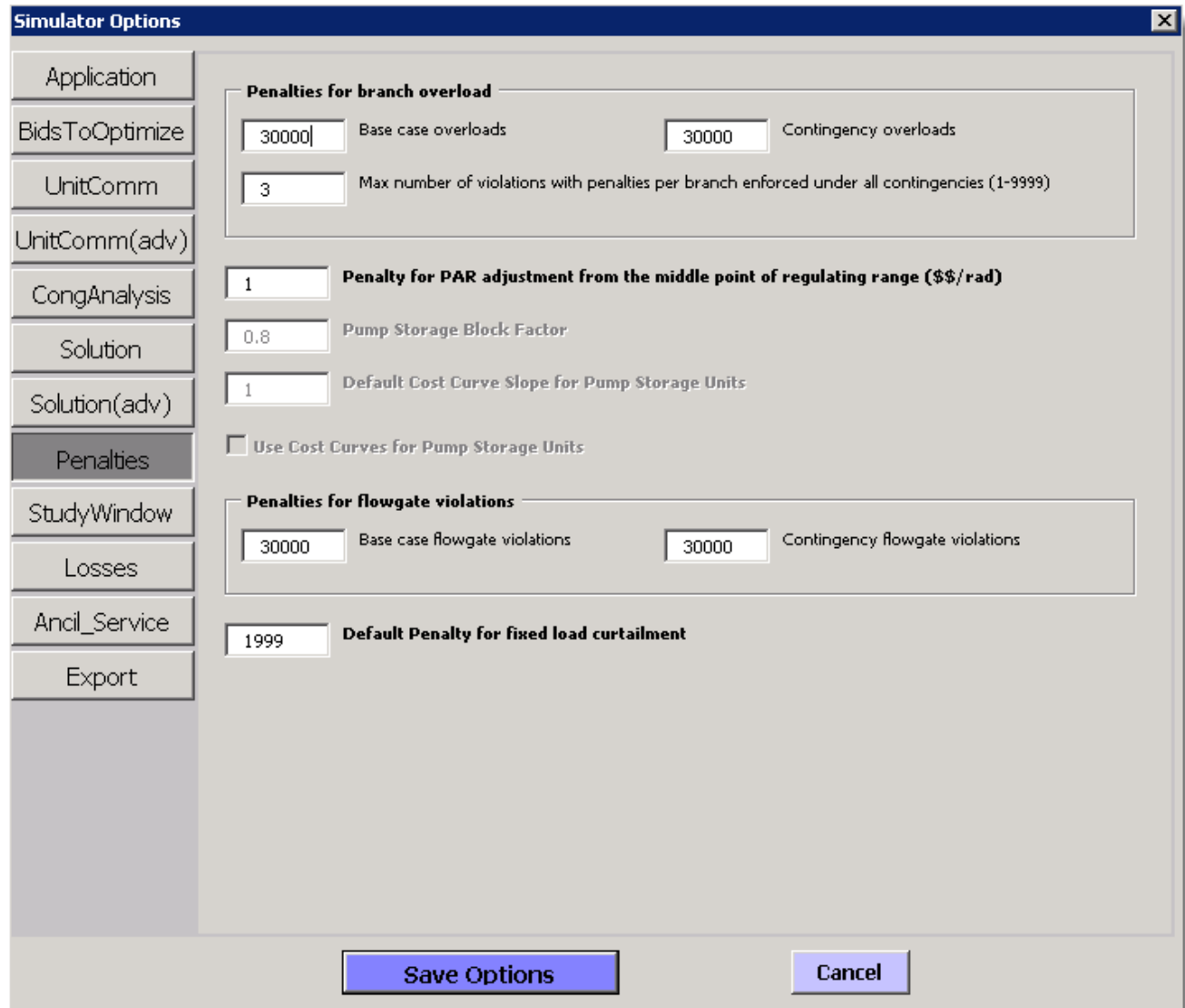
☐ Enforce ramp rate when unit stops

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

12. Penalties tab

a. USE default values, as shown



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

Penalties

StudyWindow

Losses

Ancil_Service

Export

Penalties for branch overload

30000 Base case overloads 30000 Contingency overloads

3 Max number of violations with penalties per branch enforced under all contingencies (1-9999)

1 **Penalty for PAR adjustment from the middle point of regulating range (\$\$/rad)**

0.8 Pump Storage Block Factor

1 Default Cost Curve Slope for Pump Storage Units


☐ Use Cost Curves for Pump Storage Units

Penalties for flowgate violations

30000 Base case flowgate violations 30000 Contingency flowgate violations

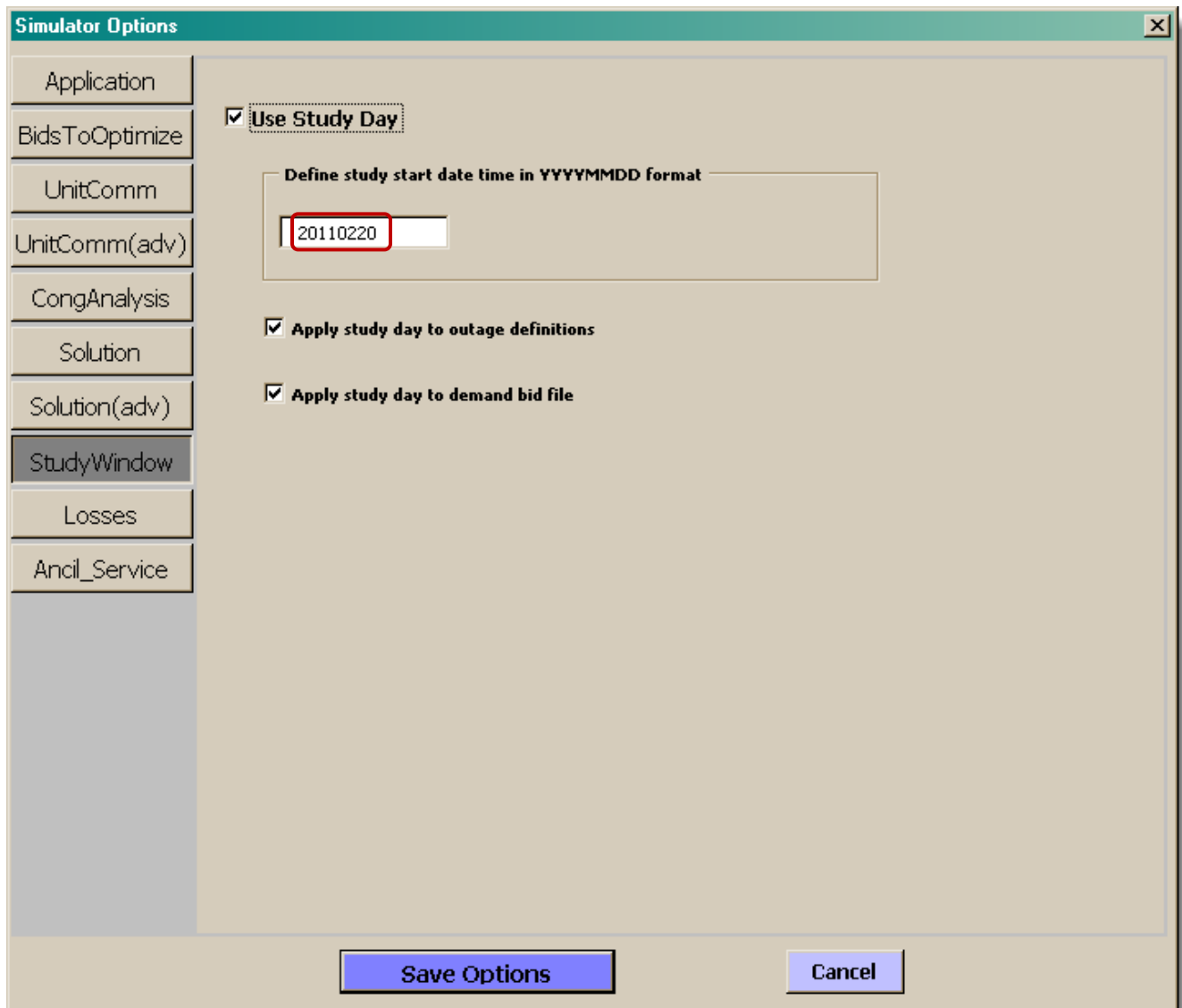
1999 **Default Penalty for fixed load curtailment**

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

13. StudyWindow tab

- a. CHECK all selections and set “Define study start date...” to future study date or first future study date if performing multi-day runs.



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

StudyWindow

Losses

Ancil_Service

☒ **Use Study Day**


Define study start date time in YYYYMMDD format

20110220

☒ **Apply study day to outage definitions**

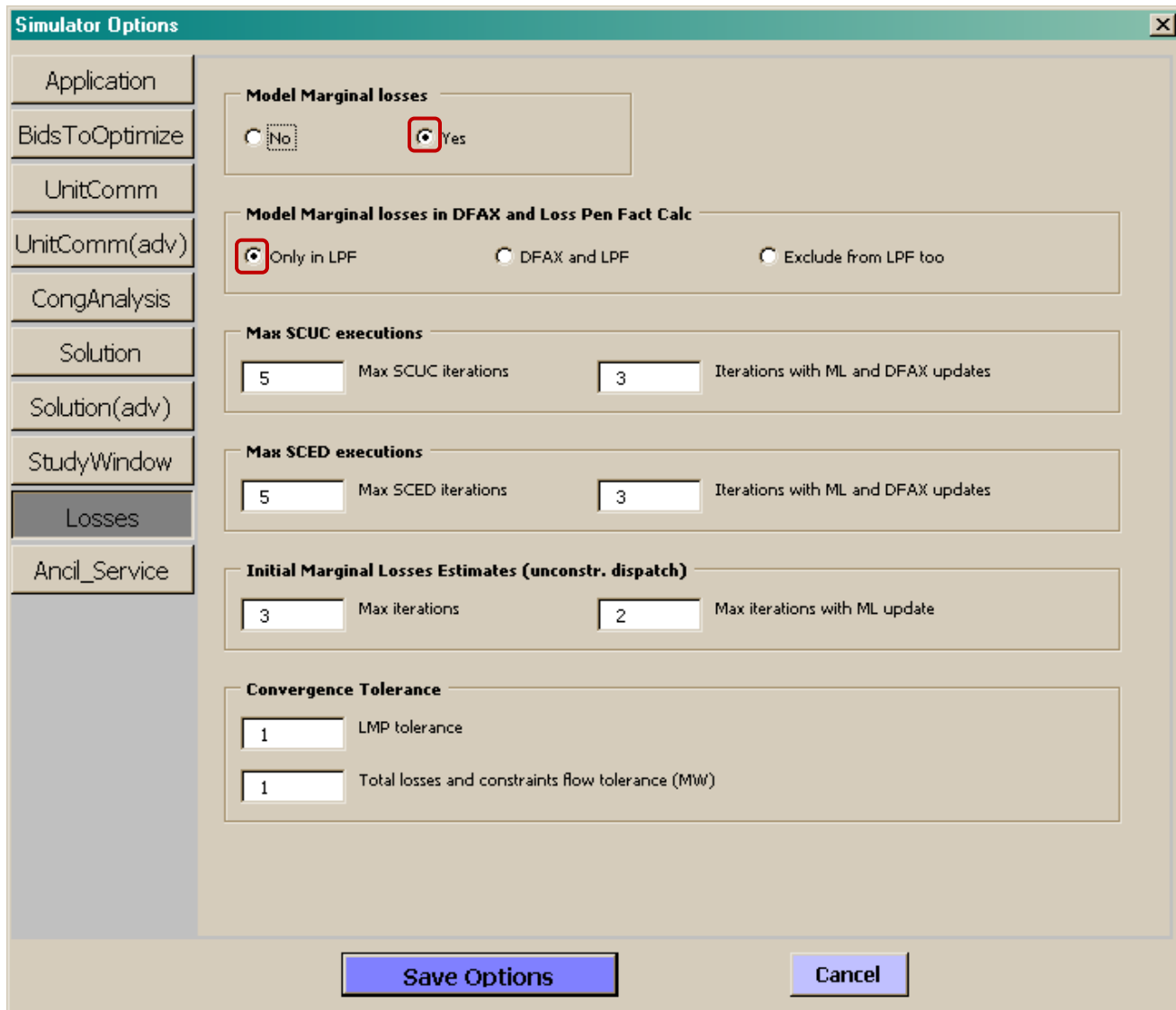
☒ **Apply study day to demand bid file**

Save Options **Cancel**

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

14. Losses tab

- a. SET “Model Marginal losses” to “Yes”
- b. CHECK “Only in LPF”
- c. Other settings as shown



Simulator Options

Application

Model Marginal losses

☐ No ☒ Yes

Model Marginal losses in DFAX and Loss Pen Fact Calc

☒ Only in LPF ☐ DFAX and LPF ☐ Exclude from LPF too

Max SCUC executions

5 Max SCUC iterations 3 Iterations with ML and DFAX updates

Max SCED executions

5 Max SCED iterations 3 Iterations with ML and DFAX updates

Initial Marginal Losses Estimates (unconstr. dispatch)


3 Max iterations 2 Max iterations with ML update

Convergence Tolerance

1 LMP tolerance

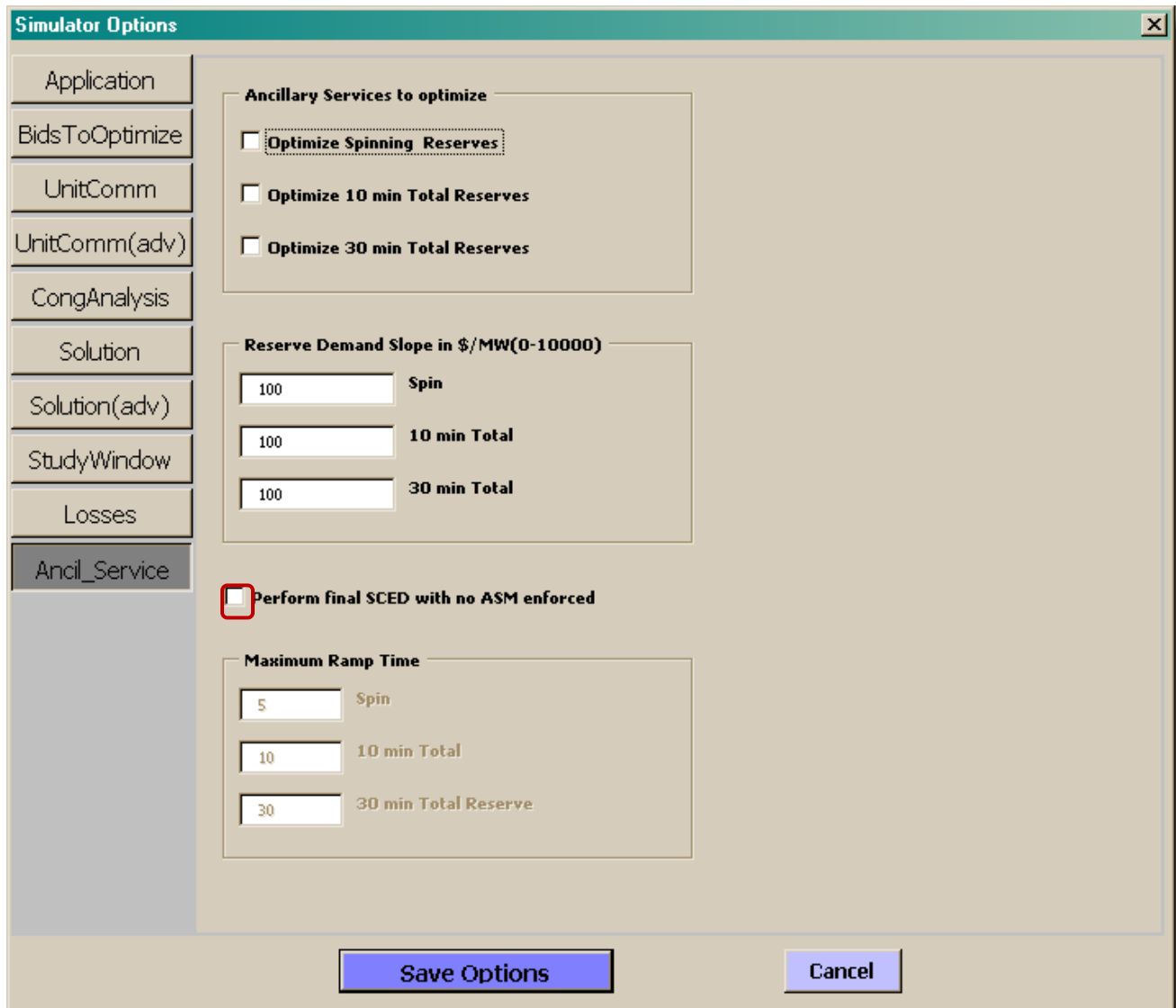
1 Total losses and constraints flow tolerance (MW)

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

15. Ancil_Service tab

- a. If it is desired to model unit commitment for reserves, CHECK all selections for Day-Ahead simulation. UNCHECK "Perform final SCED with no ASM enforced" for Real-Time simulation. UNCHECK all if not respecting reserve requirements in unit commitment.



Simulator Options

Ancillary Services to optimize

☐ Optimize Spinning Reserves

☐ Optimize 10 min Total Reserves

☐ Optimize 30 min Total Reserves

Reserve Demand Slope in \$/MW(0-10000)

100 Spin

100 10 min Total

100 30 min Total

☐ Perform final SCED with no ASM enforced


Maximum Ramp Time

5 Spin

10 10 min Total

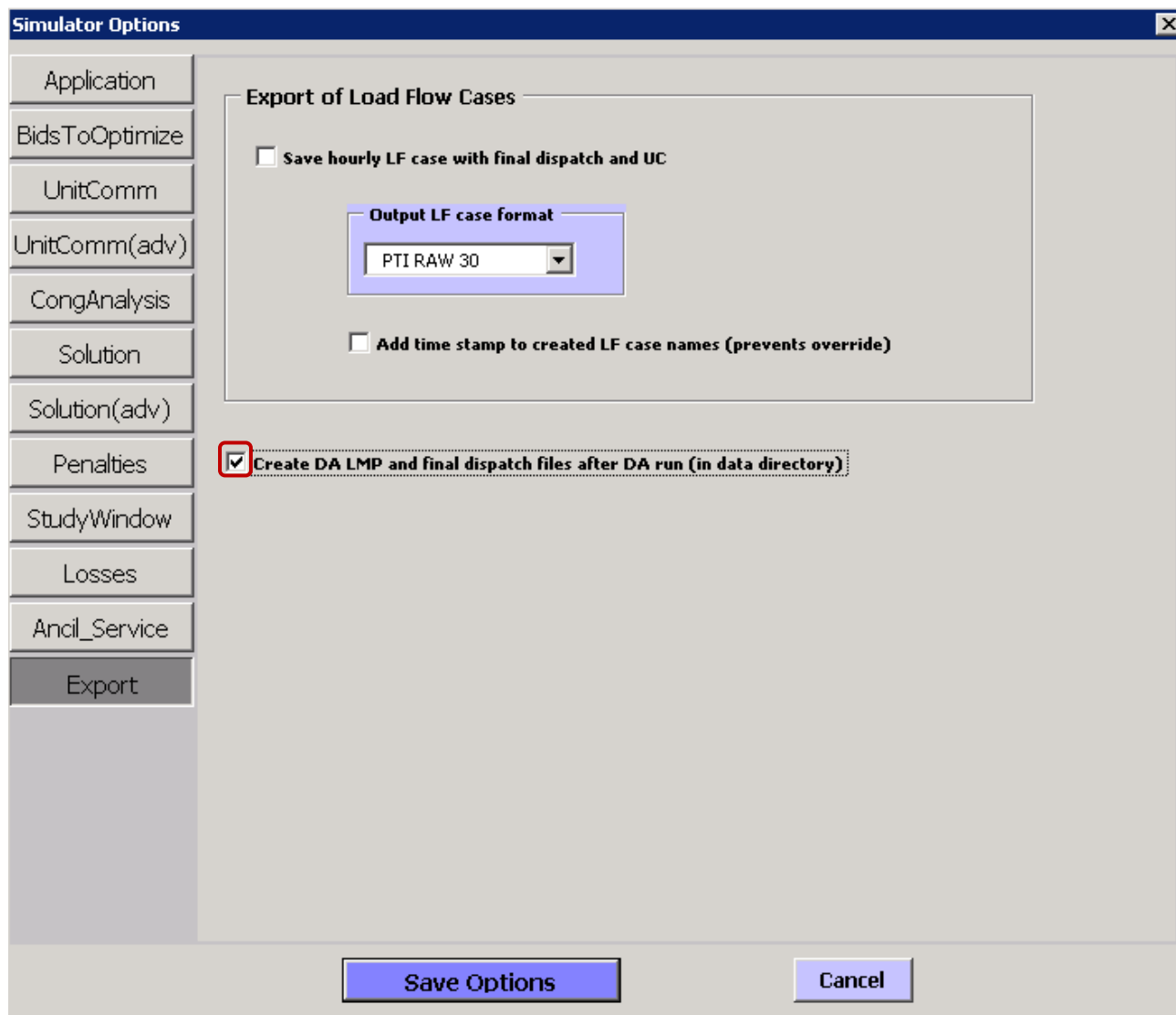
30 30 min Total Reserve

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

16. Export tab

- If it is desired to export hourly load flow models, SELECT the desired format and check boxes.
- CHECK “Create DA LMP...(in data directory)” box



Simulator Options

Application

BidsToOptimize

UnitComm

UnitComm(adv)

CongAnalysis

Solution

Solution(adv)

Penalties

StudyWindow

Losses

Ancil_Service

Export

Export of Load Flow Cases

☐ Save hourly LF case with final dispatch and UC


Output LF case format

PTI RAW 30

☐ Add time stamp to created LF case names (prevents override)

☒ Create DA LMP and final dispatch files after DA run (in data directory)

Save Options Cancel

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

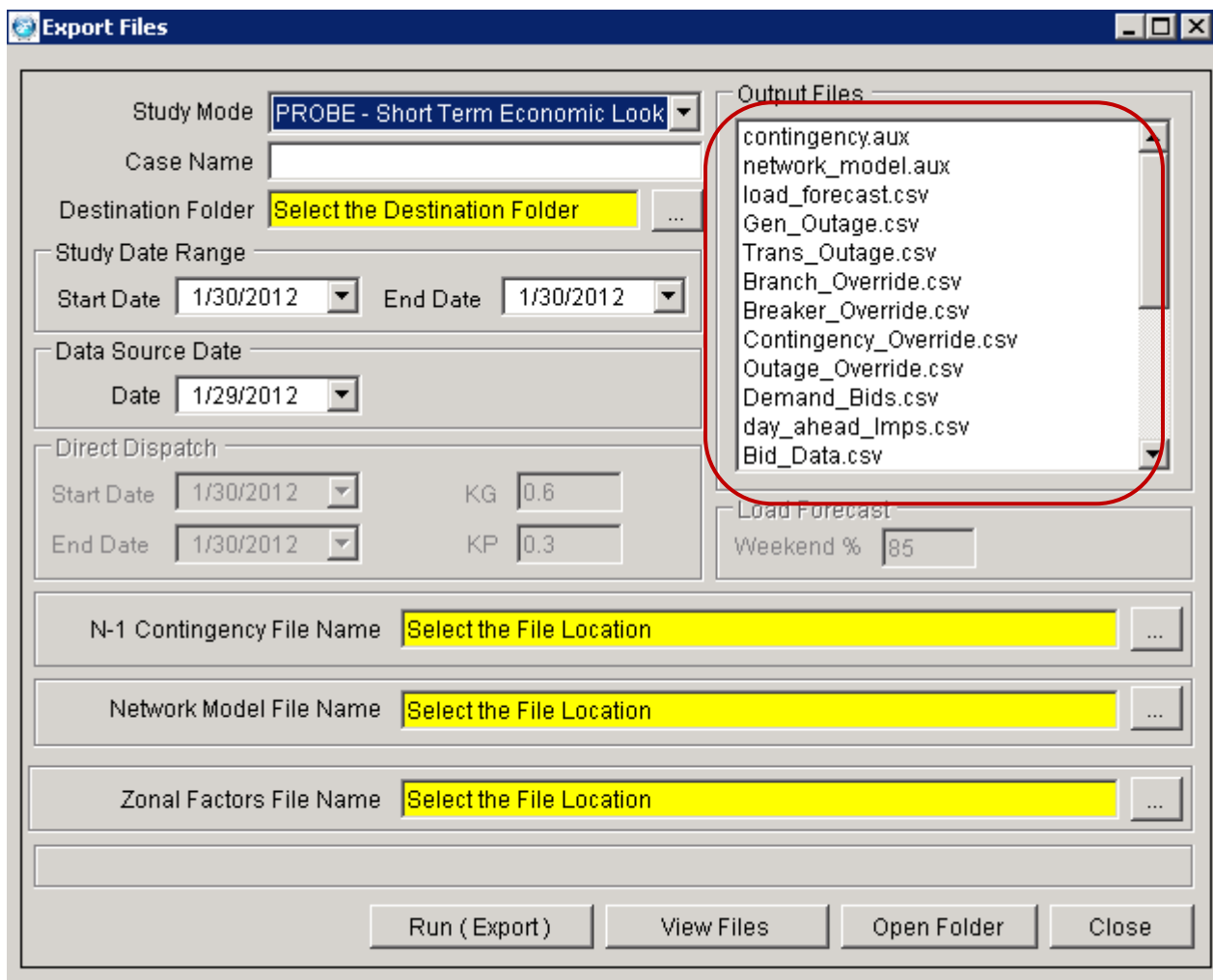
Attachment C - Casebuilder Set-up and Operation

The following screens and steps describe the setup and operation of the Casebuilder application.

NOTE

The Casebuilder application provides input files for both TARA and PROBE applications and for various study modes. The input files produced are customized for the study mode selected.

1. SELECT “PROBE – Short Term Economic Look Ahead” Study Mode. The resulting output files are displayed in the box on right.



Export Files

Study Mode: **PROBE - Short Term Economic Look Ahead**

Case Name:

Destination Folder: **Select the Destination Folder**

Study Date Range

Start Date: **1/30/2012** End Date: **1/30/2012**

Data Source Date

Date: **1/29/2012**

Direct Dispatch

Start Date: **1/30/2012** KG: **0.6**

End Date: **1/30/2012** KP: **0.3**

Output Files

- contingency.aux
- network_model.aux
- load_forecast.csv
- Gen_Outage.csv
- Trans_Outage.csv
- Branch_Override.csv
- Breaker_Override.csv
- Contingency_Override.csv
- Outage_Override.csv
- Demand_Bids.csv
- day_ahead_lmps.csv
- Bid_Data.csv


Load Forecast

Weekend %: **85**

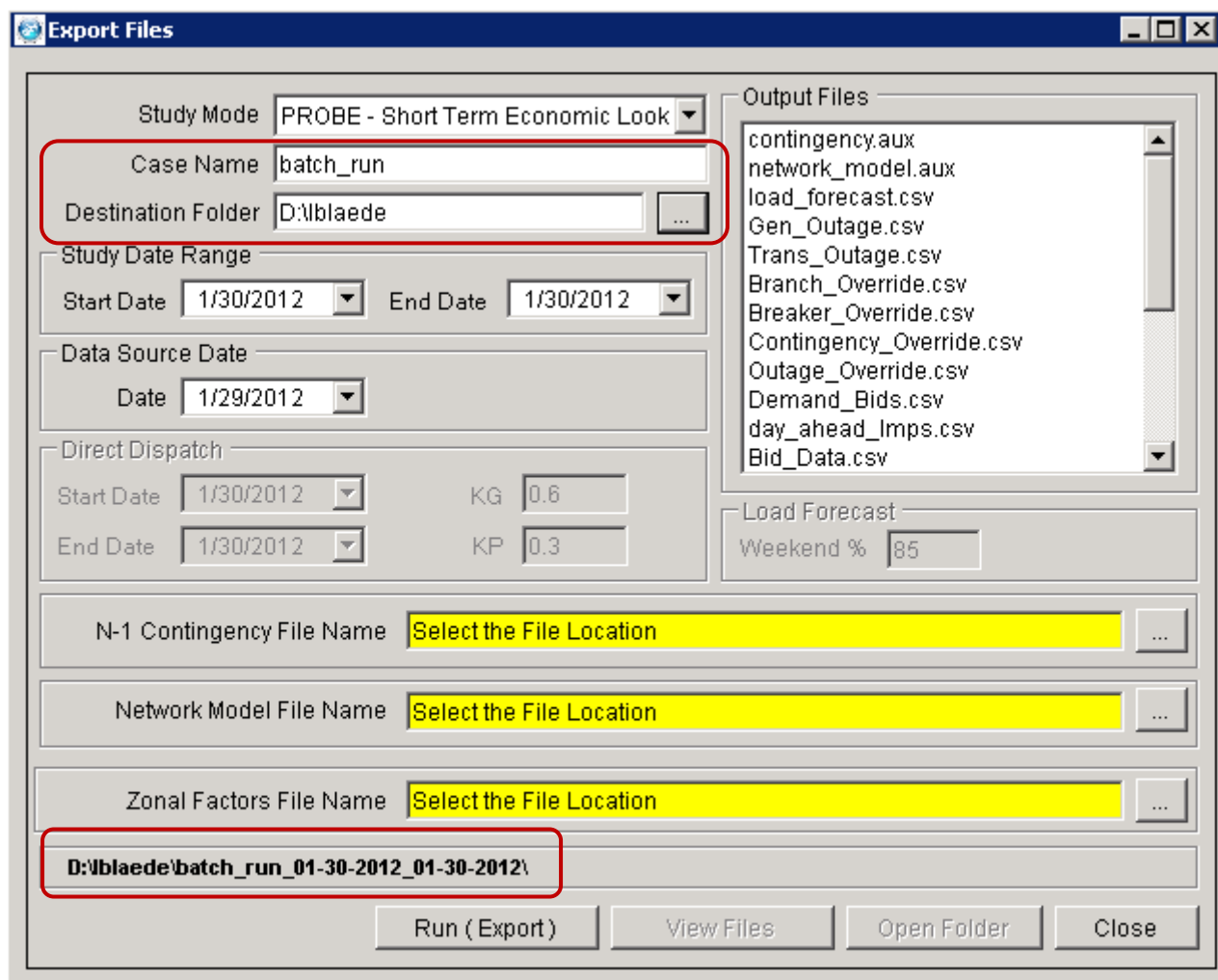
N-1 Contingency File Name: **Select the File Location**

Network Model File Name: **Select the File Location**

Zonal Factors File Name: **Select the File Location**

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

2. DEFINE Case Name and Destination Folder. The selected Study dates will be automatically appended to the resulting folder. If more than one study date is selected, there will be a folder for each study day.



Export Files

Study Mode: PROBE - Short Term Economic Look

Case Name: batch_run

Destination Folder: D:\blaeade

Study Date Range: Start Date: 1/30/2012, End Date: 1/30/2012

Data Source Date: Date: 1/29/2012

Direct Dispatch: Start Date: 1/30/2012, End Date: 1/30/2012, KG: 0.6, KP: 0.3

Load Forecast: Weekend %: 85

Output Files:

- contingency.aux
- network_model.aux
- load_forecast.csv
- Gen_Outage.csv
- Trans_Outage.csv
- Branch_Override.csv
- Breaker_Override.csv
- Contingency_Override.csv
- Outage_Override.csv
- Demand_Bids.csv
- day_ahead_lmps.csv
- Bid_Data.csv


N-1 Contingency File Name: Select the File Location

Network Model File Name: Select the File Location

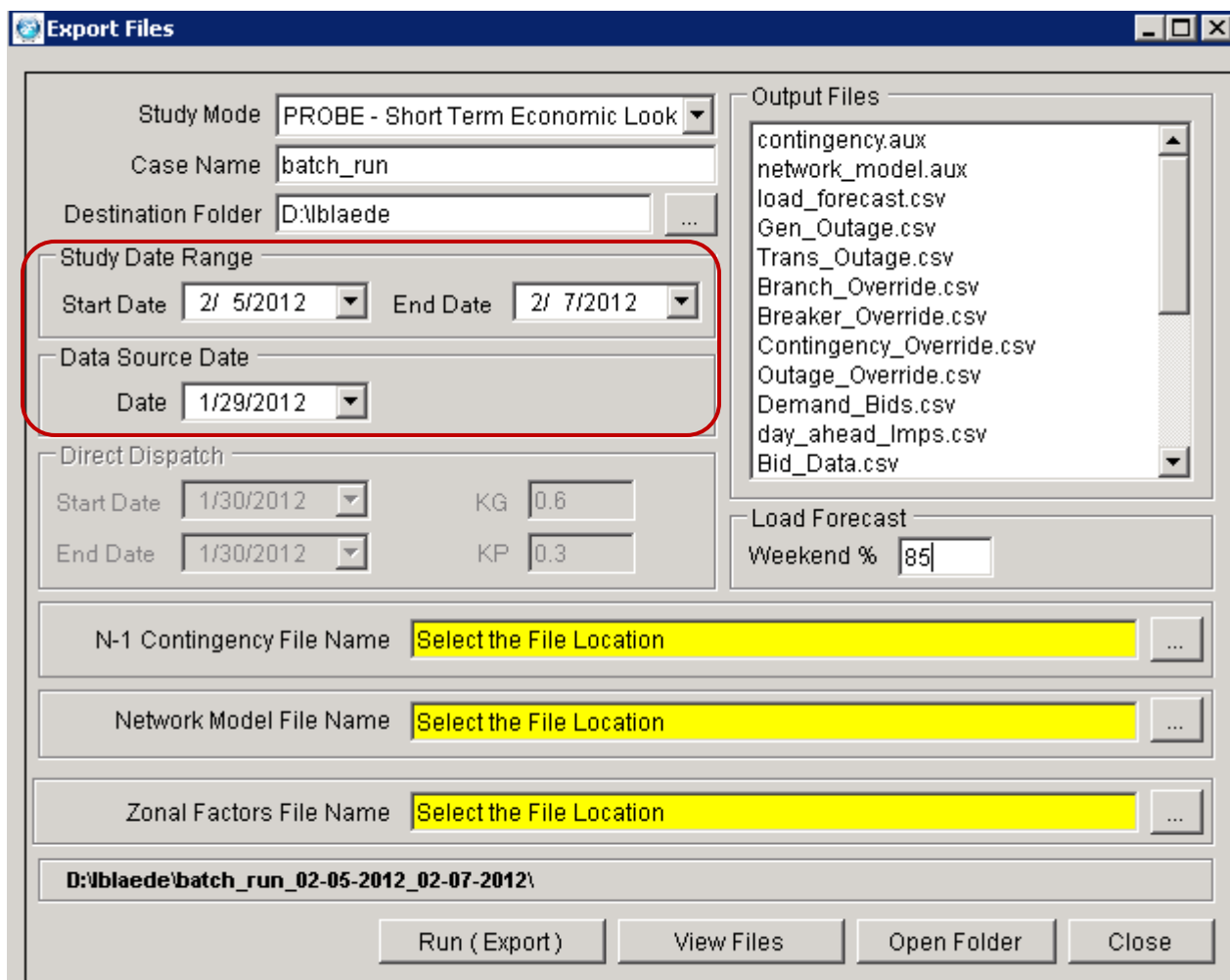
Zonal Factors File Name: Select the File Location

D:\blaeade\batch_run_01-30-2012_01-30-2012\

Run (Export) View Files Open Folder Close

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

3. DEFINE Study Date Range and Data Source Date (Market Day – used for bids/offers/transactions). The Direct Dispatch selectors are not applicable to any of the PROBE study modes and so are “grayed out”.



Export Files

Study Mode: PROBE - Short Term Economic Look

Case Name: batch_run

Destination Folder: D:\blaede

Study Date Range

Start Date: 2/ 5/2012 End Date: 2/ 7/2012

Data Source Date

Date: 1/29/2012

Direct Dispatch

Start Date: 1/30/2012 KG: 0.6

End Date: 1/30/2012 KP: 0.3

Output Files

- contingency.aux
- network_model.aux
- load_forecast.csv
- Gen_Outage.csv
- Trans_Outage.csv
- Branch_Override.csv
- Breaker_Override.csv
- Contingency_Override.csv
- Outage_Override.csv
- Demand_Bids.csv
- day_ahead_lmps.csv
- Bid_Data.csv

Load Forecast

Weekend %: 85


N-1 Contingency File Name: Select the File Location

Network Model File Name: Select the File Location

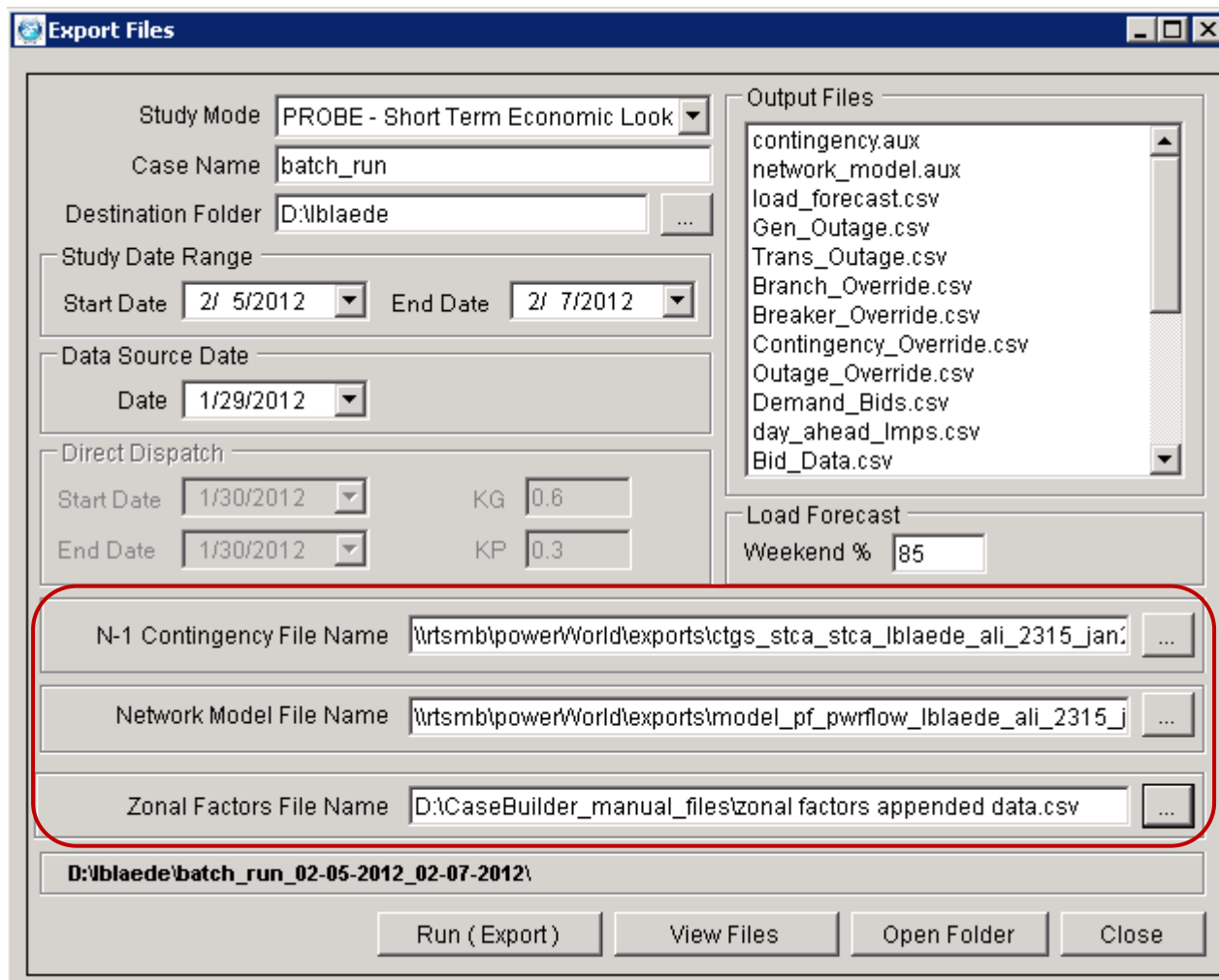
Zonal Factors File Name: Select the File Location

D:\blaede\batch_run_02-05-2012_02-07-2012\

Run (Export) View Files Open Folder Close

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

4. SELECT N-1 Contingency File, Network Model File and Zonal Factors File. Casebuilder will open the [\\rtsmb\PowerWorld\Export](#) folder where these files are saved when created from EMS. The zonal factors file should be chosen to match the month of the Study dates and are located in the casebuilder_manual_files folder.



Export Files

Study Mode: PROBE - Short Term Economic Look

Case Name: batch_run

Destination Folder: D:\blaede

Study Date Range:
Start Date: 2/ 5/2012 End Date: 2/ 7/2012

Data Source Date:
Date: 1/29/2012

Direct Dispatch:
Start Date: 1/30/2012 KG: 0.6
End Date: 1/30/2012 KP: 0.3

Output Files:
contingency.aux
network_model.aux
load_forecast.csv
Gen_Outage.csv
Trans_Outage.csv
Branch_Override.csv
Breaker_Override.csv
Contingency_Override.csv
Outage_Override.csv
Demand_Bids.csv
day_ahead_lmps.csv
Bid_Data.csv

Load Forecast:
Weekend %: 85


N-1 Contingency File Name: \\rtsmb\power\World\exports\ctgs_stca_stca_blaede_ali_2315_jan: ...

Network Model File Name: \\rtsmb\power\World\exports\model_pf_pwrflow_blaede_ali_2315_j ...

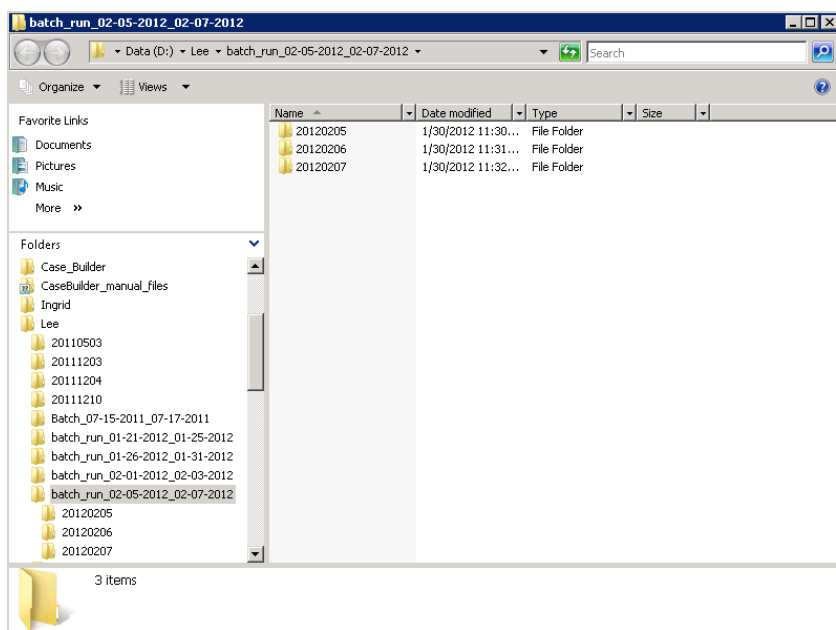
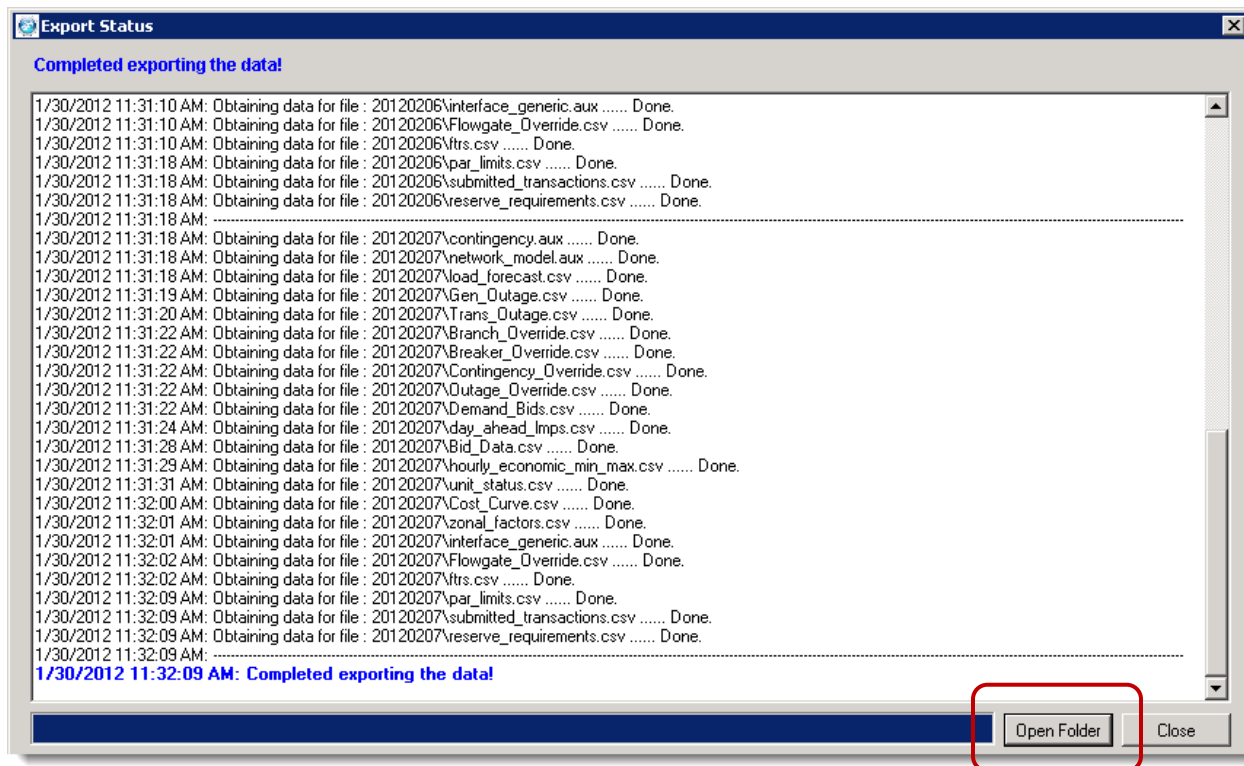
Zonal Factors File Name: D:\CaseBuilder_manual_files\zonal factors appended data.csv ...


D:\blaede\batch_run_02-05-2012_02-07-2012\

Run (Export) View Files Open Folder Close

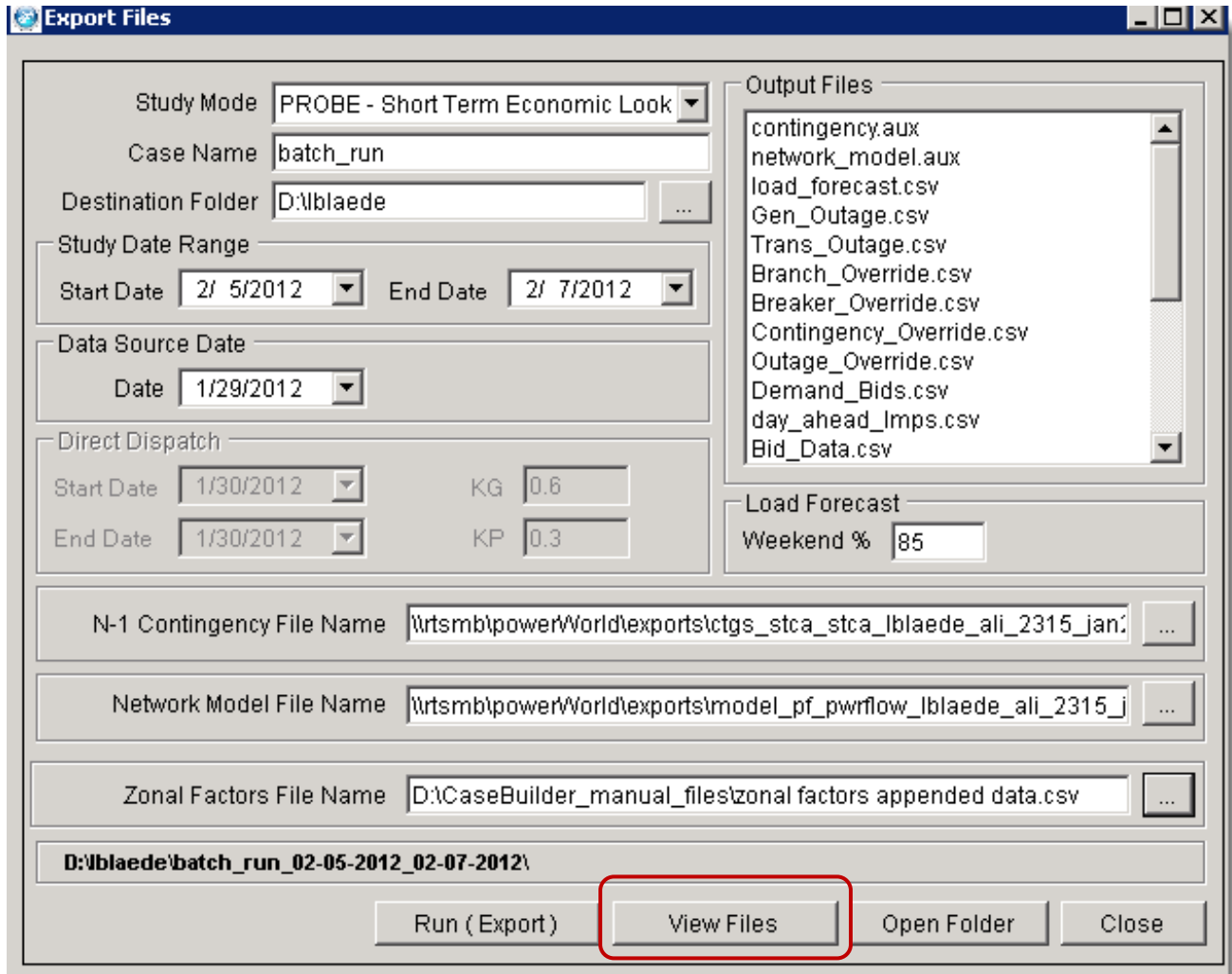
	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

- CLICK “Run (Export).” A complete set of input files will be created for each day and a folder will be created for each study day selected. Clicking “Open Folder” will open the folder



	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

6. If desired, CLICK “View Files”.



Export Files

Study Mode: PROBE - Short Term Economic Look

Case Name: batch_run

Destination Folder: D:\blaede

Study Date Range:
 Start Date: 2/ 5/2012 End Date: 2/ 7/2012

Data Source Date:
 Date: 1/29/2012

Direct Dispatch:
 Start Date: 1/30/2012 KG: 0.6
 End Date: 1/30/2012 KP: 0.3

Output Files:
 contingency.aux
 network_model.aux
 load_forecast.csv
 Gen_Outage.csv
 Trans_Outage.csv
 Branch_Override.csv
 Breaker_Override.csv
 Contingency_Override.csv
 Outage_Override.csv
 Demand_Bids.csv
 day_ahead_lmps.csv
 Bid_Data.csv

Load Forecast:
 Weekend %: 85


N-1 Contingency File Name: \\rtsmb\power\World\exports\ctgs_stca_stca_blaede_ali_2315_jan...

Network Model File Name: \\rtsmb\power\World\exports\model_pf_pwrflow_blaede_ali_2315_j...

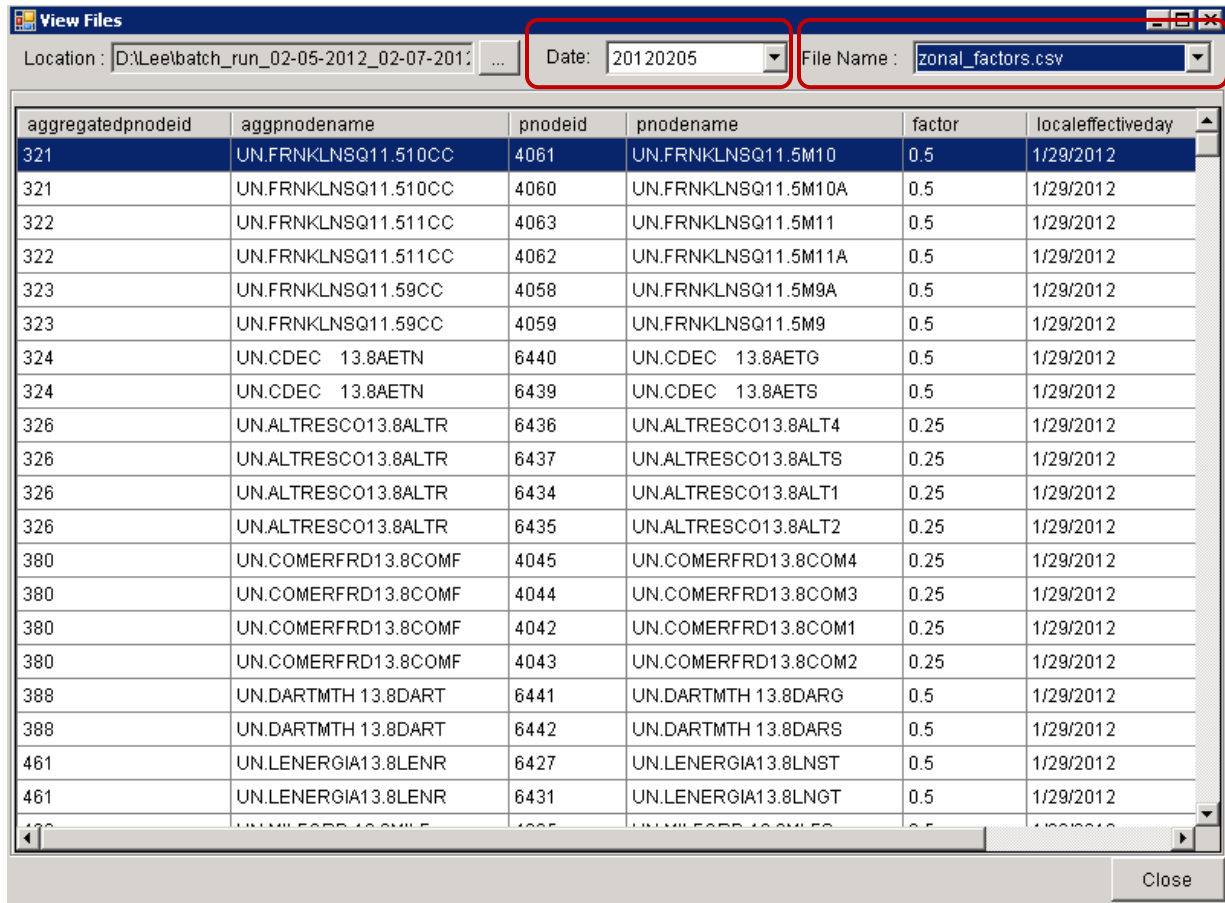
Zonal Factors File Name: D:\CaseBuilder_manual_files\zonal factors appended data.csv

D:\blaede\batch_run_02-05-2012_02-07-2012\

Run (Export) View Files Open Folder Close

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

7. SET Date (for multi-day batch runs) and the file name to view each file.




View Files

Location: D:\Leet\batch_run_02-05-2012_02-07-2012 ... Date: 20120205 File Name: zonal_factors.csv

aggregatedpnodeid	aggpnodename	pnodeid	pnodename	factor	localeffectiveday
321	UN.FRNLNSQ11.510CC	4061	UN.FRNLNSQ11.5M10	0.5	1/29/2012
321	UN.FRNLNSQ11.510CC	4060	UN.FRNLNSQ11.5M10A	0.5	1/29/2012
322	UN.FRNLNSQ11.511CC	4063	UN.FRNLNSQ11.5M11	0.5	1/29/2012
322	UN.FRNLNSQ11.511CC	4062	UN.FRNLNSQ11.5M11A	0.5	1/29/2012
323	UN.FRNLNSQ11.59CC	4058	UN.FRNLNSQ11.5M9A	0.5	1/29/2012
323	UN.FRNLNSQ11.59CC	4059	UN.FRNLNSQ11.5M9	0.5	1/29/2012
324	UN.CDEC 13.8AETN	6440	UN.CDEC 13.8AETG	0.5	1/29/2012
324	UN.CDEC 13.8AETN	6439	UN.CDEC 13.8AETS	0.5	1/29/2012
326	UN.ALTRISCO13.8ALTR	6436	UN.ALTRISCO13.8ALT4	0.25	1/29/2012
326	UN.ALTRISCO13.8ALTR	6437	UN.ALTRISCO13.8ALTS	0.25	1/29/2012
326	UN.ALTRISCO13.8ALTR	6434	UN.ALTRISCO13.8ALT1	0.25	1/29/2012
326	UN.ALTRISCO13.8ALTR	6435	UN.ALTRISCO13.8ALT2	0.25	1/29/2012
380	UN.COMERFRD13.8COMF	4045	UN.COMERFRD13.8COM4	0.25	1/29/2012
380	UN.COMERFRD13.8COMF	4044	UN.COMERFRD13.8COM3	0.25	1/29/2012
380	UN.COMERFRD13.8COMF	4042	UN.COMERFRD13.8COM1	0.25	1/29/2012
380	UN.COMERFRD13.8COMF	4043	UN.COMERFRD13.8COM2	0.25	1/29/2012
388	UN.DARTMTH 13.8DART	6441	UN.DARTMTH 13.8DARG	0.5	1/29/2012
388	UN.DARTMTH 13.8DART	6442	UN.DARTMTH 13.8DARS	0.5	1/29/2012
461	UN.LENERGIA13.8LENR	6427	UN.LENERGIA13.8LNST	0.5	1/29/2012
461	UN.LENERGIA13.8LENR	6431	UN.LENERGIA13.8LNST	0.5	1/29/2012


Close

	© <i>ISO New England Inc. 2024</i>	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

Attachment D - PROBE Batch Mode Set-up and Operation

1. NAVIGATE TO the “BatchProcess” tab in the PROBE excel spreadsheet and enter the file paths for the input files, created by casebuilder, for each study day. As an example, USE the following batch_run folder:

SET the folder paths: 20120104, 20120105....20120107 as inputs in the “DataDir” column of the BatchProcess spreadsheet and SET these dates in the “StudyDay” column:


	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

2. SET the folder paths where the reports are to be written in the “ReportDir” column. The “Combined ReportDir (if not empty)” cell is not normally used but can be if it is desired that the reports of each day’s run are to be formatted into 1 report (e.g., each day annotated to the bottom of the previous, etc.). The “MarketDay” column is not normally used:

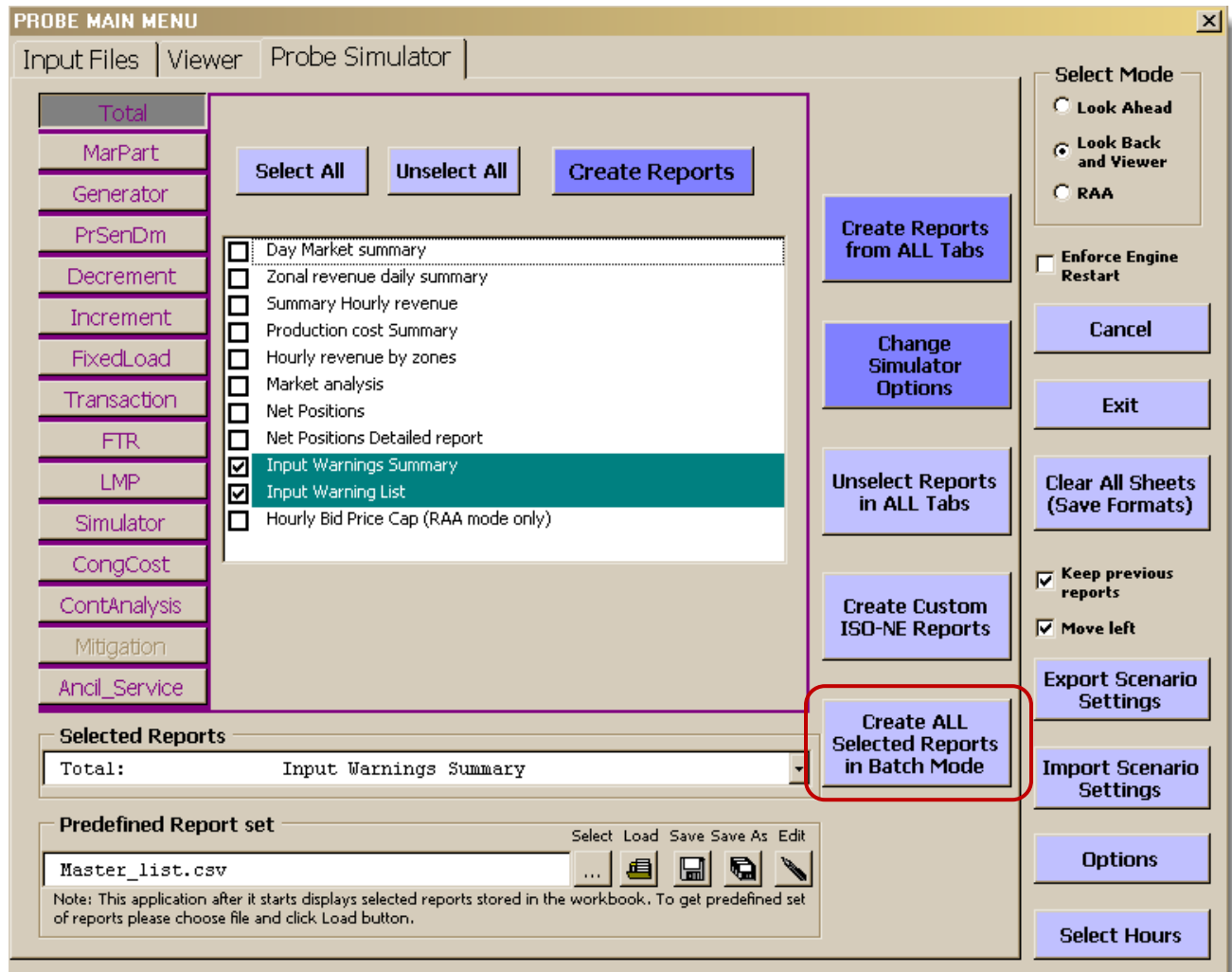
PROBE Batch Processing	Please ALWAYS include DataDir, MarketDay, ReportDir columns. ReportDir columns can be empty, if Combined ReportDir is defined Combined ReportDir or all ReportDirs should be different from any DataDir					
Combined ReportDir (if not empty)						
DataDir	MarketDay	ReportDir	Scenario1	Scenario2	Scenario3	Scenario4
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120104		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan4	BaseLn			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120105		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan5	BaseLn			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120106		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan6	BaseLn			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120107		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan7	BaseLn			


3. IDENTIFY the Scenario1, Scenario2....Scenario6 names as desired. Normal Scenario1 name will be BaseLn. If a line is back in-service for a run as a variation of the first BaseLn run...SET that as the Scenario1 name as that will serve as the ISONE report name (e.g., 1845in, etc.).

PROBE Batch Processing	Please ALWAYS include DataDir, MarketDay, ReportDir columns. ReportDir columns can be empty, if Combined ReportDir is defined Combined ReportDir or all ReportDirs should be different from any DataDir					
Combined ReportDir (if not empty)						
DataDir	MarketDay	ReportDir	Scenario1	Scenario2	Scenario3	Scenario4
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120104		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan4	1845in			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120105		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan5	1845in			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120106		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan6	1845in			
Z:\Daily market runs\Batch_run_Jan4-Jan7\20120107		Z:\Daily market runs\Batch_run_Jan4-Jan7\Results Jan7	1845in			

	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

4. CLICK “Create All Selected Reports in Batch Mode:”



	© ISO New England Inc. 2024	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

5. CLICK “Validate All Input Files” this will verify that all the files in the input folders are included and that the filepaths on the BatchProcess spreadsheet are correct.
 - a. CHECK “Use Final_unit_status...day” box, this will enable PROBE to pass the unit run histories from one day to the next
 - b. CHECK “Create Custom Reports...” box, this will create the ISONE custom reports in the results path....if the box is unchecked, all the reports selected in the PROBE Simulator tab will be created for each day.
 - c. The “Merge output reports from individual directories....” box is normally unchecked as this does not work with the ISONE custom reports.

Batch Mode Process from BatchProcess worksheet

Number of PROBE batch runs: 4

Output reports will be saved in individual directories

☒ Use Final_unit_status file from the previous day

Market Day is NOT included in every line of the reports
To change Market Day reporting, open MainMenu->Options form and make the change

Selected Reports: Warn_Sum, Warn_List, simBinding, congBidders, ConAnFG


☒ Create Custom Reports (instead of selected reports). All custom reports created after each batch run will be saved in a workbook named CustomReports_StudyDay_ScenariosNames.xlsb in the corresponding ReportDir directory

Validate ALL Input Files Run Batch Process Consecutively

Number of PROBE executables to run simultaneously, no more than 12 (Check the number of CPUs before entering): 1 Run Batch Process on Multiple Processors Simultaneously

Output reports will be saved in individual directories

Merge output reports from individual directories into defined combined directory ☐ Merge output reports from individual directories into defined combined directory automatically after batch process is completed Cancel

	© <i>ISO New England Inc. 2024</i>	Procedure: Short Term Outage Economic Analysis
	Process Name: Capture and Evaluate Outage Requests	
	Procedure Number: OUTSCH.0030.0065	Revision Number: 11
	Procedure Owner: Maya Ault	Effective Date: January 17, 2024
	Approved By: Director, OSS	Valid Through: January 17, 2026

6. CLICK “Run Batch Process Consecutively” to run PROBE on one CPU processor core OR specify the number CPU processor cores (up to 12) and click “Run Batch Process on Multiple Processors Simultaneously”. Selecting multiple processor cores speeds up the PROBE solution process significantly. When PROBE has successfully solved each day the message the following success message will be displayed:

Also, “Completed” will appear in Green to the right of ScenSetFile column. And the daily reports will be available in each results folder specified.