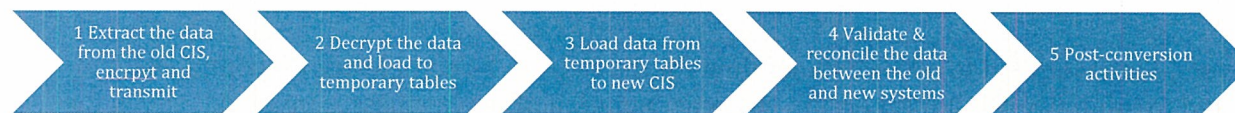




Liberty Utilities (Granite State Electric) Corp. Conversion from National Grid Report on Dress Rehearsal Conducted May 23-26, 2014

Process and objective

A key component of a utility CIS conversion is to transfer the Customer Accounts and related data from the old CIS system to the new CIS system. This process typically consists of the following steps:



These steps are standard for any CIS conversion. At the successful conclusion of step 4, the new CIS system is ready to be used for production and the cutover is a “go”. Step 5 contains activities associated with readying both Liberty and National Grid for business to open on the first business day after cutover. Step 5 activities are not included in the dress rehearsal.

Liberty has undertaken conversions of four other acquired utilities prior to the Granite State conversion, including for EnergyNorth, so the process steps and approximate timings are pre-defined and the staff performing the conversion activities are very experienced. However, the source system is different for each conversion, so each one requires a unique mapping of the data from the legacy system to the CIS system (Cogsdale) Liberty uses. Five previous data conversions were performed for Granite State prior to the Memorial Day dress rehearsal, each of which refined the data mappings, determined the data needed from National Grid’s CIS, determined the tables and fields in the new CIS into which the data should be loaded and provided estimates of the time required for these steps in the process.

There are two key objectives of the dress rehearsal which occurred on Memorial Day weekend:

- To confirm that the data has transferred correctly from the old CIS to the new CIS
- To finalize the timeline required for the critical path activities within the conversion

The first objective of the dress rehearsal is to confirm all the critical data that needs to be transferred from the old CIS to the new CIS is transferred accurately and completely. The conversion is the result of several months of effort to map the data in the old CIS to the database structure in the new CIS, write conversion programs that will load the extracted data into the new CIS correctly and test and debug those programs.

The validation of the data conversion is performed by two methods:

- Various financial and non-financial data elements are selected and totaled in the old system and the new system and the results are compared. In practice, it is rare for financial totals to match exactly due to differences between the treatment of various records in the two systems, so a tolerance level is set. Significant differences require explanation.
- A sample of accounts is viewed online in both the old CIS and the new CIS; various key data fields are visually inspected and compared in both systems. This validation serves as an additional validation that data has been accurately transferred.

The conversion takes place over a long weekend to allow enough time for the steps to be completed, for contingency to address issues that may arise and to minimize the impact on the ongoing operation of the businesses involved. Given the time that data extraction, transfer, loading and validation take, a 3-day weekend is required for the Granite State Electric conversion.

The second objective of the dress rehearsal is therefore to perform the conversion activities in conditions similar to those that will occur on the actual cutover weekend, and to time the activities. This includes performing steps 1-3 on a continuous basis for close to 48 hours, and hence involves shift systems and on-call systems to be used for key resources. The time required to complete all of the tasks in the dress rehearsal is used to finalize the timeline for the actual cutover.

Summary of results

The following is a summary of the key results of the dress rehearsal:

- 1) Financial control totals reconciled very closely and well within acceptable tolerances (\$15,000). Non-financial control totals reconciled after known adjustments. This is a very positive result.
- 2) Data validation –account balances did not match due to late payment charge discrepancies. Follow-up identified differences in the data loaded to National Grid’s online test system used during validation versus data passed to Liberty during dress rehearsal 3. Liberty and National Grid teams are investigating to prevent this issue arising during the real cutover.

- 3) Timing – expected duration of steps 2-4 was 35 hours, while the actual duration was 47 hours. Based on preliminary review, the proposed timing of steps 2-4 for cutover is 40 hours. Further review is being undertaken jointly by National Grid and Liberty.

Overall, the dress rehearsal achieved its objectives and confirmed Liberty and National Grid's readiness to proceed with the conversion of Granite State Electric's customers to Liberty's systems.

Detailed Results

The summary results of the control total reconciliation were as follows:

Item	Description	CSS Total	CSM Total	Delta	Comments
Financial Reconciliation					
1.0	Total A/R (Active/Final Customers)	\$10,730,227.80	\$10,730,981.70	-\$753.90	Within acceptable tolerance
4.4	Deposits on hand	\$664,595.17	\$660,732.17	\$1,915.00	Within acceptable tolerance for automated conversion. A manual entry will be performed post-conversion to adjust.
5.0	Budget Balances	\$333,854.25	\$333,854.25	0	Within acceptable tolerance
Non-Financial Reconciliation					
6.0	Customer count – Active customers	43424	43340	84	Telco customers – 25 Multi Premise riders – 15 other – All manually adjusted post conversion
7.1	Total # of Service Connections (excluding Street Lights)	43053	45040	1,987	Water heater connections. Configured differently in CSM.

8.1	Customer Choice - Total # of Active Marketers	17	15	2	Greenup suppliers not converted in CSM
8.2	Customer Choice - Total # of active marketer contracts	3503	3417	86	Greenup supplier customers not converted in CSM

Notes:

4.4 – a small number of deposits do not convert through the automated process and are manually entered after the automated conversion is complete

6.0 – a small number of customers are converted manually – this is more efficient than attempting to automate the conversion of every customer

7.1 – the conversion is correct – the variance is associated with a difference in the way water heaters are counted as service connections in Grid's system vs Liberty's

8.1 & 8.2 – the Greenup program is ending -herefore, these suppliers are not converted

The results of the data validation were as follows:

QA Detail Test Scripts Result						
Period 26-May-14 to 27-May-2014						
Task	Test scripts	Failed	Passed	No Run	Total Test Scripts Complete	Commence
<u>Verify Conversion Data (30 Iterations for each validation)</u>	<u>CSS Compared to CSM</u>					
	Account Balance Debit	8	22	0	30	The discrepancy is associated with late payment charges. In these cases CSS did not reflect the charge and CSM does. Issue has been traced to CSS payment detail data having not been loaded to Grid's online test system (which Liberty used for validation).
	Account Zero Bal	0	30	0	30	
	Company Use Accounts	0	9	0	9	
	Deposit	0	30	0	30	
	Equipment Id	3	27	0	30	The discrepancy is associated with D10 & D05 TOU meters and has occurred in previous conversions. Some of the TOU residentials are known to be incorrect and a post conversion script has been provided to correct these accounts which will become a part of the Cutover activity post data conversion.
	Customer Class	0	30	0	30	
	Multipliers Greater than 1	0	30	0	30	
	Name Commercial	0	30	0	30	
	Name Residential	0	30	0	30	
	Open SO Current Customer	0	30	0	30	
	Budget	0	30	0	30	
<u>CSM Validation (10 iterations)</u>	<u>CSM Rates Mapping</u>					
	Commercial -G1	0	10	0	10	
	Residential -D	0	10	0	10	
	Commercial -G2	0	10	0	10	
	Commercial -G3	0	10	0	10	
	Farm Rates	0	10	0	10	
	Low income Rate	0	10	0	10	
	Water Heater Rates	0	10	0	10	
	Streetlight Rates	0	10	0	10	

The results of the timing of the dress rehearsal were as follows:

DR 3 - Timelines in hours

Milestone	Step	Critical Path?	Planned	Actual	July 7th	Comments
NG Extract - Priority 1 Tables Delivered	1	Yes				National Grid activity
NG Extract - Priority 2 Tables - Delivered	1					National Grid activity
Pre- Transformation	2	Yes	5.4	6.6	6.6	1 hr. delay due to pipe characters
Transformation (Load to Intermediate Tables)*	2	Yes	9.0	13.6	11.6	Configuration issues encountered which took 4.5 hours to resolve. These issues are normal but took longer to resolve during DR3 because some required resources were not immediately available. Estimated impact on the real cutover is + 2 hours.
CSM - Table Load	3	Yes	14	21	16	Issues encountered with loading beginning balances, EFT and equipment tables – delays totaled seven hours. These delays were partly due to a handoff between two resources at a shift change. Estimated impact on the real cutover is + 2 hours.
Data Validation						
Control Totals	4		4	4	4	
CSS/CSM Validation	4	Yes	5	5	5	
Smoke Tests	4	Yes	3	3	3	
CSS Validation	4	Yes	1	1	1	
Total			35	47	40	

*Activity starts 2.5 hrs. into Pre-transformation Task, after the decryption and load of priority 1 tables. Hence only 2.5 hours of this task counts towards the critical path.

For the dress rehearsal, resources are expected to be reachable to resolve issues but are not necessarily immediately available during the night. For the real cutover, although there is a shift system, given the continuous nature of the conversion all required resources are expected to be available immediately during the entire period to minimize delays.