

The Narragansett Electric Company
d/b/a Rhode Island Energy

**Proposed FY 2025 Electric
Infrastructure, Safety, and
Reliability Plan**

**Responses to Division
Data Requests Set 1**

Book 2 of 3

December 21, 2023

Docket No. 23-48-EL

Submitted to:
Rhode Island Public Utilities Commission

Submitted by:



Rhode Island Energy™

a PPL company

December 21, 2023

VIA ELECTRONIC MAIL AND HAND DELIVERY

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

**RE: Docket No. 23-48-EL – The Narragansett Electric Company d/b/a
Rhode Island Energy’s Proposed FY 2025 Electric Infrastructure, Safety, and
Reliability Plan**

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy (the “Company”), enclosed is the Company’s proposed Electric Infrastructure, Safety, and Reliability Plan (the “Electric ISR Plan” or “Plan”) for fiscal year (“FY”) 2025 for review and approval by the Public Utilities Commission (“PUC” or “Commission”). This Electric ISR Plan is being filed in accordance with R.I. Gen. Laws § 39-1-27.7.1(d).¹ The Company respectfully requests that the PUC approve the enclosed Electric ISR Plan as filed.

On October 13, 2023, the Company submitted an earlier version of the enclosed Electric ISR Plan to the Division of Public Utilities and Carriers (“Division”). In accordance with R.I. Gen. Laws § 39-1-27.7.1(d), the Division worked in cooperation with the Company to reach an agreement on a proposed plan to be filed with the Commission. Specifically, the Company consulted with the Division’s representatives and received and responded to discovery requests from the Division. As a result of this process, the earlier version of the Plan was refined resulting in the enclosed Electric ISR Plan. The Division has indicated general concurrence with the enclosed Electric ISR Plan.

In support of the Electric ISR Plan, the Company has included joint pre-filed direct testimony of Witnesses Nicole Gooding, Christopher Rooney, Kathy Castro, Ryan Constable, Eric Wiesner, and Daniel Glenning (“Joint Testimony”). As explained in their joint testimony, the Company is proposing spending of \$140.9 million for capital investment (approved FY 2024 was \$112.3 million); \$13.1 million of vegetation management O&M spending (approved FY 2024 was \$13.95 million); and \$1.1 million of Other O&M spending (approved FY 2024 was \$1.16 million).

¹ In accordance with R.I. Gen. Laws § 39-1-27.7.1(d), the enclosed Plan addresses (i) capital spending on electric infrastructure; (ii) operation and maintenance (“O&M”) expenses on vegetation management; (iii) O&M expenses on system inspection; and (iv) other costs related to maintaining the safety and reliability of the electric distribution system (“Other O&M”). In accordance with R.I. Gen. Laws § 39-1-27.7.1(c)(2), the enclosed Plan also addresses revenue requirement, rate design, and bill impacts.

In addition, the Plan includes a line item for Advanced Metering Functionality (“AMF”) capital spending of \$51.7 million which, when added to the \$140.9 million of capital investment, results in total capital spending contained within the FY 2025 Electric ISR Plan of \$192.6 million.²

The Company’s FY 2025 Electric ISR Plan total net capital investment component of the revenue requirement is \$54.2 million (approved FY 2024 was \$55.4 million). Separately, the total net capital investment component of the AMF revenue requirement for FY 2025 is \$4.7 million; however, that amount is fully offset by deferral balances, and does not have an impact on rates in FY 2025. Please note that, in this case, the revenue requirement calculation also includes an adjustment for the tax hold harmless impact on ISR rate base. The Company has included joint pre-filed direct testimony of Witnesses Stephanie A. Briggs, Jeffrey D. Oliveira, and Natalie Hawk that describes the calculation of the Company’s revenue requirement and tax hold harmless impact.

For a residential customer receiving Last Resort Service (“LRS”), and using 500 kWh per month, implementation of the proposed ISR factors will result in a monthly bill decrease of \$0.16, or -0.1%. As mentioned above, the inclusion of AMF capital spending in the Plan does not have an impact on the rates this fiscal year. The Company has included pre-filed direct testimony of Witness Tyler Shields to describe the customer bill impacts of the proposed rate changes.

The Company is also enclosing copies of the Company’s responses to six sets of discovery issued by the Division pertaining to the Plan. Please be advised that Attachments DIV 1-23; DIV 1-24-2 through DIV 1-24-16; DIV 2-5-4 through DIV 2-5-6; DIV 2-14-1 through DIV 2-14-6; DIV 2-27-3; DIV 2-30-1; and DIV 2-31-1 through DIV 2-31-3 contain confidential and privileged information. For DIV 1-24-2 through DIV 1-24-16, the Company is reviewing the attachments for Critical Energy Infrastructure Information (“CEII”). Following completion of its review, which is anticipated to be by January 31, 2024, the Company will amend the pertinent Motion and provide updated public versions of the attachments.

Pursuant to 810-RICR-00-00-1.3(H)(3), R.I. Gen. Laws § 38-2-2(4)(A)(I)(b), and R.I. Gen. Laws § 38-2-2(4)(B), the Company respectfully requests that the Commission treat the information redacted in the public version as confidential.

In support of this request, the Company has enclosed four (4) Motions for Protective Treatment of Confidential Information. In accordance with 810-RICR-00-00-1.3(H)(2), the Company also respectfully requests that the Commission make a preliminary finding that the information redacted in the public version is exempt from the mandatory public disclosure requirements of the Rhode Island Access to Public Records Act (“APRA”).

² The proposed ISR Plan capital investments, and the forecasts of future years’ capital investments contained within the ISR Plan, do not represent the total amount of capital investment anticipated by the Company in this year and future years. In this ISR Plan, the proposed capital investments and forecasts of future capital investments only include those amounts that the Company has proposed, or, with respect to future years, plans to propose, to recover through the ISR mechanism.

Luly E. Massaro, Commission Clerk
Docket No. 23-48-EL – FY 2025 Electric ISR Plan
December 21, 2023
Page 3 of 3

Also included in this filing, attached as an exhibit to the Joint Testimony, is the Company's Second Proposed Electric ISR Plan Budgetary and Reconciliation Framework for review by the Commission. This filing stems from Docket No. 23-34-EL. The Company respectfully requests that the Commission approve the proposed framework.

Thank you for your attention to this transmittal. If you have any questions or concerns, please do not hesitate to contact me at 401-784-4263.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrew S. Marcaccio".

Andrew S. Marcaccio

Enclosures

cc: Docket No. 23-48-EL Service List
John Bell, Division (w/confidential information)
Greg Booth, Division (w/confidential information)
Christy Hetherington, Esq.
Al Contente, Division

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

THE NARRAGANSETT ELECTRIC COMPANY)	
d/b/a RHODE ISLAND ENERGY'S FY 2025 ELECTRIC)	DOCKET NO. 23-48-EL
INFRASTRUCTURE, SAFETY AND)	
RELIABILITY PLAN)	

**MOTION OF THE NARRAGANSETT ELECTRIC COMPANY D/B/A
RHODE ISLAND ENERGY FOR PROTECTIVE TREATMENT OF
CONFIDENTIAL INFORMATION**

The Narragansett Electric Company d/b/a Rhode Island Energy (the "Company") hereby respectfully requests that the Public Utilities Commission ("PUC") grant protection from public disclosure certain confidential information submitted by the Company in the above referenced docket. The reasons for the protective treatment are set forth herein. The Company also requests that, pending entry of that finding, the PUC preliminarily grant the Company's request for confidential treatment pursuant to 810-RICR-00-00-1.3(H)(2).

The record that are the subject of this Motion that requires protective treatment from public disclosure is the Company's confidential Attachment DIV 1-23 (the "Confidential Attachment") which was submitted to the Division of Public Utilities and Carriers ("Division") in response to the First Set of Data Requests issued by the Division during the pre-filing stage and then filed by the Company in the above referenced docket on December 21, 2023. The Company requests protective treatment of the Confidential Attachment in accordance with 810-RICR-00-00-1.3(H) and R.I. Gen. Laws § 38-2-2-(4)(A)(I)(b).

I. LEGAL STANDARD

For matters before the PUC, a claim for protective treatment of information is governed by the policy underlying the Access to Public Records Act ("APRA"), R.I. Gen. Laws § 38-2-1 et seq. See 810-RICR-00-00-1.3(H)(1). Under APRA, any record received or maintained by a state

or local governmental agency in connection with the transaction of official business is considered public unless such record falls into one of the exemptions specifically identified by APRA. See R.I. Gen. Laws §§ 38-2-3(a) and 38-2-2(4). Therefore, if a record provided to the PUC falls within one of the designated APRA exemptions, the PUC is authorized to deem such record confidential and withhold it from public disclosure.

II. BASIS FOR CONFIDENTIALITY

The Confidential Attachment, which is the subject of this Motion, is exempt from public disclosure pursuant to R.I. Gen. Laws § 38-2-2(4)(A)(I)(b) as “[p]ersonnel and other personal individually identifiable records otherwise deemed confidential by federal or state law or regulation, or the disclosure of which would constitute a clearly unwarranted invasion of personal privacy pursuant to 5 U.S.C. § 552 et seq...” This exemption represents a balancing test between the individual's privacy interests and the public's right to disclosure. See 2016 WL 499007, at *4 (R.I.A.G. Feb. 2, 2016) which states that “[t]he Supreme Court thus determined that the legislative intent represented a balancing test between the individual's privacy interests and the public's right to disclosure.”

In this case, the Confidential Attachment consists of the names of private citizens who, at the time the document was created, were employed by National Grid. Releasing the names reveals little or nothing about the utility's performance or official business. As such, the public gains very little, if any, value by knowing the names. The material substance of the document, which consists of sanctioning processes, remains intact without public disclosure of the redacted names. Accordingly, when performing a balancing test, the public's right to disclosure in this case is insignificant.

If the names of the individual private citizens are released, the public would know the citizen's employer or former employer, position that was held at the time, and role in the sanctioning process at the time. While this harm may not be significant, it outweighs the value to the public in this case. Therefore, in this case, this type of information satisfies the exception found in R.I. Gen. Laws § 38-2-2(4)(A)(I)(b).

III. CONCLUSION

For the foregoing reasons, the Company respectfully requests that the PUC grant this motion for protective treatment of the Confidential Attachment.

Respectfully submitted,

**The Narragansett Electric Company
d/b/a Rhode Island Energy**

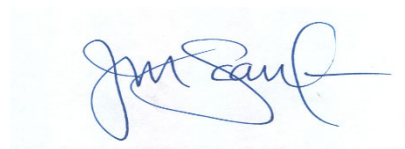
By its attorney,



Andrew S. Marcaccio (#8168)
Rhode Island Energy
280 Melrose Street
Providence, RI 02907
(401) 784-4263

CERTIFICATE OF SERVICE

I hereby certify that on December 21, 2023, I delivered a true copy of the foregoing Motion via electronic mail to the parties on the Service List for Docket No. 23-48-EL.

A handwritten signature in blue ink, appearing to read "Joanne Scanlon", is centered on the page. The signature is fluid and cursive.

Joanne M. Scanlon

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

THE NARRAGANSETT ELECTRIC COMPANY)	
d/b/a RHODE ISLAND ENERGY'S FY 2025 ELECTRIC)	DOCKET NO. 23-48-EL
INFRASTRUCTURE, SAFETY AND)	
RELIABILITY PLAN)	

**MOTION OF THE NARRAGANSETT ELECTRIC COMPANY D/B/A
RHODE ISLAND ENERGY FOR PROTECTIVE TREATMENT OF
CONFIDENTIAL INFORMATION**

The Narragansett Electric Company d/b/a Rhode Island Energy (the “Company”) hereby respectfully requests that the Public Utilities Commission (“PUC”) grant protection from public disclosure certain confidential information submitted by the Company in the above referenced docket. The reasons for the protective treatment are set forth herein. The Company also requests that, pending entry of that finding, the PUC preliminarily grant the Company’s request for confidential treatment pursuant to 810-RICR-00-00-1.3(H)(2).

The records that are the subject of this Motion that require protective treatment from public disclosure are the Company’s confidential Attachments DIV 1-24-2 through DIV 1-24-16 (collectively, the “Confidential Attachments”) which were submitted to the Division of Public Utilities and Carriers (“Division”) in response to the First Set of Data Requests issued by the Division during the pre-filing stage and then filed by the Company in the above referenced docket on December 21, 2023. The Company requests protective treatment of the Confidential Attachments in accordance with 810-RICR-00-00-1.3(H) and R.I. Gen. Laws § 38-2-2-(4)(B).

I. LEGAL STANDARD

For matters before the PUC, a claim for protective treatment of information is governed by the policy underlying the Access to Public Records Act (“APRA”), R.I. Gen. Laws § 38-2-1 et seq. See 810-RICR-00-00-1.3(H)(1). Under APRA, any record received or maintained by a state

or local governmental agency in connection with the transaction of official business is considered public unless such record falls into one of the exemptions specifically identified by APRA. See R.I. Gen. Laws §§ 38-2-3(a) and 38-2-2(4). Therefore, if a record provided to the PUC falls within one of the designated APRA exemptions, the PUC is authorized to deem such record confidential and withhold it from public disclosure.

II. BASIS FOR CONFIDENTIALITY

The Confidential Attachments, which are the subject of this Motion, are exempt from public disclosure pursuant to R.I. Gen. Laws § 38-2-2(4)(B) as “[t]rade secrets and commercial or financial information obtained from a person, firm, or corporation that is of a privileged or confidential nature.” The Rhode Island Supreme Court has held that this confidential information exemption applies where the disclosure of information is likely either (1) to impair the government’s ability to obtain necessary information in the future; or (2) to cause substantial harm to the competitive position of the person from whom the information was obtained. *Providence Journal v. Convention Center Authority*, 774 A.2d 40 (R.I. 2001). The first prong of the test is satisfied when information is provided to the governmental agency and that information is of a kind that would customarily not be released to the public by the person from whom it was obtained. *Providence Journal*, 774 A.2d at 47.

The Confidential Attachments consist of sanctioning papers which contain financial and commercial information and Critical Energy Infrastructure Information (“CEII”).¹ The Company would customarily not release this information to the public. The Company’s submission of the Confidential Attachments stem from data requests issued by the Division in the above-referenced

¹ The Company is reviewing the Confidential Attachments for CEII. Following the completion of its review, which is anticipated to be by January 31, 2024, the Company will amend this Motion and provide updated public versions of the Confidential Attachments.

docket. Accordingly, the Company is providing the Confidential Attachments to fulfil its regulatory responsibilities.

Public disclosure of the information identified as CEII in the Confidential Attachments would negatively impact the Company's ability to effectively operate to provide safe and reliable service to its customers as CEII means a system or asset of the bulk-power system, whether physical or virtual, the incapacity or destruction of which would negatively affect national security, economic security, public health or safety, or any combination of such matters. As such, the Company would not release this information to the public. Therefore, this information satisfies the exception found in R.I. Gen. Laws § 38-2-2(4)(B).

III. CONCLUSION

For the foregoing reasons, the Company respectfully requests that the PUC grant this motion for protective treatment of the Confidential Attachments.

Respectfully submitted,

**The Narragansett Electric Company
d/b/a Rhode Island Energy**

By its attorney,

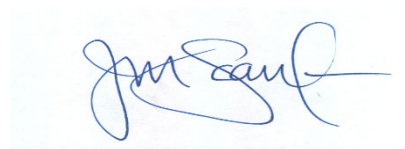


Andrew S. Marcaccio (#8168)
Rhode Island Energy
280 Melrose Street
Providence, RI 02907
(401) 784-4263

Dated: December 21, 2023

CERTIFICATE OF SERVICE

I hereby certify that on December 21, 2023, I delivered a true copy of the foregoing Motion via electronic mail to the parties on the Service List for Docket No. 23-48-EL.



Joanne M. Scanlon

Andrew S. Marcaccio, Counsel
PPL Services Corporation
AMarcaccio@pplweb.com

280 Melrose Street
Providence, RI 02907
Phone 401-784-7263



November 14, 2023

VIA ELECTRONIC MAIL

Luly E. Massaro, Division Clerk
Division of Public Utilities and Carriers
89 Jefferson Boulevard
Warwick, RI 02888

**RE: Docket No. TBD - Rhode Island Energy's Proposed FY 2025 Electric Infrastructure, Safety, and Reliability Plan
Responses to Division Data Requests – Set 1**

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy (the "Company"), enclosed are the Company's responses to the Division of Public Utilities and Carriers' ("Division's") First Set of Data Requests in the above-referenced matter.

Please note that portions of Attachment DIV 1-23 and Attachments DIV 1-24-2 through DIV 1-24-16 are considered confidential. The confidential versions will be sent via a secured link and are subject to the universal Non-Disclosure Agreement between the Company and the Division. The Company will review Attachments DIV 1-24-2 through DIV 1-24-16 for CEII. Once its review is complete, the Company will release the public versions of those attachments.

Thank you for your attention to this filing. If you have any questions, please contact me at 401-784-4263.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrew S. Marcaccio".

Andrew S. Marcaccio

Enclosures

cc: Gregory Shultz, Esq.
Christy Hetherington, Esq.
John Bell, Division
Greg Booth, Division
Al Contente, Division

Division 1-1

Request:

In executable format, please provide the underlying reliability data for:

- a. Attachment 4-Chart 1
- b. Attachment 4-Chart 2
- c. Attachment 4-Chart 5
- d. Attachment 4-Chart 6

Response:

Please see these attachments for the underlying reliability data in executable format:

- a. Attachment DIV 1-1-1 for Attachment 4-Chart 1
- b. Attachment DIV 1-1-2 for Attachment 4-Chart 2
- c. Attachment DIV 1-1-3 for Attachment 4-Chart 5
- d. Attachment DIV 1-1-4 for Attachment 4-Chart 6

Division 1-2
Area Planning Studies

Request:

Provide the Company's most recent load projections for feeders and substation transformers in executable format.

Response:

Attachment DIV 1-2 includes the most recent load projections for feeders and substation transformers in executable format.

Division 1-3
Area Planning Studies

Request:

RIE's 2022 system peak demand was 1,858 MW, considered 126 MW above the peak the company would have experienced under normal weather (2023 Electric Peak Forecast report, pp 4-5). Did the Company experience higher demands in geographic areas that prompted additional studies or updates to Area Studies? Did the higher demand prompt acceleration of any capacity projects identified in Area Studies or otherwise?

Response:

No, the Company did not experience higher demands in geographic areas that prompted additional studies or updates to Area Studies as a result of the system state peak demand being higher than the normal weather forecast. While the actual weather may have been higher than a normal weather case, the Company plans for extreme weather (ISR Plan, page 9-10). The extreme weather value for 2022 is 1,956 MW, or 97 MWs higher than the actual weather. The higher system demand did not prompt acceleration of any capacity projects identified in Area Studies or otherwise.

The response to Division 1-4 explains how changing circumstances can affect area study work.

Division 1-4
Area Planning Studies

Request:

On page 4 the Company states area studies are reviewed for changing circumstances. On page 7 the Company says forecasts are developed annually. Explain how the new forecasts are incorporated in the area study analysis and determination of project need and timing.

Response:

On page 4 the Company states that the work plan is continually updated for future years based on issues identified, changing circumstances, and outcomes of area studies, not area studies.

On pages 9-10 the Company explains how annual forecasts, adjusted for known spot loads, are used in Annual Capacity Reviews and how the output of this analysis is used to assess and adjust large projects recommended through Area Studies:

“In addition, during each year’s capacity review, the implementation schedule of large projects recommended through Area Planning Studies is assessed and adjusted if conditions indicate an adjustment is needed. This process validates and confirms the need date and implementation schedule of capacity related projects before inclusion in the ISR Plan.” The quote above is in relation to the annual planning effort, however one of the steps to create the annual plan is incorporation of the forecast (page 9).

There have been several loads, or other circumstances, that have resulted in slight changes to the scope or timing of area study recommendations. Below are some examples:

- A large new housing development in East Providence was interconnected adding approximately 2.4MVA of load. Due to this large development, the Company had to accelerate significant reconductoring along Wampanoag Trail and the addition of pole top equipment that was initially proposed in the East Bay Study plan.
- In order to complete work for the Admiral Street substation project load has been temporarily transferred to the Johnston 18F5, 18F7, and 18F9 feeders until new 12.47 kV capacity becomes available. During this temporary period, several new load interconnections to the area have prompted the need to expedite some of the proposed work in the Providence study and re-arrange the feeders to ensure proper loading levels.

Division 1-5
Area Planning Studies

Request:

Has each CYME model been revised to reflect the latest forecast? If yes, provide a copy of each model?

Response:

No, the CYME models have not been revised to reflect the latest forecast. As described in the ISR Plan, pages 9-10, the annual planning process, which incorporates that latest forecast, is used to refine the area study work. Division 1-4 includes additional information on how changing circumstances can affect area study work. Updating all the CYME models yearly for the latest forecast would result in unnecessary or marginal value work.

The Company does note that as the distribution system becomes more complex, there will be a need for yearly, monthly, weekly, and even daily loadflow model updates. The need for advanced tools and data processing to achieve this functionality is noted within the Company's Grid Modernization Plan. Once this functionality is obtained, yearly forecast data can also be incorporated into the updates.

Division 1-6
Area Planning Studies

Request:

Explain how the DER impacts as stated on page 8 are reflected in the area studies and the CYME models.

Response:

Each area study describes how the DER and the forecasts that include the DER are included in the analysis. For example, Section 3.2 of the Blackstone Valley South study includes:

“The study area is summer peaking and summer limited, during which the peak electrical demand is approximately 200MVA. This study used the 2020 forecast developed by Rhode Island Energy, the “2020 New England Electric Peak Forecast”. It utilized the 95/5 extreme weather scenario case after Distributed Energy Resource Impacts. This includes forecast impacts from distributed generation, energy efficiency, demand response, electric vehicles, and heating electrification. Table 3.1 shows the forecasted load growth rate for the study area from 2020 to 2035.”

This section of the study also includes a distributed generation table.

The forecast values inclusive of DER are included in the study CYME models for summer peak analysis. The Company has explained in past dockets and most recently in the Grid Modernization Plan, Docket No. 22-56-EL, the need for advanced data processing and modeling tools to better model DER in the CYME models. Specifically, the Grid Modernization Plan details how the DER can be modeled by technology and with 8760 hour per year data, but current data and software limitations require an unsustainable significant manual effort to perform this modeling.

Division 1-7
Area Planning Studies

Request:

Provide a detailed list of any changes to area studies, as compared to the original study, that resulted from the Company performing the five tasks listed on page 9 of the ISR Plan.

Response:

The Company does not track the changes to area study recommendations, as compared to the original study, that resulted from the Company performing the five tasks listed on page 9 of the ISR Plan.

The Company's response to Division 1-4 provides examples of how changing circumstances that are often identified by the five tasks on page 9 of the ISR Plan can affect the area study recommendations.

Division 1-8
Area Planning Studies

Request:

Explain how the annual capacity reviews noted on page 10 of the ISR Plan filing will be reflected in the FY 2025 ISR Plan and why they were not completed prior to submission of the proposed plan.

Response:

Each ISR Plan filing is informed by an annual plan. For instance, the FY2025 ISR Plan is informed by the 2023 annual plan, which is based on 2022 actual values. The 2024 annual plan, which is based on 2023 actual values, will not be completed until February 2024. This is a practical matter related to the timing of the yearly annual plan and the timing of the yearly ISR Plan filing. The summer peak in any year is not determined until the end of September. The forecast informed by this summer peak is typically completed by November of each year. Then the data processing and analysis is completed by February. The 2024 annual plan will inform the FY2026 ISR Plan.

Division 1-9
Area Planning Studies

Request:

Provide a detailed list of each change and update reflected in the area studies for load changes and DER updates from the original area studies completed. Additionally, explain how the subject matter experts in Engineering and Operations have reflected these changes in each area study.

Response:

The Company does not track the changes to area study recommendations that resulted from load changes and DER updates from the original area studies completed. The response to Division 1-4 provides examples of how untracked changing circumstances can affect the area study recommendations.

Division 1-10
Area Planning Studies

Request:

Explain in detail how the load forecast loading is distributed across all the distribution circuits.

Response:

The data in Appendix F of the 2023 Electric Peak Forecast is used to apply the forecast across all the distribution circuits. Since Rhode Island has fairly consistent weather across the state, the weather adjustment is common to all feeders. For economic growth, Rhode Island is divided into four Power Supply Areas (PSA) and each PSA receives regional factors. All feeders within a PSA receive that PSA's economic growth factors.

Division 1-11
Area Planning Studies

Request:

Explain how the AMF data once available will be utilized to distribute the load across all the distribution feeders.

Response:

AMF data will not necessarily be used to change how load is distributed between the feeders, but will be used to refine how load is distributed within a feeder. Each feeder has a peak load value that is used to allocate the load to service transformer points along each feeder branch. The peak value is allocated using a variety of approximation methods including service transformer energy and service transformer nameplate rating. Over time and with the proper software tools, AMF data will eliminate the need to use these approximation methods.

Division 1-12
Area Planning Studies

Request:

RIE states that Area Studies resulted in a variety of work to address System Capacity violations and Asset Condition issues including 13 station rebuilds, 3 station expansions, and 3 new stations (page 11). Provide a list of each substation project by the category (rebuild, expansion, new). Provide the actual/expected implementation schedule and cost by year for each project.

Response:

Please see Attachment DIV 1-12 showing the 13 station rebuilds, 3 station expansions, and 3 new stations that resulted from the Area Studies and their projected cash flows.

	Category	Substation	Area Study	Prior Years Spend	FY2024 Budget	FY2025 Budget	FY2026 Budget	FY2027 Budget	FY2028 Budget	FY2029 Budget	FY2030 Budget
1	Rebuild	Apponaug Substation	Central RI East	-	-	150	1,120	1,980	1,750	700	-
2	Rebuild	Admiral Substation	Providence	2,731	2,784	8,013	-	-	-	-	-
3	Rebuild	Auburn Substation	Providence	-	-	-	-	832	1,663	4,989	832
4	Rebuild	Phillipsdale Substation	East Bay	-	-	100	5,728	7,240	1,448	324	-
5	Rebuild	Centerdale Substation	Northwest RI	-	-	350	2,125	1,725	432	350	-
6	Rebuild	Hospital Substation	Newport	-	-	320	2,064	2,680	296		-
7	Rebuild	Kingston Substation	Newport	-	-	400	3,361	8,403	1,681	2,961	-
8	Rebuild	Coventry Substation	Central RI West	-	-	200	976	1,627	451	-	-
9	Rebuild	Hope Substation	Central RI West	-	-	209	560	1,181	1,280	-	-
10	Rebuild	Division Substation	Central RI West	-	-	500	1,494	2,986		-	-
11	Rebuild	Anthony Substation	Central RI West	-	-	350	1,516	1,116	738	-	-
12	Rebuild	Natick Substation	Central RI West	-	-	50	361	602	191	-	-
13	Rebuild	Warwick Mall Substation	Central RI West	-	-	150	856	1,427	421	-	-
14	Expansion	Warren Substation	East Bay	675	632	2,050	866	531	111	-	-
15	Expansion	Nasonville Substation	Northwest RI		1,875	3,566	3,100	489		-	-
16	Expansion	Chase Hill Substation	South County West	-	-	-	1,006	2,012	1,006	1,006	-
17	New	First Street Substation	East Bay	892	847	2,685	1,729	2,952	847	-	-
18	New	Lafayette Substation	South County East	3,774	500	160	3,186	151	-	-	-
19	New	Weaver Hill Substation	Central RI West	-	570	855	903	950	380	27	-

*Please note, projected spend is in \$000s.

Division 1-13
System Reliability & Procurement

Request:

Regarding the History of System Reliability Procurement table (page 73):

- a. For each project, what is the accuracy tolerance of the Cost of Next Best Alternative Utility Reliability Procurement?
- b. Are the costs listed for non-wires solution(s) proposals firm, or do they include an accuracy tolerance?
- c. Provide the planned construction schedules/status of each utility project.
- d. Under what circumstances would the Company re-issue RFPs for any projects that did not receive competitive non-wires bids in the past?

Response:

- a. At the time these projects were developed, the accuracy of the Cost of Next Best Alternative Utility Reliability Procurement was +/-25%.
- b. Since contracts for these proposals were not completed, whether the proposals were firm or included tolerances (or the potential for change orders) cannot be determined. The Company's intent in the past and for future potential contracts is to pursue firm contracts. However, the Tiverton non-wires pilot project did experience changes and in retrospect, may be considered not firm.
- c. The status of each utility project is presented in the table below.

Division 1-13, page 2
System Reliability & Procurement

Naming Convention	Associated Area Study	Status of Utility Project
Bristol 51	East Bay	Proposed start FY25, Expected completion FY27
Tiverton New Feeder - NWA Pilot	None – Pilot	See below
Tiverton New Feeder	None	Started FY24, Expected completion FY29
Bonnet 42F1 Feeder	South County East	Proposed start FY25, Expected completion FY26
Narragansett 17F2 and 42F1 Feeder	South County East	Proposed start FY25, Expected completion FY27
South Kingstown 59F3 and 68F2 Feeders	South County East	Proposed start FY25, Expected completion FY27
Staples 112W43 Reliability	Blackstone Valley South	On hold pending NWA proposal

- d. The Company is not planning on re-issuing the RFPs for any projects that did not receive competitive non-wires bids in the past as some of these have already had multiple RFP attempts. Specifically, the South County East project RFP were re-issued. There are no formal circumstances that lead to multiple RFP attempts, but the Company would discuss re-issuing an RFP to clarify or refine the problem statement or if new information indicates there is greater potential bidder participation than previously experienced.

The Narragansett Electric Company
d/b/a Rhode Island Energy

In Re: Proposed FY 2025 Electric Infrastructure, Safety and Reliability Plan
Responses to the Division's First Set of Data Requests
Issued on October 23, 2023

Division 1-14
GMP

Request:

Identify all GMP related projects and associated spend planned in FY 2025 and the 4 subsequent years of the ISR Plan.

Response:

The GMP related projects and associated spend planned in FY 2025 Plan include:

<u>Project</u> <u>\$000's</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>
ADMS/DERMS	-	-	3,159	1,568	-
DER Monitor/Manage	-	-	2,288	4,043	-
Fiber	200	12,980	17,368	17,368	-

The proposed spend for ADMS and DER Monitor Manage does not start until FY 2027. This allows for further review of the Grid Modernization Plan. Similarly, the FY 2025 amount for the Fiber project is a modest amount to complete a study which will refine scope, prioritization, and inform deployment and implementation of fiber infrastructure. It is expected that this study will refine future year spending.

The following are projects advancing technology to address immediate needs. These investments also address long term issues as identified in the GMP:

<u>Project</u> <u>\$000's</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>
DARP	7,426	8,909	13,418	14,623	18,368
VVO	400	8,439	6,701	6,701	6,701
CEMI	3,672	2,858	2,943	3,032	-
ERR	2,448	2,521	2,597	2,675	-
Electromechanical Relay Replacement	1,234	603	1,267	2,513	1,263

The technology proposed in the projects listed in the table above is also included in the scope of other line items in the ISR which are not listed. For example, an Asset Condition project which calls for rebuilding a substation includes replacement of electromechanical relays as part of its scope. Also, a project which establishes a new circuit will include the installation of advanced reclosers and capacitors.

Division 1-15
Docket 4600

Request:

One of the Docket 4600 goals is to appropriately charge customers for the cost they impose on the grid (page 16). How will RIE achieve this goal with ISR Plan spend that is intended to interconnect, monitor, and potentially operate DERs for system reliability?

Response:

The Company believes that the ISR Plan appropriately charges customers for the cost they impose on the grid and this Docket 4600 goal therefore will be achieved.

Distributed Energy Resources (DER) include technologies such as electric vehicles, heat pumps, and energy storage, in addition to solar and wind distributed generation. The Company's ISR Plan addresses current system needs while also aligning with future monitoring and operation system needs that may result from an accumulation of these DER technologies. Since the Company's ISR Plan is driven by system investments to address system needs, in the short term and the long term, the customer charges are appropriately allocated. The same investments that will provide the long term monitoring and operation functionality can and should be used to facilitate later interconnections, again aligned with the Docket 4600 goals. However, this should not be misconstrued that direct distributed generation interconnection costs are included in the ISR Plan.

Similarly, the Company believes the ISR Plan supports the other Docket 4600 goals (page 16), including:

- Provide reliable, safe, clean, and affordable energy to Rhode Island customers over the long term (this applies to all energy use, not just regulated fuels).
- Strengthen the Rhode Island economy, support economic competitiveness, retain and create jobs by optimizing the benefits of a modern grid and attaining appropriate rate design structures.
- Address the challenge of climate change and other forms of pollution.
- Prioritize and facilitate increasing customer investment in their facilities (efficiency, distributed generation, storage, responsive demand, and the electrification of vehicles and heating) where that investment provides recognizable net benefits.
- Appropriately compensate distributed energy resources for the value they provide to the electricity system, customers, and society.
- Appropriately compensate the distribution utility for the services it provides.
- Align distribution utility, customer, and policy objectives and interests through the regulatory framework, including rate design, cost recovery, and incentives.

Division 1-16
Docket 4600

Request:

RIE states that Docket 4600 analysis anticipated to be complete December 2023 (page 17). What projects are subject to Docket 4600 analysis? Why is this analysis delayed?

Response:

The Company is proposing to complete the Docket 4600 analysis for any new projects and programs with over \$2 million planned spend during the proposed FY 2025 ISR Plan Year. These projects include the Engineering Reliability Review Program and the Distribution Automated Recloser Program.

The Docket 4600 analysis is not delayed. Historically, the Company has completed the Docket 4600 analysis in December and included it in the filing of the ISR Plan with the Public Utilities Commission.

Division 1-17
Work Plan Development and Delegation of Authority

Request:

Does an Area Study project cost estimate progress from a study grade to construction grade, or are there interim phases? Discuss.

Response:

There are interim phases of an Area Study project estimate between study and construction grade. As discussed in the October technical session, a project goes through the following stages:

1. Study (Delivers Study Grade Estimate)
2. Preliminary Engineering
3. Detailed Engineering
4. Construction Resource Procurement (Delivers Construction Grade Estimate)
5. Construction
6. Closeout

In addition to any study estimate revisions, between the study and construction procurement stages, a project will go through preliminary and detailed engineering. During the Preliminary and Detailed Engineering stages, the project team will begin to conduct investigatory sound and geotechnical studies, start outage planning, develop electrical and civil detailed designs, start material procurement, and complete any permit processes. All these activities result in a more informed and refined scope of the project, which influences the estimate.

For example, during preliminary engineering, a ground boring study may identify physical properties of the soil that requires additional environmental remediation or a different design of substation structural infrastructure that was not considered in the original study grade estimate. As new details are obtained, the Company refines project scopes and updates estimates. The project team uses data from other projects with similar scope to inform adjustments in the forecast. Subsequently these are refined as the project goes through the Construction Resource Procurement stage during which the Company, through a procurement process and schedule, awards construction contracts and locks in an estimate with an accuracy of +/-10%.

Division 1-18
Work Plan Development and Delegation of Authority

Request:

What are the accuracy tolerances of a study grade, construction grade, or any interim cost estimates?

Response:

The accuracy of the study grade, construction grade, and any interim cost estimates are based on the level of engineering design and resource procurement completed at the time the estimate was developed.

Study grade estimates are developed for scopes of work that are formed by field visits and consultations with design engineering, operations (OH & UG lines and substation), environmental, real estate, and project and construction management subject matter experts. Although the estimate is intended to have a +/-25% accuracy, there are many factors that influence this accuracy as time goes on, including changes in construction standards and increases in project labor and material costs, among others. Because estimates are developed consistently across alternatives during this stage, any factors that change over time impact all scenarios similarly. The Company continuously strives to improve estimates, especially during the early stages of a project. Currently the Company is improving the process by utilizing resources with construction expertise to develop study grade estimates.

Estimates are further refined as a project goes through the preliminary and design engineering stages. During the preliminary engineering stage, engineering consultants are onboarded and investigatory studies, such as sound and ground borings, are completed. Detailed design and preliminary outage planning is started, and both the scope and estimate is refined. During the detailed engineering stage, final design is complete and the scope of work and drawings are delivered for the bid process. Also, during this stage, permits are received informing construction requirements. As additional information becomes available during these two stages, estimates move toward an accuracy of +/-10%.

Once projects go through the resource procurement process and contracts are awarded, construction grade estimates are finalized. Construction grade estimates are intended to have an accuracy of +/-10%.

Study grade estimates are intended to have a +/- 25% accuracy; there are many factors that influence this accuracy as time goes on, including changes in construction standards and increases in project labor and material costs. Since estimates are developed consistently across alternatives during this stage any factors that change over time impact all scenarios similarly.

Division 1-18, page 2

Work Plan Development and Delegation of Authority

Estimates are further refined as a project goes through the preliminary and design engineering stages. As additional information becomes available during these two stages, estimates move toward an accuracy of +/- 10%.

Construction grade estimates are intended to have an accuracy of +/- 10%.

Division 1-19
Work Plan Development and Delegation of Authority

Request:

How long does it typically take to refine a study grade estimate and establish a construction grade budget?

Response:

It typically takes one to two years to refine a study grade estimate and establish a construction grade budget.

Division 1-20
Work Plan Development and Delegation of Authority

Request:

The Company previously stated that the Project Estimating department is part of corporate services (Docket 5209, FY 2023 ISR Plan, DIV 1-9). Discuss the current organization under PPL ownership. Did RIE retain project estimating tools (Cost Book)/resources/employees or does RIE rely on PPL resources?

Response:

Rhode Island Energy did not retain any National Grid estimating tools such as Cost Book. Distribution engineers in Rhode Island are accountable for providing distribution estimates, and transmission line and substation engineers in Pennsylvania are accountable for providing transmission estimates.

Division 1-21
Work Plan Development and Delegation of Authority

Request:

What is the accuracy tolerance of the cost estimate used to determine initial Delegation of Authority (DOA) approval levels and documentation within the sanctioning process?

Response:

Initial DOA and sanction approval occurs during the study or preliminary engineering phase of a project. Please see the Company's response to Division 1-18 for a detailed explanation of accuracy tolerances during different phases of a project.

Division 1-22
Work Plan Development and Delegation of Authority

Request:

How far in advance must a project receive DOA sign-off before it is introduced in an ISR Plan?

Response:

Projects are not required to receive DOA sign-off before they are introduced in an ISR Plan; however, DOA sign-off is required prior to project execution during the upcoming fiscal year. Funding creation and DOA approval for a new project typically occurs once the ISR Plan is filed with the Public Utilities Commission in preparation for the beginning of the new Plan Year.

Division 1-23
Work Plan Development and Delegation of Authority

Request:

Compare and contrast the current DOA approval thresholds and sign-off authority with the Company’s previous process. Provide examples of approval documentation for both lower and higher level project costs under the old and new processes.

Response:

New Process

DOA Levels:

Job Code	RI Energy DOA	Authorization
Supervisors	\$50,000	Up to
Managers	\$1,000,000	Up to
Directors / Sr. Manager	\$10,000,000	Up to
Vice President / Sr. Director	\$30,000,000	Up to
COO / SVP / President	\$40,000,000	Up to

Division 1-23, page 2
Work Plan Development and Delegation of Authority

The sanction process depends on the value of a project:

Total Project Estimate:	Documentation Required:	Process:
\$500,000 to \$5 million	Fact Sheet	Fact sheet to be included in Power Plan when routing for DOA.
Between \$5 and \$40 million	Sanction Paper	Project Author/Sponsor is required to consult and gain approval of applicable supporters, including Asset Management, Resource Planning, Engineering, Operations, Finance and Regulatory prior to routing for DOA in Power Plan.
Above \$40 million	Sanction Paper	Project Sponsor is required to consult and gain approval of the applicable supporters and Leadership Committee, prior to routing for DOA in Power Plan.

Additional information on the Sanction Process can be found in DIV 1-25. Please see Attachment DIV 1-24-4 for an example of a Fact Sheet and Attachment DIV 1-24-9 for an example of a Sanction Paper.

Previous Process

Please see Attachment DIV 1-23 for previous DOA levels and sanctioning process. For examples of previous sanction papers, please see Attachment DIV 1-24-2 and DIV 1-24-5.

NE Sanction Reimagined

New Process Effective November 1 2021



nationalgrid

Business Use

New Process Overview

effective November 1, 2021



New DoA Levels

Committee	Individual DoA (Power Plan)	Individual DoA	NE Exec Sanctioning Committee	Group Investment Committee
Frequency	Ongoing	Ongoing	Monthly	Quarterly
Threshold	Up to \$2.5M (Band C)	>\$2.5M up to \$50M	>\$50M (if >\$203M; requires approval of President US Utilities; then goes to Group Investment Committee)	>\$203M
Documentation	No sanctioning paper - input details into Power Plan	Sanction Paper	Sanction Paper	Sanction Paper Investment Committee Paper



General Guidelines

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- All investments up to \$2.50M will be submitted for Electronic DoA within Power Plan.
- Investments greater than > \$2.50M up to \$50M will require completion of a sanction paper.
- Investments > \$50m require completion of a sanction paper and sent to NE Executive Sanctioning Committee meeting approval.
- Additionally, e-Sanction workflows are required / mandatory and must be completed to advance a sanction paper. All final papers will be posted to US Sanctioning SharePoint Production Site as major Version 4.0.
- All final sanction papers shall be sent for signature via DocuSign to the appropriate Band Level by the respective Utility Service sanctioning liaison and cc. [REDACTED] within DocuSign.
- No meeting approval required until the potential investment is >\$50M.



Business Use

Band Level DoA – Up to \$50M Across All Utility Services

nationalgrid

- Effective November 1st, 2021 – All sanction papers with a potential investment (excluding tolerance) from \$2.50M up to \$50M can be submitted to Band Level Approval via DocuSign.
- Submissions will be sent by the sanctioning liaisons to the appropriate Band Level approver.
- Sanction papers shall be posted to USSC SharePoint site in major version 4.0
- Date of Request shall be the date the final sanction paper was posted to SharePoint, author shall include this date in the USSC meeting date meta data field.
- If a project started with a sanction paper, it must close with a sanction paper.



Business Use

Electronic DOA – Up to \$2.50M Across All Utility Services

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- All investments up to \$2.50M can be submitted for Electronic DoA within Power Plan.
- If a project started with a sanction paper, it must close with a sanction paper.
- Within PowerPlan,
 - Manual dropdown to route projects for approval.
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]



Business Use

New England (NEESC) Executive Sanctioning Committees - >\$50m


nationalgrid

- Committees will approve Capital investment sanction papers > \$50M to \$203M (excluding tolerance). PowerPoint presentations are no longer required.
- Frequency: Meetings will take place the 4th Monday of each month from 1 to 3 p.m. (Subject to Change)
- Approved sanction papers will be sent for signature via DocuSign to [REDACTED].
- Projects with the potential investment > \$203M (excluding tolerance) will require review from US President and approval from the Group Investment Committee following the UK guidelines / templates.



Business Use

Sanction Paper Number Request

- Process to request a sanction paper number will not change. All requests must be submitted to  via e-mail and author must include e-Sanction form ID number within the email by sanction paper author.



Business Use

New signature Process & Date of Request

nationalgrid

- Signing mechanism is DocuSign.
- All papers being sent to [REDACTED] and NE ESC will be reviewed by [REDACTED]
- Respective sanctioning liaison per Jurisdiction and Utility Service must cc: [REDACTED] on each DocuSign submitted for signature.
- The date of request in the sanction paper heading for projects with a potential investment > \$50M (exclude tolerance) will be New England Executive Sanctioning Committee meeting date.
- The date of request in the sanction paper heading for projects <\$50M will be the date the eSanction Form is finalized and posted to the USSC SharePoint site as major version 4.x.
- Update the “USSC meeting date” meta data field with this date as well.



Business Use

Overrun Process

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- The Overrun process has not changed.
- Cost Overrun Control Report will still be compiled.
- Overrun report identifies capital funding projects that have exceeded or are forecasted to exceed the sanctioned/authorized amount.
- Within 10 business days, the responsible personnel will provide a written plan to bring the affected funding project within DoA limits.
- Responsible individual must seek management re-sanction of all funding projects that exceed the authorized spending limit.
- Processing and approval of additional spend must be completed prior to the 60-day cut-off.



Business Use

NY & NE Sanctioning Liaisons



Sanctioning Liaisons	Electric	Gas	Facilities	Fleet - Asset Management	IT
Primary	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Secondary	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Sanctioning Liaisons are designated individuals within each Utility Service who will send final sanctioning papers for Band Level Approval via DocuSign, and retain key information i.e., approval status. Sanctioning Liaisons will ensure all sanction papers over \$50M are posted to the USSC SharePoint site by the committee meeting due date.



s Use

NE Executive Sanctioning Committee



New England Executive Sanctioning Committee	
Chief Financial Officer (CFO)	[REDACTED]
President	[REDACTED]
Head of NG Gas	[REDACTED]
Head of NE Electric	[REDACTED]
Regulation	[REDACTED]
Chief Information Officer (CIO)	[REDACTED]



business Use

Division 1-24
Work Plan Development and Delegation of Authority

Request:

Identify all projects in the FY 2025, FY 2026 and FY 2027 ISR Plans that require DOA approval. Provide related Sanction Fact Sheets or Sanction Papers for each project, noting which projects fall under the revised DOA thresholds.

Response:

All capital projects require Delegation of Authority (“DOA”) approval. Please see the Company’s response to Division 1-23 for an outline of the Company’s current DOA levels and sanctioning process. Attachment DIV 1-24-1 provides a list of each project and the status of the fact sheet or sanction paper. Approved sanction papers and fact sheets are provided in Attachments DIV 1-24-2 through DIV 1-24-16.

Row	Project #	Project Description	Sanction Paper / Fact Sheet	Approved under Revised DOA Thresholds?
1	CRI3033	Apponaug Long Term Plan (D-Sub)	In process -- see Note 1	Yes, approval is in process
2	CRI3034	Apponaug Long-Term Plan (D-Line)	In process -- see Note 1	Yes, approval is in process
3	CRI3031	Centredale #50 Sub (D-Sub)	In process -- see Note 1	Yes, approval is in process
4	CRI3032	Centredale #50 Sub (D-Line)	In process -- see Note 1	Yes, approval is in process
5	C051205	Dyer Street Substation (D-Sub)	Attachment DIV 1-24 -16	No
6	C051211	Dyer Street Substation (D-Line)	Attachment DIV 1-24 -16	No
7	NWPT004	Kingston #131 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
8	NWPT014	Merton #51 Equipment Replacement	See Note 2	See Note 2
9	C074427	Phillipsdale Substation (D-Sub)	In process -- see Note 1	Yes, approval is in process
10	C087367	Phillipsdale Substation (D-Line)	In process -- see Note 1	Yes, approval is in process
11	C078801	Ph 1B - ProvStudy Admiral St Demolition	Attachment DIV 1-24 -2	No
12	C078735	Ph 1B-PROVSTUDY NEW ADMIRAL ST 12KV D-SUB	Attachment DIV 1-24 -2	No
13	C078796	Ph 1B-PROVSTUDY ADMIRAL ST-ROCHAMB D-LINE	Attachment DIV 1-24 -2	No
14	C078797	Ph 1B-PROVSTUDY ADMIRAL ST-ROCHAMB D-SUB	Attachment DIV 1-24 -2	No
15	C078802	Ph 1B-PROVSTUDY OLNEYVILLE 4KV D-LINE	Attachment DIV 1-24 -2	No
16	C078803	Ph 1B-PROVSTUDY ADMIRAL ST 12KV MH&DUCT	Attachment DIV 1-24 -2	No
17	C078804	Ph 1B-PROVSTUDY ADMIRAL ST 12KV CABLES	Attachment DIV 1-24 -2	No
18	CRI3061	Ph 2 - ProvStudy HarrisAve 11kV(1129&1137)	In process	Yes, approval is in process
19	CRI3055	Ph 2 - ProvStudy Geneva,Olnyvile,Rocham4kV	In process	Yes, approval is in process
20	C078857	Ph 2-PROVSTUDY HARRIS AVE 4&11KV RETIRE	In process	Yes, approval is in process
21	C078847	Ph 3 - ProvStudy Geneva 4kV Sub Removal	See Note 2	Yes, approval is in process
22	C078849	Ph 3 - ProvStudy Harris Ave Sub Removal	See Note 2	Yes, approval is in process
23	C078850	Ph 3 - ProvStudy Olneyvile 4kV Sub Removal	See Note 2	Yes, approval is in process
24	C078851	Ph 3 - ProvStudy Rochambeau4kV Sub Removal	See Note 2	Yes, approval is in process
25	C079317	Ph 3 - ProvStudy HarrisAv,Olnyvile Supply	See Note 2	Yes, approval is in process

Note 1 – Fact Sheet/Sanction Paper is in process. Project Summary is included in Section 2 - Attachment 5 of the 10/13/23 filing.

Note 2 – Projects with spending in FY 2026 and FY 2027 will be sanctioned in future years.

Row	Project #	Project Description	Sanction Paper / Fact Sheet	Approved under Revised DOA Thresholds?
26	C079318	Ph 3 - ProvStudy Remove Rochambeau Supply	See Note 2	Yes, approval is in process
27	C078805	Ph 4 - PROVSTUDY KNIGHTSVILLE 4KV CONVERT	In process	Yes, approval is in process
28	C078806	Ph 4 - PROVSTUDY KNIGHTSVILLE 4KV D-SUB	In process	Yes, approval is in process
29	C053657	Southeast Substation (D-Sub)	Attachment DIV 1-24 -3	No
30	C053658	Southeast Substation (D-Line)	Attachment DIV 1-24 -3	No
31	C055683	Pawtucket No. 1 (D-Sub)	Attachment DIV 1-24 -3	No
32	CRI3003	Tiverton Sub (D-Sub)	In process -- see Note 1	Yes, approval is in process
33	BSVS001	Crossman St #111 Sub (D-Sub)	See Note 2	See Note 2
34	BSVS002	Crossman St #111 Sub (D-Line)	In process -- see Note 1	Approval is in process
35	BSVS003	Central Falls #104 Sub (D-Sub)	See Note 2	See Note 2
36	BSVS004	Central Falls #104 Sub (D-Line)	In process -- see Note 1	Approval is in process
37	BSVS005	Centre St #106 Sub (D-Sub)	See Note 2	See Note 2
38	BSVS006	Centre St #106 Sub (D-Line)	See Note 2	See Note 2
39	BSVS007	Pawtucket #148 Sub (D-Sub)	See Note 2	See Note 2
40	BSVS008	Pawtucket #148 Sub (D-Line)	See Note 2	See Note 2
41	CRI3037	Division St. 61F2 Reconductoring CRIW D Line	Attachment DIV 1-24-4	Yes
42	CRI3042	155F8 63F6 Fdr Tie Relocation D-Line	In process	Yes, approval is in process
43	CRI3017	Div St#61 T1 T2 Replacement	In process -- see Note 1	Yes, approval is in process
44	CRI3019	Anthony #64 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
45	CRI3022	Natick #29 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
46	CRI3020	Warwick Mall #28 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
47	CRI3018	Coventry #54 Sub Relocation	In process -- see Note 1	Yes, approval is in process
48	CRI3021	Hope #15 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
49	NWPT001	Dexter #36 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
50	NWPT002	Gate II Equipment Replacement	In process -- see Note 1	Yes, approval is in process

Note 1 – Fact Sheet/Sanction Paper is in process. Project Summary is included in Section 2 - Attachment 5 of the 10/13/23 filing.

Note 2 – Projects with spending in FY 2026 and FY 2027 will be sanctioned in future years.

Row	Project #	Project Description	Sanction Paper / Fact Sheet	Approved under Revised DOA Thresholds?
51	NWPT003	Hospital #146 Equipment Replacement	In process -- see Note 1	Yes, approval is in process
52	NWPT005	Eldred 45J3 Reconfiguration	In process -- see Note 1	Yes, approval is in process
53	NWPT006	Dexter 36W44 Asset Replacement	In process -- see Note 1	Yes, approval is in process
54	C065297	WATERMAN AVE RETIREMENT (D-SUB)	See Note 2	See Note 2
55	PROV001	Auburn Substation 4kV conversions common	In process	Yes, approval is in process
56	PROV002	Auburn Substation 4kV conversions (115kV option)	In process	Yes, approval is in process
57	PROV003	Elmwood 7F4 Rebuild Common	In process	Yes, approval is in process
58	PROV004	Pontiac 27F2 Rebuild Common	In process	Yes, approval is in process
59	PROV005	Lincoln Ave 72F6 Load Break	In process	Yes, approval is in process
60	PROV006	23 kV conversions 2213 & 2235	See Note 2	See Note 2
61	PROV007	Lakewood, Sockanosset 23 kV & Lincoln Ave	See Note 2	See Note 2
62	PROV008	Huntington Park 4 kV Convert	See Note 2	See Note 2
63	PROV009	Sprague St 4 kV Convert	See Note 2	See Note 2
64	PROV010	Point St and Dyer St associated with Sprague	See Note 2	See Note 2
65	PROV011	Auburn 115/12.47kV D-Line	See Note 2	See Note 2
66	PROV012	Auburn 115/12.4kV Substation (D-Sub)	See Note 2	See Note 2
67	C086391	Verizon Copper to Fiber Conversions	Attachment DIV 1-24-5	No
68	C046726	EAST PROVIDENCE SUBSTATION (D-SUB)	Attachment DIV 1-24-6	No
69	C046727	EAST PROVIDENCE SUBSTATION (D-LINE)	Attachment DIV 1-24-6	No
70	C081675	NEW LAFAYETTE 115/12KV (D-SUB)	Attachment DIV 1-24-7	No
71	C081685	84T3 ROW Removals (D-Line)	Attachment DIV 1-24-7	No
72	C081683	NEW LAFAYETTE 115/12KV (D-LINE)	Attachment DIV 1-24-7	No
73	CRI3035	Staples #112 Reliability 112W43	In process	Yes, approval is in process
74	BSVS012	Staples #112 Reliability 112W44	In process	Yes, approval is in process
75	C065166	WARREN SUB EXPANSION (D-SUB)	Attachment DIV 1-24-8	No
76	C065187	WARREN SUB EXPANSION (D-LINE)	Attachment DIV 1-24-8	No

Note 1 – Fact Sheet/Sanction Paper is in process. Project Summary is included in Section 2 - Attachment 5 of the 10/13/23 filing.

Note 2 – Projects with spending in FY 2026 and FY 2027 will be sanctioned in future years.

Row	Project #	Project Description	Sanction Paper / Fact Sheet	Approved under Revised DOA Thresholds?
77	SCW0004	Chase Hill Second Half of Station	See Note 2	See Note 2
78	SCW0003	Chase Hill Common Items	In process -- see Note 1	Yes, approval is in process
79	CRI3023	Weaver Hill Rd DSub	In process	Yes, approval is in process
80	CRI3052	Weaver Hill Rd. SubT Extension	In process	Yes, approval is in process
81	CRI3025	Weaver Hill Rd Feeder DLine	In process	Yes, approval is in process
82	CRI3027	Nasonville #127 Sub (D-Sub)	Attachment DIV 1-24-9	Yes
83	CRI3028	Nasonville #127 Sub (D-Line)	Attachment DIV 1-24-9	Yes
84	CRI3004	Tiverton Sub (D-Line)	Attachment DIV 1-24-10	Yes
85	CRI3041	Coventry 54F1 Reconductoring	Attachment DIV 1-24-11	Yes
86	CRI3039	2232 Panto Rd. ERR	Attachment DIV 1-24-12	Yes
87	CRI3040	2232 Industrial Dr. ERR	Attachment DIV 1-24-13	Yes
88	EB00001	Bristol D Line	In process	Yes, approval is in process
89	EB00002	Bristol D-Sub	In process	Yes, approval is in process
90	NWPT007	Newport 203WS D Line	In process -- see Note 1	Yes, approval is in process
91	NWPT009	Jamestown Capacitor Bank	In process -- see Note 1	Yes, approval is in process
92	NWPT010	Eldred 45J4 D Line	In process -- see Note 1	Yes, approval is in process
93	NWPT015	37K22 and 37K33 Reconfiguration	In process -- see Note 1	Yes, approval is in process
94	NWPT016	65J2 Feeder Upgrade D-Line	In process	Yes, approval is in process
95	SCE001	Lafayette 30F2 Feeder Tie	In process -- see Note 1	Yes, approval is in process
96	SCE002	Wakefield 17F2 Feeder Upgrade D-Line	In process -- see Note 1	Yes, approval is in process
97	SCE003	Wakefield 17F2 Feeder Upgrade D-Sub	In process -- see Note 1	Yes, approval is in process
98	SCE004	Wakefield 17F3 Feeder Relief	In process -- see Note 1	Yes, approval is in process
99	SCE005	Peacedale 59F3 Feeder Relief	In process -- see Note 1	Yes, approval is in process
100	SCE006	Lafayette 30F2 Feeder Upgrade	In process -- see Note 1	Yes, approval is in process
101	SCW0001	Kenyon Common Items	In process	Yes, approval is in process
102	CRI3043	Kenyon 68FS Extension	Attachment DIV 1-24-14	Yes

Note 1 – Fact Sheet/Sanction Paper is in process. Project Summary is included in Section 2 - Attachment 5 of the 10/13/23 filing.

Note 2 – Projects with spending in FY 2026 and FY 2027 will be sanctioned in future years.

Row	Project #	Project Description	Sanction Paper / Fact Sheet	Approved under Revised DOA Thresholds?
103	SCW0005	Langworthy Corner Feeder Ties	See Note 2	See Note 2
104	SCW0007	Wood River 85T2 Extension	See Note 2	See Note 2
105	C091057	Lafayette 30F4 - Narrow Ln 3-Phase	Attachment DIV 1-24-15	Yes

Note 1 – Fact Sheet/Sanction Paper is in process. Project Summary is included in Section 2 - Attachment 5 of the 10/13/23 filing.

Note 2 – Projects with spending in FY 2026 and FY 2027 will be sanctioned in future years.

Attachments DIV 1-24-2 through DIV 1-24-16

REDACTED

Attachments DIV 1-24-2 through DIV 1-24-16 on Bates pages 46 through 162 may contain Critical Energy Infrastructure Information ("CEII") and is currently being reviewed by the Company.

The Company's response to Division 1-25 begins on Bates page 163.

Division 1-25
Work Plan Development and Delegation of Authority

Request:

Provide a copy of RIE's most recent Capital Sanctioning Procedure.

Response:

Please see Attachment DIV 1-25 for a copy of the Company's latest sanctioning procedure. The Company is working on a more detailed process document and will provide it to the Division when it is complete.



Project Approval & Documentation

Threshold	\$500k to \$5M	>\$5M up to \$40M	>\$40M
Frequency	Ongoing	Ongoing	As Required
Final Approver	Supervisor-\$50K Manager-\$1M Sr. Manager/Director-\$10M	Sr. Manager/Director-\$10M Sr. Director/VP - \$30M COO/SVP/President - \$40M	Leadership Committee: President RIE, COO, CEO
Documentation (PowerPlan)	Fact Sheet	Sanction Paper	Sanction Paper



General Guidelines

- All investments up to \$5M will be submitted for Electronic DoA within PowerPlan.
 - Documents Tab: Attach Fact Sheet
 - Authorization Tab: Auto Populate based on DOA Limits
- Investments greater than > \$5M up to \$40M will be submitted for Electronic DoA within PowerPlan.
 - Project Author/Sponsor is required to consult and gain approval of the applicable supporters, prior to routing for DoA in PowerPlan.
 - Documents Tab: Attach Sanction Paper
 - Authorization Tab: Select DOA Approval – Manual, select appropriate approver based on DOA Limits
- Investments > \$40m require completion of a sanction paper and sent to Leadership Committee
 - Project Sponsor is required to consult and gain approval of the applicable supporters, prior to routing for DoA in PowerPlan.
 - Route sanction paper for approval to Leadership Committee
 - Documents Tab: Attach Sanction Paper
 - Authorization Tab: Select DOA Approval – Manual, select appropriate approver based on DOA Limits
- Project Sponsor shall utilize an Electronic RIE Sanction SharePoint site during development.
- Sanction and Fact Sheet papers shall be posted to RIE Sanction SharePoint site.



Re-Sanction Process/Closeout Process

Re-sanction Guideline

- Sanction estimate
- Re-sanction when you exceed estimate accuracy

Closeout Process

- Document Lessons Learned
- Close out Funding Projects and Work Orders per Power Plan requirements

Division 1-26
Work Plan Development and Delegation of Authority

Request:

RIE states on page 20 that when a preferred plan is identified (for projects originating from an area study) the system area planner develops a cashflow for the project based on the system need date and project execution influencing factors that are known at the time, for example material lead times. RIE further states that the Company is now engaging with estimators who have construction experience to further improve the accuracy of these study grade estimates earlier in the process. Given that all Area Studies are complete, preferred plans and cash flows have been developed, and a proposed Long Range Plan has been produced, at what point is “earlier in the process”?

Response:

The Company intends these statements to be forward-looking and to apply to the estimates for future studies. By “earlier in the process,” the Company means that it aims to improve estimate accuracy within the area study estimating process. .

Division 1-27
Work Plan Development and Delegation of Authority

Request:

Provide the most recent copy of the Company's Distribution Planning Guidelines. Within the document, indicate how RIE is implementing stated improvements to project estimating when recommended plans are developed by study engineers.

Response:

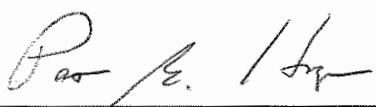
Please see Attachment DIV 1-27 for the most recent copy of the Company's Distribution Planning Guidelines. These guidelines are transitioned from National Grid. Rhode Island Energy is actively reviewing these guidelines with other PPL jurisdictions and may revise them in the near future. The Company will update the Division during quarterly meetings of any major changes to the guidelines.

The Distribution Planning Guidelines contain the planning criteria for system analysis. They do not contain estimating procedures.



Distribution Planning Guide

Rev. 1

Approved by:  Date: 2/15/11
Patrick Hogan, Sr. VP
Distribution Asset Management
National Grid USA Service Company

Amendments Record

Issue	Date	Summary of Changes / Reasons	Author(s)	Approved By (Inc. Job Title)
0	10/14/2009	Initial draft	Curt J. Dahl Manager, T&D Planning LI John F. Duffy, Jr. Distribution Planning	Patrick Hogan Sr. Vice President Distribution Asset Management
1	2/15/2011	Final approved document	Max F. Huyck Network Asset Planning Jeffery H. Smith Distribution Asset Strategy	

Distribution Planning Criteria Strategy Table of Contents

Strategy Statement	4
Strategy Justification.....	7
1.0 Purpose and Scope	7
2.0 Strategy Description	7
2.1 Description of Distribution System	7
2.1.1 Distribution substations	7
2.1.2 Sub-Transmission systems.....	7
2.1.3 Distribution Feeders.....	8
2.1.4 Secondary Networks	8
2.2 Distribution Planning Criteria.....	8
2.2.1 General Items impacting the Distribution Planning Criteria	8
2.2.1.1 Load Forecasting.....	8
2.2.1.2 Equipment Ratings.....	9
2.2.1.3 Planning Study Areas.....	9
2.2.1.4 Load Flows.....	9
2.2.1.5 Distribution Analysis Alternatives.....	9
2.2.2 Distribution Substation Transformer Planning Criteria.....	10
2.2.2.1 Normal transformer load planning criteria	10
2.2.2.2 Contingency N-1 substation transformer planning criteria.....	10
2.2.2.3 Automatic transfer of load	10
2.2.2.4 Substation reactive support criteria.....	11
2.2.2.5 Impact of planned maintenance	11
2.2.3 Distribution Sub-transmission Planning Criteria	11
2.2.3.1 Normal sub-transmission load planning criteria.....	11
2.2.3.2 Contingency N-1 sub-transmission planning criteria	11
2.2.3.3 Automatic line transfer systems.....	11
2.2.3.4 Sub-transmission reactive support criteria.....	12

2.2.4	Distribution Feeder Planning Criteria.....	12
2.2.4.1	Normal feeder load planning criteria.....	12
2.2.4.2	Contingency N-1 feeder planning criteria.....	12
2.2.4.3	Automatic transfers on feeders.....	12
2.2.4.4	Feeder reactive support criteria.....	12
2.2.4.5	Feeder load balance criteria.....	12
2.2.5	Network criteria.....	13
2.2.6	Voltage criteria.....	13
2.2.6.1	Allowable Voltage Range at Service Point for Distribution Customers.....	13
2.3	Residual risk and project prioritization.....	13
2.3.1	Residual risk after compliance with new criteria.....	13
2.3.2	Methodology to prioritize capital projects.....	13
3.0	Risks/Benefits	14
3.1	Safety & Environmental	14
3.2	Reliability.....	14
3.3	Customer/Regulatory/Reputation	14
3.4	Efficiency.....	14
4.0	Estimated Costs.....	14
5.0	Implementation	15
6.0	Data Requirements	15
6.1	Planning Tools:.....	15
Appendix A – Service Territory Maps		16
Appendix B - Distribution Planning Study Areas.....		17

Strategy Statement

This document describes the National Grid Electric Distribution Planning Criteria that will be applied by the Distribution Planning Department in future distribution studies. These criteria are applicable to the New England (NE) and upstate New York (UPNY) areas of National Grid.

The electric distribution system on Long Island, NY shall continue to follow the LIPA Transmission and Distribution Planning Criteria.

For normal loading conditions, all types of facilities are to remain within their normal ratings at all times. For N-1 contingency situations it is expected that load shall be returned to service within 24 hours via system reconfiguration through switching, the installation of temporary equipment such as mobile transformers or generators, or by the repair of a failed device. Where practical, switching flexibility should be integrated into the system design to minimize the duration of customer outages following an N-1 contingency to meet reliability objectives. The following shall guide contingency planning on the distribution system:

1.) For the loss of a power transformer or substation bus fault that disrupts distribution load, the following planning criterion applies:

- The initial load increase at the remaining transformers within the area must not exceed either the summer or winter STE rating or 200% of nameplate.
- Load will need to be transferred or shed in a reasonable number of steps to reduce loading to the summer or winter LTE level within 15 minutes.
- Load on remaining transformers will be reduced to the summer or winter normal limit within 24 hours.
- The quantity of load at risk of being out of service following post contingency switching should be limited to 10MW.
- Repairs or the installation of mobile equipment are expected to require 24 hour implementation.
- Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
- If more than 240MWhrs of load is at risk at peak load periods for a transformer or substation bus fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

2.) For the loss of a sub-transmission supply line, the following planning criteria apply:

- The initial load increase at the remaining sub-transmission supply lines within the area must not exceed the summer or winter LTE rating.
- Every effort must be made to return the failed sub-transmission line to service within 12 hours.
- The quantity of load at risk of being out of service following post contingency switching should be limited to 20MW combined, considering all substations served via the supply line.
- Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
- If more than 240MWhrs of load is at risk at peak load periods for a single line fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

- 3.) For the loss of a distribution feeder, the following planning criteria apply:
- Feeders shall tie to neighboring feeders as much as practical as the flexibility to reconfigure feeders has a positive reliability impact for a wide range of possible contingencies.
 - Following a contingency, all adjoining tie feeders can be loaded to their maximum thermal emergency or LTE rating.
 - Feeder ties and cascading of load within the area can be utilized to the emergency limits of feeders to offload adjoining feeders.
 - Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
 - If more than 16MWhrs of load is at risk at peak load periods for a single feeder fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

Application of these criteria will result in somewhat less load at risk than previous criteria in either New York or New England which generally limited load at risk to between 20 and 28 MW pending the installation of a mobile device. Therefore it is expected that the Load Relief budgets will increase from historic levels for a given load growth rate. The capital cost associated with meeting the existing and proposed criteria for both normal and N-1 contingency conditions in New England and upstate New York are shown in Table 1:

Table 1 - Comparison of Capital Costs between Existing and New Criteria

Criteria	Present Value (\$ Millions)	15 Year Annualized (\$ Millions)
Existing NE/NY Criteria	\$800	\$80
New Criteria	\$1,250	\$130

The new criteria may result in an increase in capital requirements up to \$50M/year over the existing criteria for the 15-year period studied.

Based on the results of the sample areas (expanded to the overall system) the following approximate quantities of additional facilities may be required over the next 15years.

Transformers (at existing or new substations)	180
Sub-Transmission Lines	46
Distribution Feeders	319

The new criteria will be applied to new installations and/or significant rebuilds initially. This is a long-term strategy and it is expected to take the full 15 year horizon to achieve compliance with existing facilities system-wide.

Performance targets for the adoption of the new planning criteria are:

- Quantification of equipment (sub-transmission lines, transformers, feeders) with load at risk forecast above the guidelines above.
- Identifying high load at risk areas and as part of annual summer preparedness and communicate monitoring plans for the Regional Control Centers.

- Developing project recommendations to eliminate or significantly reduce load at risk areas based on MWhr metrics, reliability performance and mitigation costs.

This policy shall be reviewed and revised as often as needed to reflect any major standards or criteria changes. It is recommended that a 2-3 year review cycle be performed.

Amendments Record

Issue	Date	Summary of Changes / Reasons	Author(s)	Approved By (Inc. Job Title)
0	10/14/2009	Initial draft	Curt J. Dahl Manager, T&D Planning LI John F. Duffy, Jr. Distribution Planning	Patrick Hogan Sr. Vice President Distribution Asset Management
1	2/15/2011	Final approved document	Max F. Huyck Network Asset Planning Jeffery H. Smith Distribution Asset Strategy	

Strategy Justification

1.0 Purpose and Scope

This document describes the National Grid Electric Distribution Planning Criteria that will be applied by the Distribution Planning Department in future distribution studies. These criteria are applicable to the New England (NE) and upstate New York (UPNY) areas of National Grid.

A map showing National Grid electric service territory within New England and upstate New York is attached in Appendix A.

The electric distribution system on Long Island, NY shall continue to follow the LIPA Transmission and Distribution Planning Criteria.

This policy shall be reviewed and revised as often as needed to reflect any major standards or criteria changes. It is recommended that a 2-3 year review cycle be performed.

2.0 Strategy Description

2.1 Description of Distribution System

The distribution system of National Grid is comprised of all lines and equipment operated at a voltage below 69kV in New England and below 115kV in New York. The components of the distribution system are distribution substations, sub-transmission lines, and distribution circuits or feeders.

2.1.1 Distribution substations

The distribution substations within National Grid are a mixture of stations with one, two, and three or more transformers. The distribution substations step down voltage to a distribution or sub-transmission level. In Upstate New York approximately 70% of the substations have either a single source or a single transformer. In New England 40% of the substations have a single source and/or transformer.

A typical substation involves a 115/13 kV, 25-40 MVA rated transformer with either a load tap changer built into the transformer or individual voltage regulators applied to the feeders. In many locations, two or three transformers are within one substation and will interconnect via bus tie breakers. Many of the distribution substations supplied by the 115kV circuits also include one or more capacitor banks for reactive support.

National Grid maintains approximately 680 distribution substations containing approximately 1,530 power transformers. The total number of distribution substations, transformers, circuit miles of overhead and underground within NE and UPNY is listed in Distribution Line Overarching Strategy paper dated July 2008.

2.1.2 Sub-Transmission systems

The sub-transmission system within National Grid is designed to provide adequate capacity between transmission sources and load centers at reasonable cost and with minimal impact on the environment. The National Grid sub-transmission system provides supply to distribution substations as well as large three phase customers. It consists of those parts of the system that are neither bulk transmission nor

distribution. The typical voltages for the sub-transmission system include 46, 34, and 23 kilovolts. In New York, the sub-transmission also includes the 69 kV.

Sub-transmission systems may be designed in a closed or open loop system originating from transmission substations, and generally providing a redundant supply for distribution substations. In other cases, a single radial sub-transmission supply line may serve load. The substations served from a sub-transmission line will serve approximately 10-40 MW of load depending on the voltage.

Generally, the sub-transmission system is presently designed with conductors ranging from 336.4 ACSR (UPNY) to 795 kcmil AAC (NE) overhead conductor and from 500 to 2000 kcmil copper underground conductor. However, most of the sub-transmission lines are older designs and built with smaller wire such as 2/0 AWG copper installed along right-of-ways or on public streets.

There are approximately 930 sub-transmission lines in New England and upstate New York within National Grid.

2.1.3 Distribution Feeders

Distribution feeders originate at circuit breakers connected within the distribution substations. Feeders are generally comprised of 477 or 336 kcmil aluminum mainline overhead conductors and 1/0 AWG aluminum branch line conductors. Some feeders have underground getaway cables exiting from the substation with 500 to 1000 kcmil aluminum or copper conductor. Feeders are designed in a radial configuration. The feeder mainline will typically have several normal open tie points to one or more adjacent feeders for backup. Protection for faults on the feeders consists of relays at the circuit breaker, automatic circuit reclosers at points on the mainline, and fuses on the branch circuits.

The National Grid Primary distribution system in New England and upstate New York is comprised of approximately 3,770 feeders.

2.1.4 Secondary Networks

Low voltage secondary networks have historically been employed in several urban areas to maximize the reliability for the customers in these areas. They typically have a 120/208V class secondary system that is connected as a grid with many downtown customers connected. Most of the secondary networks have from 4-10 supply feeders. The low voltage secondary network supply feeders will typically have 10-30 network transformers connecting into the secondary grid.

Spot secondary networks are used in areas to serve specific large loads in urban areas. Some of these are served at 120/208V, while others are served at 277/480V. Typically, 2-3 supply feeders are used to serve the spot networks.

2.2 Distribution Planning Criteria

2.2.1 General Items impacting the Distribution Planning Criteria

2.2.1.1 Load Forecasting

The load forecast used by Distribution Planning for New England and New York will be based on a regional econometric regression model that considers historic loading, weather conditions, various

economic indicators. The forecast is adjusted for known spot load additions and DSM forecasts. Presently, distribution planning is based on a forecast that considers loading during extreme weather conditions such that those weather conditions are expected to occur once in 20 years. Separate models are used for NE and UPNY.

2.2.1.2 Equipment Ratings

Distribution Planning maintains equipment ratings for New England and New York. The summer and winter normal and summer and winter long time emergency (LTE) ratings will be used. The major equipment ratings to be used by Distribution Planning relate to transformers, overhead lines, and underground cables. The normal and LTE rating limits for these items may be applied for the time associated with each rating. Generally, the durations for emergency loading are as listed below in Table 2. System operators must be aware of the limiting factor involved in any contingency:

Table 2 - Equipment Rating Durations

Equipment	Normal	LTE	STE
Transformer	Continuous	24 hour	15 Min
Overhead Line	Continuous	24 hour	N/A
Underground Cable	Continuous	24 hour	N/A

There is also a short time emergency rating which may be determined for substation transformers, in no instance should this rating exceed 200% of nameplate rating. In addition to the items in the above table, ratings are reviewed for switches, circuit breakers, voltage regulators, and instrument transformers.

2.2.1.3 Planning Study Areas

A planning study area within National Grid is a grouping of distribution substations, feeders, transformers, and sub-transmission lines within a specific geographic area that are interconnected and can be studied as a group. Some areas are totally independent, while others will have points of interconnection with other study areas. A listing of the planning study areas that exist in NE and UPNY to be used by Distribution Planning are presented in Appendix B.

2.2.1.4 Load Flows

Distribution planning studies will utilize the PSS/e load flow program for the study of the sub-transmission lines and networks. The distribution feeder load flow analyses will be done using the Cymedist feeder analysis software program.

2.2.1.5 Distribution Analysis Alternatives

When performing distribution system analyses, Distribution Planning shall consider both traditional capacity enhancements as well as alternatives for “Non-Wires” customer load management alternatives where appropriate. The factors below could impact capacity planning analysis

- a. Distributed Generation
- b. Controllable Load Curtailment
- c. Energy Storage devices
- d. Demand Side Management

- e. Distribution Automation
- f. Smart Grid solutions

2.2.2 Distribution Substation Transformer Planning Criteria

2.2.2.1 Normal transformer load planning criteria

A substation transformer will not be loaded above its Normal rating during non-contingency operating periods.

2.2.2.2 Contingency N-1 substation transformer planning criteria

For an N-1 contingency condition that would involve the loss of a power transformer or substation bus, the following planning criteria apply:

- The initial load increase at the remaining transformers within the area must not exceed either the summer or winter STE rating or 200% of nameplate.
- Load will need to be transferred or shed in a reasonable number of steps to reduce loading to the summer or winter LTE level within 15 minutes.
- Substations will be designed to allow the installation of a mobile transformer within a maximum of 24 hours for a failed transformer.
- Load on remaining transformers will be reduced to the summer or winter normal limit within 24 hours.
- Feeder ties within the area can be utilized to their emergency limits. Cascading of load between feeders and substations may be needed to reduce loading to normal limits within the time frames required.
- The quantity of load at risk of being out of service following post contingency switching should be limited to 10MW.
- Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
- If more than 240MWhrs of load is at risk at peak load periods for a transformer or substation bus fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

2.2.2.3 Automatic transfer of load

Many locations with two or more transformers at a substation utilize automatic bus transfers. In some stations, one bus tie breaker is used, while in other substations a breaker and half design is utilized and there may be several feeder bus tie breakers. Based on the loading limitations in Section 2.2.2.2, it may be necessary to block the automatic transfer on either the main bus tie or one of the feeder bus tie breakers to avoid exceeding the STE limit during an N-1 contingency. Cases where automatic restoration are disabled will be documented and communicated with Regional Control Centers as part of an annual summer preparedness review. Recommendations to add capacity to the area will be evaluated and prioritized based load at risk, reliability and cost with other Load Relief alternatives.

When available, the use of the Energy Management System (EMS) control shall be implemented as needed to block automatic transfer. During an N-1 contingency, the System Operator will be required to maintain the loading on transformers as specified in Section 2.2.2.2.

2.2.2.4 Substation reactive support criteria

Reactive compensation shall be required for substations in the form of station capacitor banks or static VAR compensators. These should be sized to offset the reactive losses of the transformers at full load. Two or three stage capacitor banks may be needed for larger transformers to manage power factor and to limit voltage fluctuations.

2.2.2.5 Impact of planned maintenance

Capacity in all areas should allow the off loading of any distribution substation transformer for planned maintenance during the off peak months without exceeding the normal ratings of the other area equipment. However, in areas of the system with limited feeder ties, it may be more economical to allow the installation of a mobile transformer for maintenance.

2.2.3 Distribution Sub-transmission Planning Criteria

2.2.3.1 Normal sub-transmission load planning criteria

A sub-transmission supply line will not be loaded above its normal rating during non-contingency operating periods.

2.2.3.2 Contingency N-1 sub-transmission planning criteria

For an N-1 contingency condition that would involve the loss of a sub-transmission supply line, the following planning criteria apply:

- The initial load increase at the remaining sub-transmission supply lines within the area must not exceed the summer or winter LTE rating.
- Load on the remaining sub-transmission line will need to be reduced to normal levels within 24 hours.
- Feeder ties and cascading of load within the area can be utilized to the emergency limits of feeders to offload a sub-transmission line.
- Every effort must be made to return the failed sub-transmission line to service within 12 hours.
- The limit of load at risk for the loss of any sub-transmission line will be 20MW.
- The quantity of load at risk of being out of service following post contingency switching should be limited to 20MW combined, considering all substations served via the supply line.
- Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
- If more than 240MWhrs of load is at risk at peak load periods for a single line fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

2.2.3.3 Automatic line transfer systems

Auto transfer of load on the sub-transmission may be employed, but may not exceed the emergency (LTE) ratings of the remaining supply lines. When available, EMS control of sub-transmission lines will be utilized to block auto transfers and avoid overloading of lines as needed.

2.2.3.4 Sub-transmission reactive support criteria

Reactive compensation for sub-transmission lines shall be required in the form of station and distribution capacitor banks.

2.2.4 Distribution Feeder Planning Criteria

2.2.4.1 Normal feeder load planning criteria

A distribution feeder circuit will not be loaded above its normal rating during non-contingency operating periods.

2.2.4.2 Contingency N-1 feeder planning criteria

For an N-1 contingency condition that would involve the loss of a distribution feeder, the following planning criteria apply:

- Feeders shall tie to neighboring feeders as much as practical as the flexibility to reconfigure feeders has a positive reliability impact for a wide range of possible contingencies.
- Following a contingency, all adjoining tie feeders can be loaded to their maximum thermal emergency or LTE rating.
- Feeder ties and cascading of load within the area can be utilized to the emergency limits of feeders to offload adjoining feeders.
- Contingency risk shall be quantified via a MWhr metric calculated by determining the duration load is expected to be out of service at peak loading conditions considering a switch before fix restoration process.
- If more than 16MWhrs of load is at risk at peak load periods for a single feeder fault, alternatives to eliminate or significantly reduce this risk shall be evaluated and prioritized considering the load at risk, reliability impacts, and the cost to mitigate.

2.2.4.3 Automatic transfers on feeders

In some cases, it will be necessary to adjust a feeder rating to below normal summer or winter thermal rating due to automatic backup or Second Feeder Service commitments to certain customers.

2.2.4.4 Feeder reactive support criteria

Reactive compensation for feeders should be installed to provide additional capacity, improve voltage regulation and meet external power factor standards where applicable. A mixture of fixed and switched capacitor banks may be used as needed. All feeders in a planning area shall have proper reactive compensation prior to any requests for other load relief infrastructure improvements.

2.2.4.5 Feeder load balance criteria

Distribution Planning studies are based on three phase average loading. Load balance between the three phases on any feeder is assumed to be within a reasonable level.

Distribution feeder load balance shall require correction of the load imbalance for either of the following cases:

- Any feeder with the calculated neutral current exceeding 30% of the feeder ground relay pickup setting.

- Any feeder exceeding 100A between the high and low phase amps.

2.2.5 Network criteria

Secondary network criteria and loading limitations are defined in the National Grid distribution standards. The criteria are different for NE and UPNY based on the history of how various networks evolved.

2.2.6 Voltage criteria

2.2.6.1 Allowable Voltage Range at Service Point for Distribution Customers

The normal and emergency voltage to all customers shall be in line with limits specified by state regulators and within the limits of ANSI C84.1

These upper and lower voltage limits for each state in the service territory are listed in Table 3 below:

Table 3 - Voltage Requirements by State

State	Upper	Nominal	Lower
Massachusetts	126	120	114
New Hampshire	126	120	114
New York	123	120	114
Rhode Island	123	120	113

The values in Table 3 are in line with the National Grid Overhead Construction Standards.

Voltage on the sub-transmission and primary feeders is determined by many factors including:

- Primary mainline conductor sizes
- Distance of lines
- Reactive compensation

Voltage on the feeders is controlled by the station load tap changer or station regulators on feeders, the application of distribution capacitor banks, and the application of pole or padmounted line regulators. Voltage regulation of the feeders and supply lines must be adequate to ensure the voltage requirements in Table 3 above are maintained.

2.3 Residual risk and project prioritization

2.3.1 Residual risk after compliance with new criteria

The goal of the new planning criteria is to maintain the performance of the electric distribution system. Generally, after compliance with the new criteria, the residual risk for the worst case will be 10 MW of load out for 24 hours for a substation transformer failure or 20 MW out for 12 hours for an overhead supply line failure.

2.3.2 Methodology to prioritize capital projects

Prioritization of capital projects utilizes scoring system that considers the consequence of not completing the project and the probability that the consequences will be realized. A risk score between 1 and 49 is developed utilizing a 7x7 scoring matrix.

3.0 Risks/Benefits

The principal impacts of the planning criteria are reliability performance, customer service and efficiency. Due to the extended time frame for strategy compliance, the impact of the strategy will not be initially visible at the system level. These benefits will be most apparent in those areas where it has been implemented.

3.1 Safety & Environmental

Safety and environmental factors are not principal drivers of the planning strategy. However, the planning criteria will ensure equipment loading is maintained within accepted ratings reducing the risk of premature equipment failure that could result in environmental and public safety concerns.

3.2 Reliability

The planning criteria will provide operating flexibility to facilitate the restoration of customer outages following an N-1 contingency event. With an expected long implementation schedule, the impact will not be initially visible at the system level but will be significant in the areas where the criteria have been implemented. A long range reliability improvement of 11.4 minutes in SAIDI and 0.073 in SAIFI on a system basis is forecasted if the strategy is implemented over a 15 year planning horizon. Additionally, lower feeder loading will support future distribution automation to further improve reliability.

3.3 Customer/Regulatory/Reputation

The customer benefit associated with planning criteria is significant. Improved system reliability and lower equipment loading provide greater flexibility in serving both existing and new customers.

3.4 Efficiency

The planning strategy provides a consistent approach for feeder/substation and study area loading analysis across NE and UPNY. All studies being conducted under one criterion will create a consistent reference for ranking projects as part of the business planning process.

4.0 Estimated Costs

The estimated costs to adopt the new planning criteria are summarized as follows:

The capital cost associated with meeting the existing and proposed criteria for both normal and N-1 contingency conditions in New England and upstate New York are shown in Table 4:

Table 4 - Comparison of Capital Costs between Existing and New Criteria

Criteria	Present Value (\$ Millions)	15 Year Annualized (\$ Millions)
Existing NE/NY Criteria	\$800	\$80
New Criteria	\$1,250	\$130

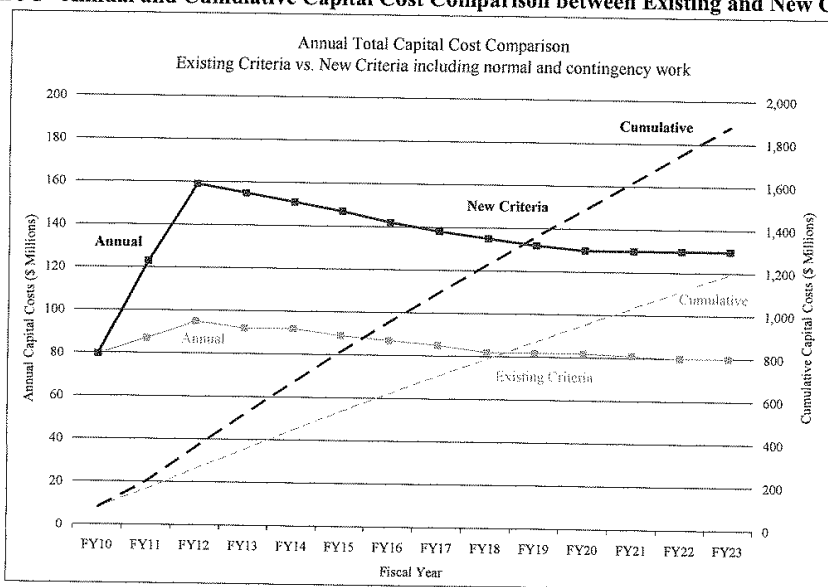
The new criteria may result in increased in capital costs of \$50M/year in the Load Relief budget category compared to previous criteria for the 15-year period studied.

Based on an analysis of normal loading issues, it is projected that capital work associated with normal loading will remain at present levels or slightly higher for several years and then ramp down as contingency projects

will tend to drive the load relief spending.

These combined normal and contingency capital costs are shown in Figure 1 below:

Figure 1 - Annual and Cumulative Capital Cost Comparison between Existing and New Criteria



5.0 Implementation

Based on the results of the sample areas (expanded to the overall system) the following approximate quantities of additional facilities are forecasted to be required over the next 15 years in NE and UPNY.

Transformers (at existing or new substations)	180
Sub-Transmission Lines	46
Distribution Feeders	319

The new criteria will be applied to new installations and/or significant rebuilds initially. This is a long term strategy and it is expected to take many years to implement system-wide.

6.0 Data Requirements

The data sources required for the proper execution of the planning strategy include:

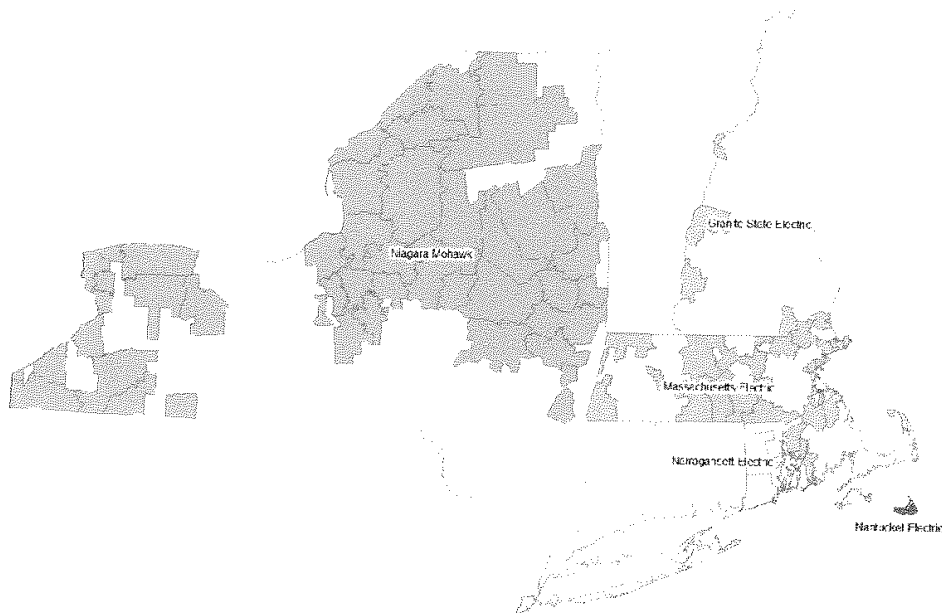
6.1 Planning Tools:

- Cymedist (Cyme) – for radial feeder load flow and voltage analysis
- Smallworld GIS – to support Cyme analysis
- PSS/e – for network load flow analysis
- FeedPro - for equipment loading and ratings
- EMS and PI or ERS access in NE and UPNY

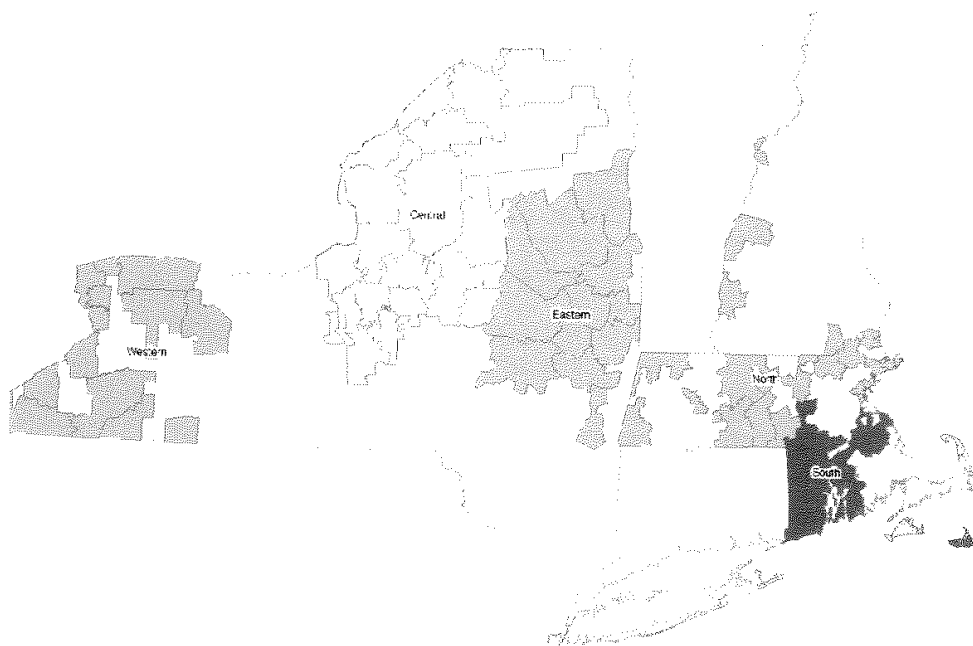
Appendix A – Service Territory Maps

Maps of Electric Distribution Service Territories for five companies and five divisions:

Companies

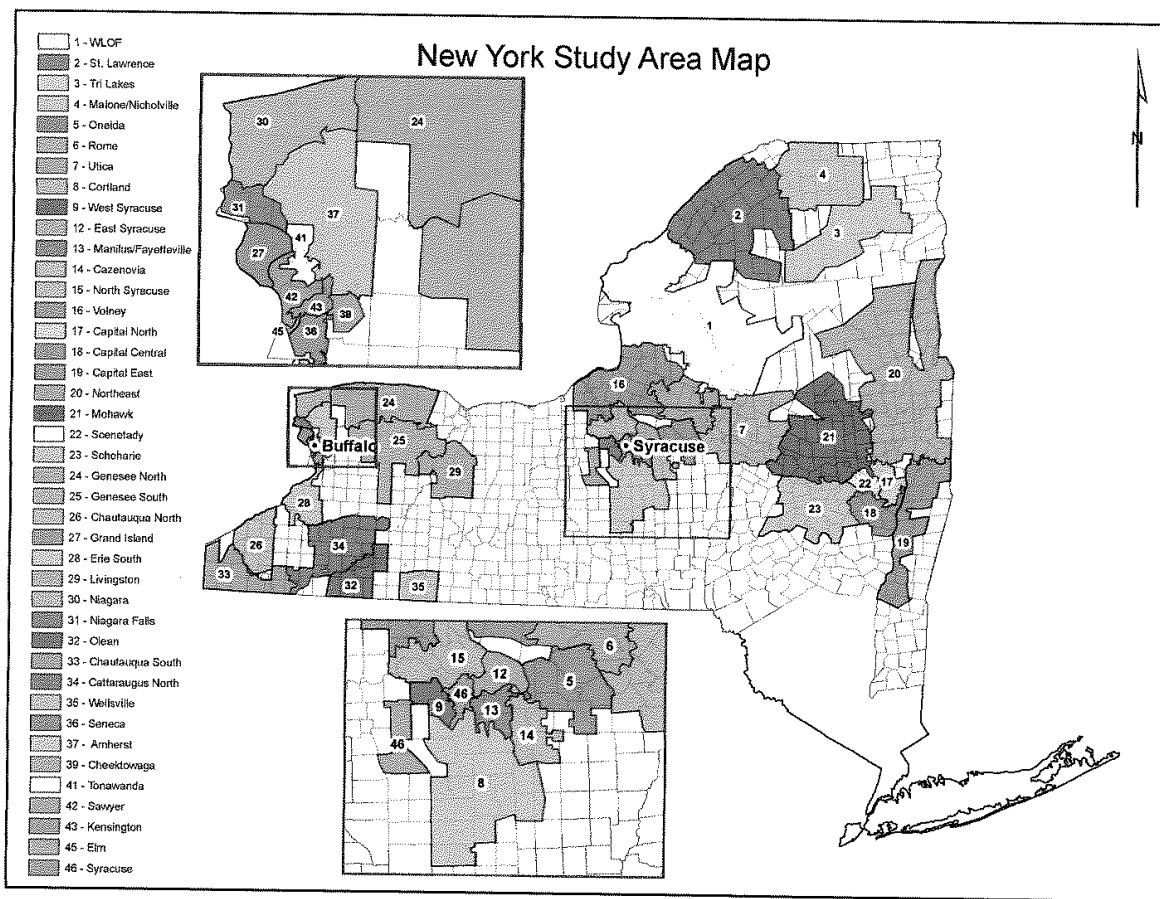


Divisions

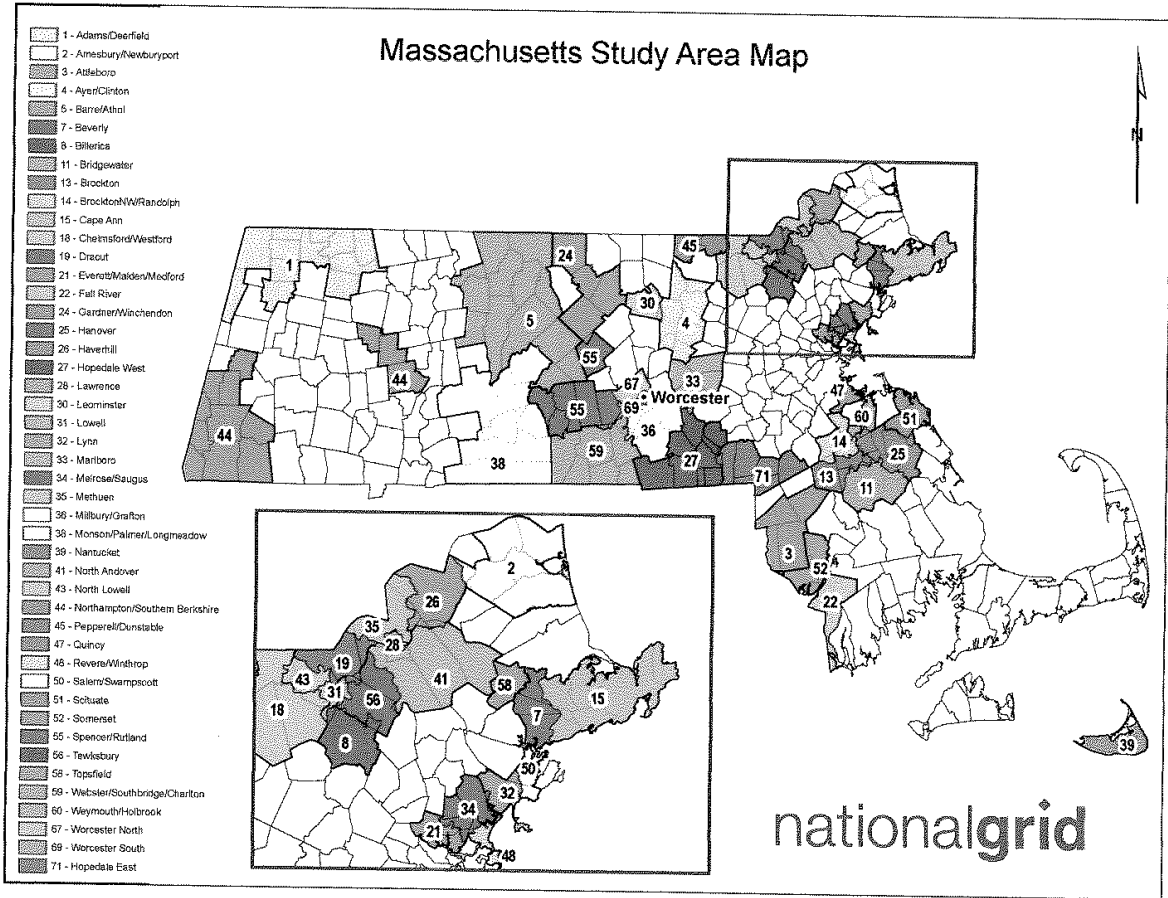


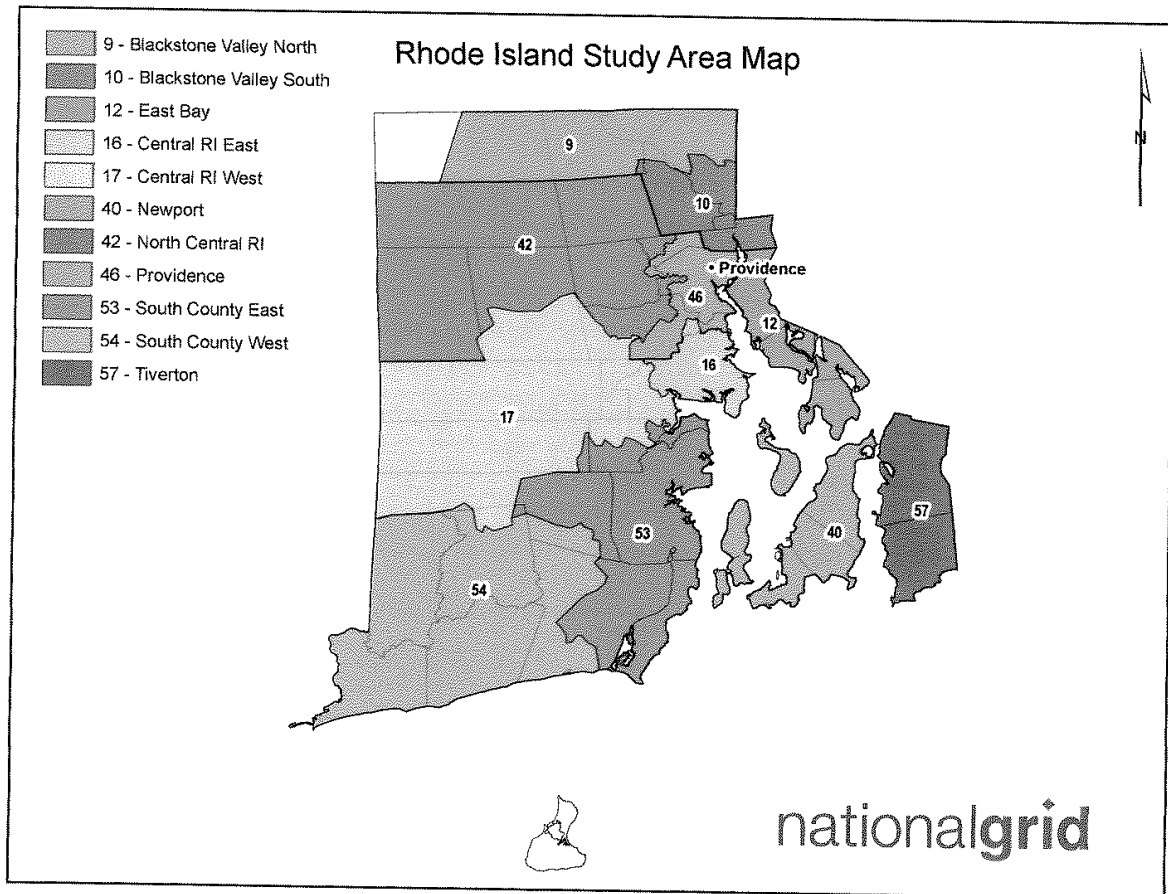
Appendix B - Distribution Planning Study Areas

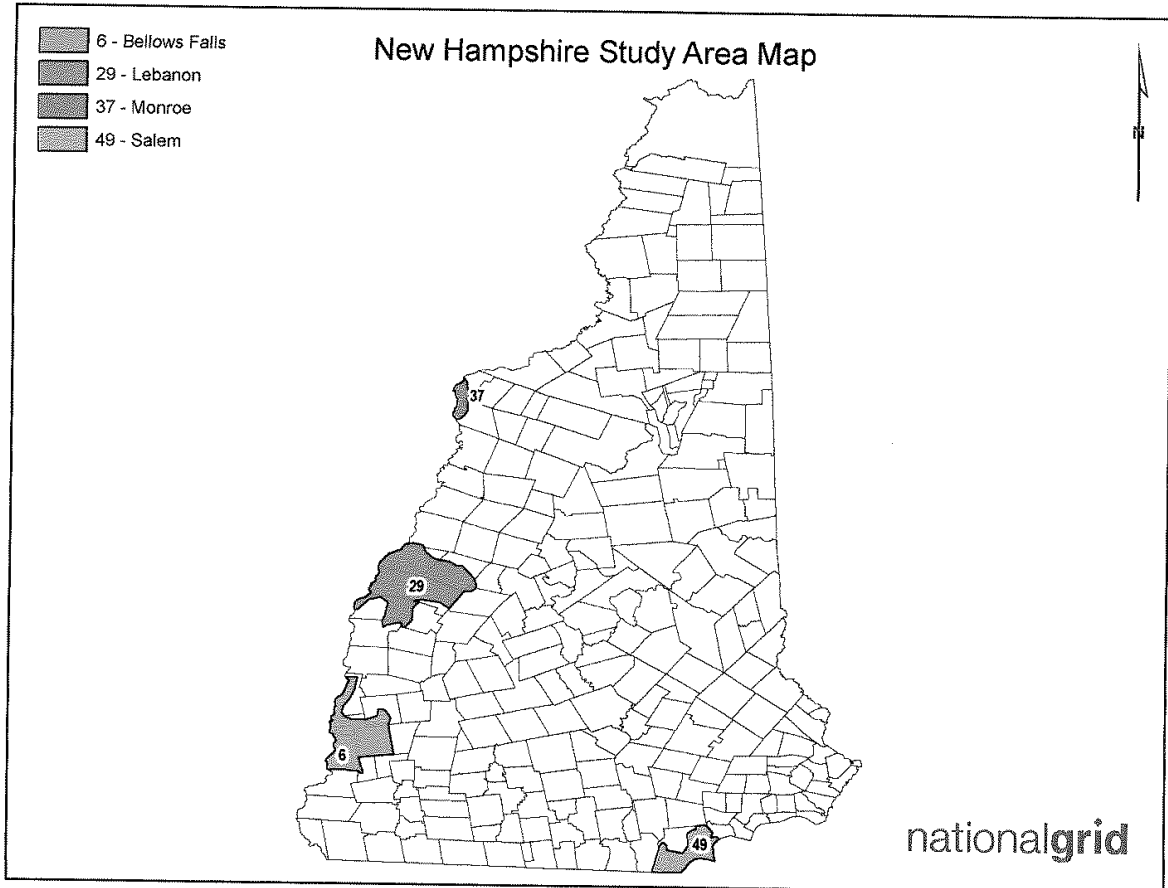
To foster the annual capacity planning assessment, the distribution system across UNY and NE has been segmented into Planning Study Areas as shown in the following figures.



National Grid USA EO Internal Strategy Document
Distribution Planning Criteria Strategy
Issue 1 – February 2011







Division 1-28
Work Plan Development and Delegation of Authority

Request:

The Company states on page 21 that it is currently reviewing projects that have traditionally been in the Discretionary category, specifically related to criteria violations, to determine whether they should be moved to the Non-Discretionary category and anticipates having a determination by the FY 2025 Filing with the Commission.

- a. What are the specific criteria violations being considered?
- b. Discuss whether criteria violations are established under regulatory standards, electrical codes, or internal guidelines.
- c. How are criteria violations measured and monitored?
- d. How are criteria violations currently being resolved? What budget category is currently used to resolve criteria violations?
- e. For the past five years, list projects implemented to resolve criteria violations indicating the violation, how the Company determined the violation, the resolution, cost, and budget category.

Response:

- a. The Company is defining these criteria violations as requirements to upgrade the capability of the distribution system to provide adequate stability, thermal loading, and voltage performance under existing system conditions. Examples include addressing a voltage issue out of compliance with ANSI Range A criteria or upgrading equipment, such as overloaded transformers or conductor, which currently exceed standard ratings and/or planning criteria under normal configuration.
- b. As mentioned above, these criteria violations are established under regulatory standards, electrical codes and/or internal guidelines.
- c. Criteria violations are measured and monitored differently depending on their nature. The Company uses meters and recording devices to measure and monitor voltages and amps on the system to identify criteria violations.

Division 1-28, page 2

Work Plan Development and Delegation of Authority

- d. Currently the Company is resolving them either under the Asset Condition or System Capacity & Performance blankets, programs, and projects. One example in FY 2023 was the CLX Cable Replacement – Water Street project. This was a stray voltage complaint from a customer, and it was also part of the Company’s planned area study work for Newport. The work was accelerated to address the complaint and was done under the spending rationale where it would have been completed otherwise.

Another example is the 155F8 Inst Line Regs & Smart Caps project. This also stemmed from a customer complaint, where the Company determined voltage was below ANSI Range A criteria. This work was classified under System Capacity & Performance.

- e. Please see Attachment DIV 1-28 that outlines projects in the past five years that have been implemented to resolve criteria violations indicating the violation, how the Company determined the violation, the resolution, cost, and budget category.

Project Name	Violation	How violation was determined	Resolution	Total Capital Spend since FY 2019 (000s)	Budget Category
CLX Cable Replacement-Water Street	Stray Voltage	A customer Complaint prompted the dispatch of a regional field engineer and electric crew to investigate. Voltage readings were taken at the premise identifying a stray voltage due to damaged CLX cable.	Cable Replacement	156	Asset Condition
Shippee Ave Voltage Conversion	Overload	Stepdown failed and was replaced with the same size unit as a temporary solution. Subsequent amp readings of the replacement identified an overload of the stepdown. .	Conversion from 4kV to 12.47V	205	System Capacity & Performance
155F8 Inst Line Regs & Smart Caps	Low Voltage	A customer Complaint prompted the review of voltage at the point of service. The Company utilized voltage recording devices to identify low voltage.	Installation of capacitors and regulators	208	System Capacity & Performance
Overloaded Transformer Program	Overload	Calculation based on actual monthly energy specific to each transformer unit.	Transformer upgrades	3,509	System Capacity & Performance
Central Falls Sub Relief	Overload	Previously estimated loads were found to be overloaded when new meters were installed at the station.	Conversion from 4kV to 13.8kV	81	System Capacity & Performance
COVID Phillipsdale - Fdr 20F2	Overload	During detailed engineering review related to energy shifts as a result of the COVID-19 pandemic, a portion of this circuit was found to be overloaded regardless of the energy shift.	Reconductor to larger wire	101	System Capacity & Performance
COVID Lincoln Ave Fdr 72F3	Overload	During detailed engineering review related to energy shifts as a result of the COVID-19 pandemic, portions of this circuit were found to be overloaded regardless of the energy shift.	Reconductor to larger wire	245	System Capacity & Performance
COVID Lincoln Ave Fdr 72F5	Overload	During detailed engineering review related to energy shifts as a result of the COVID-19 pandemic, a portion of this circuit was found to be overloaded regardless of the energy shift.	Reconductor to larger wire	509	System Capacity & Performance

Division 1-29¹
Damage/Failure Reporting

Request:

In quarterly ISR Plan Reports, the Company previously reported Damage/Failure Spend, by Category, using ten Operations Descriptions (see “Previous Attachment F Example” below). The Company now reports spend using two Operations Descriptions (overhead or underground, see “new example” below).

- a. What is the cause for the change in reporting?
- b. Provide a complete list of the previous Operations Descriptions compared to the current Operations Descriptions.
- c. How does RIE utilize Damage/Failure reporting?
- d. What work is included in the Switching and Restoration category? Are projects related to both storms and routine damage/failure work? Provide examples.
- e. Explain the Company’s process to review Damage/Failure projects to determine if work is properly classified as non-discretionary. What information in the detailed Damage/Failure report is relied upon to determine that a project should be moved to a discretionary spending category? How often are reviews performed and who is responsible for the review? Are reclassifications, if any, made quarterly or annually? How does the Company’s new reporting process impact this process?
- f. If requested, would RIE be able to modify Operation Descriptions? If so, what would be the cost and timeline for modification?
- g. In executable format, provide a detailed list of Damage/Failure projects in the most recent FY ISR Plan (2023) that were reclassified, indicating the new spending rationale.

Previous Attachment F Example

¹ The Company’s response begins on page 3.

Division 1-29, page 2
Damage/Failure Reporting

Attachment F

**Damage/Failure Detail by Work Type
For the Year Ending March 31, 2023
(\$000)**

Operation Description	D Line Blanket	Property Damage	D Sub Blanket	Storms	Specifics	Grand Total
Engineering/Design/Supervision	\$ 827	\$ 99	\$ 45	\$ 178	\$ 2	\$ 1,150
OH Elec Distribution	3,345	298	0	1,839	0	5,482
OH Transformers/Capacitors/Regulators/Meters	585	(2)	0	150	0	733
Other	1,009	158	(290)	1,289	544	2,709
Outdoor Lighting	12	2	0	0	0	13
Substation	0	0	867	0	424	1,291
Switching and Restoration	76	(16)	159	1	0	220
Traffic Control	270	104	0	36	0	410
UG Elec Distribution	2,036	422	0	92	0	2,550
UG Transformers/Capacitors/Regulators/Meters	181	(0)	0	8	0	189
Not Available	2,843	470	334	(471)	191	3,368
Total before reclassification	11,184	1,533	1,115	3,122	1,161	18,115
Reclassification adjustment - D/F to A/R	(654)					(654)
Total after reclassification	\$ 10,530	\$ 1,533	\$ 1,115	\$ 3,122	\$ 1,161	\$ 17,461

New Attachment F Example

Attachment F

**Damage/Failure Detail by Work Type
For the Three Months Ending June 30, 2023
(\$000)**

Operation Description	D Line Blanket	Property Damage	D Sub Blanket	Storms	Specifics	Grand Total
OH Elec Distribution	2,002	410	0	0	0	2,412
UG Elec Distribution	320	(2)	0	0	0	318
Other	2	0	330	122	350	803
Damage /Failure Capital Spending	\$ 2,324	\$ 408	\$ 330	\$ 122	\$ 350	\$ 3,534

Division 1-29, page 3
Damage/Failure Reporting

Response:

- a. As of January 1, 2023, the Company transitioned to recording its plant accounting activity on PPL's instance of PowerPlan. Prior to this, activity was recorded on National Grid's instance of PowerPlan. There are inherent differences in the systems because the two companies use different accounting and work management systems. The quarterly reporting under the National Grid PowerPlan system was completed using a field named "Operation." Under the PPL PowerPlan system, the "Operation" field is not part of PPL's accounting code block and was phased out.
- b. Please see Attachment DIV 1-29-1 for a list of the National Grid's Operations Descriptions. An Operations field does not exist in the Company's current version of PowerPlan.
- c. RIE does not utilize Damage/Failure reporting for internal purposes. The Damage/Failure tables and detailed Excel files attached to the ISR plan quarterly reports are created and utilized for regulatory reporting purposes only.
- d. The Excel file attached to the FY 2023 Q4 report has been filtered to create the table below to show the work order numbers and descriptions, the dollar amounts of the capital charges to the Switching and Restoration category, and the funding projects associated with the work performed. Most of the work relates to the Nasonville Substation failure. Some of the work order descriptions have been expanded to provide greater visibility.

The Narragansett Electric Company
d/b/a Rhode Island Energy
In Re: Proposed FY 2025 Electric Infrastructure, Safety and Reliability Plan
Responses to the Division's First Set of Data Requests
Issued on October 23, 2023

Division 1-29, page 4
Damage/Failure Reporting

	<u>WO#</u>	<u>Work Order Number Description</u>	<u>D Line</u> <u>Blanket</u>	<u>D Sub</u> <u>Blanket</u>	<u>Property</u> <u>Damage</u>	<u>Storms</u>	<u>Total</u>
1	C022433 - Major Storms						
2	10030647590	Weather Event 09/13/2022				64	64
3	90000208705	REPLACEMENT W/O FOR 10025725181				1,304	1,304
4	Total C022433 - Major Storms		-	-	-	1,369	1,369
5	COS0002 - Substation Damage/Failure Blanket Project						
6	10030570099	Fault on riser pole, Providence, transformer/relay panel burned		5,203			5,203
7	10030643935	Sub#78 Waterman Ave, E Providence, Replace damaged disconnectors		660			660
8	10030646296	Nasonville Substation Metal clad damaged due to fire, Burrillville		152,703			152,703
9	Total COS0002 - Substation Damage/Failure Blanket Project		-	158,566	-	-	158,566
10	COS0014 - Damage/Failure Blanket Project						
11	10030283615	Distribution Electric Damage/Failur	(918)				(918)
12	10030440932	PD Claim, 8/2/21, Pole Not Provided			-		-
13	10030464095	PD Claim, 9/26/21, Pole 151, 1495 M			(7,968)		(7,968)
14	10030478582	10/21/21, Pole 144-2, Boston Neck R	(304)				(304)
15	10030501366	PD Claim, 11/30/21, Pole 44-1, 576			(10,688)		(10,688)
16	10030545994	March 2022- Monthly Capital Confir	1,156				1,156
17	10030558409	PD Claim, 3/21/22, Pole 71, Colwell			351		351
18	10030563379	PD Claim, 3/30/22, Pole 26-90, 90 G			(509)		(509)
19	10030575208	PD Claim, 4/20/22, Pole 53, Stony F			-		-
20	10030579743	PD Claim, 4/28/22, Pad 3 to Pad 4,			23		23
21	10030585968	PD Claim, 5/8/22, Pole 74, 790 Ten			-		-
22	10030599302	UG Fault, 6/1/22, Pad 12, Jordan St	11,046				11,046
23	10030599307	UG Fault, 5/31/22, MH 265, Third St	3,993				3,993
24	10030600143	Cable Fault, 6/2/22, Pad 8, Arbor W	2,812				2,812
25	10030601806	PD Claim, 6/6/22, Pole 13, Lambert			-		-
26	10030602774	UG Fault, 6/6/22, MH 2308, W. Frien	2,839				2,839
27	10030605911	UG Fault, 6/10/22, MH 348, 4 Commer	4,989				4,989
28	10030616307	PD CLAIM 06/27/22, POLE 93, TEN ROD			-		-
29	10030628926	August 2022: Monthly Capital Confir	2,316				2,316
30	10030630508	CABLE FAULT 07/25/22, VLT 79, 40 WE	18,503				18,503
31	10030638587	CABLE FAULT, 08/08/22, POLE 5, WOOD	5,623				5,623
32	10030642365	8/15/22, Pad 2 to Pad 3, Circlewood	-				-
33	10030646350	UG Fault, 8/22/22, MH 2775, Sabin S	2,918				2,918
34	10030662976	October 2022 - Monthly Capital Conf	745				745
35	10030677369	OH Fault, 10/12/22, Pole 215, W. Ma	5,854				5,854
36	10030685477	EXPEDITED DESIGN 10/28/22, BICENTEN	10,010				10,010
37	10030696006	DAMAGE FAILURE, 11/11/22, VLT 63, M	1,356				1,356
38	10030707573	DAMAGE FAILURE, 12/11/22, THIRD ST,	2,731				2,731
39	10030712868	PD Claim, 12/27/22, Pad 4, Abatecol			2,866		2,866
40	10030762626	PD Claim, 3/25/23, Pole 1, Miner Rd			36		36
41	Total COS0014 - Damage/Failure Blanket Project		75,669	-	(15,890)	-	59,780
42	Grand Total		75,669	158,566	(15,890)	1,369	219,714

Division 1-29, page 5
Damage/Failure Reporting

- e. Prior to performing work, the Company performs assessments to ensure appropriate categorization of work requests and work orders as Discretionary or Non-discretionary work. On a periodic basis, at least quarterly, the Company's Asset Management and Engineering team reviews the Damage/Failure Blanket project's capital spending activity.
- Capital spending on monthly confirming work requests is tracked and compared to previous periods. Significant increases or decreases are communicated to, and reviewed with, Asset Management, Design, Project Controls, and Operations.
 - The Asset Management and Engineering team reviews the description and dollar amount of specific work orders within the Damage/Failure Blanket project. In addition, the Asset Management and Engineering team reviews work orders with unclear descriptions and/or significant value with Operations and/or Design to ensure proper categorization.
 - The Company tracks Property Damage spending and offsetting billings to third parties and compares them to previous periods. Significant increases or decreases are communicated to and reviewed with Resource Planning, Non-Utility Billing, and other teams.

As noted in the Company's response to Division 1-29, part c., above, the Damage/Failure tables and detailed Excel files attached to the quarterly reports are created for regulatory reporting purposes only. They are summaries of capital spending data extracted from PowerPlan, the Company's plant accounting system. The Company uses a variety of internal systems including PowerPlan, work management, and outage reporting, as well as field observation, training and discussion with Field Operations and Design, to monitor and manage failed assets and related budgets.

When reviewing the specific work orders within the Damage/Failure Blanket Project, the Company reviews the work order description and dollar value to determine if the work is properly categorized as non-discretionary.

Communication, training, and review by Operations is ongoing to ensure work is properly categorized and is consistent with the Company's definition of failed assets. Review within the Asset Management and Engineering team takes place at least quarterly and frequently occurs more often.

Prior to FY 2024, the Company made reclassifications on a quarterly basis. During FY 2024, the Company has identified no work orders that require reclassification.

Division 1-29, page 6
Damage/Failure Reporting

Although the Damage/Failure view for ISR plan quarterly reports has changed, the process to ensure work is properly categorized has not changed.

- f. No. The Operation and Operation Description fields are not part of PPL’s accounting system and, therefore, are not available in PPL’s plant accounting system. The Company will work with the Division to understand how this regulatory report is used and try to provide the appropriate level of transparency in quarterly reporting.
- g. The table below provides a detailed list of Damage/Failure projects that were reclassified in the FY2023 ISR Plan from the Damage/Failure Blanket Project. In addition, the Company is providing the Excel file as Attachment DIV 1-29-2.

	<u>Asset Replacement Work in COS0014 - Damage/Failure Blanket Project</u>	<u>Capital Spending Reclassified</u>
1	Reclassification based on review of specific work orders	
2	10030421680 Replace 1 Pole, Relocate 2. 45'C2 P	\$43,214
3	10030421680 Replace 1 Pole, Relocate 2. 45'C2 P	7,100
4	10030594853 Replace poles 642 and 643 East Main	7,178
5	10030604403 Replace JO-P10 (45/H1); transfer li	13,428
6	10030459458 replace; open wire, 3 poles, 1 tran	11,264
7	10030707573 DAMAGE FAILURE, 12/11/22, THIRD ST,	142,946
8	10030707618 DAMAGE FAILURE 12/11/22, BROADWAY,	41,723
9	10024270766 Replace P.100 w/45ft H1 & install p	13,426
10	10030527995 P.112 - replace pole w/45ft cl-2 JO	7,572
11	Asset replacement work in Damage/Failure Blanket	<u>287,851</u>
12	Reclassification based on review of Monthly Confirming Work Request Forms	
13	Total D/F Monthly Confirming Work Requests spending	6,458,837
14	% of forms with "Asset Replacement" box checked	<u>5.66%</u>
15	Asset replacement work in Damage/Failure Blanket	<u>365,865</u>
16	Asset replacement work in Damage/Failure Blanket	<u>\$653,717</u>
17	Asset replacement work in Damage/Failure Blanket - rounded	<u>\$654,000</u> COS0017 - Asset Replacement Blanket Project

<u>Operation</u>	<u>Description</u>
A01	3 - HYDRAULICS-MULTIFUNC>CONTROL VALVE
A02	10 - CRANKING >BATTERY&CABLES
A03	20 - PERIODIC MOUNTED EQUIPMENT INSPECTION
A04	30 - ANNUAL MOUNTED EQUIPMENT INSPECTION
A05	40 - ANNUAL STATE MOTOR VEHICLE INSPECTION
A06	50 - ANNUAL WEIGHT INSPECTION
A07	60 - BOOMS>CONTROL
A08	70 - DRIVESHAFT>DRIVE SHAFT-BEHIND MAIN TRANS
A09	80 - CAB&SHEET MTL>MIRRORS
A10	90 - LIFTING&PULLING>BOOM STRUCTURE
A11	100 - CAB&SHEET MTL>CAB ENTRY ASSISTS
A12	110 - COOLING>WATER MANIFOLD
A13	120 - CRANKING >BATTERY&CABLES
A14	130 - CAB&SHEET MTL>PANEL-REAR DOOR
A15	140 - BRAKES>REAR BRAKES&DRUMS
A16	150 - PWR PLNT>ELECTRONIC ENGINE CONTROLS
A17	160 - STABLIZATION>FEET / PADS
A18	170 - BOOMS>SUPPORT
A19	180 - STEERING>POWER STEERING PUMP
A20	190 - TIRES-TUBES-LINERS&VALVES>TIRE-PNEU
A21	200 - CAB&SHEET MTL>HOOD
A22	210 - BRAKES>AIR POWER BRAKES
A23	220 - FRAME>BUMPER&ATTACHING PARTS
A24	230 - IND>WL/CHIEF DUTIES
A25	240 - IND>YARD CLEANUP
A26	250 - IND>MEETINGS
A27	260 - BOOMS>HYDRAULIC
A28	270 - STEERING>STEERING LINKAGE
A29	280 - CAB&SHEET MTL>QUARTER&DECK PANELS-REAR
A30	1004 - ED, DG INTERCONNECTION STUDY
A31	1008 - ED, ATTEND SAFETY TRAINING
A32	1009 - ED, ATTEND TRAINING OTHER THAN SAFETY
A33	1011 - ED, CATV MAKE READY SURVEY
A34	1019 - ED, EMERGENCY SWITCHING
A35	1020 - ED, ENGINEERING SURVEYS
A36	1022 - ED, FIRE/EMERGENCY CALL
A37	1023 - ED, INCLEMENT WEATHER
A38	1024 - ED, INSTALL GENERAL FACILITIES CAPITAL
A39	1025 - ED, INTERCONNECTION ENGINEERING STUDY
A40	1027 - ED, OPERATE CUSTOMER OWNED EQUIPMENT
A41	1028 - ED, OUTAGE PLANNING + APPROVAL
A42	1029 - ED, PERFORM EMERGENCY STANDBY
A43	1034 - ED, PRELIMINARY ENGINEERING

<u>Operation</u>	<u>Description</u>
A44	1036 - ED, RELIABILITY/CONT
A45	1037 - ED, REMOVE GENERAL FACILITIES CAPITAL
A46	1041 - ED, UPDATE MAPS/RECORDS
A47	1043 - DS, SAFETY SUPEVISION
A48	1050 - DISTRIBUTION SALVAGE
A49	1061 - BUILDING EXPENSES AND SMALL TOOLS - DIST
A50	1064 - CAPITAL WORK - DIST - PLANNING & SCHED
A51	1067 - ED, RADIO/ANTENNA I/R/M
A52	1068 - ED OH, PRIM & SEC CONDUCTOR I/R/M
A53	1069 - ED UG, CONDUIT SYSTEM I/R/M
A54	1071 - ED OH, POLE / ANCHOR / GUY I/R/M
A55	1072 - ED OH. SWITCHES & DEVICES I/R/M
A56	1073 - ED OH, FRAMING I/R/M
A57	1074 - ED OH, CAPACITOR I/R/M
A58	1075 - ED OH, LINE REGULATOR I/R/M
A59	1076 - ED OH, SERVICE I/R/M
A60	1077 - ED OH, TRANSFORMER I/R/M
A61	1078 - ED UG, UG/URD PRIM & SEC CABLE I/R/M
A62	1079 - ED UG, SWITCHES & DEVICES I/R/M
A63	1081 - ED UG, STRUCTURES MH/HH/PAD/VLT I/R/M
A64	1082 - ED UG, TRANSFORMER I/R/M
A65	1083 - ED UG, SERVICE I/R/M
A66	1084 - ED UG, TERMINATIONS & SPLICES I/R/M
A67	1085 - ED UG, IN-GROUND DIRECT BURIED I/R/M
A68	1106 - ED OH VEG CIRCUIT MOWING
A69	1107 - ED OH VEG CIRCUIT TRIM FOLLOW UP
A70	1109 - ED OH VEG HAZARD TREE OFF-CYCLE
A71	1110 - ED OH VEG SPOT TRIM UNPLANNED CAPITAL
A72	1111 - ED OH VEG SPOT TRIM UNPLANNED MAINT
A73	1112 - ED OH VEG WORST PERFORMING FEEDER TRIMMG
A74	1113 - ED OH VEG, CAPITAL CLEARING
A75	1116 - ED OH VEG, INTERIM TRIMMING CAPITAL
A76	1117 - ED OH VEG, INTERIM TRIMMING MAINTENANCE
A77	1118 - ED OH VEG, OFF-ROAD FDR TRIMMING CAPITAL
A78	1119 - ED OH VEG, OFF-ROAD FDR TRIMMING MAINT
A79	1120 - ED OH VEG, PLANNED CYCLE TRIMMING CAPITL
A80	1121 - ED OH VEG, PLANNED CYCLE TRIMMING MAINT
A81	1122 - ED OH VEG, RIGHT OF WAY CLEANUP CAPITAL
A82	1123 - ED OH VEG, RIGHT OF WAY CLEANUP MAINT
A83	1124 - ED OH VEG, RIGHT OF WAY CLEARING CAPITAL
A84	1127 - ED OH VEG, SPECIAL TRIMMING PROJ MAINTEN
A85	1129 - ED OH VEG, TREE PLANTING MAINTENANCE
A86	1131 - ED OH VEG, TROUBLE MAINTENANCE
A87	1133 - ED OH VEG, VENDOR INCENTIVES MAINTENANCE

<u>Operation</u>	<u>Description</u>
A88	1134 - ED UG, CABLE TESTING O&M
A89	1137 - ED OH, 3RD PARTY MAKE READY WORK
A90	1138 - ED OH, AERIAL CABLE INSTALL
A91	1139 - ED OH, AERIAL CABLE MAINTENANCE
A92	1141 - ED OH, ANCHOR ALL TYPES MAINTENANCE
A93	1142 - ED OH, ANIMAL/BIRD GUARDS INSTALL/MAINT
A94	1143 - ED OH, ATTACH 3RD PARTY FACILITIES
A95	1144 - ED OH, BLDG + YARD MAINTENANCE
A96	1145 - ED OH, DOWN GROUND/GROUND SYSTEM INSTALL
A97	1146 - ED OH, DOWN GROUND/GROUND SYSTEM MAINTEN
A98	1147 - ED OH, DOWN GROUND/GROUND SYSTEM REMOVE
A99	1148 - ED OH, ENVIRONMENTAL/HAZARDOUS WASTE
B01	1152 - ED OH, DISTRIBUTION FRAMING INSTALL
B02	1153 - ED OH, DISTRIBUTION FRAMING MAINTENANCE
B03	1154 - ED OH, DISTRIBUTION FRAMING REMOVE
B04	1157 - ED OH PERFORM A+B MAINTANCE
B05	1158 - ED OH VEG, HAZARD TREE REMOVAL MAINT
B06	1159 - ED OH VEG, RIGHT OF WAY CLEARING MAINT
B07	1161 - ED OH, FAULT INDICATORS OH MAINTENANCE
B08	1162 - ED OH, FULLY DRESSED POLE MAINTENANCE
B09	1179 - ED OH, FULLY DRESSED POLE INSTALL
B10	1181 - ED OH, FULLY DRESSED POLE REMOVE
B11	1182 - ED OH, GROUND GUY STRAND
B12	1186 - ED OH, HELICOPTER PATROL
B13	1187 - ED OH, INSPECT/MAINTAIN LINE CAPACITOR
B14	1188 - ED OH, LINE REGULATOR, INST COST INSTALL
B15	1189 - ED OH, INSTALL RUBBER COVER SRV/COND
B16	1190 - ED OH, INSULATOR 23KV - 69KV INSTALL
B17	1191 - ED OH, INSULATOR 23KV - 69KV MAINTENANCE
B18	1192 - ED OH, INSULATOR 23KV - 69KV REMOVE
B19	1193 - ED OH, INVESTIGATE 3RD PARTY WIRES DOWN
B20	1194 - ED OH, INVESTIGATE SVC/VOLTAGE COMPLAINT
B21	1195 - ED OH, JOINT POLE PROPOSAL INVESTIGATION
B22	1196 - ED OH, LINE CAP CLOCK/CONTROL MAINT
B23	1204 - ED OH, LINE CAPACITOR INSTALL
B24	1205 - ED OH, LINE CAPACITOR MAINTENANCE
B25	1206 - ED OH, LINE CAPACITOR REMOVE
B26	1210 - ED OH, LINE FUSE/ARRESTER INSTALL
B27	1211 - ED OH, LINE FUSE/ARRESTER MAINTENANCE
B28	1212 - ED OH, LINE FUSE/ARRESTER REMOVE
B29	1213 - ED OH, LINE REGULATOR, INST COST MAINT
B30	1214 - ED OH, LINE REGULATOR, INST COST REMOVE
B31	1215 - ED OH, LOAD CHECK/RELAY TARGETS
B32	1216 - ED OH, LOADBREAK/AIRBREAK INSTALL

Operation	Description
B33	1217 - ED OH, LOADBREAK/AIRBREAK MAINTENANCE
B34	1218 - ED OH, LOADBREAK/AIRBREAK REMOVE
B35	1219 - ED OH, LOCATING/DIG SAFE
B36	1223 - ED OH, POLE CUTS FOR NON-PAYMENT
B37	1224 - ED OH, OIL CLEANUP
B38	1225 - ED OH, PATROL OUTAGE
B39	1232 - ED OH POLE WOOD UP TO 59FT INSTALL
B40	1233 - ED OH POLE WOOD UP TO 59FT REMOVE
B41	1234 - ED OH, POLE WOOD MAINTENANCE
B42	1237 - ED OH, RECLOSER/SECTIONALIZER INSTALL
B43	1238 - ED OH, RECLOSER/SECTIONALIZER MAINT
B44	1239 - ED OH, RECLOSER/SECTIONALIZER REMOVE
B45	1241 - ED OH, REFUSE LINE FUSE
B46	1244 - ED OH, CONNECT/DISCONNECT TAPS
B47	1251 - ED OH, ANCHOR/GUY ALL TYPES INSTALL
B48	1252 - ED OH, ANCHOR/GUY ALL TYPES REMOVE
B49	1253 - ED OH, SECONDARY/NEUTRAL INSTALL
B50	1256 - ED OH, SERVICE OH INSTALL
B51	1257 - ED OH, SERVICE OH MAINTENANCE
B52	1258 - ED OH, SERVICE OH REMOVE
B53	1259 - ODL, ODL/PAL FOUNDATION INSTALL
B54	1260 - ODL, ODL/PAL FOUNDATION MAINTENANCE
B55	1261 - ODL, ODL/PAL FOUNDATION REMOVE
B56	1262 - ED OH, OH TRANSF 1&3 PH INSTALL
B57	1263 - ED OH, OH TRANSF 1&3 PH MAINTENANCE
B58	1264 - ED OH, OH TRANSF 1&3 PH REMOVE
B59	1273 - ED OH, SUPV + ADMIN, MAINTENANCE
B60	1274 - ED OH, SUPV + ADMIN, OPERATIONS
B61	1275 - ED OH, SWITCHING/TAGGING/GROUNDING
B62	1276 - ED OH, TRANSFORMER/CAP/REG CUTOUT INSTAL
B63	1277 - ED OH, TRANSFORMER/CAP/REG CUTOUT MAINT
B64	1278 - ED OH, TRANSFORMER/CAP/REG CUTOUT REMOVE
B65	1279 - ED OH, PRIMARY & SEC CONDUCTOR INSTALL
B66	1280 - ED OH, PRI & SEC COND MAINTENANCE
B67	1281 - ED OH, PRIMARY & SEC CONDUCTOR REMOVE
B68	1282 - ED OH, PRIMARY COND 3 PH INSTALL
B69	1284 - ED OH, PRIMARY COND 3 PH REMOVE
B70	1285 - ED OH, SWITCHING/TAGGING/GROUNDING O&M
B71	1305 - ED UG, 3RD PARTY MAKE READY WORK
B72	1307 - ED UG, CABLE TESTING
B73	1308 - ED UG, CATHODIC PROTECTION MAINTENANCE
B74	1311 - ED UG, CONNECT/DISCONNECT TAPS
B75	1312 - ED UG, UG/URD ALL CABLE INSTALL
B76	1313 - ED UG, UG/URD ALL CABLE MAINTENANCE

Operation	Description
B77	1314 - ED UG, UG/URD ALL CABLE REMOVE
B78	1320 - ED OH, SWITCHING/TAGGING/GROUNDING REMOV
B79	1321 - ED UG, CONDUIT/DUCT BANK INSTALL
B80	1322 - ED UG, CONDUIT/DUCT BANK MAINTENANCE
B81	1323 - ED UG, CONDUIT/DUCT BANK REMOVE
B82	1339 - ED UG, ENVIRONMENTAL/HAZ WASTE MAINT
B83	1340 - ED UG, ENVIRONMENTAL/HAZ WASTE REMOVAL
B84	1345 - ED UG, FAULT INDICATORS MAINTENANCE
B85	1352 - ED UG, GROUNDING EQUIPMENT REMOVE
B86	1356 - ED UG, INSPECTION/SURVEY
B87	1357 - ED UG, INV. SERVICE/VOLTAGE COMPLAINT
B88	1361 - ED UG, LOAD CHECK/RELAY TARGETS
B89	1362 - ED UG, LOCATING/DIGSAFE
B90	1363 - ED UG, MAINTAIN SWCH/ARST/GRD, UNPLANNED
B91	1364 - ED UG, STRUCTURES MH/HH/PAD/VLT INSTALL
B92	1365 - ED UG, STRUCTURES MH/HH/PAD/VLT MAINT
B93	1366 - ED UG, STRUCTURES MH/HH/PAD/VLT REMOVE
B94	1377 - ED UG, NETWORK PRCTR, INST COST, MAINTEN
B95	1382 - ED UG, OIL CLEANUP
B96	1383 - ED UG, UG SWITCH INSTALL
B97	1384 - ED UG, UG SWITCH MAINTAIN
B98	1385 - ED UG, UG SWITCH REMOVE
B99	1386 - ED UG,UG/URD/NETWORK TRANSFORMER INSTALL
C01	1387 - ED UG,UG/URD/NETWORK TRANSFORMER MAINT
C02	1388 - ED UG,UG/URD/NETWORK TRANSFORMER REMOVE
C03	1398 - ED UG, REFUSE PROTECTIVE DEVICE
C04	1404 - ED UG, UG RISER INSTALL
C05	1405 - ED UG, UG RISER MAINTENANCE
C06	1406 - ED UG, UG RISER REMOVE
C07	1408 - ED UG, CLEAN/PUMP MANHOLE INSTALL
C08	1409 - ED UG, CLEAN/PUMP MANHOLE MAINTENANCE
C09	1410 - ED UG, CLEAN/PUMP MANHOLE REMOVE
C10	1411 - ED UG, UG SERVICE INSTALL
C11	1412 - ED UG, UG SERVICE REMOVE
C12	1413 - ED UG, UG SERVICE MAINTENANCE
C13	1424 - ED UG, SPLICE/TERMINATOR INSTALL
C14	1425 - ED UG, SPLICE/TERMINATOR MAINTENANCE
C15	1426 - ED UG, SPLICE/TERMINATOR REMOVE
C16	1436 - ED UG, SUPV + ADMIN, MAINTENANCE
C17	1437 - ED UG, SUPV + ADMIN, OPERATIONS
C18	1438 - ED UG, SWITCH/TAG/GROUND CAPITAL
C19	1439 - ED UG, SWITCH/TAG/GROUND MAINTENANCE
C20	1440 - ED UG, SWITCH/TAG/GROUND OPERATIONS
C21	1505 - DS, APPARTUS INSPECT/TEST - SCHED

<u>Operation</u>	<u>Description</u>
C22	1506 - DS, DISSOLVED GAS ANALYSIS
C23	1507 - DS, EMS RTU INSTALL
C24	1508 - DS, EMS RTU REMOVE
C25	1509 - DS, ENVIRONMENTAL COMPLIANCE
C26	1510 - DS, EQUIPMENT MODIFICATION, ANIMAL PROT
C27	1511 - DS, EQUIPMENT MODIFICATIONS
C28	1512 - DS, FOLLOW-UP MAINT, APPARATUS INSPECT
C29	1513 - DS, FOLLOW-UP MAINT, V+O INSPECT
C30	1514 - DS, GROUNDSKEEPING/HOUSEKEEPING
C31	1515 - DS, MOBILE SUBSTATION SETUP
C32	1516 - DS, OTHER NON-ASSET MAINTENANCE
C33	1517 - DS, POLLUTION CONTROL FACILITIES INSTALL
C34	1518 - DS, POLLUTION CONTROL FACILITIES REMOVE
C35	1519 - DS, ROUTINE OPERATIONS
C36	1521 - DS, SPCC FACILITIES MAINTENANCE
C37	1523 - DS, STATION EQUIPMENT INSTALL
C38	1524 - DS, STATION EQUIPMENT REMOVE
C39	1525 - DS, STRUCTURES + IMPROVEMENTS INSTALL
C40	1526 - DS, STRUCTURES + IMPROVEMENTS REMOVE
C41	1527 - DS, SUB SWITCHING FOR OTHER DEPT
C42	1530 - DS, TAKE READINGS
C43	1531 - DS, TELEPHONE CO TROUBLE
C44	1532 - DS, THERMOVISION
C45	1533 - DS, TROUBLE MAINTENANCE
C46	1534 - DS, V+O INSPECTION
C47	1535 - DSUB AUXILIARY SERVICES
C48	1536 - DSUB BELOW GROUND WORK EXC FOUND
C49	1537 - DSUB BUS SYSTEMS
C50	1538 - DSUB CAP PROJ AS-BUILTS
C51	1539 - DSUB CAP PROJ MAT PROCUREMENT
C52	1540 - DSUB CIVIL/STRUCTURAL (E)
C53	1541 - DSUB CIVIL/STRUCTURAL (I)
C54	1542 - DSUB CONTROL & INTEGRATION (E)
C55	1543 - DSUB CONTROL & INTEGRATION (I)
C56	1544 - DSUB DAMAGE/FAILURE SUPPORT
C57	1545 - DSUB ENG NEW TECH INITIATIVES
C58	1546 - DSUB HIGH VOLT EQUIP EXC PWR TRANSF
C59	1547 - DSUB PERMIT AND LICENSING SUPPORT
C60	1548 - DSUB POWER TRANSFORMER
C61	1549 - DSUB PROJ CLOSE OUT WALK-THRU
C62	1550 - DSUB PROJECT DEVELOPMENT (E)
C63	1551 - DSUB PROJECT DEVELOPMENT (I)
C64	1552 - DSUB QA/QC DRAW/CALC, INSP/TEST
C65	1553 - DSUB RELAY CNTRL COMMUNICATIONS MTR

Operation	Description
C66	1554 - DSUB SITE PREPARATION
C67	1555 - DSUB SPCC PLANS (CAPITAL PROJECTS)
C68	1556 - DSUB SPECIAL ELECTRICAL EQUIPMENT
C69	1557 - DSUB SUB STRUCTURES
C70	1558 - DSUB SUPPORT DURING CONSTR
C71	1559 - DSUB TESTING & COMMISSIONING
C72	1560 - DSUB TRAINING SUB CAPITAL PROJ
C73	1561 - DS, Snow Removal
C74	1562 - DS, Escort Contractor
C75	1563 - DS, Weed Control
C76	1564 - DS, Animal/Pest Control
C77	1606 - ODL, BULB/PHOTO CELL/STARTER MAINTENANCE
C78	1607 - ODL, CONTROL INSTALL
C79	1611 - ODL, LUMINAIRE/HEAD/ARM INSTALL
C80	1612 - ODL, LUMINAIRE/HEAD/ARM MAINTENANCE
C81	1613 - ODL, LUMINAIRE/HEAD/ARM REMOVE
C82	1615 - ODL, OH WIRE/CABLE INSTALL
C83	1616 - ODL, OH WIRE/CABLE MAINTENANCE
C84	1617 - ODL, OH WIRE/CABLE REMOVE
C85	1621 - ODL, PATROL SYSTEM
C86	1622 - ODL, RED CAP INSTALL
C87	1623 - ODL, RED CAP REMOVE
C88	1627 - ODL, STANDARD/POLE/POST INSTALL
C89	1628 - ODL, STANDARD/POLE/POST MAINTENANCE
C90	1629 - ODL, STANDARD/POLE/POST REMOVE
C91	1632 - ODL, TEMPORARY SUPPLY MAINTENANCE
C92	1635 - ODL, UG CABLE/CONDUIT INSTALL
C93	1636 - ODL, UG CABLE/CONDUIT MAINTENANCE
C94	1637 - ODL, UG CABLE/CONDUIT REMOVE
C95	1638 - ODL, ODL/PAL FOUNDATION I/R/M
C96	1639 - ODL, LUMINAIRE/HEAD/ARM I/R/M
C97	1640 - ODL, OH WIRE/CABLE I/R/M
C98	1641 - ODL, STANDARD/POLE/POST I/R/M
C99	1642 - ODL, UG CABLE/CONDUIT I/R/M
D01	1719 - E MTR, CONNECT/DISCONNECT METER
D02	1720 - E MTR, CUT IN/CUT OUT
D03	1723 - E MTR, DOMESTIC METER INSTALL
D04	1724 - E MTR, DOMESTIC METER REMOVE
D05	1725 - E MTR, ELECTRIC MTR BASIC, EXT, INSTALL
D06	1726 - E MTR, ELECTRIC MTR BASIC, EXT, REMOVE
D07	1728 - E MTR, FACILITY MAINTENANCE
D08	1729 - E MTR, GENERAL METER INVESTIGATION
D09	1733 - E MTR, INSTALL LARGE METER
D10	1739 - E MTR, REMOVE LARGE METER

<u>Operation</u>	<u>Description</u>
D11	1744 - ADVANCED METER CHANGES INSTALL
D12	1745 - ADVANCED METER CHANGES REMOVE
D13	1747 - E MTR, REPLACE ELECTRIC METER
D14	1748 - E MTR, REPLACE LARGE ELECTRIC METER
D15	1761 - INV AND TEST METERS
D16	1770 - PRECAP CAPACITOR BARE COST INSTALL
D17	1771 - PRECAP CAPACITOR BARE COST MAINTENANCE
D18	1772 - PRECAP CAPACITOR BARE COST REMOVE
D19	1773 - PRECAP LINE REGULATOR BARE COST INSTALL
D20	1774 - PRECAP LINE REGULATOR BARE COST MAINT
D21	1775 - PRECAP LINE REGULATOR BARE COST REMOVE
D22	1776 - PRECAP METER ASSET BARE COST INSTALL
D23	1778 - PRECAP OH TRANS ASSET BARE COST INSTALL
D24	1779 - PRECAP OH TRANS ASSET BARE COST MAINT
D25	1780 - PRECAP OH TRANS ASSET BARE COST REMOVE
D26	1781 - PRECAP UG ASSET BARE COST INSTALL
D27	1782 - PRECAP UG ASSET BARE COST MAINTENANCE
D28	1783 - PRECAP UG ASSET BARE COST REMOVE
D29	1805 - R, AUTOMATIC VEHICLE LOCATOR
D30	1818 - R, TWO WAY RADIO, MAINT
D31	1819 - R, TWO WAY RADIO, OPS
D32	1826 - RD, ED SUB, R, EMS RTU INSTALL
D33	1827 - RD, ED SUB, R, EMS RTU REMOVE
D34	1828 - RD, ED SUB, R, STATION EQUIPMENT INSTALL
D35	1829 - RD, ED SUB, R, STATION EQUIPMENT REMOVE
D36	1830 - RD, ED SUB, T, EMS RTU INSTALL
D37	1831 - RD, ED SUB, T, EMS RTU REMOVE
D38	1832 - RD, ED SUB, T, STATION EQUIPMENT INSTALL
D39	1833 - RD, ED SUB, T, STATION EQUIPMENT REMOVE
D40	1838 - RD, RELAY MAINTENANCE TESTING
D41	1839 - RD, RELAY SETTING CHANGES
D42	1840 - RD, RELAY SETTING RECORDS
D43	1841 - RD, RELAY, INSTRUMENT CALIBRATION + RPR
D44	1847 - RD, TELECOM, ENERGY METERING, TEST/MAINT
D45	1848 - RD, TELECOM, M+T POLE TOP EQUIP
D46	1849 - RD, TELECOM, MAINT/TEST SUBSTATION EQUIP
D47	1850 - RD, TELECOM, RADIO + TV INTERFERENCE
D48	1851 - RD, TELECOM, SERVICE/VOLTAGE COMPLIANTS
D49	1852 - RD, TELECOM, SUBSTATION SCADA RTU
D50	1884 - HVDC OTHER/MISC MAINTENANCE
D51	1915 - EQUIPMENT INVESTIGATIONS
D52	1926 - MISC OPS SUPV AND ADMIN
D53	1931 - MMT MATERIALS TRAN SUB MNT
D54	1954 - SUPV&ADM OH

<u>Operation</u>	<u>Description</u>
D55	1967 - PRELIMINARY ENGINEERING
D56	1968 - PROJECT ESTIMATION AND CLOSEOUT
D57	1971 - ED, PRELIMINARY ENGINEERING
D58	2008 - GAS, PRELIMINARY ENGINEERING
D59	2015 - CONDUCT FIELD INVESTIGATE-CUSTOMER
D60	2021 - INSIDE PIPE INSPECTIONS / FW CHECKS
D61	2024 - CHANGE METER SERVICE VALVE
D62	2041 - METER ON/OFFS
D63	2042 - METER PROTECTION
D64	2045 - MISC METER/REGULATOR WORK
D65	2047 - NO HEAT
D66	2051 - REMOVE METR THEFT
D67	2055 - RESURFACING VALVE REPAIR
D68	2057 - STANDBY LEAK/FIRE
D69	2063 - FITTING WORK
D70	2075 - AMR PROFIT ADDING
D71	2089 - CHANGE RESIDENTIAL METER-CAPITAL
D72	2092 - CHANGE INDUST/COMMERCIAL METER -CAP
D73	2094 - REMOVE STATION REGULATOR
D74	2100 - INSTL ANAEROBIC JOINT SEALS <=6"
D75	2101 - INSTL ANAEROBIC JOINT SEALS 8"-10"
D76	2102 - INSTL ANAEROBIC JNT SEALS 12"-16"
D77	2103 - INSTL ANAEROBIC JNT SEALS 20"- 24"
D78	2104 - INSTL ANAEROBIC JOINT SEALS >= 30"
D79	2105 - INSTALL ENCAPSULATE <=6"
D80	2106 - INSTALL ENCAPSULATE 8" TO 10"
D81	2107 - INSTALL ENCAPSULATE 12" TO 16"
D82	2108 - INSTALL ENCAPSULATE 20 IN.- 24 IN.
D83	2109 - INSTALL ENCAPSULATE >30 IN.
D84	2141 - MAINT/REPAIR VALVE -CRITICAL
D85	2142 - MAINT/REPAIR VALVE -DIST
D86	2143 - MAINTAIN/REPAIR TRANS VALVE
D87	2147 - GREASE MAIN VALVE
D88	2148 - INSTL/REPL SERVICE VALVE
D89	2149 - OPERATE CRITICAL VALVES
D90	2153 - REGRD REPL VALVE BOX
D91	2154 - DRIP REPAIR-MAIN
D92	2155 - DRIP REPAIR-SERV
D93	2156 - OPERATE/REPLACE CURB BOX
D94	2160 - PREDOT-INSTL/REPL TS-MAINS&SERVICES
D95	2161 - PROT-INSTL/REPL TS-MAINS&SERVICES
D96	2162 - PROT-MAINTAIN TS-MAINS&SERVICES
D97	2163 - PROT-INSTL ANODES-MAINS&SERVICES
D98	2164 - PREDOT-INSTL ANODE-MAINS&SERVICES

<u>Operation</u>	<u>Description</u>
D99	2165 - PREDOT-INSTL/REPL IJ - SERVICES
E01	2166 - PROT-INSTL/REPL IJ - SERVICES
E02	2167 - PREDOT-INSTL/REPL IJ - MAINS
E03	2168 - PROT-INSTL/REPL IJ - MAINS
E04	2169 - PREDOT-BOND IJ UNDERGROUND-MAINS
E05	2170 - PROT-BOND IJ UNDERGROUND-MAINS
E06	2171 - PREDOT-INSTL RECTIFER/BOND-MNS&SERV
E07	2172 - PROT-INSTL RECTIFER/BOND-MNS&SERV
E08	2173 - PROT-RELO RECTIFER/BOND-MNS&SERV
E09	2174 - PREDOT-MAJ RECTIFIER/BOND REPR M&S
E10	2175 - PROT-MAJOR RECTIFER/BOND REPR-MN&SERV
E11	2176 - PROT-MINOR RECTIFER/BOND REPR-MN&SERV
E12	2177 - PROT-RECOAT MAINS
E13	2178 - PROT-RECOAT SERVICES
E14	2179 - PREDOT-CLR CONTACT/CUTTRACEWIRE M&S
E15	2180 - PROT-CLR CONTACT/CUTTRACWIRE-MN&SERV
E16	2181 - PREDOT-SPECIAL REQST-MAINS&SERVICES
E17	2182 - PROT-SPECIAL REQST-MAINS&SERVICES
E18	2183 - PREDOT-INSPECTION
E19	2184 - PROT-INSPECTION
E20	2185 - PREDOT-ENGINEERING
E21	2186 - PROT-ENGINEERING
E22	2187 - PREDOT-TESTING
E23	2188 - PROT-TESTING
E24	2189 - PREDOT-DIAGNOSTIC
E25	2190 - PROT-DIAGNOSTIC
E26	2191 - PROT-RECOAT MAINS
E27	2199 - TEMP SERVICE OFFSET
E28	2200 - CUT OFF STUB SERVICE
E29	2201 - DISCONNECT/RECONNECT SERVICE
E30	2202 - DISCON/RECONNECT SERVICES-PWR
E31	2203 - MISC MAINTENANCE SERVICES
E32	2204 - OFFSET SERVICES
E33	2205 - OFFSET SERVICES PWR
E34	2206 - PERMANENT REPAIRS-SERVICES
E35	2207 - REACTIVATE SERVICE
E36	2208 - REPLACE SERVICE MAIN TO P/L OR CV
E37	2209 - TEMPORARY REPAIRS-SERVICES
E38	2222 - PERM REPAIR OF MAINS
E39	2223 - TEMP REPAIR OF MAINS
E40	2224 - CLAMP MAIN - ALL
E41	2225 - MISC MAINTENANCE MAINS
E42	2226 - OFFSET MAIN / O&M REPL - <=2"
E43	2227 - OFFSET MAIN / O&M REPL - 3" - 4"

<u>Operation</u>	<u>Description</u>
E44	2228 - OFFSET MAIN / O&M REPL - 6" - 8"
E45	2229 - OFFSET MAIN / O&M REPL - 10"-12"
E46	2230 - OFFSET MAIN / O&M REPL - 16"-20"
E47	2231 - OFFSET MAIN / O&M REPL - 24"-30"
E48	2232 - OFFSET MAIN / O&M REPL - > 30"
E49	2302 - CONSTRUCTION INSPECTION - EXPENSE
E50	2303 - LEAK INVESTIGATION
E51	2304 - LEAK SURVEILLANCE / RECHECK
E52	2305 - LOCATE & MARK
E53	2307 - PATCH DEPRESSIONS
E54	2308 - PIPELINES INSPECTION MARKER
E55	2309 - PREMARKING - FIELD WORK
E56	2310 - PUMPING DRIPS
E57	2311 - PURGING/AERATING
E58	2312 - RETIRE DRIP STANDPIPE
E59	2314 - GAS STREET LIGHT MAINTENANCE
E60	2315 - VENT OPENING
E61	2326 - REPAIR TOOLS-GAS
E62	2351 - MANDATED GAS TRANSMISSION SURVEY
E63	2352 - MANDATED GAS TRANSMISSION EXCAVATION
E64	2381 - MANDATED-CRITICAL VALVE INSP
E65	2383 - MANDATED-DISTRIBUTION VALVE INSP
E66	2391 - MANDATED-TRANS PIPELINE VALVE INSP
E67	2395 - MANDATED - SPECIAL SURVEY
E68	2400 - INSTALL DISTRIBUTION VALVE
E69	2402 - REMOVE DISTRIBUTION VALVE
E70	2403 - REMOVE TRANSMISSION VALVE
E71	2425 - RETIRE SERVICE
E72	2426 - INSERT PLASTIC SERVICE
E73	2427 - INSTALL NEW PLASTIC SERVICE <2"
E74	2428 - INSTALL NEW PLASTIC SERVICE 2"
E75	2429 - INSTALL NEW PLASTIC SERVICE 3" - 4"
E76	2430 - INSTALL NEW PLASTIC SERVICE 6" - 8"
E77	2431 - INSTALL NEW PLASTIC SERVICE >=10"
E78	2432 - INSTALL NEW STEEL SERVICE <2"
E79	2433 - INSTALL NEW STEEL SERVICE 2"
E80	2434 - INSTALL NEW STEEL SERVICE 3" - 4"
E81	2435 - INSTALL NEW STEEL SERVICE 6" - 8"
E82	2436 - INSTALL NEW STEEL SERVICE >=10"
E83	2437 - RELAY PLASTIC SERVICE <2"
E84	2438 - RELAY PLASTIC SERVICE 2"
E85	2439 - RELAY PLASTIC SERVICE 3"-4"
E86	2440 - RELAY PLASTIC SERVICE 6"-8"
E87	2441 - RELAY PLASTIC SERVICE >10"

<u>Operation</u>	<u>Description</u>
E88	2442 - RELAY STEEL SERVICE <2"
E89	2443 - RELAY STEEL SERVICE 2"
E90	2444 - RELAY STEEL SERVICE 3"-4"
E91	2445 - RELAY STEEL SERVICE 6"-8"
E92	2446 - RELAY STEEL SERVICE >=10"
E93	2447 - INSTL SERV ASSOC W/MN<2"(SERV ONLY)
E94	2450 - INSERT MAIN < = 2"
E95	2451 - INSERT MAIN 3"- 4"
E96	2452 - INSERT MAIN 6"-8"
E97	2453 - INSERT MAIN 10-12
E98	2454 - INSTALL PLASTIC MAIN <=2"
E99	2455 - INSTALL PLASTIC MAIN 3" TO 4"
F01	2456 - INSTALL PLASTIC MAIN 6" - 8"
F02	2457 - INSTALL PLASTIC MAIN 10" - 12"
F03	2458 - INSTALL PLASTIC MAIN 16" TO 20"
F04	2459 - INSTALL STEEL MAIN <=2"
F05	2460 - INSTALL STEEL MAIN 3" - 4"
F06	2461 - INSTALL STEEL MAIN 6" - 8"
F07	2462 - INSTALL STEEL MAIN 10" - 12"
F08	2463 - INSTALL STEEL MAIN 16" - 20"
F09	2464 - INSTALL STEEL MAIN 24" - 30"
F10	2465 - INSTALL STEEL MAIN > 30"
F11	2466 - INSTALL STEEL TRANS MAIN <10"
F12	2467 - INSTALL STEEL TRANS MAIN 10"-12"
F13	2468 - INSTALL STEEL TRANS MAIN >16-24"
F14	2470 - RETIRE DISTRIBUTION MAIN
F15	2471 - RETIRE TRANSMISSION MAIN
F16	2472 - REPL DIST MAIN WITH PLASTIC <=2"
F17	2473 - REPL DIST MAIN WITH PLASTIC 3" - 4"
F18	2474 - REPL DIST MAIN WITH PLASTIC 6" - 8"
F19	2475 - REPL DIST MN W/ PLASTIC 10"-12"
F20	2476 - REPL DIST MN W/ PLASTIC 16"-20"
F21	2477 - REPL DIST MAIN WITH STEEL <=2"
F22	2478 - REPL DIST MAIN WITH STEEL 3"-4"
F23	2479 - REPL DIST MAIN WITH STEEL 6"-8"
F24	2480 - REPL DIST MAIN WITH STEEL 10"-12"
F25	2481 - REPL DIST MAIN WITH STEEL 16"-20"
F26	2482 - REPL DIST MAIN WITH STEEL 24"-30"
F27	2483 - REPL DIST MAIN WITH STEEL >30"
F28	2490 - CISBOT - INTERNAL MAIN SEALING
F29	2501 - CHANGE CHART/MONTHLY INSP (DIST)
F30	2512 - INSTALL GAS REGULATING DIST STATION
F31	2513 - INST GAS REG STATION - TRANS
F32	2515 - INSTALL SCADA EQUIPMENT

<u>Operation</u>	<u>Description</u>
F33	2516 - MAINT/REPAIR RESIDENTIAL FACILITY
F34	2518 - MAINT/REPR GAS REG STATION - DISTR
F35	2524 - MAINT/REPR GAS TRANS COMP STATION
F36	2532 - OPER/INSP GAS REG STATION - DISTR
F37	2542 - REMV GAS DIST COMPRESSOR STATION
F38	2543 - REMV GAS REGULATOR DIST STATION
F39	2544 - REMV GAS REGULATOR TRANS STATION
F40	2643 - LNG BUILDINGS & GROUNDS
F41	2646 - LNG VAPORIZER ADDS/CHNGS - CAPITAL
F42	2648 - LNG BUILDING&GROUNDS CHNG/ADD CAP
F43	2649 - LNG CAPITAL MISC. CHNGS/ADDS
F44	2650 - LNG CAPITAL TANK CHNGS/ADDS
F45	2652 - LNG REMOVAL /RETIREMENT
F46	2653 - LNG EMERGENCY GENERATOR
F47	2654 - LNG INSTRUMENT AIR/GAS
F48	2655 - LNG FIRE PROTECTION
F49	2656 - LNG BOILOFF SYSTEM
F50	2657 - LNG PIPING & VESSELS
F51	2658 - LNG SECURITY
F52	2700 - MAINTAIN TELEMETERING POINTS
F53	2709 - PURCHASE DOMESTIC GAS METERS
F54	2710 - PURCHASE LG VOLUME GAS METERS
F55	2711 - PURCHASE CORRECTING DEVICE
F56	2712 - GAS METER PURCHASES
F57	2713 - AMR PURCHASES
F58	2714 - GAS TEST EQUIPMENT
F59	2716 - INSTALL CORRECTOR ON NEW SET
F60	2717 - RETIRE GAS METER
F61	2718 - INSTALL NEW TELEMETERING POINTS
F62	2719 - REFURB DOMESTIC GAS METERS
F63	2720 - REFURB LARGE VOLUME GAS METERS
F64	2721 - INSTL AMR ON DOMESTIC GAS METERS
F65	2722 - INSTL AMR ON LARGE VOL GAS MTRS
F66	2723 - QC TEST DOMESTIC GAS METERS
F67	2724 - QC TEST LG VOLUME GAS METERS
F68	2725 - SHOP TEST - CORRECTOR
F69	2727 - INSTALL INDUSTRIAL/COMMERCIAL METER
F70	2730 - INSTALL RESIDENTIAL METER
F71	2732 - REMOVE SCADA
F72	2733 - REMOVING CAST IRON MAIN
F73	2734 - REMOVING PLASTIC MAIN
F74	2735 - REMOVE GAS DISTRIBUTION
F75	2736 - REMOVE GAS TRANSMISSION
F76	2737 - INSTALL STATION REGULATOR

<u>Operation</u>	<u>Description</u>
F77	2738 - REMOVE GAS METERS
F78	2747 - INSTALL GAS DIST MAIN-CAPITAL
F79	2803 - FITTING WORK CAPITAL
F80	3002 - ET, ATTEND MEETINGS OTHR THAN SAFETY
F81	3003 - ET, ATTEND SAFETY MEETINGS
F82	3004 - ET, ATTEND SAFETY TRAINING
F83	3011 - ET, EMERGENCY STANDBY
F84	3015 - ET, ENGINEERING SYSTEM PLANNING
F85	3018 - ET, INCLEMENT WEATHER
F86	3021 - ET, INSTL GENERAL FACILITIES
F87	3022 - ET, INTERCONNECTION ENGINEERING STUDY
F88	3025 - ET, MAINTAIN RECORDS
F89	3029 - ET, OUTAGE PLANNING + APPROHAL
F90	3030 - ET, PERFORMANCE ANALYSIS + REPORTING
F91	3033 - ET, PRELIMINARY ENGINEERING
F92	3037 - ET, REMV GENERAL FACILITIES
F93	3038 - ET, SMALL TOOLS/EQUIP/MISC
F94	3039 - ET, SPECIAL ENGINEERING PROJECTS/STUDY
F95	3043 - EXTERNAL FINAL ENG. & DESIGN (EPC, RDV)
F96	3045 - EXTERNAL FINAL ENG. & DESIGN (EPC, RDV)
F97	3055 - ET, PRELIMINARY ENGINEERING
F98	3056 - ET, PSI - WRITE OFF
F99	3101 - ET OH VEG, MAINTAIN ROW FLOOR MOWING
G01	3102 - ET OH VEG, MAINTAIN/CLEAN ROW
G02	3103 - ET OH VEG, OFF CYCLE TRIM
G03	3104 - ET OH VEG, ROW CAPITAL CLEARING
G04	3107 - ET OH VEG, ROW CYCLE FLOOR IVM
G05	3108 - ET OH VEG, ROW CYCLE SIDE LINE
G06	3109 - ET OH VEG, ROW FLOOR MOWING CAPITAL
G07	3110 - ET OH VEG, ROW MAINTAIN CLEARING
G08	3111 - ET OH VEG, ROW TREE PLANTING
G09	3112 - ET OH VEG, SUBSTATN VEG MNGMNT
G10	3113 - ET OH VEG, VEGEATATION MANAGEMENT
G11	3114 - ET OH, AERIAL PATROL
G12	3115 - ET OH, CORONA INSP
G13	3116 - ET OH, ENVIRONMENTAL/HAZARDOUS WASTE
G14	3117 - ET OH, FOOT PATROL
G15	3118 - ET OH, INSP FOUNDATIONS, POLES
G16	3119 - ET OH, INSP FOUNDATIONS, TOWERS
G17	3120 - ET OH, INSP STEEL POLES
G18	3121 - ET OH, INSP WOOD POLES
G19	3122 - ET OH, INSP/MAINTAIN FIBER OPTIC CABLE
G20	3125 - ET OH, INSTL AERIAL CABLE STEEL
G21	3126 - ET OH, INSTL AERIAL CABLE WOOD

<u>Operation</u>	<u>Description</u>
G22	3127 - ET OH, INSTL CROSS BRACINGS
G23	3128 - ET OH, INSTL GUYS/ANCHORS, POLES
G24	3129 - ET OH, INSTL GUYS/ANCHORS, TOWERS
G25	3131 - ET OH, INSTL LINE ARRESTER, WD
G26	3132 - ET OH, INSTL PHASE CONDUCTOR, ST
G27	3133 - ET OH, INSTL PHASE CONDUCTOR, WD
G28	3134 - ET OH, INSTL SHIELD/STATIC WIRE, ST
G29	3135 - ET OH, INSTL SHIELD/STATIC WIRE, WD
G30	3136 - ET OH, INSTL SLEEVES/SPLICES
G31	3137 - ET OH, INSTL STRUCT GRD/BND, ST
G32	3138 - ET OH, INSTL STRUCT GRD/BND, WD
G33	3139 - ET OH, INSTL SWITCH, MANUAL, ST
G34	3140 - ET OH, INSTL SWITCH, MANUAL, WD
G35	3141 - ET OH, INSTL SWITCH, MOTORIZED, ST
G36	3143 - ET OH, INSTL/INSP CROSSARMS
G37	3144 - ET OH, INSTL/INSP FOUNDATIONS, POLES
G38	3145 - ET OH, INSTL/INSP FOUNDATIONS, TOWERS
G39	3146 - ET OH, INSTL/INSP STEEL POLES
G40	3147 - ET OH, INSTL/INSP STEEL TOWER
G41	3148 - ET OH, INSTL/INSP WOOD POLES
G42	3149 - ET OH, INSTL/INSP/TST INSULATION, ST
G43	3150 - ET OH, INSTL/INSP/TST INSULATION, WD
G44	3151 - ET OH, INSTL/INSP/TST STRUCT GRD, WD
G45	3152 - ET OH, INSTL/INSP/TST STRUCT/TWR GRD
G46	3155 - ET OH, MAINTAIN AERIAL CABLE STEEL
G47	3156 - ET OH, MAINTAIN AERIAL CABLE WOOD
G48	3157 - ET OH, MAINTAIN ATTACHMENTS, STRUCTURAL
G49	3158 - ET OH, MAINTAIN CROSS BRACINGS
G50	3159 - ET OH, MAINTAIN GATES/ACCESS POINTS ROW
G51	3160 - ET OH, MAINTAIN GUYS/ANCHORS, POLES
G52	3161 - ET OH, MAINTAIN GUYS/ANCHORS, TOWERS
G53	3162 - ET OH, MAINTAIN INSP ATTACHMENTS, CONDUCT
G54	3165 - ET OH, MAINTAIN PHASE CONDUCTOR, ST
G55	3166 - ET OH, MAINTAIN PHASE CONDUCTOR, WD
G56	3167 - ET OH, MAINTAIN SHIELD/STATIC WIRE, ST
G57	3168 - ET OH, MAINTAIN SHIELD/STATIC WIRE, WD
G58	3170 - ET OH, MAINTAIN STRUCT GRD/BND, ST
G59	3171 - ET OH, MAINTAIN STRUCT GRD/BND, WD
G60	3172 - ET OH, MAINTAIN SWITCH, MANUAL, ST
G61	3173 - ET OH, MAINTAIN SWITCH, MANUAL, WD
G62	3174 - ET OH, MAINTAIN SWITCH, MOTORIZED, ST
G63	3175 - ET OH, MAINTAIN SWITCH, MOTORIZED, WD
G64	3177 - ET OH, MAINTAIN TRAILS
G65	3178 - ET OH, MAINTAIN/INSP CROSSARMS

Operation	Description
G66	3179 - ET OH, MAINTAIN/INSP FOUNDATIONS, POLES
G67	3180 - ET OH, MAINTAIN/INSP FOUNDATIONS, TOWERS
G68	3181 - ET OH, MAINTAIN/INSP STEEL POLES
G69	3182 - ET OH, MAINTAIN/INSP STEEL TOWER
G70	3183 - ET OH, MAINTAIN/INSP WOOD POLES
G71	3184 - ET OH, MAINTAIN/INSP/TST INSULATION, ST
G72	3185 - ET OH, MAINTAIN/INSP/TST INSULATION, WD
G73	3186 - ET OH, MAINTAIN/INSP/TST STRUCT GRD, WD
G74	3187 - ET OH, MAINTAIN/INSP/TST STRUCT/TWR GRD
G75	3189 - ET OH, OPERATE INSP ATTACHMENTS, CONDUCT
G76	3191 - ET OH, OPERATE/INSP STEEL TOWER
G77	3196 - ET OH, PAINT STEEL POLES
G78	3197 - ET OH, PAINT STEEL TOWERS
G79	3198 - ET OH, REMV AERIAL CABLE STEEL
G80	3199 - ET OH, REMV AERIAL CABLE WOOD
G81	3200 - ET OH, REMV CROSS BRACINGS
G82	3201 - ET OH, REMV GUYS/ANCHORS, POLES
G83	3202 - ET OH, REMV GUYS/ANCHORS, TOWERS
G84	3204 - ET OH, REMV LINE ARRESTER, WD
G85	3205 - ET OH, REMV PHASE CONDUCTOR, ST
G86	3206 - ET OH, REMV PHASE CONDUCTOR, WD
G87	3207 - ET OH, REMV SHIELD/STATIC WIRE, ST
G88	3208 - ET OH, REMV SHIELD/STATIC WIRE, WD
G89	3209 - ET OH, REMV STRUCT GRD/BND, ST
G90	3210 - ET OH, REMV STRUCT GRD/BND, WD
G91	3211 - ET OH, REMV SWITCH, MANUAL, ST
G92	3212 - ET OH, REMV SWITCH, MANUAL, WD
G93	3213 - ET OH, REMV SWITCH, MOTORIZED, ST
G94	3215 - ET OH, REMV/INSP CROSSARMS
G95	3216 - ET OH, REMV/INSP FOUNDATIONS, POLES
G96	3217 - ET OH, REMV/INSP FOUNDATIONS, TOWERS
G97	3218 - ET OH, REMV/INSP STEEL POLES
G98	3219 - ET OH, REMV/INSP STEEL TOWER
G99	3220 - ET OH, REMV/INSP WOOD POLES
H01	3221 - ET OH, REMV/INSP/TST INSULATION, ST
H02	3222 - ET OH, REMV/INSP/TST INSULATION, WD
H03	3223 - ET OH, REMV/INSP/TST STRUCT GRD, WD
H04	3224 - ET OH, REMV/INSP/TST STRUCT/TWR GRD, S
H05	3228 - ET OH, SITE VISIT/INVESTIGATION
H06	3229 - ET OH, SUPV + ADMIN, MAINT
H07	3230 - ET OH, SUPV + ADMIN, OPERATIONS
H08	3231 - ET OH, SWITCHING/TAGGING/GROUNDING
H09	3232 - ET OH, THERMOHISION INSP
H10	3233 - ET OH, TREAT WOOD STRUCTURE

Operation	Description
H11	3239 - INST OH TRANS FAC FOUNDATIONS
H12	3242 - PERFORM AERIAL PATROL - POST FAULT
H13	3243 - PERFORM FAA TOWER LIGHTING INSP
H14	3245 - PERFORM ROW CYCLE SUB TRANSMISS
H15	3246 - PERFORM ROW CYCLE SUB-T SIDE LI
H16	3247 - PERFORM ROW MID-SPAN MOWING - T
H17	3253 - T OH - SWITCHING FOR CUSTOMER
H18	3301 - ET UG, INSP MANHOLE/VAULT
H19	3303 - ET UG, INSTL CABLE MONITOR SYS
H20	3304 - ET UG, INSTL CABLE, FLUID FILLED PIPE
H21	3306 - ET UG, INSTL CATHODIC PROTECTION
H22	3307 - ET UG, INSTL CONDUIT + RISERS
H23	3308 - ET UG, INSTL DB CABLE
H24	3309 - ET UG, INSTL GROUND EQUIP
H25	3311 - ET UG, INSTL MAINTAIN SPLICE
H26	3312 - ET UG, INSTL MANHOLE/HANDHOLE
H27	3313 - ET UG, INSTL P+L CABLE IN COND
H28	3314 - ET UG, INSTL PRESS PLT + SYS
H29	3315 - ET UG, INSTL SIDEWALK/BLDG VAULT
H30	3317 - ET UG, INSTL SUBMARINE CABLE
H31	3318 - ET UG, INSTL TERMINATOR
H32	3319 - ET UG, INSTL XLP/EPR CBL IN COND
H33	3323 - ET UG, MAINTAIN CABLE, FLUID FILLED PIPE
H34	3325 - ET UG, MAINTAIN CATHODIC PROTECTION
H35	3328 - ET UG, MAINTAIN ENVIRONMENTAL/HAZARDOUS
H36	3331 - ET UG, MAINTAIN MANHOLE/HANDHOLE
H37	3332 - ET UG, MAINTAIN P+L CABLE IN COND
H38	3333 - ET UG, MAINTAIN PRESS PLT + SYS
H39	3337 - ET UG, MAINTAIN SPLICE
H40	3338 - ET UG, MAINTAIN SUBMARINE CABLE
H41	3345 - ET UG, REMV CABLE, FLUID FILLED PIPE
H42	3347 - ET UG, REMV CATHODIC PROTECTION
H43	3353 - ET UG, REMV MAINTAIN SPLICE
H44	3354 - ET UG, REMV MANHOLE/HANDHOLE
H45	3355 - ET UG, REMV P+L CABLE IN COND
H46	3356 - ET UG, REMV PRESS PLT + SYS
H47	3358 - ET UG, REMV SUBMARINE CABLE
H48	3359 - ET UG, REMV TERMINATOR
H49	3366 - ET UG, REPAIR HYDRAULIC SYSTEMS
H50	3369 - ET UG, SUPV + ADMIN, MAINT
H51	3374 - ET UG, TRENCHING FOR DB CABLE, CNVTNL UG
H52	3390 - ET OH VEG, ROW CLEARING CAP CONST I/R/M
H53	3501 - TS, APPARATUS INSP/TEST, SCHED
H54	3503 - TS, DISSOLVED GAS ANALYSIS

<u>Operation</u>	<u>Description</u>
H55	3504 - TS, EQUIP MOD
H56	3506 - TS, FOLLOW-UP MAINT, APPARTUS INSP
H57	3507 - TS, FOLLOW-UP MAINT, V+O INSP
H58	3510 - TS, GROUNDSKEEPING/HOUSEKEEPING
H59	3512 - TS, INSTL EMS RTU
H60	3513 - TS, INSTL POLLUTION CONTROL FACILITIES
H61	3514 - TS, INSTL STATION EQUIP
H62	3515 - TS, INSTL STRUCTURES + IMPROVE
H63	3517 - TS, MOBILE SUBSTATN SETUP
H64	3523 - TS, PLANNED MAINT, NO OUTAGE
H65	3526 - TS, REMV EMS RTU
H66	3527 - TS, REMV POLLUTION CONTROL FACILITIES
H67	3528 - TS, REMV STATION EQUIP
H68	3529 - TS, REMV STRUCTURES + IMPROVE
H69	3530 - TS, ROUTINE OPERATIONS
H70	3534 - TS, SPECIAL PROJECTS, MAINT
H71	3537 - TS, SUB SWITCHING FOR OTHER DEPTS
H72	3539 - TS, SUPV + ADMIN, OPERATIONS
H73	3542 - TS, THERMOHISION
H74	3543 - TS, TROUBLE MAINT
H75	3544 - TS, V+O INSP
H76	3545 - TS/HVDC, ENVIRONMENTAL COMPLIANCE
H77	3547 - SUB AS-BUILTS FOR CAP PROJECTS WITH IFC
H78	3548 - SUB CAPITAL PROJ MAT PROCUREMENT (INCL S
H79	3551 - SUB ENG NEW TECHNOLOGY INITIATIVES
H80	3554 - SUB PROJ CLOSE OUT (FINAL SITE WALK-THRU
H81	3555 - SUB QA/QC (DRAWINGS/CALC REVIEW, VENDOR
H82	3556 - SUB SUPPORT DURING CONSTRUCTION
H83	3557 - SUB TESTING & COMMISSIONING
H84	3561 - INST TRAN SUB AUXILIARY SERVICES
H85	3562 - INST TRAN SUB BELOW GROUND WORK (EXC. FO
H86	3563 - INST TRAN SUB BUS SYSTEMS
H87	3564 - INST TRAN SUB HIGH VOLT EQUIP (EX
H88	3565 - INST TRAN SUB POWER TRANSFORMER
H89	3566 - INST TRAN SUB RELAY, CONTROL, COMMUNICAT
H90	3567 - INST TRAN SUB SITE PREPARATION
H91	3568 - INST TRAN SUB SPECIAL ELECTRICAL EQUIPME
H92	3569 - INST TRAN SUB STRUCTURES
H93	3572 - ET SUB, PRELIMINARY ENGINEERING
H94	3701 - RT, ET SUB, R, INSTL EMS RTU
H95	3702 - RT, ET SUB, R, INSTL STATION EQUIP
H96	3703 - RT, ET SUB, R, REMV EMS RTU
H97	3704 - RT, ET SUB, R, REMV STATION EQUIP
H98	3705 - RT, ET SUB, T, INSTL EMS RTU

Operation	Description
H99	3706 - RT, ET SUB, T, INSTL STATION EQUIP
I01	3707 - RT, ET SUB, T, REMV EMS RTU
I02	3708 - RT, ET SUB, T, REMV STATION EQUIP
I03	3709 - RT, RELAY MAINT TESTING
I04	3710 - RT, RELAY SETTING CHANGES
I05	3711 - RT, RELAY SETTING RECORDS
I06	3712 - RT, RELAY, INSTRUMENT CAL + RPR
I07	3714 - RT, RELAY, MICROPROCESSOR UPGRADES
I08	3718 - RT, TELCOM, ENERGY METER, TEST/MAINT
I09	3720 - RT, TELECOM, MAINT/TEST SUBSTATN EQUIP
I10	3723 - RT, TELECOM, SUBSTATN SCADA RTU
I11	3747 - TRANS MAINT OF MISC
I12	3748 - TRANS SALVAGE
I13	3805 - MMT MATERIALS TRANS OH LINE
I14	3814 - PERFORM TRANS ROW RENTS
I15	3819 - PROJECT ESTIMATION AND CLOSEOUT
I16	3822 - REM OH TRANS FAC CONDUCTOR
I17	3828 - CAP WORK PLAN & SCHED
I18	3829 - DAMAGE/FAIL SUPPORT, FIELD INITIATED
I19	3838 - ENGINEERING ANALYSIS/O&M PROJECT WORK-TR
I20	3839 - EQUIP INVESTIGATIONS
I21	3840 - WHEN PERFORMING FINAL ENG. & DESIGN IN-H
I22	8149 - NETWORK OPERATIONS
I23	8151 - FSSC & CUSTOMER
I24	8300 - JANITORIAL
I25	8301 - HAZARDOUS WASTE REMOVAL
I26	8302 - PEST CONTROL
I27	8303 - ELECTRICAL MAINT - GENERAL
I28	8304 - STANDBY GENERATOR MAINTENANCE
I29	8305 - UPS & BATTERY MAINTENANCE
I30	8306 - BUILDING SWITCHGEAR MAINTENANCE
I31	8307 - ELEVATOR MAINTENANCE
I32	8308 - FIRE PROTECTION & LIFE SAFETY
I33	8309 - HVAC MAINTENANCE
I34	8310 - HVAC REPAIR
I35	8311 - PLUMBING MAINTENANCE
I36	8312 - STRUCTURAL & BUILDING MAINTENANCE
I37	8313 - PAINTING
I38	8314 - BUILDING EMERGENCY RESTORATION
I39	8315 - EMERGENCY ACTION PLANNING
I40	8316 - OTHER/MISC MAINTENANCE
I41	8317 - ROADS & PAVEMENT MAINTENANCE
I42	8318 - LANDSCAPING
I43	8319 - GROUNDS MAINTENANCE

<u>Operation</u>	<u>Description</u>
I44	8320 - SNOW REMOVAL
I45	8321 - SECURITY SYSTEMS MAINTENANCE
I46	8322 - ELECTRIC UTILITIES
I47	8323 - GAS UTILITIES
I48	8324 - FUEL OIL AND PROPANE UTILITIES
I49	8325 - WATER/SEWER UTILITIES
I50	8326 - TELECOM & NETWORK
I51	8327 - OFFICE FURNITURE
I52	8328 - MOVES & RELOCATIONS
I53	8329 - SIGNAGE
I54	8330 - ENVIRONMENTAL
I55	8331 - TENANT SERVICES
I56	8332 - WAREHOUSE AND DOCK OPERATIONS
I57	8333 - ENGINEERING ANALYSIS & ASSISTANCE
I58	8334 - COPIER EQUIPMENT
I59	8335 - COPIER PAPER & SUPPLIES
I60	8336 - RECORDS MANAGEMENT
I61	8337 - LEASING AND FINANCING
I62	8338 - FACILITIES SUPPORT CENTER
I63	8339 - MAIL & COURIER
I64	8340 - PRINTING & DUPLICATING
I65	8341 - NON-HAZARDOUS WASTE REMOVAL
I66	8360 - EXTERIOR BUILDING IMPROVEMENTS
I67	8361 - EXTERIOR BUILDING REMOVAL
I68	8362 - INTERIOR BUILDING IMPROVEMENTS
I69	8363 - INTERIOR BUILDING REMOVAL
I70	8364 - HVAC INSTALLATION
I71	8365 - HVAC REMOVAL
I72	8366 - PLUMBING INSTALLATION
I73	8367 - PLUMBING REMOVAL
I74	8368 - ELECTRICAL INSTALLATION
I75	8369 - ELECTRICAL REMOVAL
I76	8370 - BATTERY INSTALLATION
I77	8371 - BATTERY REMOVAL
I78	8372 - GENERATOR INSTALLATION
I79	8373 - GENERATOR REMOVAL
I80	8374 - FIRE PROTECTION INSTALLATION
I81	8375 - FIRE PROTECTION REMOVAL
I82	8376 - TELECOM & NETWORK INSTALLATION
I83	8377 - TELECOM & NETWORK REMOVAL
I84	8378 - SECURITY SYSTEM INSTALLATION
I85	8379 - SECURITY SYSTEM REMOVAL
I86	8380 - EQUIPMENT INSTALLATION
I87	8381 - EQUIPMENT REMOVAL

<u>Operation</u>	<u>Description</u>
I88	8382 - FURNITURE INSTALLATION
I89	8383 - FURNITURE REMOVAL
I90	8384 - ROOF INSTALLATION
I91	8385 - ROOF REMOVAL
I92	8386 - PAVING INSTALLATION
I93	8387 - PAVING REMOVAL
I94	8388 - SITEWORK INSTALLATION
I95	8389 - SITEWORK REMOVAL
I96	8391 - HAZARDOUS WASTE REMOVAL
I97	8403 - DSM - PROGRAM IMPLEMENTATION
I98	8404 - DSM - PROGRAM ADMINISTRATION
I99	8405 - DSM-CUST INCENTIVES/INCENTIVES & SVCS
J01	8408 - DSM - ADVERTISING
J02	8409 - DSM - MARKETING RESEARCH
J03	8411 - DSM - TRADE ALLY TRAINING
J04	8412 - DSM - MARKETING EVENTS
J05	8413 - DSM C&I LAMP RECYCLING
J06	8414 - DSM SALES & TRAINING
J07	8415 - DSM - TA STUDIES
J08	8416 - DSM LARGE C&I COMMISSIONING
J09	8417 - DSM C&I BALLAST RECYCLING
J10	8418 - DSM GENERAL EVALUATION WORK
J11	8419 - DSM PLANNING
J12	8420 - DSM REG RELATED ACTIVITY
J13	8421 - COPAYMENTS
J14	8422 - DSM - CUST CO-PAY FINANCED BY 3RD PARTY
J15	8423 - DSM-INTERNAL COST OF CUSTOMER FINANCING
J16	8424 - DSM-IS SYSTEM STRATEGY DEVELOPMENT
J17	8430 - DSM GAS - A&G
J18	8431 - DSM GAS RESIDENTIAL A&G
J19	8449 - DSM GAS CUST COPAY 3RD PARTY FIN
J20	8450 - DSM GAS INT COST OF CUST FINANCING
J21	8451 - DSM - TELEMARKETING
J22	8452 - DSM - ONLINE/WEB
J23	8453 - DSM - ADVERTISING
J24	8454 - DSM - MARKETING TRADE
J25	8455 - DSM - MARKETING EVENTS
J26	8460 - DSM - Legal Expenses
J27	8461 - RD and Demo
J28	8600 - SIR
J29	8601 - INSURANCE/THIRD PARTY RECOVERIES
J30	8602 - INSURANCE/THIRD PARTY EXPENSES
J31	8603 - INVESTIGATION
J32	8604 - REMEDIATION

<u>Operation</u>	<u>Description</u>
J33	8605 - ENVIRONMENTAL OPS & MAINT
J34	8606 - ENVIRONMENTAL PROGRAM COSTS
J35	8607 - SIR-OM
J36	8608 - NON MGP- SITES
J37	8998 - ACQUIRE LAND / LAND RIGHTS
J38	8999 - DISPOSE OF LAND / LAND RIGHTS
J39	9020 - STOCKING TRUCK ELECTRIC DISTRIBUTION
J40	9021 - TRAINING ELECTRIC DISTRIBUTION
J41	9022 - MEETING UNION ELECTRIC DISTRIBUTION
J42	9023 - MEETING OTHER ELECTRIC DISTRIBUTION
J43	9024 - INCLEMENT WEATHER ELECTRIC DISTRIBUTION
J44	9025 - STANDBY TIME ELECTRIC DISTRIBUTION
J45	9026 - DRUG TESTING/PHYSICALS ELECTRIC DISTRI
J46	9027 - LIGHT DUTY -OCCUPATIONAL ELECTRIC DISTRI
J47	9028 - VEHICLE BREAKDOWN ELECTRIC DISTRIBUTION
J48	9029 - LIGHT DUTY-NON-OCCUPATIONAL ELECT DISTRI
J49	9030 - STOCKING TRUCK ELECTRIC TRANSMISSION
J50	9031 - TRAINING ELECTRIC TRANSMISSION
J51	9032 - MEETING UNION ELECTRIC TRANSMISSION
J52	9033 - MEETING OTHER ELECTRIC TRANSMISSION
J53	9034 - INCLEMENT WEATHER ELECTRIC TRANSMISSION
J54	9035 - STANDBY TIME ELECTRIC TRANSMISSION
J55	9036 - DRUG TESTING/PHYSICALS ELECTRIC TRANS
J56	9037 - LIGHT DUTY - OCCUPATIONAL ELECTRIC TRANS
J57	9038 - VEHICLE BREAKDOWN ELECTRIC TRANSMISSION
J58	9039 - LIGHT DUTY - NON-OCCUPATIONAL ELEC TRANS
J59	9040 - STOCKING TRUCK GAS
J60	9041 - TRAINING GAS
J61	9042 - MEETING UNION GAS
J62	9043 - MEETING OTHER GAS
J63	9044 - INCLEMENT WEATHER GAS
J64	9045 - STANDBY TIME GAS
J65	9046 - DRUG TESTING/PHYSICALS GAS
J66	9047 - LIGHT DUTY - OCCUPATIONAL GAS
J67	9048 - VEHICLE BREAKDOWN GAS
J68	9049 - LIGHT DUTY - NON-OCCUPATIONAL GAS
J69	9107 - CONVERSION OPERATION FOR FERC 1070
J70	9108 - CONVERSION OPERATION FOR FERC 1080
J71	9121 - CONVERSION OPERATION
J72	9131 - CONVERSION OPERATION
J73	9134 - CONVERSION OPERATION FOR FERC 1340
J74	9142 - CONVERSION OPERATION
J75	9143 - CONVERSION OPERATION FOR FERC 1430
J76	9163 - CONVERSION OPERATION FOR FERC 1630

<u>Operation</u>	<u>Description</u>
J77	9174 - CONVERSION OPERATION FOR FERC 1740
J78	9175 - CONVERSION OPERATION FOR FERC 1750
J79	9176 - CONVERSION OPERATION FOR FERC 1760
J80	9181 - CONVERSION OPERATION FOR FERC 1810
J81	9183 - CONVERSION OPERATION FOR FERC 1830
J82	9184 - CONVERSION OPERATION FOR FERC 1840
J83	9186 - CONVERSION OPERATION FOR FERC 1860
J84	9219 - CONVERSION OPERATION FOR FERC 2190
J85	9221 - CONVERSION OPERATION FOR FERC 2210
J86	9232 - CONVERSION OPERATION FOR FERC 2320
J87	9236 - CONVERSION OPERATION
J88	9237 - CONVERSION OPERATION FOR FERC 2370
J89	9242 - CONVERSION OPERATION FOR FERC 2420
J90	9244 - CONVERSION OPERATION FOR FERC 2440
J91	9245 - CONVERSION OPERATION FOR FERC 2450
J92	9252 - CONVERSION OPERATION FOR FERC 2520
J93	9253 - CONVERSION OPERATION FOR FERC 2530
J94	9254 - CONVERSION OPERATION FOR FERC 2540
J95	9403 - CONVERSION OPERATION FOR FERC 4030
J96	9421 - CONVERSION OPERATION FOR FERC 4210
J97	9427 - CONVERSION OPERATION FOR FERC 4270
J98	9432 - CONVERSION OPERATION FOR FERC 4320
J99	9451 - CONVERSION OPERATION FOR FERC 4510
K01	9456 - CONVERSION OPERATION FOR FERC 4560
K02	9488 - CONVERSION OPERATION FOR FERC 4880
K03	9500 - CONVERSION OPERATION FOR FERC 5000
K04	9546 - CONVERSION OPERATION
K05	9549 - CONVERSION OPERATION
K06	9560 - CONVERSION OPERATION FOR FERC 5600
K07	9561 - CONVERSION OPERATION FOR FERC 5610
K08	9562 - CONVERSION OPERATION FOR FERC 5620
K09	9563 - CONVERSION OPERATION FOR FERC 5630
K10	9564 - CONVERSION OPERATION FOR FERC 5640
K11	9566 - CONVERSION OPERATION FOR FERC 5660
K12	9568 - CONVERSION OPERATION FOR FERC 5680
K13	9570 - CONVERSION OPERATION FOR FERC 5700
K14	9571 - CONVERSION OPERATION FOR FERC 5710
K15	9572 - CONVERSION OPERATION
K16	9573 - CONVERSION OPERATION FOR FERC 5730
K17	9580 - CONVERSION OPERATION FOR FERC 5800
K18	9581 - CONVERSION OPERATION FOR FERC 5810
K19	9582 - CONVERSION OPERATION FOR FERC 5820
K20	9583 - CONVERSION OPERATION FOR FERC 5830
K21	9584 - CONVERSION OPERATION FOR FERC 5840

<u>Operation</u>	<u>Description</u>
K22	9585 - CONVERSION OPERATION FOR FERC 5850
K23	9586 - CONVERSION OPERATION FOR FERC 5860
K24	9587 - CONVERSION OPERATION FOR FERC 5870
K25	9588 - CONVERSION OPERATION FOR FERC 5880
K26	9589 - CONVERSION OPERATION FOR FERC 5890
K27	9590 - CONVERSION OPERATION FOR FERC 5900
K28	9591 - CONVERSION OPERATION FOR FERC 5910
K29	9592 - CONVERSION OPERATION FOR FERC 5920
K30	9593 - CONVERSION OPERATION FOR FERC 5930
K31	9594 - CONVERSION OPERATION FOR FERC 5940
K32	9595 - CONVERSION OPERATION FOR FERC 5950
K33	9596 - CONVERSION OPERATION FOR FERC 5960
K34	9597 - CONVERSION OPERATION FOR FERC 5970
K35	9598 - CONVERSION OPERATION FOR FERC 5980
K36	9599 - STOCKING TRUCK - ED/GEN
K37	9600 - TRAINING - ED/GEN
K38	9602 - MEETING OTHER - ED/GEN
K39	9603 - INCLEMENT WEATHER - ED/GEN
K40	9604 - STANDBY TIME - ED/GEN
K41	9605 - DRUG TESTING/PHYSICALS - ED/GEN
K42	9606 - LIGHT DUTY -OCCUPATIONAL - ED/GEN
K43	9607 - VEHICLE BREAKDOWN - ED/GEN
K44	9609 - MEETING SAFETY - ED/GEN
K45	9610 - TRAINING SAFETY - ED/GEN
K46	9611 - PERMITS - ELECTRIC CAPITAL
K47	9612 - TRAFFIC CONTROL - ELECTRIC CAPITAL
K48	9613 - RESTORATION - ELECTRIC CAPITAL
K49	9614 - DESIGN - ELECTRIC CAPITAL
K50	9615 - SUPERVISION - ELECTRIC CAPITAL
K51	9616 - PERMITS - ELECTRIC EXPENSE
K52	9617 - TRAFFIC CONTROL - ELECTRIC EXPENSE
K53	9618 - RESTORATION - ELECTRIC EXPENSE
K54	9619 - DESIGN - ELECTRIC EXPENSE
K55	9620 - SUPERVISION - ELECTRIC EXPENSE
K56	9621 - AFUDC-DEBT
K57	9622 - AFUDC-EQUITY
K58	9623 - JOBBING
K59	9624 - CAPITAL AS-BUILT
K60	9625 - EXPENSE AS-BUILT
K61	9626 - REMOVAL AS-BUILT
K62	9631 - PERMITS - GAS CAPITAL
K63	9632 - TRAFFIC CONTROL - GAS CAPITAL
K64	9633 - RESTORATION - GAS CAPITAL
K65	9634 - DESIGN - GAS CAPITAL

<u>Operation</u>	<u>Description</u>
K66	9635 - SUPERVISION - GAS CAPITAL
K67	9636 - PERMITS - GAS EXPENSE
K68	9637 - TRAFFIC CONTROL - GAS EXPENSE
K69	9638 - RESTORATION - GAS EXPENSE
K70	9639 - DESIGN - GAS EXPENSE
K71	9640 - SUPERVISION - GAS EXPENSE
K72	9641 - PERMITS - POWERPLANT CAPITAL
K73	9642 - TRAFFIC CONTROL - POWERPLANT CAPITAL
K74	9643 - RESTORATION - POWERPLANT CAPITAL
K75	9644 - DESIGN - POWERPLANT CAPITAL
K76	9645 - SUPERVISION - POWERPLANT CAPITAL
K77	9646 - PERMITS - POWERPLANT EXPENSE
K78	9647 - TRAFFIC CONTROL - POWERPLANT EXPENSE
K79	9648 - RESTORATION - POWERPLANT EXPENSE
K80	9649 - DESIGN - POWERPLANT EXPENSE
K81	9650 - SUPERVISION - POWERPLANT EXPENSE
K82	9651 - PERMITS - JOBBING
K83	9652 - TRAFFIC CONTROL - JOBBING
K84	9653 - RESTORATION - JOBBING
K85	9654 - DESIGN - JOBBING
K86	9655 - SUPERVISION - JOBBING
K87	9656 - CANCEL - ED
K88	9657 - CANCEL - ET
K89	9658 - CANCEL - GAS
K90	9659 - CANCEL - GEN
K91	9660 - PERMITS - ELEC DIST I/R/M
K92	9661 - TRAFFIC CONTROL - ELEC DIST I/R/M
K93	9662 - RESTORATION - ELEC DIST I/R/M
K94	9663 - DESIGN - ELEC DIST I/R/M
K95	9664 - SUPERVISION - ELEC DIST I/R/M
K96	9665 - ASBUILT - ELECTRIC DIST EXP
K97	9670 - PERMITS - ELEC TRANS I/R/M
K98	9671 - TRAFFIC CONTROL - ELEC TRANS I/R/M
K99	9672 - RESTORATION - ELEC TRANS I/R/M
L01	9673 - DESIGN - ELEC TRANS I/R/M
L02	9674 - SUPERVISION - ELEC TRANS I/R/M
L03	9675 - ASBUILT - ELEC TRANS EXP
L04	9735 - CONVERSION OPERATION FOR FERC 7350
L05	9830 - MEETING UNION - GAS
L06	9840 - CONVERSION OPERATION FOR FERC 8400
L07	9841 - CONVERSION OPERATION
L08	9844 - CONVERSION OPERATION FOR FERC 8440
L09	9845 - CONVERSION OPERATION FOR FERC 8450
L10	9847 - CONVERSION OPERATION FOR FERC 8470

<u>Operation</u>	<u>Description</u>
L11	9859 - CONVERSION OPERATION FOR FERC 8590
L12	9863 - CONVERSION OPERATION
L13	9870 - CONVERSION OPERATION FOR FERC 8700
L14	9871 - CONVERSION OPERATION FOR FERC 8710
L15	9874 - CONVERSION OPERATION FOR FERC 8740
L16	9875 - CONVERSION OPERATION FOR FERC 8750
L17	9876 - CONVERSION OPERATION FOR FERC 8760
L18	9878 - CONVERSION OPERATION FOR FERC 8780
L19	9879 - CONVERSION OPERATION FOR FERC 8790
L20	9880 - CONVERSION OPERATION FOR FERC 8800
L21	9881 - CONVERSION OPERATION
L22	9885 - CONVERSION OPERATION FOR FERC 8850
L23	9887 - CONVERSION OPERATION FOR FERC 8870
L24	9888 - CONVERSION OPERATION
L25	9889 - CONVERSION OPERATION FOR FERC 8890
L26	9890 - CONVERSION OPERATION FOR FERC 8900
L27	9891 - CONVERSION OPERATION FOR FERC 8910
L28	9892 - CONVERSION OPERATION FOR FERC 8920
L29	9893 - CONVERSION OPERATION FOR FERC 8930
L30	9894 - CONVERSION OPERATION FOR FERC 8940
L31	9901 - CONTRIBUTE CAPITAL INSTALL
L32	9902 - CONTRIBUTE COST-REMOVAL
L33	9903 - CONTRIBUTE MISC ELECTRIC REVENUE
L34	9904 - CONTRIBUTE MISC GAS REVENUE
L35	9906 - CONTRIBUTE JOBBING
L36	9908 - CONVERSION OPERATION FOR FERC 9080
L37	9910 - CONVERSION OPERATION FOR FERC 9100
L38	9914 - CONTRIBUTE DEFERRED REVENUE-STUDY
L39	9915 - CONTRIBUTE DEFERRED REVENUE-DG CONSTRUCT
L40	9920 - CONVERSION OPERATION FOR FERC 9200
L41	9921 - CONVERSION OPERATION FOR FERC 9210
L42	9925 - CONVERSION OPERATION FOR FERC 9250
L43	9926 - CONVERSION OPERATION FOR FERC 9260
L44	9928 - CONVERSION OPERATION FOR FERC 9280
L45	9930 - CONVERSION OPERATION FOR FERC 9300
L46	9931 - CONVERSION OPERATION
L47	9935 - CONVERSION OPERATION FOR FERC 9350
L48	9986 - CONVERSION OPERATION FOR FERC 9020
L49	9987 - CONVERSION OPERATION FOR FERC 9030
L50	9991 - DEFERRED REVENUE RECLASS - CAPITAL
L51	9992 - DEFERRED REVENUE RECLASS - REMOVAL
L52	9993 - DEFERRED REVENUE RECLASS - ELEC REVENUE
L53	9995 - ARO - ASSET RETIREMENT OBLIGATION
L54	9996 - DO NOT CHARGE - CAPOH

Operation	Description
L55	9997 - SAP Default Operation
L56	9998 - ARO - ASSET RETIREMENT OBLIGATION
L57	9999 - SAP DEFAULT OPERATION
L58	1005 - ED, ACCIDENT INVESTIGATION
L59	1006 - ED, ATTEND MEETINGS OTHER THAN SAFE
L60	1007 - ED, ATTEND SAFETY MEETINGS
L61	1010 - ED, ATTEND TRAINING NON-SAFETY CAPI
L62	1012 - ED, CLEAN/STOCK VEHICLE
L63	1016 - ED, DISPATCH CREWS
L64	1017 - ED, DOT DRUG TESTING
L65	1018 - ED, DVLP INTERCONNECTION STUDY ESTI
L66	1021 - ED, ENGINEERING SYSTEM PLANNING
L67	1026 - ED, LIGHT DUTY
L68	1030 - ED, PERFORMANCE ANALYSIS + REPORTIN
L69	1035 - ED, PROTECTIVE COORDINATION SYS REV
L70	1038 - ED, SPECIAL ENGINEERING PROJECT/STU
L71	1039 - ED, SYSTEM CONTROL EQUIP MAINTENANC
L72	1040 - ED, SYSTEM CONTROL/DISPATCH
L73	1042 - ED, WAIT FOR VEHICLE BREAKDOWN ASSI
L74	1044 - ED, BRIDGE TIME
L75	1051 - DISTRIBUTION SALVAGE - TRANSFORMERS
L76	1052 - DISTRIBUTION SALVAGE - WIRE
L77	1053 - DRAWING OFFICE SYSTEMS SUPPORT
L78	1060 - BLDG EXP-SM TOOLS-DIST
L79	1062 - BUILDING IMPROVEMENTS
L80	1063 - BUILDING IMPROVEMENTS HVAC
L81	1114 - ED OH VEG, HAZARD TREE REMOVAL CAPI
L82	1126 - ED OH VEG, SPECIAL TRIMMING PROJ CA
L83	1128 - ED OH VEG, TREE PLANTING CAPITAL
L84	1130 - ED OH VEG, TROUBLE MAINT CAPITAL
L85	1132 - ED OH VEG, VENDOR INCENTIVES CAPITA
L86	1140 - ED OH, AERIAL CABLE REMOVE
L87	1149 - ED OH, FAULT INDICATORS OH INSTALL
L88	1151 - ED OH, FAULT INDICATORS OH REMOVE
L89	1197 - ED OH, LINE CAP VAC/OIL SWITCH MAIN
L90	1198 - ED OH, LINE CAP/REG CUTOUT/SWITCH I
L91	1199 - ED OH, LINE CAP/REG CUTOUT/SWITCH M
L92	1200 - ED OH, LINE CAP/REG CUTOUT/SWITCH R
L93	1220 - ED OH, MAINTAIN INSULATOR INSTALL
L94	1221 - ED OH, MAINTAIN INSULATOR MAINTENAN
L95	1222 - ED OH, MAINTAIN INSULATOR REMOVE
L96	1235 - ED OH, POLE WOOD UNDER 30FT INSTALL
L97	1236 - ED OH POLE WOOD 60FT AND UP REMOVE
L98	1240 - ED OH, REFUSE CAPACITOR CUTOUT

<u>Operation</u>	<u>Description</u>
L99	1243 - ED OH, REPAIR SERVICE/MAKE TAPS
M01	1245 - ED OH, REPAIR/SPLICE DE PRIMARY PHA
M02	1254 - ED OH, SECONDARY/NEUTRAL MAINTENANC
M03	1255 - ED OH, SECONDARY/NEUTRAL REMOVE
M04	1267 - ED OH, FRAMING SPACER CABLE INSTALL
M05	1268 - ED OH, FRAMING SPACER CABLE MAINTEN
M06	1269 - ED OH, FRAMING SPACER CABLE REMOVE
M07	1270 - ED OH, SPACER CABLE INSTALL
M08	1271 - ED OH, SPACER CABLE MAINTENANCE
M09	1272 - ED OH, SPACER CABLE REMOVE
M10	1283 - ED OH, PRI & SEC COND MAINTENANCE
M11	1306 - ED UG, ATTACH 3RD PARTY FACILITIES
M12	1309 - ED UG, CATHODIC PROTECTION REMOVE
M13	1315 - ED UG, URD CABLE IN CONDUIT INSTALL
M14	1316 - ED UG, URD CABLE IN CONDUIT MAINTEN
M15	1317 - ED UG, URD CABLE IN CONDUIT REMOVE
M16	1341 - ED UG, FOUNDATION/PAD INSTALL
M17	1342 - ED UG, FOUNDATION/PAD MAINTENANCE
M18	1343 - ED UG, FOUNDATION/PAD REMOVE
M19	1344 - ED UG, FAULT INDICATORS INSTALL
M20	1346 - ED UG, FAULT INDICATORS REMOVE
M21	1350 - ED UG, GROUNDING EQUIPMENT INSTALL
M22	1351 - ED UG, GROUNDING EQUIPMENT MAINTENA
M23	1353 - ED UG, HANDHOLE/PULLBOX INSTALL
M24	1354 - ED UG, HANDHOLE/PULLBOX MAINTENANCE
M25	1355 - ED UG, HANDHOLE/PULLBOX REMOVE
M26	1358 - ED UG, CATHODIC PROTECTION INSTALL
M27	1376 - ED UG, NETWORK PRCTR, INST COST, IN
M28	1378 - ED UG, NETWORK PRCTR, INST COST, RE
M29	1379 - ED UG, NETWORK TRANS, INST COST, IN
M30	1380 - ED UG, NETWORK TRANS, INST COST, MA
M31	1381 - ED UG, NETWORK TRANS, INST COST, RE
M32	1392 - ED UG, PADMOUNTED SWITCH INSTALL
M33	1393 - ED UG, PADMOUNTED SWITCH MAINTENANC
M34	1394 - ED UG, PADMOUNTED SWITCH REMOVE
M35	1401 - ED UG, RISER OVER 4" INSTALL
M36	1402 - ED UG, RISER OVER 4" MAINTENANCE
M37	1403 - ED UG, RISER OVER 4" REMOVE
M38	1416 - ED UG, SIDEWALK/BLDG VLT INSTALL
M39	1417 - ED UG, SIDEWALK/BLDG VLT MAINTENANC
M40	1418 - ED UG, SIDEWALK/BLDG VLT REMOVE
M41	1430 - ED UG, SUBMARINE CABLE INSTALL
M42	1431 - ED UG, SUBMARINE CABLE MAINTENANCE
M43	1432 - ED UG, SUBMARINE CABLE REMOVE

Operation	Description
M44	1433 - ED UG, SUBMERIBLE TRANSFORMER INSTA
M45	1434 - ED UG, SUBMERIBLE TRANSFORMER MAINT
M46	1435 - ED UG, SUBMERIBLE TRANSFORMER REMOV
M47	1461 - ED UG, TRENCHING FOR DB URD CBL INS
M48	1462 - ED UG, TRENCHING FOR DB URD CBL MAI
M49	1465 - ED UG, URD CABLE PRI & SEC INSTALL
M50	1466 - ED UG, URD CABLE PRI & SEC MAINTENA
M51	1467 - ED UG, URD CABLE PRI & SEC REMOVE
M52	1522 - DS, STANDING-BY SUBSTATIONS, LOAD C
M53	1528 - DS, SUPV + ADMIN, MAINTENANCE
M54	1529 - DS, SUPV + ADMIN, OPERATIONS
M55	1605 - ODL, AUDIT FACILITIES
M56	1608 - ODL, CONTROL MAINTENANCE
M57	1609 - ODL, CONTROL REMOVE
M58	1610 - ODL, LOCATING/DIG SAFE
M59	1614 - ODL, MUNI-OWNED FACILITIES MAINTENA
M60	1624 - ODL, REFUSE PROTECTIVE DEVICE
M61	1630 - ODL, SUPV + ADMIN, MAINTENANCE
M62	1631 - ODL, SUPV + ADMIN, OPERATIONS
M63	1633 - ODL, TEST/INSPECT FACILITIES
M64	1634 - ODL, TRAFFIC SIGNAL MAINTENANCE
M65	1650 - CONSTRUCTION SUPPORT
M66	1651 - CSI 01 - GEN REQUIREMENTS
M67	1652 - CSI 02 - SITE CONSTRUCTION
M68	1653 - CSI 03 - CONCRETE
M69	1654 - CSI 04 - MASONRY
M70	1655 - CSI 05 - METALS
M71	1656 - CSI 06 - WOOD & PLASTIC
M72	1657 - CSI 07 - THERMAL & MOISTURE PROTECT
M73	1658 - CSI 08 - DOORS & WINDOWS
M74	1659 - CSI 09 - FINISHES
M75	1660 - CSI 10 - SPECIALTIES
M76	1661 - CSI 11 - EQUIPMENT
M77	1662 - CSI 12 - FURNISHINGS
M78	1663 - CSI 13 - PRE-ENGINEERED STRUCT
M79	1664 - CSI 14 - CONVEYING SYSTEMS
M80	1665 - CSI 15 - MECHANICAL
M81	1666 - CSI 16 - BUILDING AUTOMATED SYSTEM
M82	1667 - CSI 16 - DIESEL ENGINE
M83	1668 - CSI 16 - ELECTRICAL
M84	1669 - CSI 16 - EQUIPMENT CABINETS
M85	1670 - CSI 16 - FIBER & POWER RACKING
M86	1671 - CSI 16 - UNINTERRUPTED PWR SUPPLY
M87	1672 - DESIGN & CONSTRUCTION - ARCHITECTUR

<u>Operation</u>	<u>Description</u>
M88	1673 - DESIGN & CONSTRUCTION - PROJ MANAGE
M89	1705 - E MTR AMR CANT COMPLETE/INSTALL
M90	1706 - E MTR ENERGY METER INV TRACKING SYS
M91	1707 - E MTR FACILITIES RENT-ELIM
M92	1708 - E MTR INSTALL ELECTRIC METER
M93	1709 - E MTR ISSUE & MAINT MTR ACCESSORIES
M94	1710 - E MTR METERING SHOP WORK
M95	1711 - E MTR MMT MATERIALS DIST METERS MNT
M96	1712 - E MTR RECEIVE AND PROCESS MTRS/REG
M97	1713 - E MTR REMOVE ELECTRIC METER
M98	1714 - E MTR REPAIR ELEC MTRS/XFRMR/EQUIP
M99	1715 - E MTR SUPV & ADMIN ELEC METER MAINT
N01	1716 - E MTR TEST ELEC MTRS/XFRMR/EQUIP UG
N02	1717 - E MTR, CANT GET IN
N03	1718 - E MTR, CMI INSPECT/WOODSON CHECK
N04	1721 - E MTR, DIST TC ENERGY MTR NUG/MUNI,
N05	1722 - E MTR, DIST TC ENERGY MTR NUG/MUNI,
N06	1727 - E MTR, EXCHANGE METER, ERT FAILURE
N07	1730 - E MTR, HEALTH IMPAIRMENT INSPECTION
N08	1731 - E MTR, HIGH BILL INVESTIGATION
N09	1732 - E MTR, INST ENERGY MANAGMT EQUIP
N10	1734 - E MTR, MAINTAIN LOW USE/NON REG/DMD
N11	1735 - E MTR, MAINTAIN POT LIGHT
N12	1736 - E MTR, POWER QUALITY INSPECTION
N13	1737 - E MTR, READ METER ONLY
N14	1738 - E MTR, READ TOTALIZER
N15	1740 - E MTR, SHARED METER INVESTIGATION
N16	1741 - E MTR, SPECIAL READ CONDITIONS
N17	1742 - E MTR, SUPV + ADMIN, OPERATIONS
N18	1743 - E MTR, USE ON INACTIVE
N19	1746 - COLLECTIONS
N20	1750 - 3RD PARTY APPLICATION PROC-OH
N21	1751 - 3RD PARTY APPLICATION PROC-UG
N22	1752 - 3RD PARTY ATTACH POLE LOAD-OH
N23	1753 - 3RD PARTY ATTACHMENT AUDITS-OH
N24	1754 - 3RD PARTY ATTACHMENT AUDITS-UG
N25	1755 - 3RD PARTY POST CONSTR INSP-OH
N26	1756 - 3RD PARTY POST CONSTR INSP-UG
N27	1757 - 3RD PARTY WIRELESS APPL PROC
N28	1758 - 3RD PARTY WIRELESS CONSTR -OH
N29	1759 - 3RD PARTY WIRELESS INSP-OH
N30	1762 - INV CUSTOMER REQ MISC
N31	1777 - PRECAP METER ASSET BARE COST REMOVE
N32	1784 - PRECAP CAPACITOR BARE COST REMOVE

<u>Operation</u>	<u>Description</u>
N33	1806 - R, NCLR ALRT SYS, PHONE/SIREN SYS,
N34	1807 - R, NCLR ALRT SYS, PHONE/SIREN SYS,
N35	1808 - R, NETWORK LAN/WAN
N36	1809 - R, NON-STN FIBER OPTICS, MAINT
N37	1810 - R, NON-STN FIBER OPTICS, OPS
N38	1811 - R, NON-STN MICROWAVE, MAINT
N39	1812 - R, NON-STN MICROWAVE, OPS
N40	1813 - R, PREMISE DATA CABLING
N41	1814 - R, PREMISE VOICE CABLING
N42	1815 - R, STN MICROWAVE + FIBER OPTICS, MA
N43	1816 - R, STN MICROWAVE + FIBER OPTICS, OP
N44	1817 - R, TELEPHONE PBX/CIRCUIT REPAIR
N45	1820 - R, WIRELESS CAD
N46	1821 - R, WIRELESS LANS
N47	1822 - RD, ED OH, R, RELAYED DEVICE INSTAL
N48	1823 - RD, ED OH, R, RELAYED DEVICE REMOVE
N49	1824 - RD, ED OH, T, RC DEVICE INSTALL
N50	1825 - RD, ED OH, T, RC DEVICE REMOVE
N51	1834 - RD, ED UG, RELAYED DEVICE INSTALL
N52	1835 - RD, ED UG, RELAYED DEVICE REMOVE
N53	1836 - RD, ED UG, T, RC DEVICE INSTALL
N54	1837 - RD, ED UG, T, RC DEVICE REMOVE
N55	1842 - RD, RELAY, MAINTAIN POLE TOP RECLOS
N56	1843 - RD, RELAY, MICROPROCESSOR UPGRADES
N57	1844 - RD, RELAY, SPECIAL STUDIES + TESTS
N58	1845 - RD, SUPV + ADMIN, MAINTENANCE
N59	1846 - RD, SUPV + ADMIN, OPERATIONS
N60	1853 - RD, TELECOM GAS I&R Preventive Main
N61	1854 - RD, TELECOM GAS I&R Corrective Main
N62	1880 - HVAC MAINTENANCE
N63	1881 - HVDC FIRE PROTECT/LIFE SAFETY
N64	1882 - HVDC GROUNDS/HOUSEKEEPING
N65	1883 - HVDC JANITORIAL
N66	1885 - HVDC SECURITY SYSTEM MAINTENANCE
N67	1886 - HVDC SNOW REMOVAL
N68	1887 - HVDC WASTE REMOVAL
N69	1905 - ENG ANALYSIS/OM PROJ WORK-DIST
N70	1906 - ENG/DEVL CONTROL SCHEMES-DIST
N71	1907 - ENG/DEVL MICROWAVE SCHEME-DIST
N72	1908 - ENG/DEVL MTR SCHEMES-WHOLESALE
N73	1909 - ENG/DEVL MTRING SCHEMES-DIST
N74	1910 - ENG/DEVL PRIV FIBR SCHEME-DIST
N75	1911 - ENG/DEVL PROTECT SCHEMES-DIST
N76	1912 - ENG/DEVL WIRELESS SCHEMES-DIST

<u>Operation</u>	<u>Description</u>
N77	1913 - ENGINEER/DEVELOP PLC/HMI-DIST
N78	1914 - ENGINEERING SUPPORT
N79	1916 - FACILITIES RENT-ELIM
N80	1917 - FFA DISTRIBUTION GENERAL ELECTRIC
N81	1918 - FIBER INSTALLATION
N82	1919 - FIBER TESTING
N83	1920 - IEEE COMM STANDARDS WORK-DIST
N84	1921 - JPP CREDITTS AP TRANSACTIONS ONLY
N85	1922 - JPP CREDITTS BI TRANSACTIONS ONLY
N86	1923 - LEGAL
N87	1924 - MAKE-READY DISTRIBUTION OH
N88	1925 - MAKE-READY DISTRIBUTION UG
N89	1927 - MMT MATERIALS DIST OHL MNT
N90	1928 - MMT MATERIALS DIST UGL MNT
N91	1929 - MMT MATERIALS DST REL&TCOM MNT
N92	1930 - MMT MATERIALS DST STLT/SIG MNT
N93	1932 - MMT NON CU-NON CONSUME MAT DST
N94	1933 - NPCC/ISO STUDIES & SUP-DIST
N95	1934 - ODL MAINTAIN STREET LIGHTING TRF
N96	1935 - OH BLDG SVCS/ACCESS
N97	1936 - PERFORM TECHNICAL SUPPORT OPER
N98	1939 - PLC/HMI SUPPORT-DISTRIBUTION
N99	1940 - RENTS-BLDG-DIST
P01	1941 - RENTS-BUILDING-DIST-ELIM
P02	1942 - RENTS-EQUIP-DIST
P03	1943 - RENTS-EQUIP-DIST-ELIM
P04	1944 - RENTS-ROW-DIST
P05	1945 - SHARED TELECOM BILLING-DIST
P06	1946 - SITE ACQUISITION
P07	1947 - STANDARDS AND COMMITTEES
P08	1948 - STANDARDS DEVELOPMENT-DIST OH
P09	1949 - STANDARDS DEVELOPMENT-DIST UG
P10	1950 - SUB CONCEPTUAL ENG
P11	1951 - SUB PRELIMINARY ENGINEERING
P12	1952 - SUBSTATION ASSET TRANSFER COST
P13	1953 - SUBSTATION DESIGN SUPPORT
P14	1955 - SUPV&ENG OH
P15	1956 - SURVEYS
P16	1957 - SYSTEM ONE-LINE DIAGRAMS
P17	1958 - TELECOM RATE COST DEVELOPMENT
P18	1959 - TRAINING CENTER-RENT-ELIM
P19	1960 - TRANSMISSION MAKE-READY
P20	1961 - UG BLDG SVCS/ACCESS
P21	1962 - UG DUCT CONSTRUCTION

<u>Operation</u>	<u>Description</u>
P22	1963 - UPDATE SUB DESIGN RECORDS
P23	1964 - WORK METHODS-DISTRIBUTION OH
P24	1965 - WORK METHODS-DISTRIBUTION UG
P25	1966 - PREMISE WIRING TROUBLESHOOTING
P26	1969 - PROJECT MANAGEMENT
P27	1970 - PUBLIC SRVC COM EQUIP APPR-DST
P28	1972 - ED SUB, PRELIMINARY ENGINEERING
P29	1973 - ED, PSI - WRITE OFF
P30	2009 - INNER TITE INSPECTIONS
P31	2010 - APPLIANCE INVESTIGATION
P32	2011 - APPLIANCE TC START INSPECT
P33	2016 - CUSTOMER REGULATOR MAINTENANCE
P34	2017 - ERT OR BATTERY REPLACEMENTS
P35	2018 - FIELD COLLECTIONS
P36	2023 - "STOP GAS (INST / RMV MULCARE, FOAM
P38	2040 - MAINTAIN AMR DEVICES
P39	2043 - METER READING
P40	2044 - METER RESETS
P41	2046 - NO GAS INVESTIGATION CFS
P42	2049 - READ AMR METERS
P43	2054 - REPLACE HOUSE REGULATORS
P44	2058 - INSTALL INDUSTRIAL/COMMERCIAL REGUL
P45	2059 - REMOVE INDUSTRIAL/COMMERCIAL REGULA
P46	2060 - TURN ON/OFF METER-STREET WORK EXP
P47	2061 - UNLOCK METER - BILL PAID
P48	2062 - VERIFY METER INFORMATION
P49	2098 - "MAIN ANAEROBIC JT CONT CLMP <=16""
P51	2099 - "MAIN ANAEROBIC JT CONT CLMP >16""
P53	2114 - INSTALL WECO SEAL >30 IN.
P54	2144 - OPERATE DISTRIBUTION VALVE
P55	2145 - OPERATE TRANSMISSION VALVE
P56	2150 - MAIN RAISE BOX
P57	2151 - "RAISE 9""X 9"" OR STREET BOX"
P59	2152 - RAISE MANHOLE FRAME AND COVER
P60	2192 - PROT-INSTL RECTIFER-MNS&SERV
P61	2193 - PROT-INSTL BOND-MNS&SERV
P62	2194 - PROT-RELO RECTIFER-MNS&SERV
P63	2195 - PROT-RELO BOND-MNS&SERV
P64	2198 - LOOP DISC/REC SERVICE
P65	2210 - "TRANSMISSION R&D, DEMONSTRATE"
P67	2211 - DISCON/RECONNECT SERVICES-PWR
P68	2212 - OFFSET SERVICES PWR
P69	2213 - "OFFSET MAIN / O&M REPL - <=2"" PWR
P71	2214 - "OFFSET MAIN / O&M REPL - 3""- 4""

<u>Operation</u>	<u>Description</u>
P73	2215 - "OFFSET MAIN / O&M REPL - 6""- 8""
P75	2216 - "OFFSET MN / O&M REPL 10""-12"" PWR
P77	2217 - "OFFSET MN / O&M REPL 16""-20"" PWR
P79	2218 - "OFFSET MN / O&M REPL 24""-30"" PWR
P81	2219 - "OFFSET MAIN / O&M REPL - > 30"" PW
P83	2220 - MARKOUTS - OTHER - PWR
P84	2221 - WATCHGUARD/SURVIELLANCE - PWR
P85	2233 - OFFSET MAIN / O&M REPL - <=2" PWR
P86	2234 - OFFSET MAIN / O&M REPL - 3" - 4" PWR
P87	2235 - OFFSET MAIN / O&M REPL - 6"- 8" PWR
P88	2236 - OFFSET MN / O&M REPL 10"-12" PWR
P89	2237 - OFFSET MN / O&M REPL 16"-20" PWR
P90	2238 - OFFSET MN / O&M REPL 24"-30" PWR
P91	2239 - OFFSET MAIN / O&M REPL - > 30" PWR
P92	2244 - LNG STORAGE RENTS AND LEASES
P93	2248 - ENG ANALYSIS & RPT - TRANS MAINT
P94	2249 - ENG ANALYSIS & RPT - DISTR MAINT
P95	2250 - ENG SPECIAL PROJ/STUDY-TRANS MAINT
P96	2251 - ENG SPECIAL PROJ/STUDY-DISTR MAINT
P97	2258 - ENG CONDUCT PRELIM ENGINEERING WORK
P98	2259 - ENG. CODES/STANDARDS/CUS DESIGN
P99	2260 - GAS LAB
Q01	2261 - TRANSMISSION EQUIPMENT RENTS - GAS
Q02	2262 - DISTRIBUTION EQUIPMENT RENTS-GAS
Q03	2263 - TRANSMISSION ROW RENTS - GAS
Q04	2264 - DISTRIBUTION RIGHT OF WAY RENTS-GAS
Q05	2265 - TRANSMISSION BUILDING RENTS -GAS
Q06	2266 - DISTRIBUTION BUILDING RENTS-GAS
Q07	2299 - WATCHGUARD
Q08	2306 - MARKOUTS - OTHER - PWR
Q09	2316 - WATCHGUARD/SURVIELLANCE - PWR
Q10	2327 - PERFORM YARD MAINTENANCE-GAS
Q11	2328 - INSPECT/TEST VOLUME CORRECTORS
Q12	2329 - "GT, WITNESS TESTING"
Q14	2331 - COMPRESSOR STAT FUEL & PWR EXP
Q15	2343 - PUBLIC BUILDING INSPECTION
Q16	2375 - MANDATED - 20 MCF CUSTOMER INSP
Q17	2376 - MANDATED-3YR LEAK SRVY - BS SVCS
Q18	2377 - MANDATED-3YR LEAK SURVEY - WALKING
Q19	2378 - MANDATED-5YR LEAK SURVEY - WALKING
Q20	2379 - MANDATED-BUSINESS DISTRICT SURVEY
Q21	2380 - MANDATED-CAST IRON SURVEY
Q22	2384 - MANDATED-EXPOSED/HAZARD PIPE SRVY
Q23	2386 - MANDATED-METER FIXED FACTOR PRGM

Operation	Description
Q24	2387 - MANDATED-MOBILE SURVEY
Q25	2388 - MANDATED-TRANS PIPELINE LEAK SURVEY
Q26	2390 - MANDATED-TRANS PIPELINE PATROL
Q27	2392 - MANDATED-RANDOM SAMPLE PROGRAM(P.T)
Q28	2393 - MANDATED-SCHOOL INSPECTIONS
Q29	2396 - MANDATED-GRS VALVE INSP
Q30	2397 - UPRATING SURVEY
Q31	2401 - INSTALL TRANSMISSION VALVE
Q32	2448 - "INSTL SERV ASSOC W/MN 2""(SERV ONL
Q34	2469 - "INSTALL STEEL TRANS MAIN >24""
Q36	2500 - CALIBRATIONS/DETECTION
Q37	2502 - CHANGE CHART/MONTHLY INSP (TRANS)
Q38	2505 - INSPECT CUSTOMER FACILITY
Q39	2511 - INSTALL GAS DIST COMPRESSOR STATION
Q40	2514 - INST GAS COMPRESSOR STATION - TRANS
Q41	2517 - MAINT/REPAIR GAS GATE/TAKE STATION
Q42	2519 - MAINT/REPR GAS REG STATION - TRANS
Q43	2520 - MAINTAIN SCADA EQUIPMENT
Q44	2522 - MAINT/REPR GAS DIST COMP STATION
Q45	2525 - MAINT/REPR GAS TRANS MAIN PIPE
Q46	2528 - "ODORIZERS (MAINTAIN, REPAIR)"
Q48	2529 - OPER/INSP INDUSTRIAL/COMM FACILITY
Q49	2530 - OPER/INSP GAS GATE/TAKE STATION
Q50	2531 - OPER/INSP GAS DIST COMP STATION
Q51	2533 - OPER/INSP GAS REG STATION - TRANS
Q52	2534 - OPER/INSP GAS COMPRESSOR STATION
Q53	2540 - REMOVE HOUSE REGULATOR
Q54	2545 - REMV GAS TRANS COMPRESS STATION
Q55	2552 - "ODORIZERS (INSPECT, OPERATE)"
Q57	2553 - MAINT/REPR INDUSTRIAL/COMM FACILITY
Q58	2554 - CARBON MONOXIDE INVESTIGATION
Q59	2555 - ENVIRONMENTAL
Q60	2601 - LIQUEFIER MAINTENANCE
Q61	2602 - LIQUEFACTION OPERATIONS
Q62	2603 - LNG BUILDINGS & PROPERTY
Q63	2604 - LNG TRUCKING/UNLOADING/LOADING
Q64	2606 - LNG INSTRUMENTATION & ELECT MAINT
Q65	2608 - LNG MISCELLANEOUS MAINT EXP
Q66	2609 - LNG STANDBY
Q67	2612 - LNG POWER EXP
Q68	2613 - LNG RENTS & LEASES
Q69	2618 - MAINT GAS CONDITIONING
Q70	2619 - LNG TANK/ HOLDER MAINTENANCE
Q71	2620 - MASS LNG LEASE EXPENSE

<u>Operation</u>	<u>Description</u>
Q72	2630 - LNG OTHER OPER EXP
Q73	2633 - ROUTINE TRANSMISSION OPERATIONS
Q74	2641 - LNG VAPORIZER MAINTENANCE
Q75	2642 - LNG VAPORIZATION OPERATIONS
Q76	2644 - LNG MAINT. OF OTHER EQUIPMENT
Q77	2645 - LNG LIQUEFIER ADDS/CHNGS - CAP
Q78	2647 - LNG TRUCK LOAD/UNLOAD ADDS/CHNG-CAP
Q79	2651 - LNG OPER AUX OPERATIONS - CAPITAL
Q80	2659 - LNG SAFETY
Q81	2660 - LNG RENT & LEASES - CAPITAL
Q82	2661 - LNG INSTRUMENTATION & ELECT CAPITAL
Q83	2701 - MAINTAIN AMR DEVICES
Q84	2702 - REPAIR/TEST DOMESTIC GAS METERS
Q85	2703 - REPAIR/TEST LG VOLUME GAS METERS
Q86	2704 - HYDRO TESTING&TOP TESTING
Q87	2705 - PAINTING GAS METERS
Q88	2706 - FLD MTN INSTRUMENTS&GAS METER
Q89	2707 - STATE GAS METER TESTING
Q90	2708 - TEST/REPAIR COMB GAS IND
Q91	2715 - COMBUSTIBLE GAS INDICATORS
Q92	2726 - UNLOCK/LOCK METER
Q93	2728 - REMOVE INDUSTRIAL/COMMERCIAL METER
Q94	2729 - OPERATE/INSP RESIDENTIAL FACILITY
Q95	2731 - MISC CUSTOMER INFORMATION
Q96	2742 - PERFORM SYS CONTROL/DISPATCH-GAS
Q97	2743 - DISPATCH CREWS - GAS
Q98	2746 - REVENUE PROTECTION - GAS
Q99	2748 - INSTALL GAS TRANS MAIN-CAPITAL
R01	2753 - INSTALL HOUSE REGULATOR
R02	2754 - RETIRE DISTRIBUTION MAINS PWR
R03	2756 - "INSTALL CI MOLD - MAIN <12""
R05	2757 - "INSTALL CI MOLD - MAIN 12"" TO 16"
R07	2758 - "INSTALL CI MOLD - MAIN 20"" TO 24"
R09	2759 - "INSTALL CI MOLD - MAIN > 30""
R11	2780 - MONITORING SURVEY
R12	2781 - CAST IRON ENCROACHMENT SURVEY
R13	3001 - ET, ACCIDENT INVESTIGATION
R14	3005 - ET, ATTEND TRAINING OTHR THAN SAFET
R15	3006 - ET, CATV MAKE READY SURVEY
R16	3007 - ET, CLEAN/STOCK VEHICLE
R17	3008 - ET, DISPATCH CREWS
R18	3009 - ET, DOT DRUG TESTING
R19	3010 - ET, DVLP INTERCONNECTION STUDY ESTI
R20	3012 - ET, EMF ENGINEERING ISSUES

<u>Operation</u>	<u>Description</u>
R21	3013 - ET, ENCROACHMENT REVIEW
R22	3014 - ET, ENGINEERING SURVEYS
R23	3016 - ET, FIRE/EMERGENCY CALL
R24	3017 - ET, HIGHWAY/WATER CROSSINGS
R25	3023 - ET, LIGHT DUTY
R26	3027 - ET, OPERATE CUSTOMER OWNED EQUIP
R27	3034 - ET, PROTECTIVE COORDINATION SYS REV
R28	3035 - ET, RELIABILITY/CONTINGENCY ANALYSI
R29	3040 - ET, SYSTEM CONTROL EQUIP MAINT
R30	3041 - ET, SYSTEM CONTROL/DISPATCH
R31	3042 - ET, WAIT FOR VEHICLE BREAKDOWN ASSI
R32	3044 - EXTERNAL FINAL ENG. & DESIGN (EPC,
R33	3046 - FACILITIES RENT-ELIM
R34	3047 - GENERATION INTERCONNECTION STUDIES
R35	3048 - IEEE COMMITTEE&STANDARD WORK-TRANS
R36	3049 - TS, SAFETY SUPEVISION
R37	3105 - ET OH VEG, ROW CLEARING, POLES CAPI
R38	3106 - ET OH VEG, ROW CLEARING, TOWERS
R39	3123 - ET OH, INSP/OPERATE FIBER OPTIC CAB
R40	3124 - ET OH, INSP/TST SHIELD SYS GRDNG/BN
R41	3130 - ET OH, INSTL LINE ARRESTER, ST
R42	3142 - ET OH, INSTL SWITCH, MOTORIZED, WD
R43	3153 - ET OH, LOAD CHECK/RELAY TARGETS
R44	3154 - ET OH, LOCATING/DIG SAFE
R45	3163 - ET OH, MAINTAIN LINE ARRESTER, ST
R46	3164 - ET OH, MAINTAIN LINE ARRESTER, WD
R47	3176 - ET OH, MAINTAIN SWITCH, UNPLANNED
R48	3188 - ET OH, OIL CLEANUP
R49	3190 - ET OH, OPERATE/INSP CROSSARMS
R50	3192 - ET OH, OPERATE/INSP/TST INSULATION,
R51	3193 - ET OH, OPERATE/INSP/TST INSULATION,
R52	3194 - ET OH, OPERATE/INSP/TST STRUCT GRD,
R53	3195 - ET OH, OPERATE/INSP/TST STRUCT/TWR
R54	3203 - ET OH, REMV LINE ARRESTER, ST
R55	3214 - ET OH, REMV SWITCH, MOTORIZED, WD
R56	3234 - INST OH TRANS FAC BUNDLED COND
R57	3235 - INST OH TRANS FAC CONSTR STEEL
R58	3236 - INST OH TRANS FAC CONSTR WOOD
R59	3237 - INST OH TRANS FAC ENGINEERING
R60	3238 - INST OH TRANS FAC ENVIRONMENT
R61	3240 - INST OH TRANS FAC PRECONSTR
R62	3241 - INST OH TRANS FAC SINGLE COND
R63	3244 - PERFORM FOOT PATROL - POST FAULT
R64	3248 - T OH - INSP 3RD PARTY EQUIP+S616

<u>Operation</u>	<u>Description</u>
R65	3249 - T OH - INSTL 3RD PARTY EQUIP
R66	3250 - T OH - MAINTAIN 3RD PARTY ATTACHMEN
R67	3251 - T OH - PROHIDE ACCESS FOR 3RD PARTY
R68	3252 - T OH - REMV 3RD PARTY EQUIP
R69	3300 - ET UG, CABLE TESTING
R70	3302 - ET UG, INSP/SURVEY
R71	3305 - ET UG, INSTL CABLE, GAS FILLED PIPE
R72	3310 - ET UG, INSTL LINE ARRESTER
R73	3316 - ET, UG INSTL TRANSFORMER
R74	3320 - ET UG, LOAD CHECK/RELAY TARGETS
R75	3321 - ET UG, LOCATING/DIG SAFE
R76	3322 - ET UG, MAINTAIN CABLE MONITOR SYS
R77	3324 - ET UG, MAINTAIN CABLE, GAS FILLED P
R78	3326 - ET UG, MAINTAIN CONDUIT + RISERS
R79	3327 - ET UG, MAINTAIN DB CABLE
R80	3329 - ET UG, MAINTAIN GROUND EQUIP
R81	3330 - ET UG, MAINTAIN LINE ARRESTER
R82	3334 - ET UG, MAINTAIN SIDEWALK/BLDG VAULT
R83	3336 - ET UG, MAINTAIN SPARE CABLE REELS/E
R84	3339 - ET UG, MAINTAIN TERMINATOR
R85	3340 - ET UG, MAINTAIN TRENCHING FOR DB CA
R86	3341 - ET UG, MAINTAIN XLP/EPR CBL IN COND
R87	3342 - ET UG, MONITOR FLUID/GAS PRESS OR L
R88	3343 - ET UG, OIL CLEANUP
R89	3344 - ET UG, REMV CABLE MONITOR SYS
R90	3346 - ET UG, REMV CABLE, GAS FILLED PIPE
R91	3348 - ET UG, REMV CONDUIT + RISERS
R92	3349 - ET UG, REMV DB CABLE
R93	3350 - ET UG, REMV ENVIRONMENTAL/HAZARDOUS
R94	3351 - ET UG, REMV GROUND EQUIP
R95	3352 - ET UG, REMV LINE ARRESTER
R96	3357 - ET UG, REMV SIDEWALK/BLDG VAULT
R97	3360 - ET UG, REMV XLP/EPR CBL IN COND
R98	3361 - ET UG, REPAIR BONDING/GROUNDING SYS
R99	3362 - ET UG, REPAIR CABLE - UNPLANNED
S01	3363 - ET UG, REPAIR CABLE JACKET
S02	3364 - ET UG, REPAIR CABLE LEAKS
S03	3365 - ET UG, REPAIR FLUID LEAKS
S04	3367 - ET, UG REMV TRANSFORMER
S05	3368 - ET UG, SITE VISIT/INSP
S06	3370 - ET UG, SUPV + ADMIN, OPERATIONS
S07	3371 - ET UG, SWITCHING/TAGGING/GROUNDING
S08	3372 - ET UG, TAKE DGA SAMPLE
S09	3373 - ET UG, TEST CABLE JACKET

<u>Operation</u>	<u>Description</u>
S10	3375 - T UG - INSP 3RD PARTY EQUIP
S11	3376 - T UG - INSTL 3RD PARTY EQUIP
S12	3377 - T UG - MAINTAIN 3RD PARTY EQUIP
S13	3378 - T UG - PROHIDE ACCESS FOR 3RD PARTY
S14	3379 - T UG - REMV 3RD PARTY EQUIP
S15	3380 - T UG - SWITCHING FOR CUSTOMER
S16	3382 - ET, RADIO/ANTENNA I/R/M
S18	3502 - TS, BUILDING MAINT
S19	3505 - TS, EQUIP MOD, ANIMAL PROT
S20	3508 - TS, FORCED MAINT, NO OUTAGE
S21	3509 - TS, FORCED MAINT, OUTAGE
S22	3511 - TS, HVDC V + O INSP
S23	3516 - TS, MAINT PLANNING
S24	3518 - TS, OPERATIONS MANAGEMENT
S25	3519 - TS, OPERATIONS TESTING
S26	3520 - TS, OPERATIONS, COMMERCIAL
S27	3521 - TS, OPS DATA ACQUISITION
S28	3522 - TS, OTHER NON-ASSET MAINT
S29	3524 - TS, PLANNED MAINT, OUTAGE
S30	3525 - TS, PUBLIC RELATIONS TOURS
S31	3532 - TS, SERVICES TO PARTICIPANTS
S32	3533 - TS, SPCC FACILITIES MAINT
S33	3535 - TS, SPECIAL PROJECTS, OPERATIONS
S34	3536 - TS, STAND-BY SUB, LOAD CONTROL
S35	3538 - TS, SUPV + ADMIN, MAINT
S36	3540 - TS, TAKE READINGS
S37	3541 - TS, TELEPHONE CO TROUBLE
S38	3546 - UPDATE SUBSTATN DESIGN RECORDS
S39	3549 - SUB CONCEPTUAL ENG - APPROHED CAPIT
S40	3550 - SUB CONCEPTUAL ENG - PLANNING
S41	3552 - SUB PRELIM ENG (EXCLUDES PRELIM SUR
S42	3553 - SUB PRELIMINARY ENGINEERING
S43	3558 - SUB TRAINING RELATED TO SUB CAPITAL
S44	3559 - SUBSTATN ASSET TRANSFER CSTS
S45	3560 - SUBSTATN DESIGN SUPPORT
S46	3570 - T SUBS - 3RD PARTY BILLABLE CONSTRU
S47	3571 - T SUBS - 3RD PARTY BILLABLE MAINT
S48	3573 - TS, Snow Removal
S49	3574 - TS, Escort Contractor
S50	3575 - TS, Weed Control
S51	3576 - TS, Animal/Pest Control
S52	3713 - RT, RELAY, MAINT OSCILLO/EVENT RCDR
S53	3715 - RT, RELAY, SPECIAL STUDIES + TESTS
S54	3716 - RT, SUPV + ADMIN, MAINT

<u>Operation</u>	<u>Description</u>
S55	3717 - RT, SUPV + ADMIN, OPERATIONS
S56	3719 - RT, TELECOM, INCURRED SANDY/MONROE
S57	3721 - RT, TELECOM, RADIO + TV INTERFERENC
S58	3722 - RT, TELECOM, SERVICE/VOLT COMPLAINT
S59	3724 - SCHED, SYSTEM CONTROL & DISPATCHING
S60	3725 - SHARED TELECOM BILLING - TRANS
S61	3726 - SPCC PLANS FOR CAPITAL PROJECTS
S62	3727 - STANDARDS AND COMMITTEES
S63	3728 - STANDARDS DEVELOPMENT-TRANS OH
S64	3729 - STANDARDS DEVELOPMENT-TRANS UG
S65	3731 - SYSTEM ONE-LINE DIAGRAMS
S66	3732 - THIRD PARTY ATTACHMENT AUDITS - OH
S67	3733 - THIRD PARTY ATTACH POLE LOADING ANA
S68	3734 - THIRD PARTY MAKE-READY CONSTRUCTION
S69	3735 - THIRD PARTY POST CONSTRUCTION INSP
S70	3736 - THIRD PARTY WIRED APPLICATION PROCE
S71	3737 - THIRD PARTY WIRELESS APPLICATION PR
S72	3738 - THIRD PARTY WIRELESS CONSTRUCTION -
S73	3739 - THIRD PARTY WIRELESS INSPS/OH
S74	3741 - TM ROW RENTS - ELM
S75	3742 - TM-NEES: T&D - MECO - ELM
S76	3743 - TRANS CAPITAL CONVERSION
S77	3744 - TRANS MAINT OF COMMUNICATIO
S78	3745 - TRANS MAINT OF COMPUTER HAR
S79	3746 - TRANS MAINT OF COMPUTER SOF
S80	3749 - TRANS SERVICE STUDIES
S81	3750 - RT, TELECOM GAS I&R Preventive Main
S82	3751 - RT, TELECOM GAS I&R Corrective Main
S83	3801 - LOAD DISPATCH-MONITOR & OPERATE TRA
S84	3802 - LOAD DISPATCH-RELIABILITY
S85	3803 - LOAD DISPATCH-TRANS SERVICE & SCH
S86	3804 - MAINTAIN FAA TOWER LIGHTING
S87	3806 - MMT MATERIALS TRANS RELAY & TELEC
S88	3807 - MMT MATERIALS TRANS SUBSTATN MA
S89	3808 - MMT MATERIALS TRANS UGGROUND L
S90	3809 - NPCC/ISO STUDIES & SUPPORT-TRANS
S91	3810 - PERFORM TECHNICAL SUPPORT - OPERATI
S92	3811 - PERFORM TRANS BUILDING RENTS
S93	3812 - PERFORM TRANS EPRI MEMBERSHIP DUE
S94	3813 - PERFORM TRANS EQUIP RENTS
S95	3815 - PERFORM TRANS TECHNICAL ASSISTANC
S96	3818 - PLC/HMI SUPPORT - TRANS
S97	3820 - PSC EQUIP APPR
S98	3821 - RELIABILITY, PLAN & STANDARD DEVELO

<u>Operation</u>	<u>Description</u>
S99	3823 - REM OH TRANS FAC SITE RESTORE
T01	3824 - REM OH TRANS FAC STRUCTURE REM
T02	3825 - RENT ELEC PROP-NEP-ELM
T03	3826 - RENT ELEC PROP-NH HYDRO-ELM
T04	3827 - RENTS-BLDING-MECO-ELM
T05	3830 - DRAWING OFFICE SYSTEMS SUPPORT
T06	3831 - ENGINEER/DEVELOP CONTROL SCHEMES -
T07	3832 - ENGINEER/DEVELOP METERING SCHEMES-T
T08	3833 - ENGINEER/DEVELOP MICROWAVE SCHEMES-
T09	3834 - ENGINEER/DEVELOP PLC/HMI - TRANS
T10	3835 - ENGINEER/DEVELOP PRIVATE FIBER SCHE
T11	3836 - ENGINEER/DEVELOP PROTECTION SCHEMES
T12	3837 - ENGINEER/DEVELOP WIRELESS SCHEMES-T
T13	3841 - WORK METHODS-TRANS OH
T14	3842 - WORK METHODS-TRANS UGGROUND
T15	8000 - STAFF COSTS
T16	8001 - CONTRACTOR COSTS
T17	8002 - EMPLOYEE EXPENSES
T18	8003 - OTHER MISC RTB
T19	8004 - FACILITIES
T20	8005 - TTD RECHARGES
T21	8006 - MICROFICHE
T22	8007 - SAP HOSTING
T23	8008 - CROSS CHARGES
T24	8019 - NETWORK OPERATIONS
T25	8020 - NETWORK STRATEGY
T26	8021 - FSSC & CUSTOMER
T27	8022 - USFP
T28	8023 - INFRASTRUCTUE
T29	8024 - DIGITAL SECURITY
T30	8025 - LIPA
T31	8031 - PHY SEC - ALLIANCE SYSTEMS
T32	8032 - PHY SEC - SECURITY INTEGRATIONS
T33	8033 - PHY SEC - BUILDING STAR
T34	8034 - PHY SEC - SECURITAS SECURITY SERVIC
T35	8035 - PHY SEC - GALAXY
T36	8036 - PHY SEC - TELECOMS
T37	8037 - RSRCH & BCHMKG CONSULT SVCS
T38	8038 - DS - SECURITY AWARENESS
T39	8039 - DS - MONITORING COSTS
T40	8040 - DS - CYBER VULNERABILITY
T41	8041 - DS - THREAT INTELLIGENCE DATA FEEDS
T42	8042 - DS - INTERNAL & EXTERNAL SCANNING T
T43	8075 - SDC1 - IBM APP MAINT

<u>Operation</u>	<u>Description</u>
T44	8076 - SDC1 - IBM OVERHEAD
T45	8077 - SDC2 - WIPRO APPS MAINT
T46	8078 - SDC2 - WIPRO OVERHEAD
T47	8079 - SDC3 - OTHER APPS MAINT
T48	8080 - VERIZON WAN
T49	8081 - VERIZON LAN
T50	8082 - VERIZON VOICE
T51	8083 - VERIZON CONTACT CTR
T52	8084 - VERIZON CNI
T53	8085 - VERIZON AUDIO
T54	8086 - VERIZON CARRIER
T55	8087 - VERIZON VIDEO
T56	8088 - VERIZON SECURITY
T57	8089 - VERIZON REMOTE
T58	8090 - VERIZON MADC
T59	8091 - VERIZON MISC CHRGS
T60	8097 - CNI SERVICE DESK LICENCES
T61	8098 - CNI IBM MAINTENANCE
T62	8099 - ICE - DATALINKS
T63	8100 - ES CSDC - MAINFRAME
T64	8101 - ES CSDC - UNIX
T65	8102 - ES CSDC - WINTEL/LINUX
T66	8103 - ES CSDC - STORAGE
T67	8104 - ES CSDC - ARCHIVE
T68	8105 - ES CSDC - STANDING CHARGES
T69	8106 - ES CSDC - ADHOC
T70	8107 - ES CS - BASE - PHYSICAL DESKTOP
T71	8108 - ES CS - BASE - VIRTUAL DESKTOP
T72	8109 - ES CS - BASE - MOBILE DEVICE A
T73	8110 - ES CS - BASE - MOBILE DEVICE B
T74	8111 - ES CS - BASE - MOBILE DEVICE C
T75	8112 - ES CS - BASE - MOBILE DEVICE D
T76	8113 - ES CS - BASE - IMAC
T77	8114 - ES CS - PROJECT - IMAC
T78	8115 - ES CS - STANDING CHARGES
T79	8116 - ES CS - FULL DISK ENCRYPTION
T80	8117 - ES CS - ADHOC
T81	8118 - ICE - BUNDLED SERVICES
T82	8119 - ICE - ENTERPRISE SERVICES
T83	8120 - ICE - RTB - ACTIVATION & OTHER FEES
T84	8121 - ICE - BOLT ON SERVICES
T85	8122 - ICE - NON IBM CHARGES
T86	8123 - MDS - FIXED CHARGES (FOUNDATIONS)
T87	8124 - MDS - FAX CHARGES DDI

<u>Operation</u>	<u>Description</u>
T88	8125 - MDS - VARIABLE CHARGES
T89	8126 - MDS - PROJECTS
T90	8127 - MDS - NON XEROX CHARGES
T91	8128 - SMI - SERVICE MANAGEMENT
T92	8129 - SMI - SERVICE DESK
T93	8130 - SMI - MISC. CHARGES/PROJECTS
T94	8131 - SMI - DATA LINKS
T95	8132 - CNI EMS ABB
T96	8133 - CNI EMS HP MAINTENANCE
T97	8134 - CNI EMS IPC MAINTENANCE
T98	8135 - CNI EMS GENCO MAINTENANCE
T99	8136 - CNI EMS ALL OTHER MAINTENANCE
U01	8137 - CNI EMS NERC-CIP COMPLIANCE
U02	8138 - CNI GMS ALL OTHER MAINTENANCE
U03	8139 - CNI GMS NERC-CIP COMPLIANCE
U04	8140 - CNI GMS TELECOMS
U05	8141 - CNI GMS SCADA MAINTENANCE
U06	8142 - CNI TECH SVCS MAINTENANCE
U07	8143 - CNI TECH SVCS TRANSITION
U08	8144 - NETWORKS ALL OTHER COSTS
U09	8145 - NETWORKS INTERNET SERVICES
U10	8146 - NETWORKS LIGHTTOWER CONTRACT
U11	8147 - NETWORKS TEM VENDOR
U12	8148 - NETWORKS VZ UNY BILLING
U13	8150 - NETWORK STRATEGY
U14	8152 - USFP
U15	8153 - INFRASTRUCTUE
U16	8154 - DIGITAL SECURITY
U17	8160 - NETWORKS WIRELESS SERVICES
U18	8161 - NETWORK MISC CARRIER SERVICES
U19	8162 - VM - SUN
U20	8163 - VM - ACLARA
U21	8164 - VM - BMC
U22	8165 - VM - CGI
U23	8166 - VM - COMPUTER ASSOCIATES
U24	8167 - VM - ESG
U25	8168 - VM - FIELD DEVICES
U26	8169 - VM - GE ENERGY MANAGEMENT SERVICES
U27	8170 - VM - GENESYS
U28	8171 - VM - G-INTERNATIONAL (GXS)/ INSIGHT
U29	8172 - VM - GOLD SYSTEMS
U30	8173 - VM - IBM
U31	8174 - VM - ITRO
U32	8175 - VM - JCAPS

Operation	Description
U33	8176 - VM - KEMA
U34	8177 - VM - LOGICA
U35	8178 - VM - MANHATTAN
U36	8179 - VM - MDSI
U37	8180 - VM - MICROSOFT
U38	8181 - VM - MINOR
U39	8182 - VM - MISC
U40	8183 - VM - ONYX
U41	8184 - VM - ORACLE
U42	8185 - VM - POWER PLAN
U43	8186 - VM - PROQUIRE.
U44	8187 - VM - RIGHTNOW
U45	8188 - VM - RIMINI STREET
U46	8189 - VM - RTU/IBM/CA ISSUES
U47	8190 - VM - SABRIX
U48	8191 - VM - SAS
U49	8192 - VM - SAVINGS
U50	8193 - VM - TRACK STAR INTERNATIONAL INC
U51	8194 - VM - TROUX
U52	8195 - VM - VENTYX
U53	8196 - VM - XIGN
U54	8400 - DSM - A&G
U55	8401 - DSM RESIDENTIAL A&G
U56	8402 - DSM LARGE C&I A&G
U57	8406 - DSM - TELEMARKETING
U58	8407 - DSM - ONLINE/WEB
U59	8410 - DSM - MARKETING TRADE
U60	8432 - DSM GAS LARGE C&I A&G
U61	8433 - DSM GAS - PROGRAM IMPLEMENTATION
U62	8434 - DSM GAS - PROGRAM ADMINISTRATION
U63	8435 - DSM GAS - CUST INCENTIVES & SVCS
U64	8436 - DSM GAS - TELEMARKETING
U65	8437 - DSM GAS - ONLINE/WEB
U66	8438 - DSM GAS - ADVERTISING
U67	8439 - DSM GAS - MARKETING RESEARCH
U68	8440 - DSM GAS - MARKETING TRADE
U69	8441 - DSM GAS - TRADE ALLY TRAINING
U70	8442 - DSM GAS - MARKETING EVENTS
U71	8443 - DSM GAS SALES & TRAINING
U72	8444 - DSM GAS - TA STUDIES
U73	8445 - DSM GAS GENERAL EVALUATION WORK
U74	8446 - DSM GAS PLANNING
U75	8447 - DSM GAS REG RELATED ACTIVITY
U76	8448 - GAS COPAYMENTS

<u>Operation</u>	<u>Description</u>
U77	9000 - STOCKING TRUCK
U78	9002 - TRAINING
U79	9003 - MEETING UNION
U80	9004 - MEETING OTHER
U81	9006 - INCLEMENT WEATHER
U82	9007 - STANDBY TIME
U83	9008 - DRUG TESTING/PHYSICALS
U84	9010 - LIGHT DUTY - OCCUPATIONAL
U85	9011 - VEHICLE BREAKDOWN
U86	9013 - LIGHT DUTY - NON-OCCUPATIONAL
U87	9050 - SAFETY MEETING ELECTRIC DISTRIBUTIO
U88	9051 - SAFETY TRAINING ELECTRIC DISTRIBUTI
U89	9052 - SAFETY MEETING ELECTRIC TRANSMISSIO
U90	9053 - SAFETY TRAINING ELECTRIC TRANSMISSI
U91	9054 - SAFETY MEETING GAS
U92	9055 - SAFETY TRAINING GAS
U93	9104 - CONVERSION OPERATION FOR FERC 1040
U94	9105 - CONVERSION OPERATION FOR FERC 1050
U95	9110 - CONVERSION OPERATION FOR FERC 1100
U96	9111 - CONVERSION OPERATION FOR FERC 1110
U97	9114 - CONVERSION OPERATION FOR FERC 1140
U98	9115 - CONVERSION OPERATION FOR FERC 1150
U99	9118 - CONVERSION OPERATION FOR FERC 1180
V01	9119 - CONVERSION OPERATION FOR FERC 1190
V02	9120 - CONVERSION OPERATION FOR FERC 1200
V03	9122 - CONVERSION OPERATION FOR FERC 1220
V04	9123 - CONVERSION OPERATION FOR FERC 1230
V05	9124 - CONVERSION OPERATION FOR FERC 1240
V06	9125 - CONVERSION OPERATION FOR FERC 1250
V07	9128 - CONVERSION OPERATION FOR FERC 1280
V08	9133 - CONVERSION OPERATION FOR FERC 1330
V09	9135 - CONVERSION OPERATION FOR FERC 1350
V10	9136 - CONVERSION OPERATION FOR FERC 1360
V11	9141 - CONVERSION OPERATION FOR FERC 1410
V12	9144 - CONVERSION OPERATION FOR FERC 1440
V13	9145 - CONVERSION OPERATION FOR FERC 1450
V14	9146 - CONVERSION OPERATION FOR FERC 1460
V15	9147 - CONVERSION OPERATION FOR FERC 1470
V16	9148 - CONVERSION OPERATION FOR FERC 1480
V17	9151 - CONVERSION OPERATION FOR FERC 1510
V18	9152 - CONVERSION OPERATION FOR FERC 1520
V19	9154 - CONVERSION OPERATION FOR FERC 1540
V20	9157 - CONVERSION OPERATION FOR FERC 1570
V21	9164 - CONVERSION OPERATION FOR FERC 1640

Operation	Description
V22	9165 - CONVERSION OPERATION FOR FERC 1650
V23	9171 - CONVERSION OPERATION FOR FERC 1710
V24	9172 - CONVERSION OPERATION FOR FERC 1720
V25	9173 - CONVERSION OPERATION FOR FERC 1730
V26	9179 - CONVERSION OPERATION FOR FERC 1790
V27	9182 - CONVERSION OPERATION FOR FERC 1820
V28	9185 - CONVERSION OPERATION FOR FERC 1850
V29	9187 - CONVERSION OPERATION FOR FERC 1870
V30	9188 - CONVERSION OPERATION FOR FERC 1880
V31	9189 - CONVERSION OPERATION FOR FERC 1890
V32	9190 - CONVERSION OPERATION FOR FERC 1900
V33	9201 - CONVERSION OPERATION FOR FERC 2010
V34	9204 - CONVERSION OPERATION FOR FERC 2040
V35	9205 - CONVERSION OPERATION FOR FERC 2050
V36	9207 - CONVERSION OPERATION FOR FERC 2070
V37	9208 - CONVERSION OPERATION FOR FERC 2080
V38	9209 - CONVERSION OPERATION FOR FERC 2090
V39	9210 - CONVERSION OPERATION FOR FERC 2100
V40	9211 - CONVERSION OPERATION FOR FERC 2110
V41	9212 - CONVERSION OPERATION FOR FERC 2120
V42	9213 - CONVERSION OPERATION FOR FERC 2130
V43	9214 - CONVERSION OPERATION FOR FERC 2140
V44	9215 - CONVERSION OPERATION FOR FERC 2150
V45	9216 - CONVERSION OPERATION FOR FERC 2160
V46	9217 - CONVERSION OPERATION FOR FERC 2170
V47	9218 - CONVERSION OPERATION FOR FERC 2180
V48	9223 - CONVERSION OPERATION FOR FERC 2230
V49	9224 - CONVERSION OPERATION FOR FERC 2240
V50	9225 - CONVERSION OPERATION FOR FERC 2250
V51	9226 - CONVERSION OPERATION FOR FERC 2260
V52	9227 - CONVERSION OPERATION FOR FERC 2270
V53	9228 - CONVERSION OPERATION FOR FERC 2280
V54	9229 - CONVERSION OPERATION FOR FERC 2290
V55	9230 - CONVERSION OPERATION FOR FERC 2300
V56	9231 - CONVERSION OPERATION FOR FERC 2310
V57	9233 - CONVERSION OPERATION FOR FERC 2330
V58	9234 - CONVERSION OPERATION FOR FERC 2340
V59	9235 - CONVERSION OPERATION FOR FERC 2350
V60	9238 - CONVERSION OPERATION FOR FERC 2380
V61	9241 - CONVERSION OPERATION FOR FERC 2410
V62	9243 - CONVERSION OPERATION FOR FERC 2430
V63	9255 - CONVERSION OPERATION FOR FERC 2550
V64	9257 - CONVERSION OPERATION FOR FERC 2570
V65	9281 - CONVERSION OPERATION FOR FERC 2810

<u>Operation</u>	<u>Description</u>
V66	9282 - CONVERSION OPERATION FOR FERC 2820
V67	9283 - CONVERSION OPERATION FOR FERC 2830
V68	9327 - CONVERSION OPERATION FOR FERC 3270
V69	9331 - CONVERSION OPERATION FOR FERC 3310
V70	9400 - CONVERSION OPERATION FOR FERC 4000
V71	9401 - CONVERSION OPERATION FOR FERC 4010
V72	9402 - CONVERSION OPERATION FOR FERC 4020
V73	9404 - CONVERSION OPERATION FOR FERC 4040
V74	9405 - CONVERSION OPERATION FOR FERC 4050
V75	9406 - CONVERSION OPERATION FOR FERC 4060
V76	9407 - CONVERSION OPERATION FOR FERC 4070
V77	9408 - CONVERSION OPERATION FOR FERC 4080
V78	9409 - CONVERSION OPERATION FOR FERC 4090
V79	9410 - CONVERSION OPERATION FOR FERC 4100
V80	9412 - CONVERSION OPERATION FOR FERC 4120
V81	9413 - CONVERSION OPERATION FOR FERC 4130
V82	9414 - CONVERSION OPERATION FOR FERC 4140
V83	9415 - CONVERSION OPERATION FOR FERC 4150
V84	9416 - CONVERSION OPERATION FOR FERC 4160
V85	9417 - CONVERSION OPERATION FOR FERC 4170
V86	9418 - CONVERSION OPERATION FOR FERC 4180
V87	9419 - CONVERSION OPERATION FOR FERC 4190
V88	9420 - CONVERSION OPERATION FOR FERC 4200
V89	9425 - CONVERSION OPERATION FOR FERC 4250
V90	9426 - CONVERSION OPERATION FOR FERC 4260
V91	9428 - CONVERSION OPERATION FOR FERC 4280
V92	9429 - CONVERSION OPERATION FOR FERC 4290
V93	9430 - CONVERSION OPERATION FOR FERC 4300
V94	9431 - CONVERSION OPERATION FOR FERC 4310
V95	9433 - CONVERSION OPERATION FOR FERC 4330
V96	9434 - CONVERSION OPERATION FOR FERC 4340
V97	9435 - CONVERSION OPERATION FOR FERC 4350
V98	9436 - CONVERSION OPERATION FOR FERC 4360
V99	9437 - CONVERSION OPERATION FOR FERC 4370
W01	9438 - CONVERSION OPERATION FOR FERC 4380
W02	9439 - CONVERSION OPERATION FOR FERC 4390
W03	9440 - CONVERSION OPERATION FOR FERC 4400
W04	9442 - CONVERSION OPERATION FOR FERC 4420
W05	9444 - CONVERSION OPERATION FOR FERC 4440
W06	9445 - CONVERSION OPERATION FOR FERC 4450
W07	9447 - CONVERSION OPERATION FOR FERC 4470
W08	9449 - CONVERSION OPERATION FOR FERC 4490
W09	9450 - CONVERSION OPERATION FOR FERC 4500
W10	9454 - CONVERSION OPERATION FOR FERC 4540

Operation	Description
W11	9457 - CONVERSION OPERATION FOR FERC 4570
W12	9480 - CONVERSION OPERATION FOR FERC 4800
W13	9481 - CONVERSION OPERATION FOR FERC 4810
W14	9482 - CONVERSION OPERATION FOR FERC 4820
W15	9483 - CONVERSION OPERATION FOR FERC 4830
W16	9487 - CONVERSION OPERATION FOR FERC 4870
W17	9489 - CONVERSION OPERATION FOR FERC 4890
W18	9493 - CONVERSION OPERATION FOR FERC 4930
W19	9495 - CONVERSION OPERATION FOR FERC 4950
W20	9501 - CONVERSION OPERATION FOR FERC 5010
W21	9502 - CONVERSION OPERATION FOR FERC 5020
W22	9505 - CONVERSION OPERATION FOR FERC 5050
W23	9506 - CONVERSION OPERATION FOR FERC 5060
W24	9507 - CONVERSION OPERATION FOR FERC 5070
W25	9508 - CONVERSION OPERATION FOR FERC 5080
W26	9509 - CONVERSION OPERATION FOR FERC 5090
W27	9510 - CONVERSION OPERATION FOR FERC 5100
W28	9511 - CONVERSION OPERATION FOR FERC 5110
W29	9512 - CONVERSION OPERATION FOR FERC 5120
W30	9513 - CONVERSION OPERATION FOR FERC 5130
W31	9514 - CONVERSION OPERATION FOR FERC 5140
W32	9515 - CONVERSION OPERATION FOR FERC 5150
W33	9517 - CONVERSION OPERATION FOR FERC 5170
W34	9518 - CONVERSION OPERATION FOR FERC 5180
W35	9519 - CONVERSION OPERATION FOR FERC 5190
W36	9521 - CONVERSION OPERATION FOR FERC 5210
W37	9523 - CONVERSION OPERATION FOR FERC 5230
W38	9524 - CONVERSION OPERATION FOR FERC 5240
W39	9528 - CONVERSION OPERATION FOR FERC 5280
W40	9529 - CONVERSION OPERATION FOR FERC 5290
W41	9530 - CONVERSION OPERATION FOR FERC 5300
W42	9531 - CONVERSION OPERATION FOR FERC 5310
W43	9532 - CONVERSION OPERATION FOR FERC 5320
W44	9535 - CONVERSION OPERATION FOR FERC 5350
W45	9536 - CONVERSION OPERATION FOR FERC 5360
W46	9537 - CONVERSION OPERATION FOR FERC 5370
W47	9538 - CONVERSION OPERATION FOR FERC 5380
W48	9539 - CONVERSION OPERATION FOR FERC 5390
W49	9541 - CONVERSION OPERATION FOR FERC 5410
W50	9542 - CONVERSION OPERATION FOR FERC 5420
W51	9543 - CONVERSION OPERATION FOR FERC 5430
W52	9544 - CONVERSION OPERATION FOR FERC 5440
W53	9545 - CONVERSION OPERATION FOR FERC 5450
W54	9547 - CONVERSION OPERATION FOR FERC 5470

<u>Operation</u>	<u>Description</u>
W55	9548 - CONVERSION OPERATION FOR FERC 5480
W56	9550 - CONVERSION OPERATION FOR FERC 5500
W57	9551 - CONVERSION OPERATION FOR FERC 5510
W58	9552 - CONVERSION OPERATION FOR FERC 5520
W59	9553 - CONVERSION OPERATION FOR FERC 5530
W60	9554 - CONVERSION OPERATION FOR FERC 5540
W61	9555 - CONVERSION OPERATION FOR FERC 5550
W62	9556 - CONVERSION OPERATION FOR FERC 5560
W63	9557 - CONVERSION OPERATION FOR FERC 5570
W64	9565 - CONVERSION OPERATION FOR FERC 5650
W65	9567 - CONVERSION OPERATION FOR FERC 5670
W66	9569 - CONVERSION OPERATION FOR FERC 5690
W67	9575 - CONVERSION OPERATION FOR FERC 5750
W68	9601 - MEETING UNION - ED/GEN
W69	9608 - LIGHT DUTY-NON-OCCUPATIONAL - ED/GE
W70	9717 - CONVERSION OPERATION FOR FERC 7170
W71	9718 - CONVERSION OPERATION FOR FERC 7180
W72	9723 - CONVERSION OPERATION FOR FERC 7230
W73	9728 - CONVERSION OPERATION FOR FERC 7280
W74	9736 - CONVERSION OPERATION FOR FERC 7360
W75	9741 - CONVERSION OPERATION FOR FERC 7410
W76	9742 - CONVERSION OPERATION FOR FERC 7420
W77	9760 - CONVERSION OPERATION FOR FERC 7600
W78	9790 - CONVERSION OPERATION FOR FERC 7900
W79	9792 - STOCKING TRUCK - ET
W80	9793 - TRAINING - ET
W81	9794 - MEETING UNION - ET
W82	9795 - MEETING OTHER - ET
W83	9796 - INCLEMENT WEATHER - ET
W84	9797 - STANDBY TIME - ET
W85	9798 - DRUG TESTING/PHYSICALS - ET
W86	9799 - LIGHT DUTY -OCCUPATIONAL - ET
W87	9800 - VEHICLE BREAKDOWN - ET
W88	9801 - LIGHT DUTY-NON-OCCUPATIONAL - ET
W89	9802 - MEETING SAFETY - ET
W91	9803 - SAFETY TRAINING - ET
W93	9804 - CONVERSION OPERATION FOR FERC 8040
W94	9805 - CONVERSION OPERATION FOR FERC 8050
W95	9808 - CONVERSION OPERATION FOR FERC 8080
W96	9809 - CONVERSION OPERATION FOR FERC 8090
W97	9810 - CONVERSION OPERATION FOR FERC 8100
W98	9812 - CONVERSION OPERATION FOR FERC 8120
W99	9813 - CONVERSION OPERATION FOR FERC 8130
X01	9814 - CONVERSION OPERATION FOR FERC 8140

Operation	Description
X02	9822 - CONVERSION OPERATION FOR FERC 8220
X03	9823 - CONVERSION OPERATION FOR FERC 8230
X04	9824 - CONVERSION OPERATION FOR FERC 8240
X05	9828 - STOCKING TRUCK - GAS
X06	9829 - TRAINING - GAS
X07	9831 - MEETING OTHER - GAS
X08	9832 - INCLEMENT WEATHER - GAS
X09	9833 - STANDBY TIME - GAS
X10	9834 - DRUG TESTING/PHYSICALS - GAS
X11	9835 - LIGHT DUTY -OCCUPATIONAL - GAS
X12	9836 - VEHICLE BREAKDOWN - GAS
X13	9837 - LIGHT DUTY-NON-OCCUPATIONAL - GAS
X14	9838 - MEETING SAFETY - GAS
X16	9839 - SAFETY TRAINING - GAS
X18	9842 - CONVERSION OPERATION FOR FERC 8420
X19	9843 - CONVERSION OPERATION FOR FERC 8430
X20	9846 - CONVERSION OPERATION FOR FERC 8460
X21	9848 - CONVERSION OPERATION FOR FERC 8480
X22	9850 - CONVERSION OPERATION FOR FERC 8500
X23	9852 - CONVERSION OPERATION FOR FERC 8520
X24	9853 - CONVERSION OPERATION FOR FERC 8530
X25	9856 - CONVERSION OPERATION FOR FERC 8560
X26	9857 - CONVERSION OPERATION FOR FERC 8570
X27	9860 - CONVERSION OPERATION FOR FERC 8600
X28	9861 - CONVERSION OPERATION FOR FERC 8610
X29	9864 - CONVERSION OPERATION FOR FERC 8640
X30	9865 - CONVERSION OPERATION FOR FERC 8650
X31	9867 - CONVERSION OPERATION FOR FERC 8670
X32	9872 - CONVERSION OPERATION FOR FERC 8720
X33	9873 - CONVERSION OPERATION FOR FERC 8730
X34	9877 - CONVERSION OPERATION FOR FERC 8770
X35	9886 - CONVERSION OPERATION FOR FERC 8860
X36	9895 - CONVERSION OPERATION FOR FERC 8950
X37	9905 - CONVERSION OPERATION FOR FERC 9050
X38	9907 - CONVERSION OPERATION FOR FERC 9070
X39	9909 - CONVERSION OPERATION FOR FERC 9090
X40	9911 - CONVERSION OPERATION FOR FERC 9110
X41	9912 - CONVERSION OPERATION FOR FERC 9120
X42	9913 - CONVERSION OPERATION FOR FERC 9130
X43	9916 - CONVERSION OPERATION FOR FERC 9160
X44	9917 - CONVERSION OPERATION FOR FERC 9170
X45	9922 - CONVERSION OPERATION FOR FERC 9220
X46	9923 - CONVERSION OPERATION FOR FERC 9230
X47	9924 - CONVERSION OPERATION FOR FERC 9240

Operation	Description
X48	9927 - CONVERSION OPERATION FOR FERC 9270
X49	9929 - CONVERSION OPERATION FOR FERC 9290
X50	9932 - CONVERSION OPERATION FOR FERC 9320
X51	9940 - CONVERSION OPERATION FOR FERC 9400
X52	9984 - CONVERSION OPERATION FOR FERC 9840
X53	9985 - CONVERSION OPERATION FOR FERC 9010

The Narragansett Electric Company
d/b/a Rhode Island Energy
In Re: Proposed FY 2025 Electric Infrastructure, Safety and Reliability Plan
Responses to the Division's First Set of Data Requests
Issued on October 23, 2023

Attachment DIV 1-29-2
Damage/Failure Reporting

The Company is providing Attachment DIV 1-29-2 as an Excel file.

Division 1-30
Damage/Failure Reporting

Request:

For each transformer failure, provide a copy (or expected completion date) of the fault investigation.

- a. Westerly #2
- b. Hopkins Hill
- c. Apponaug
- d. Sprague St.

Response:

Formal fault investigation reports are not completed for every transformer failure. Instead, failures are documented on a department SharePoint site. Summaries from the SharePoint entries are included as part of the attachments. The substation engineering department, along with the substation operations department, perform tests such as winding resistance, transformer excitation, power factor, dissolved gas analysis (DGA), insulation resistance, and transformer turns ratio to understand what might have caused the transformer failure. If the transformer fails prematurely, or for an unknown cause, then the substation engineering department makes the decision to have the transformer opened for visual inspection.

- a. Westerly #2: Please see Attachment DIV 1-30-1.
- b. Hopkins Hill: It is expected that the transformer teardown, visual inspection, and final report will be completed by summer 2024 (FY25). A routine dissolved gas analysis test on the # 2 transformer indicated gases associated with high temperature electrical arcing. The gas levels continued to increase while the transformer was in-service. The transformer was taken out of service and an internal inspection was performed with no findings. The transformer was not returned to service due to the consistent increase in explosive gas levels. The attached document summarizes the results from an inspection performed at the substation in FY23. Please see Attachment DIV 1-30-2.
- c. Apponaug: Please see Attachment DIV 1-30-3.
- d. Sprague St: Please see Attachment DIV 1-30-4.

Name of Facility and Location

Westerly Substation
69 Canal St.
Westerly, RI 02891

Nameplate information

Westerly # 2 Transformer
General Electric
34.5 delta - 12470Y/7200
12/16/20 MVA
REF#: 023291, Serial # H-860127B
Mfr Date: 1974
LTC but not utilized (locked in neutral)

Trouble / Failure Description

Yesterday #2 Transformer at Westerly had its oil lowered and was internally inspected to determine the cause of increased Ethylene Gases being detected (DGA program) in the unit around 6/2019 and increasing again at the end of 2020. The internal inspection revealed that the LV lead X2 crimp connection that attached the lead to the strands exiting the top of the coil was the source of the overheating. The conductor and insulation damage was extensive and travels back into areas of the coil that are not reachable to make repairs.

Action Plan

The damage is not repairable in the transformer. The #2 transformer cannot be placed back into service.

Mobile 9879 will be installed. A spare in the system will be attempted to be installed and placed in service by the end of August so that the Mobile can be released for a future assignment.

Dissolved Gas Analysis

Lab Report Number	248339-001	247420-001	231473-003	218263 - 6	216993 - 2	
Sample date	2021-01-08	2020-12-02	2019-09-10	2019-06-27	2019-05-24	
Sample temp	25	30	28	45	35	°C
Hydrogen (H2)	63+!	37!	25	73	251*^!	µL/L
Methane (CH4)	466.0*+	361.0*^!	129.0*	177.0*^!	46.0	µL/L
Ethane (C2H6)	1060.4*^^++	951.8*^^^!	358.5*	375.0*^^^+++!	53.0	µL/L
Ethylene (C2H4)	1457.6*^++	1365.7*^^^!	167.3*	182.0*^^^+++!	59.0*	µL/L
Acetylene (C2H2)	0.9	0.9	0.0	0.0	0.0	µL/L
Carbon Monoxide (CO)	137~	87~	93	142	165	µL/L
Carbon Dioxide (CO2)	2497	2547	2109	2000	9210	µL/L

Visual Inspection:





Internal Inspection Report

nationalgrid

Project Number: J29742

Field Report By: Brandt Nelson

Date: 9/1/2022

Table of Contents

Customer Contact Information:.....	2
Work Scope:.....	2
Test Results:	3
Table 1 Power Factor and Capacitance Test Values	3
Table 2: Excitation Current Test Values	3
Table 3: C1 Power Factor and Capacitance Test Values.....	4
Table 4: C2 Power Factor and Capacitance Test Values.....	4
Table 5: TTR Test Values	4
Table 6: Winding Resistance Test Values.....	5
Table 7: Insulation Resistance Test Values.....	5
Table 8: Leakage Reactance Tests (Per Phase) [H-L] Test Values.....	5
Internal Photos:	6
SFRA Traces:	33
Vacuum / Oil Log:.....	77
Oil Sample Results:	78
NASS Contact Information	79

Customer Contact Information:

Site Contact: John Bleyer (401) 529 – 8640 Todd Nasin (401) 529 – 3334	Site Address: 92 Hopkins Hill Rd West Greenwich RI 02817
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Work Scope:

Scope of work:

- Drain approximately 3450 gallons of oil followed by dry air
- Perform internal inspection
- Report and document any finding (debris on bottom of units, discoloration, burnt insulations)
- Circulate oil one time nameplate volume
- Fill unit

Post-test unit: As in found tap only

- Turns tap ratio
- Winding Resistance
- Insulation Resistance (Core and Frame if external)
- Power factor (Windings and bushings)
- SFRA
- Oil sample

Test Results:

Table 1 Power Factor and Capacitance Test Values

Test Date	8/26/2022	Test Time:	7:22 AM	Weather	Sunny	
Air Temperature	23°C	Apparatus Temperature	30°C	Humidity	84 %	
Insulation	Test kV	mA	Watts	PF*TCF [%]	Corr Fctr	Cap (pF)
CH+CHL	10.001	46.560	1.562	0.318	0.952	12348.100
CH	10.000	14.770	0.647	0.413	0.952	3916.980
CHL (Measured)	10.000	31.766	0.928	0.278	0.952	8426.190
CHL	*	31.790	0.915	0.274	0.952	8431.120
CL+CHL	10.000	76.003	2.250	0.278	0.952	20158
CL	10.000	44.213	1.345	0.289	0.952	11727.050
CHL (Measured)	10.000	31.760	0.943	0.281	0.952	8423.085
CHL	*	31.790	0.904	0.271	0.952	8430.950
Winding without Attached Bushing Calculation						
CH'	*	14.770	0.647	0.413	0.952	3916.980
CL'	*	44.213	1.345	0.289	0.952	11727.050

Table 2: Excitation Current Test Values

Tap Position(s)	Test kV	H1 H0			H2 H0			H3 H0		
		mA	Watts	X	mA	Watts	X	mA	Watts	X
HV: 3	10	45.612	324.106	L	23.568	158.919	L	45.056	311.257	L

Table 3: C1 Power Factor and Capacitance Test Values

ID	Serial #	Test kV	mA	Watts	Corr Fctr	PF*TCF [%]	NP %PF	Cap (pF)	NP Cap
H1	3704060291	10.001	1.764	0.143	1	0.809	0.28	467.809	463
H2	3704060991	10.000	1.752	0.194	1	1.087	0.28	464.632	461
H3	3704040191	10.000	1.764	0.131	1	0.741	0.29	467.999	463
X0	3701520591	10.000	2.607	0.072	1	0.277	0.29	691.393	691
X1	3701520791	10.000	2.576	0.069	1	0.263	0.27	683.337	681
X2	3701520391	10.000	2.555	0.083	1	0.331	0.29	677.658	675
X3	3701520991	10.000	2.571	0.078	1	0.300	0.28	681.983	679

** HV Bushings PF% are high. Retesting / treading recommended. If the PF remains high, bushing replacement recommended.

Table 4: C2 Power Factor and Capacitance Test Values

ID	Serial #	Test kV	mA	Watts	Corr Fctr	PF*TCF [%]	NP %PF	Cap (pF)	NP Cap
H1	3704060291	0.500	1.398	0.029	1	0.209	*	370.842	*
H2	3704060991	0.500	1.408	0.035	1	0.248	*	373.475	*
H3	3704040191	0.500	1.408	0.029	1	0.205	*	373.591	*
X0	3701520591	0.500	0.849	0.025	1	0.288	*	225.158	*
X1	3701520791	0.500	0.876	0.026	1	0.293	*	232.479	*
X2	3701520391	0.500	0.875	0.024	1	0.267	*	232.316	*
X3	3701520991	0.500	0.889	0.032	1	0.353	*	235.694	*

Table 5: TTR Test Values

Winding: Tap	HV [kV]	LV [kV]	Cal	Ratio 1	Ratio 2	Ratio 3
HV: 3	33.60	12.47	4.667	4.669	4.668	4.669

Table 6: Winding Resistance Test Values

Winding : Tap	Phase	Measured Resistance	Corrected Resistance
HV: 3	A	146.200 mΩ	176.601 mΩ
HV: 3	B	146.100 mΩ	176.480 mΩ
HV: 3	C	146.200 mΩ	176.601 mΩ
LV	A	8.560 mΩ	10.340 mΩ
LV	B	8.571 mΩ	10.353 mΩ
LV	C	8.547 mΩ	10.324 mΩ

Table 7: Insulation Resistance Test Values

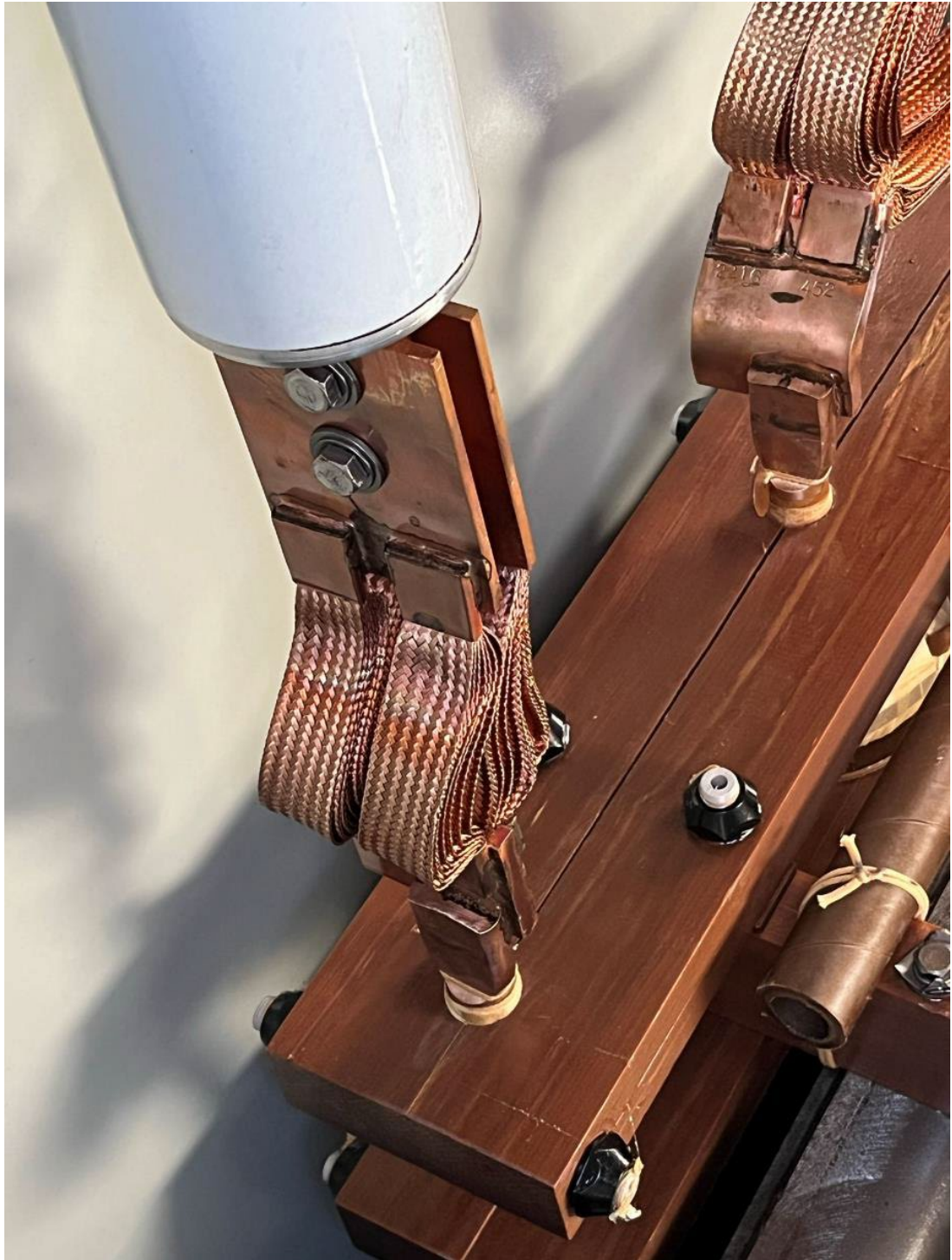
Connections	Volts	T1 (G-ohms)
Hi to Lo/Ground	5000.00	5.15
Hi to Ground Guard Lo	5000.00	5.19
Lo to Hi/Ground	5000.00	4.70

Table 8: Leakage Reactance Tests (Per Phase) [H-L] Test Values

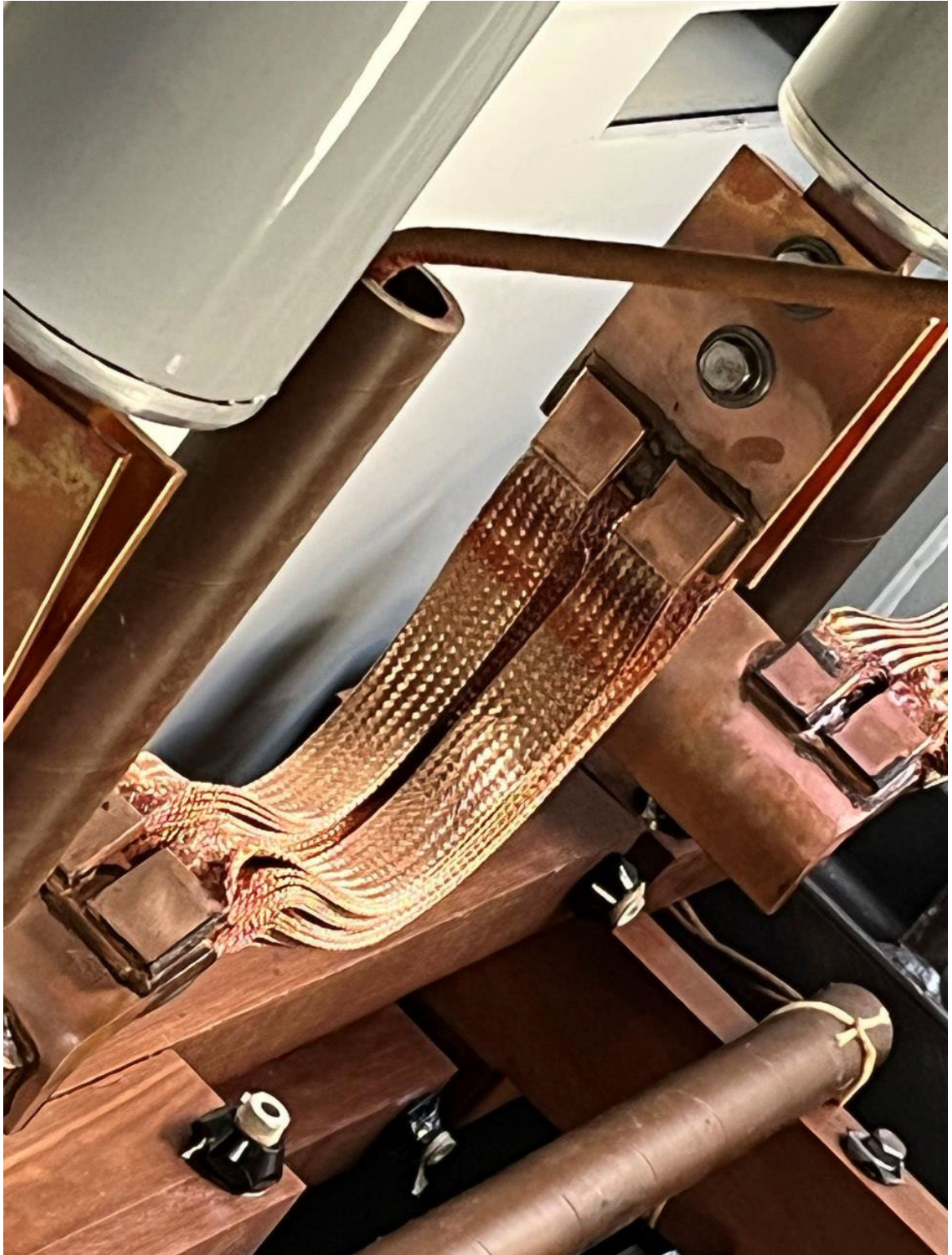
Test Results									
Tap Changer Name / Position	Phase	Voltage	Current	Watts	PF meas	Ind.	Res.	Imp.	Reac.
DETC-1/3	Phase A	100.493 V	4.764 A	31.723 W	6.626	0.056 H	1.398 Ω	21.080 Ω	21.034 Ω
DETC-1/3	Phase B	100.411 V	4.644 A	14.475 W	3.104	0.057 H	671.000 mΩ	21.606 Ω	21.595 Ω
DETC-1/3	Phase C	100.268 V	4.686 A	15.716 W	3.345	0.057 H	716.000 mΩ	21.386 Ω	21.374 Ω

Tap Changer Name / Position	Phase	% Impedance			% Reactance			
		% Imped.	Benchmark	Delta Bench.	% Reac.	Benchmark	Delta Bench.	D Average (%)
DETC-1/3	Phase A	108.45	15.13	616.785	108.213	15.13	615.221	1.408
DETC-1/3	Phase B	111.156	15.13	634.67	111.099	15.13	634.296	1.222
DETC-1/3	Phase C	110.024	15.13	627.19	109.962	15.13	626.782	0.186

Internal Photos:











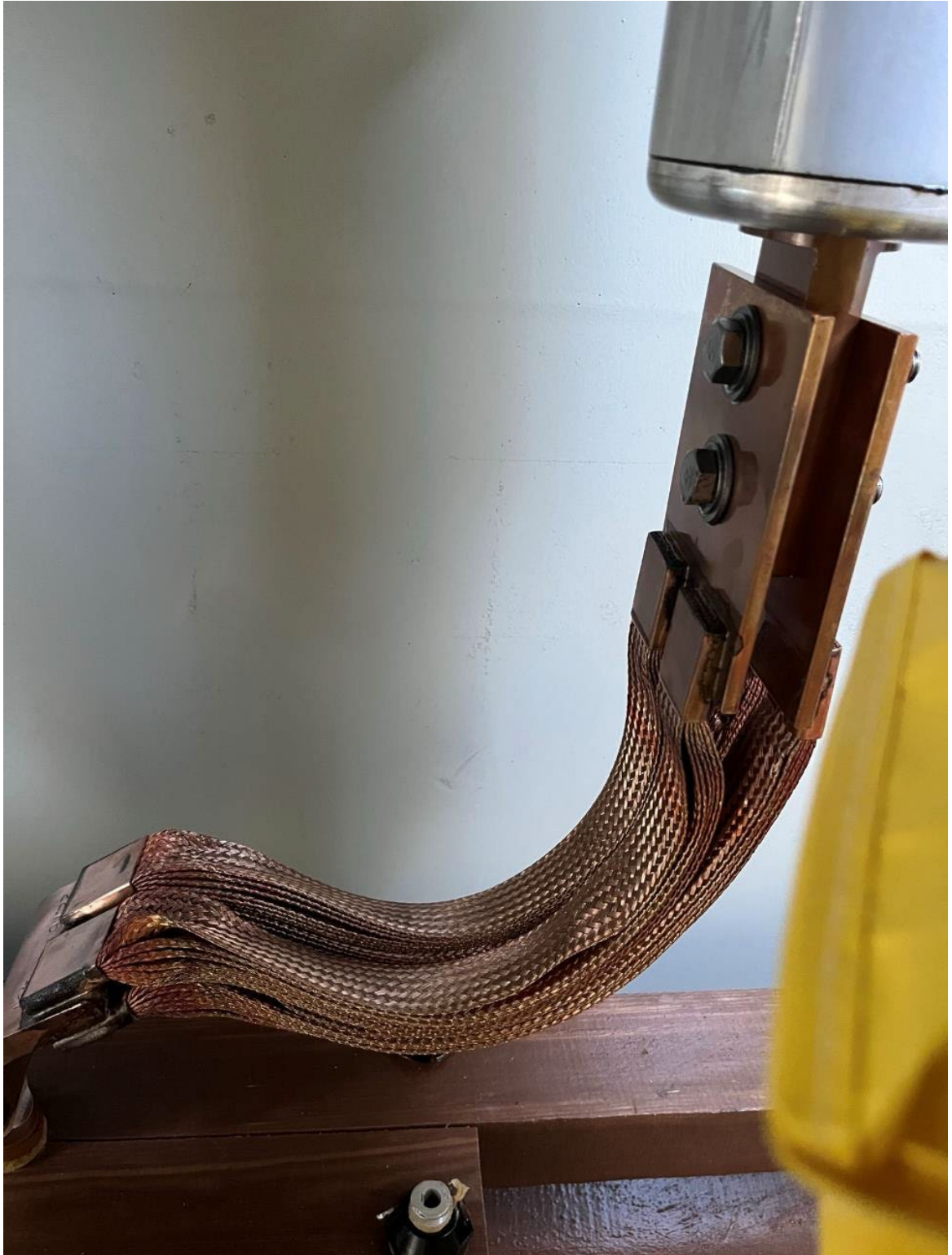












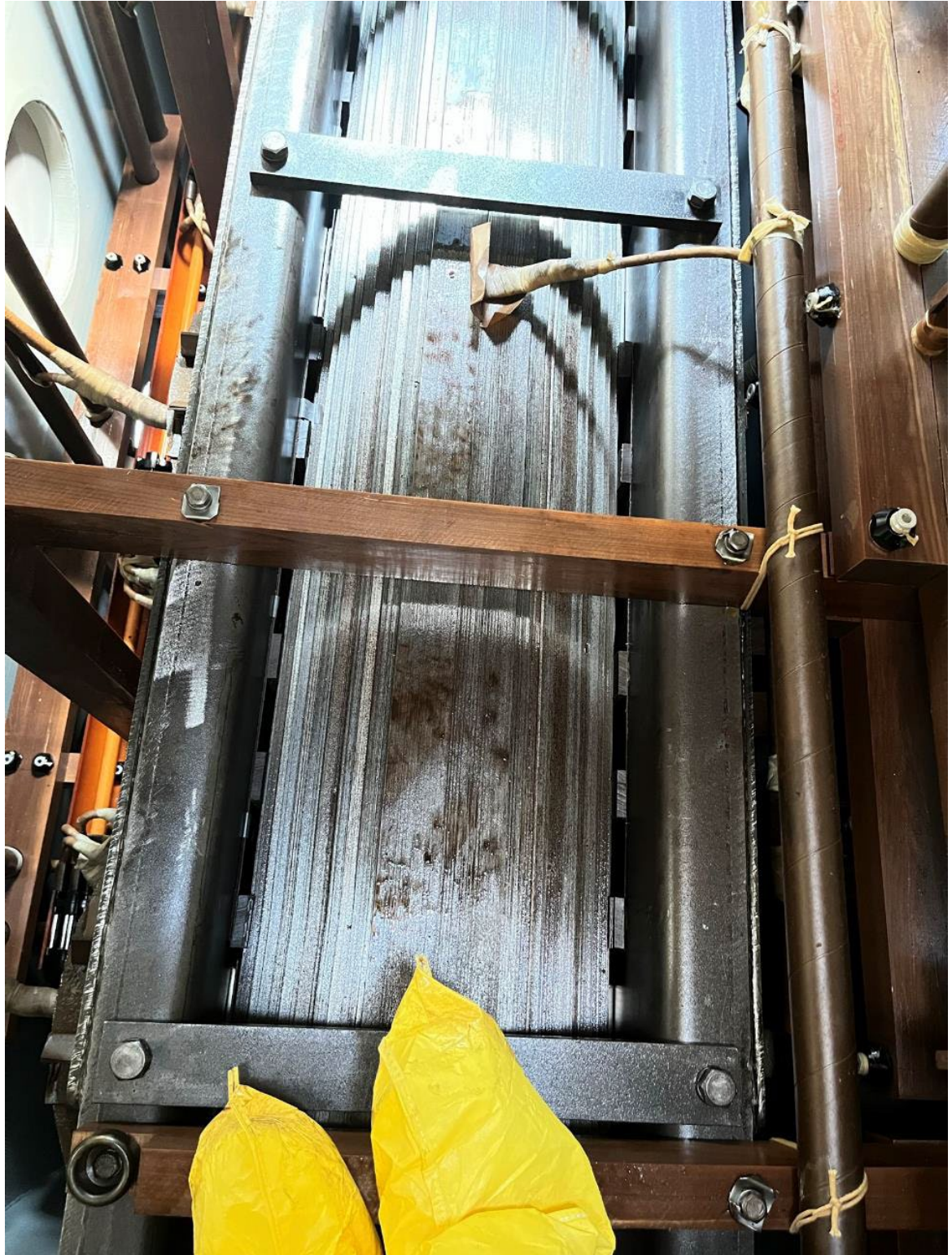


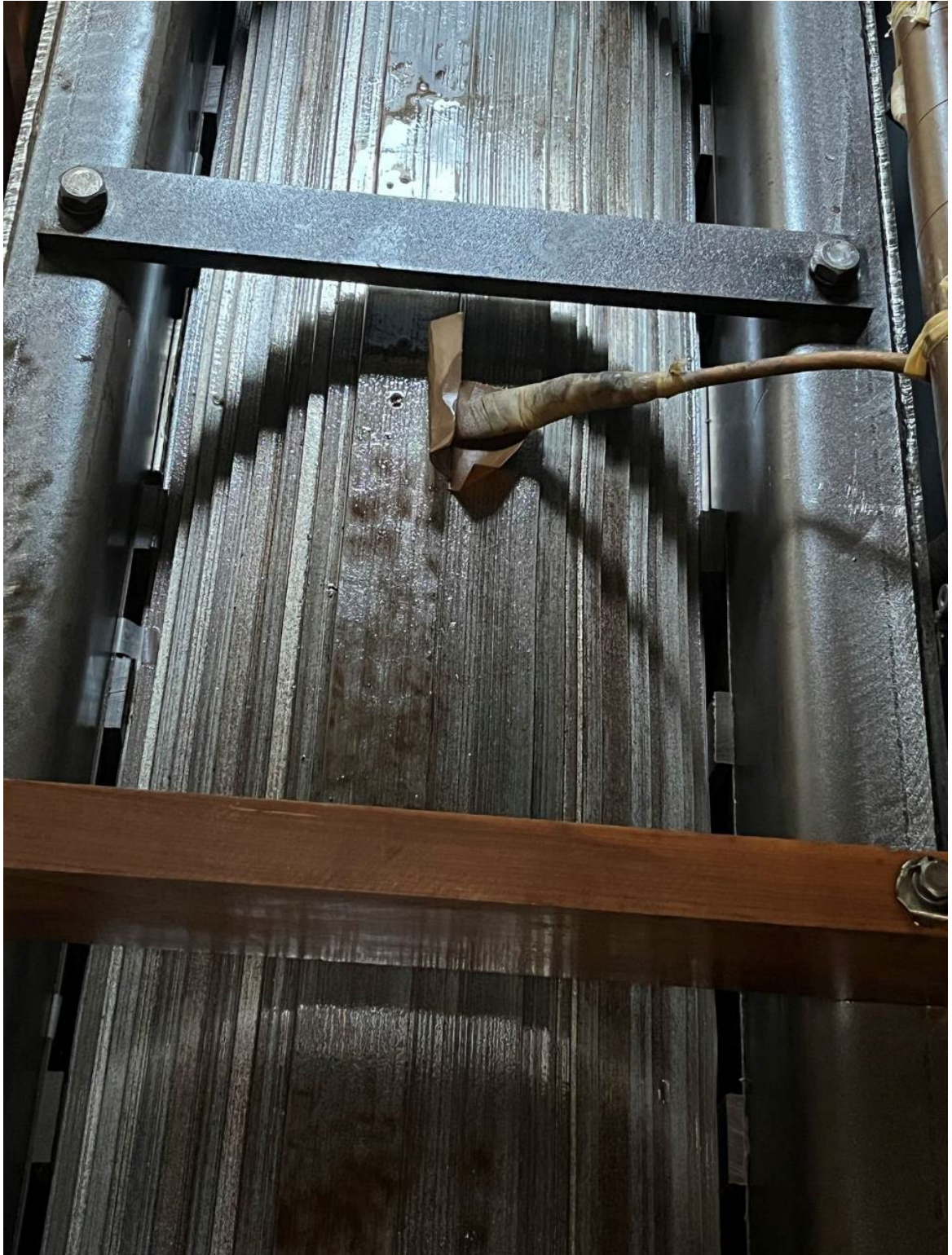


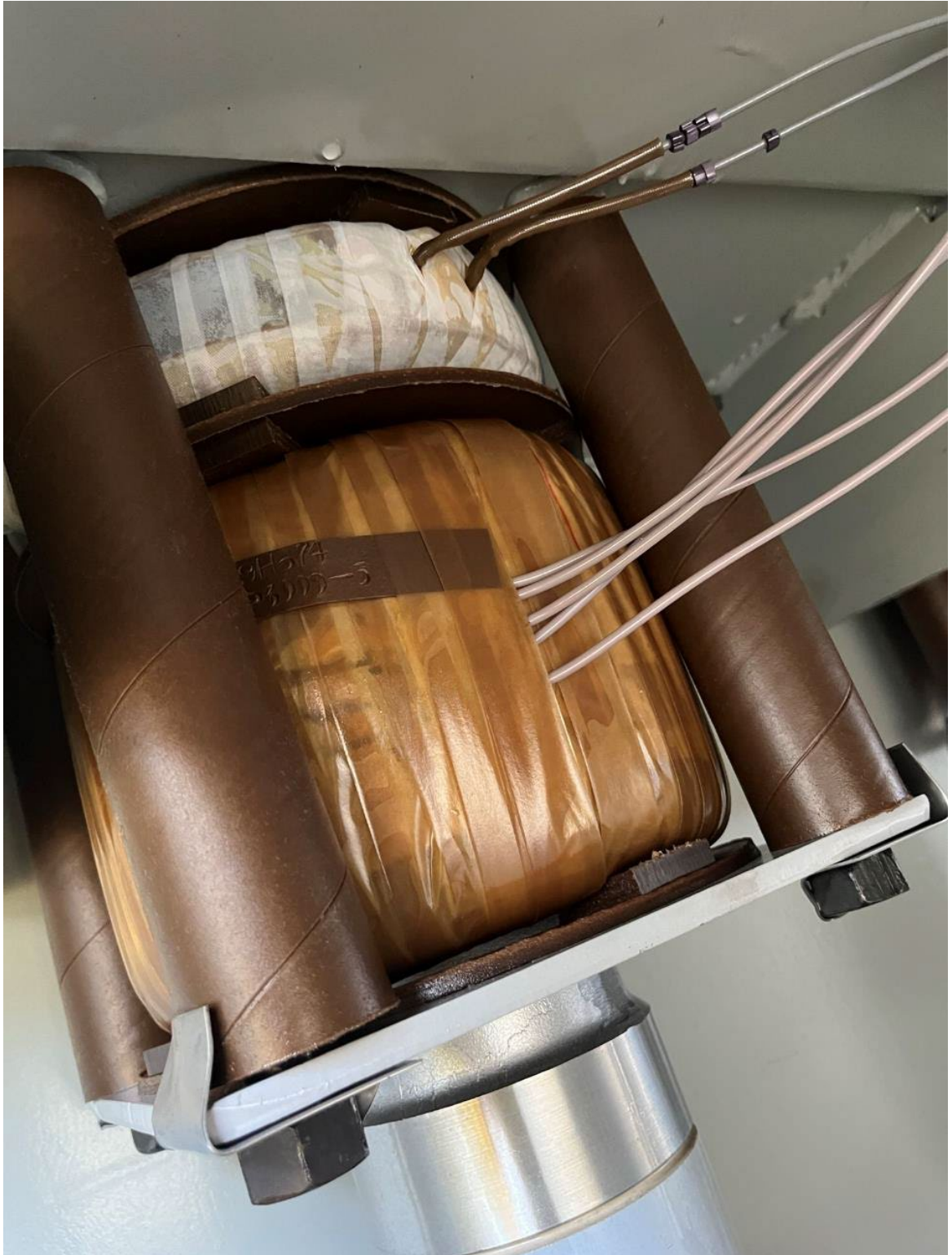








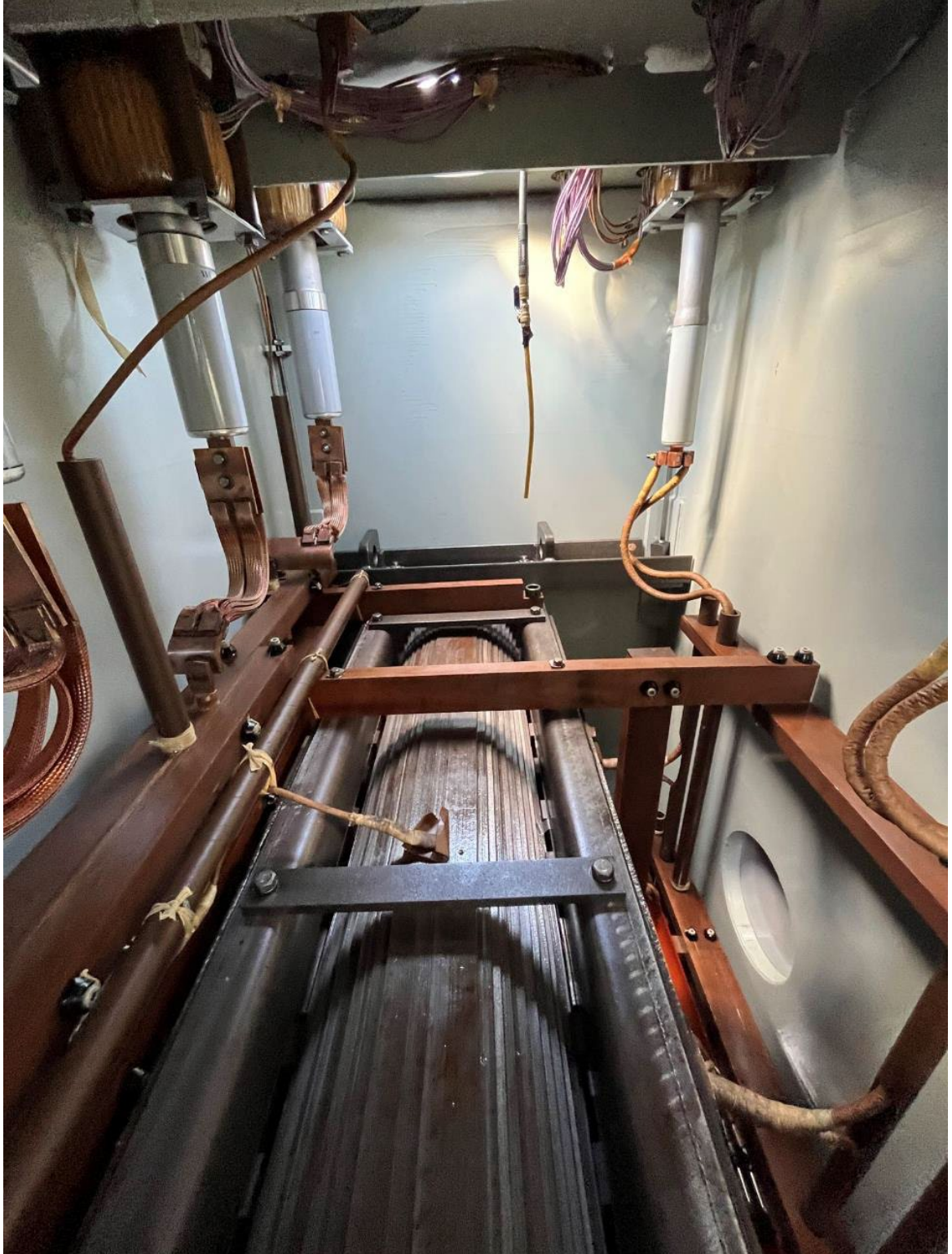


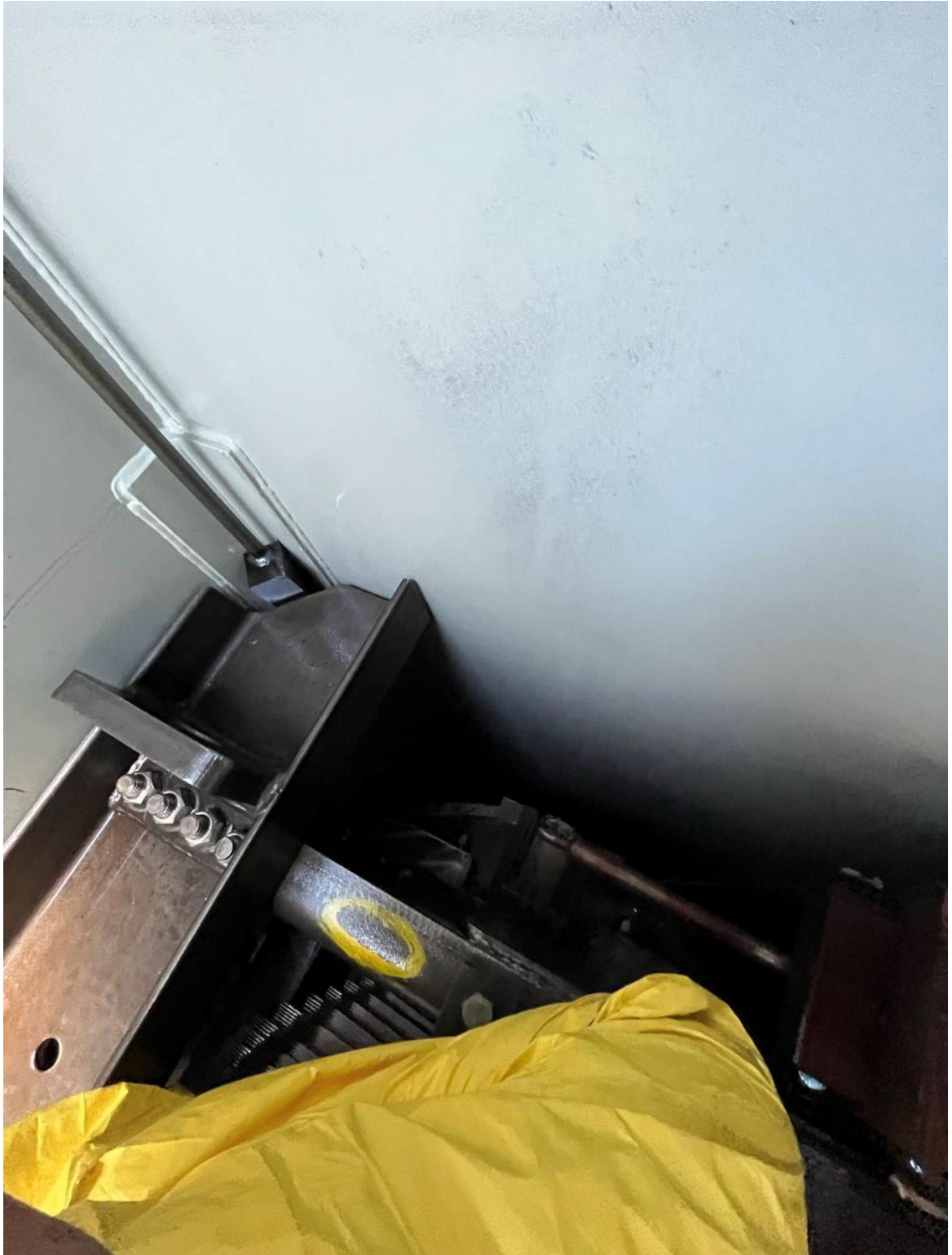




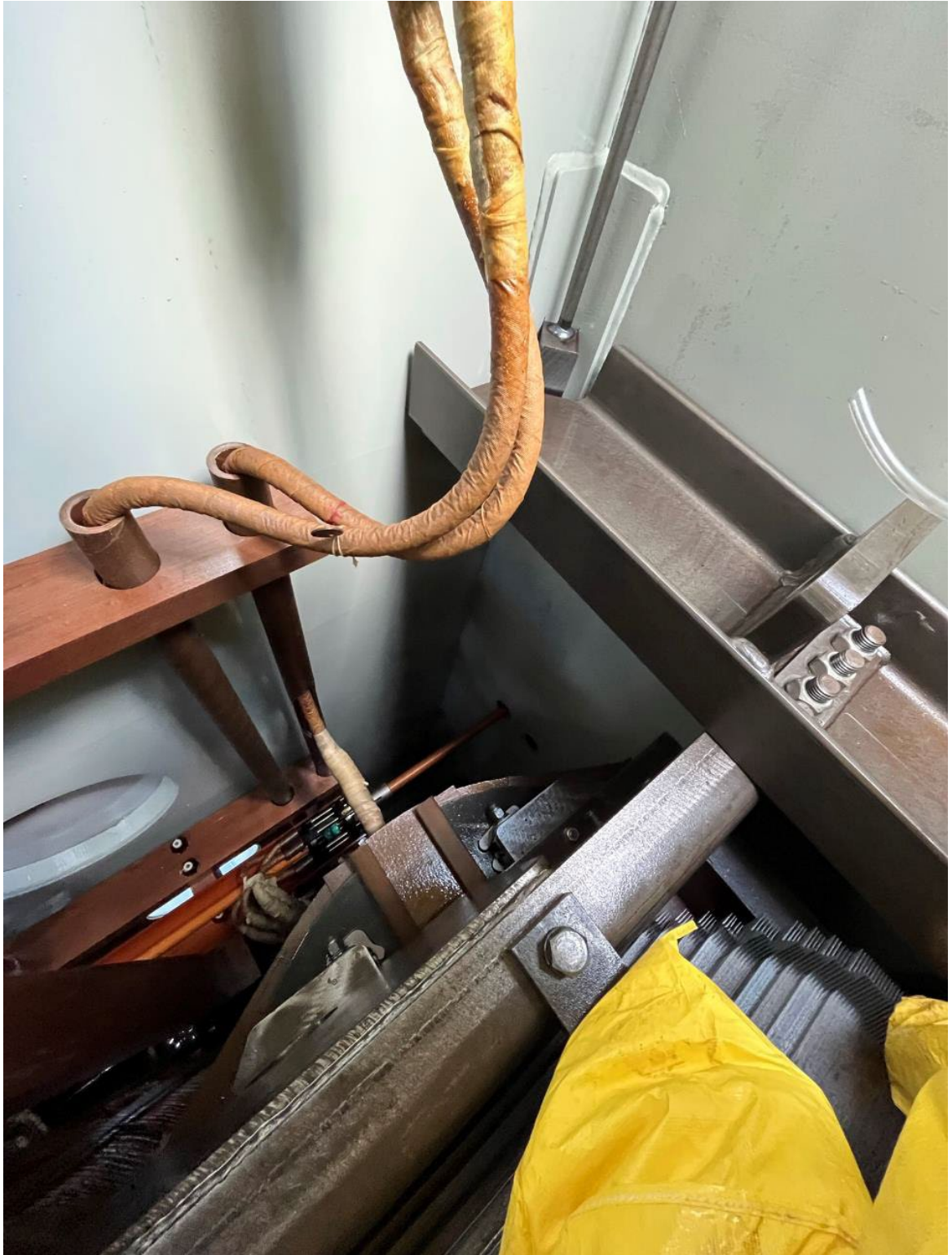












Nass- WEST-GREENWICH General- Electric_162216_2022-08-24_10-12- 32



Summary

Manufacturer	Serial Number	Special Id
Device General Electric	162216	*

Test Identification	Test plan	Session Date	Test Date
H1-H3_2022-08-24_10-12-32	Custom	8/24/2022 10:12:32 AM	2022/Aug/24 10:12:32 AM
H2-H1_2022-08-24_10-18-01			2022/Aug/24 10:18:01 AM
H3-H2_2022-08-24_10-22-55			2022/Aug/24 10:22:55 AM
X1-X0_2022-08-24_10-28-39			2022/Aug/24 10:28:39 AM
X2-X0_2022-08-24_10-32-51			2022/Aug/24 10:32:51 AM
X3-X0_2022-08-24_10-39-19			2022/Aug/24 10:39:19 AM
H1-H3_2022-08-24_10-46-19			2022/Aug/24 10:46:19 AM
H2-H1_2022-08-24_10-51-50			2022/Aug/24 10:51:50 AM
H3-H2_2022-08-24_10-57-06			2022/Aug/24 10:57:06 AM

Report Source TwoWindingTransformer

Session Test Date 8/24/2022 10:12:32 AM

Nameplate - Two-winding Transformer

Company	Nass	Serial Number	162216
Location	WEST GREENWICH	Special ID	*
Division		Circuit Designation	
Manufacturer	General Electric	Configuration	Undefined
Year Manufactured	1991	Tank Type	Select Tank Type
Mfr Location		Coolant	Select Coolant
Phases	Three	Class	
Oil Volume	*	BIL	*
Weight	*		
kV	33.6, 12.47	VA Rating	32, 24, 0, 40, MVA
% Impedance	13.13		

Tap Changer Nameplate

Description	Winding	Steps Up	Neutral Positions	Steps Down	Naming Preference	Manufacturer	Type	Serial Number
De-energized (DETC)	Primary	2	1	2	Numbered Positions			
On-line (LTC)	Secondary	16	1	16	Steps from Neutral, R/L			

[Header]

Nameplate Notes

<p>SFRA 5 Legacy Nameplate Fields Reactance HVLV2: 0 Reactance HV Tertiary: 0 Reactance LV Tertiary: 0 LV2: 0 Current: 0 -----</p>
--

Administration

Test Date	8/24/2022	Test Time:	10:12 AM	Weather	
Air Temperature	*	Apparatus Temperature	*	Humidity	*
Tester		Work Order		Date Last Tested	
Verified		Test Set Type		Date Retested	
Verification Date		Set Top Serial #	16T1110-001	Reason	Routine
Last Sheet #		Test Set Model		Travel Time	
Purchase Order		Ins. Book #		Duration	
Copies		Sheet #		Crew Size	

SFRA Test Conditions

Braid Length	*	Cable Length	*	Cable Type	
Surrounding Conditions		Device Principle		Rated Frequency	*
Short Circuit Impedance	*	Core Remenance		Oil Level	Full

[Header]

Session Notes

Notes For Test H1-H3_2022-08-24_10-12-32
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test H2-H1_2022-08-24_10-18-01
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test H3-H2_2022-08-24_10-22-55
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test X1-X0_2022-08-24_10-28-39
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test X2-X0_2022-08-24_10-32-51
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test X3-X0_2022-08-24_10-39-19
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA

Notes For Test H1-H3_2022-08-24_10-46-19
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

Notes For Test H2-H1_2022-08-24_10-51-50
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

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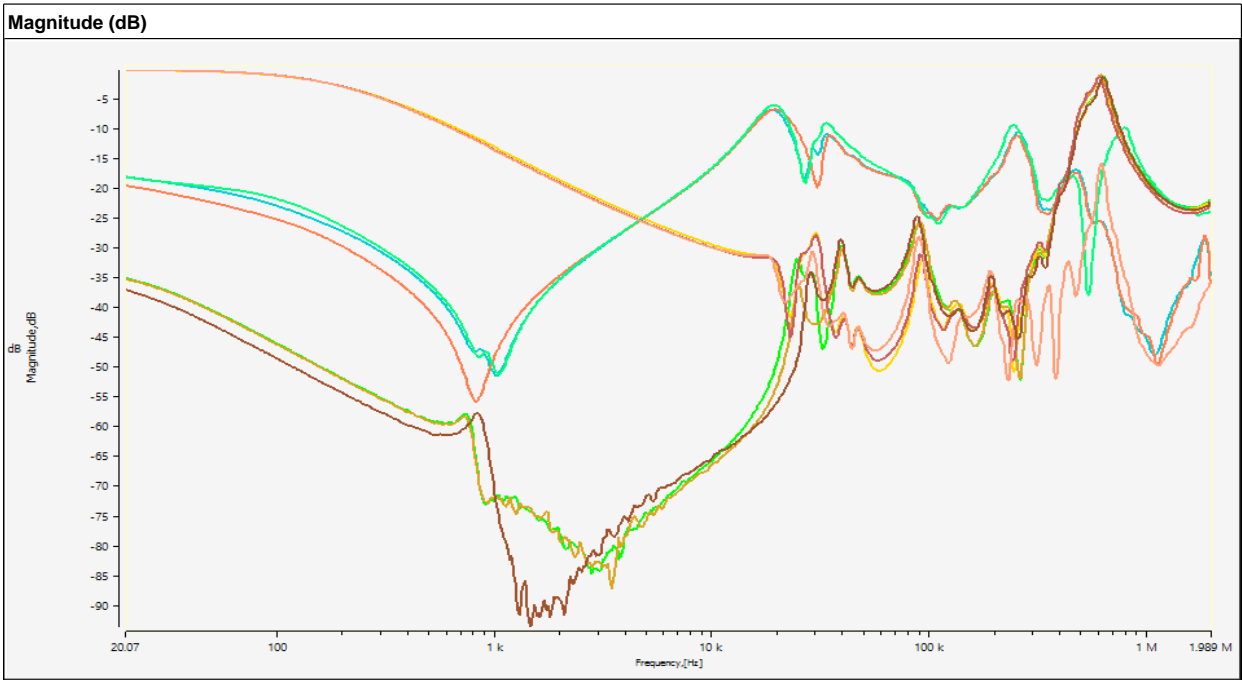
Notes For Test H3-H2_2022-08-24_10-57-06
Test Template Notes3-Ph 2-Wind D-Y
LTC Notes : NA
DETC Notes : 3

DTA v5 file importer converted these tap changer positions:

Test Type: Custom Test Plan Converted OLTC NA to UNKNOWN
Test Type: Custom Test Plan Converted OLTC NA to UNKNOWN
Test Type: Custom Test Plan Converted OLTC NA to UNKNOWN
Test Type: Custom Test Plan Converted OLTC NA to UNKNOWN
Test Type: Custom Test Plan Converted OLTC NA to UNKNOWN
Test Type: Custom Test Plan Converted DETC to 3 OLTC NA to UNKNOWN
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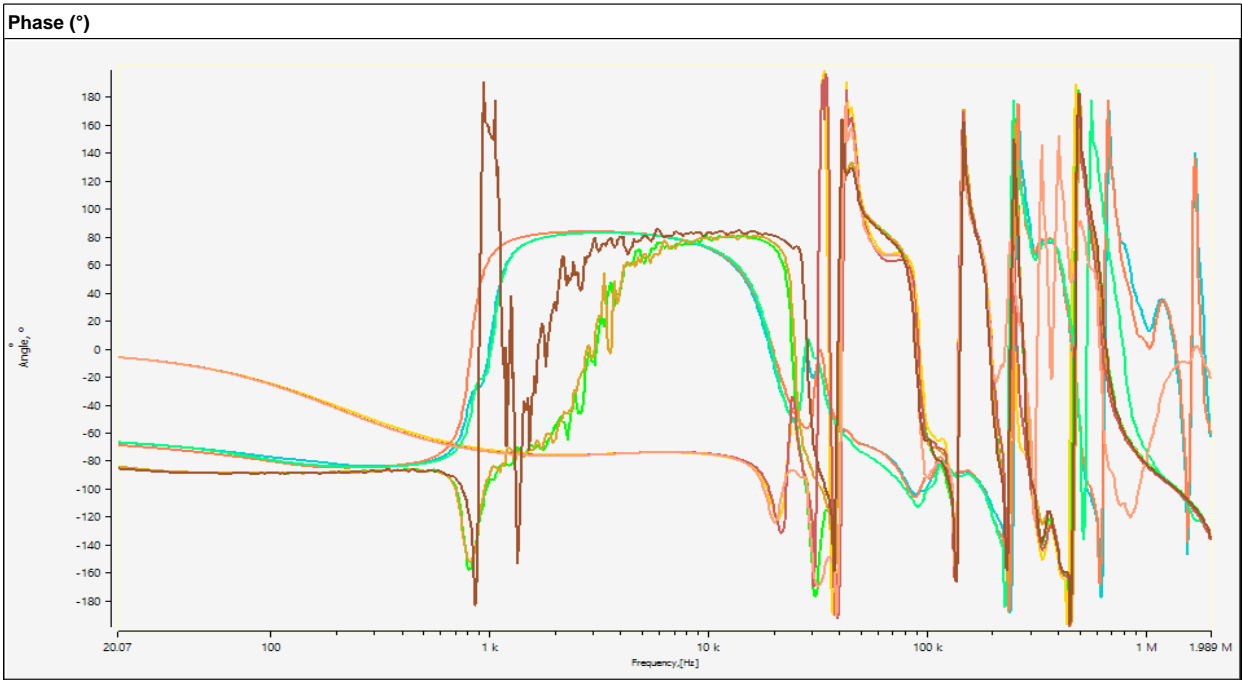
Composite Plot - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■

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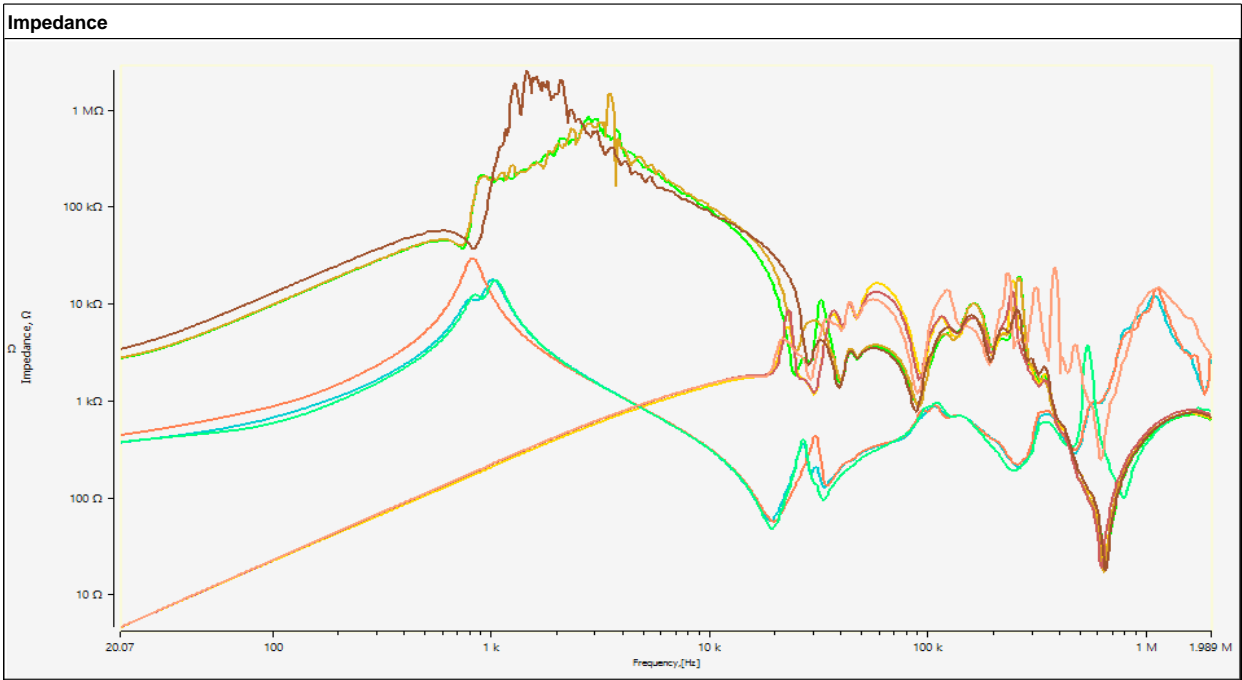
Composite Plot - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■

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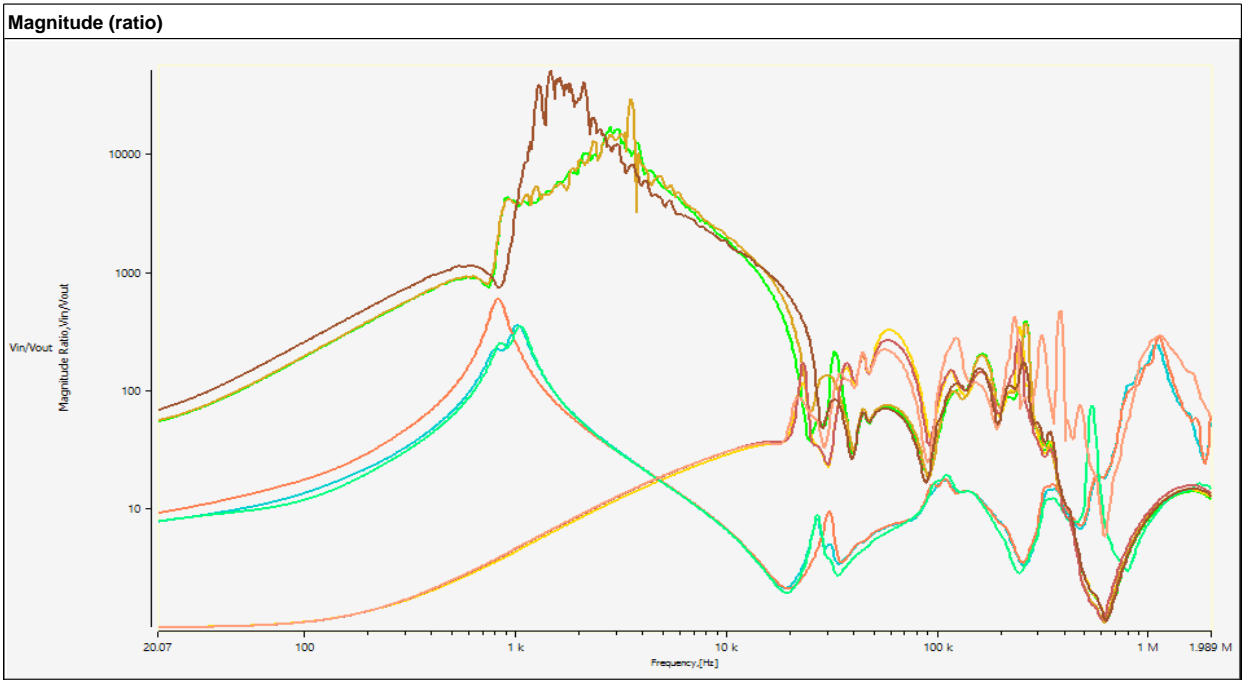
Composite Plot - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■

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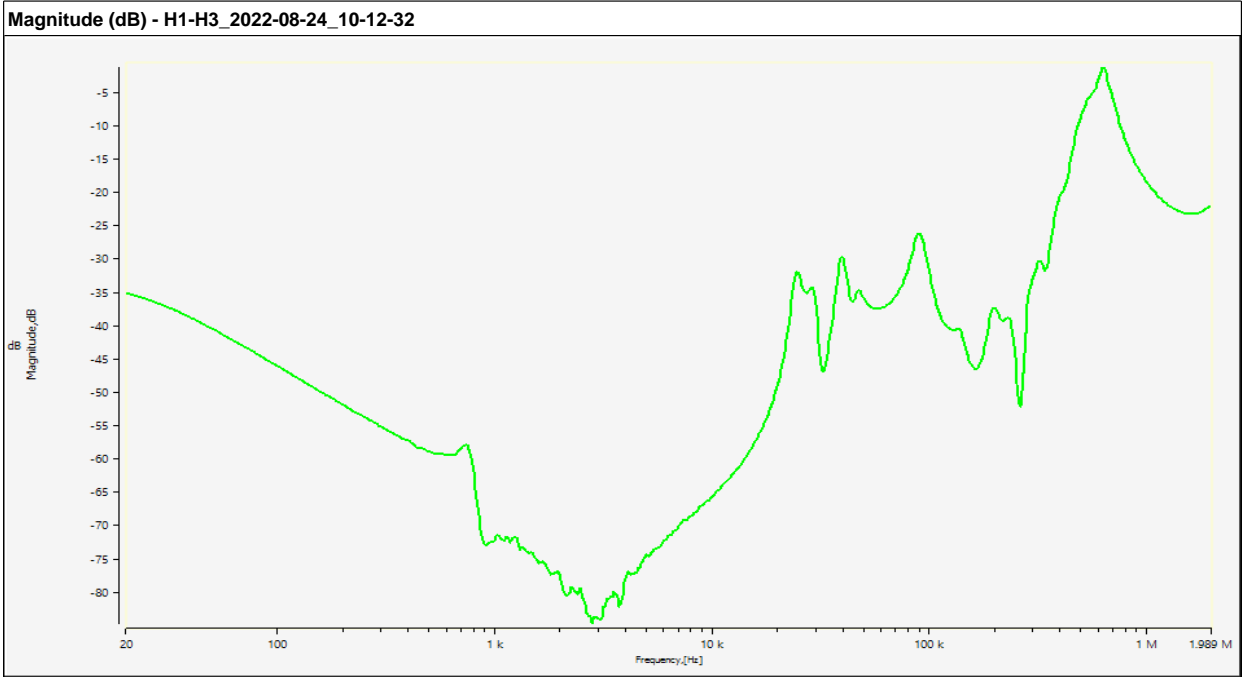
Composite Plot - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■

[Header]

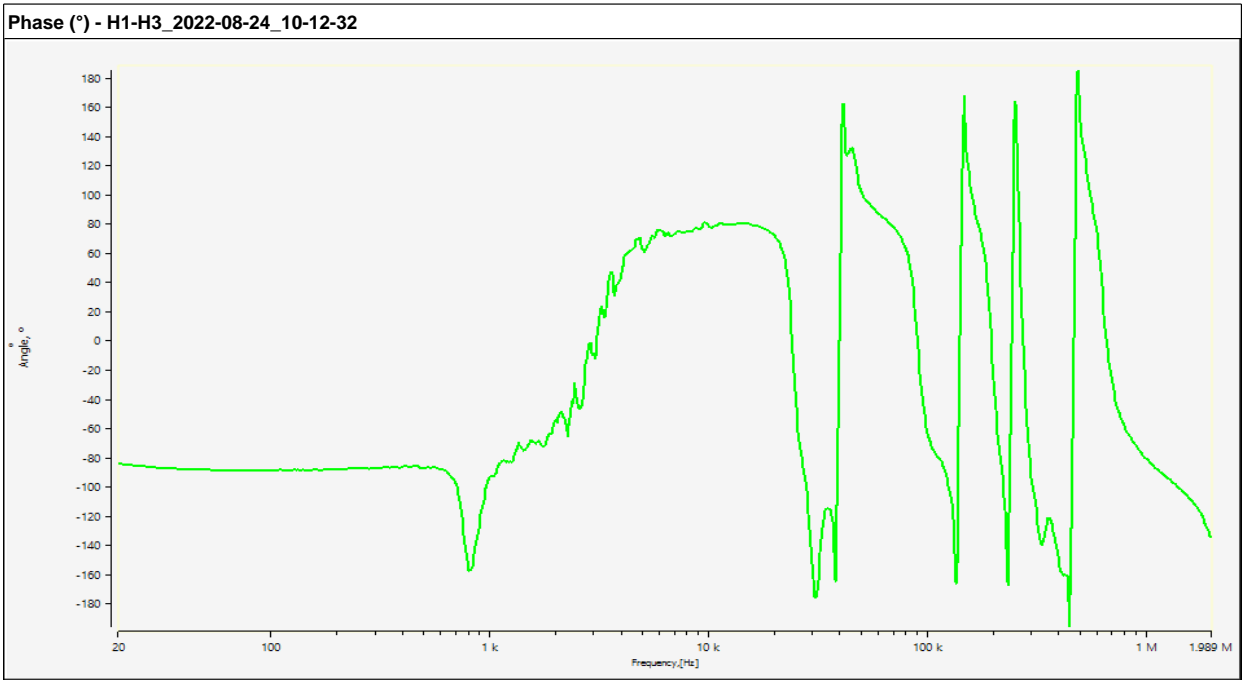
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■

[Header]

Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM

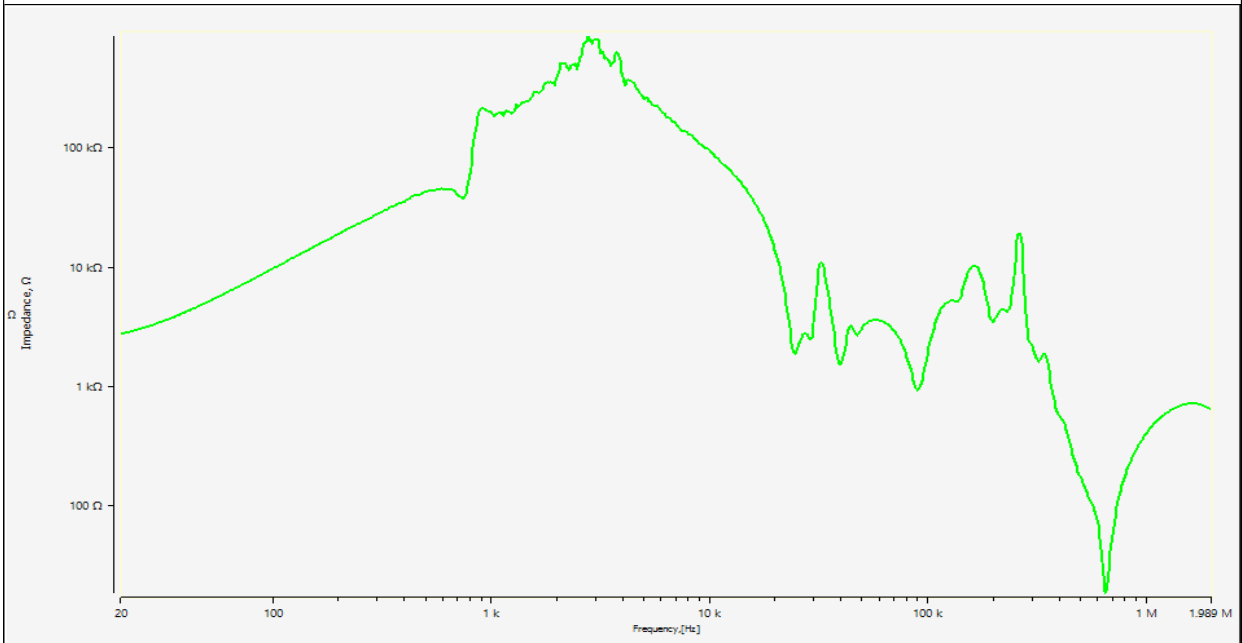


Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■

[Header]

Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM

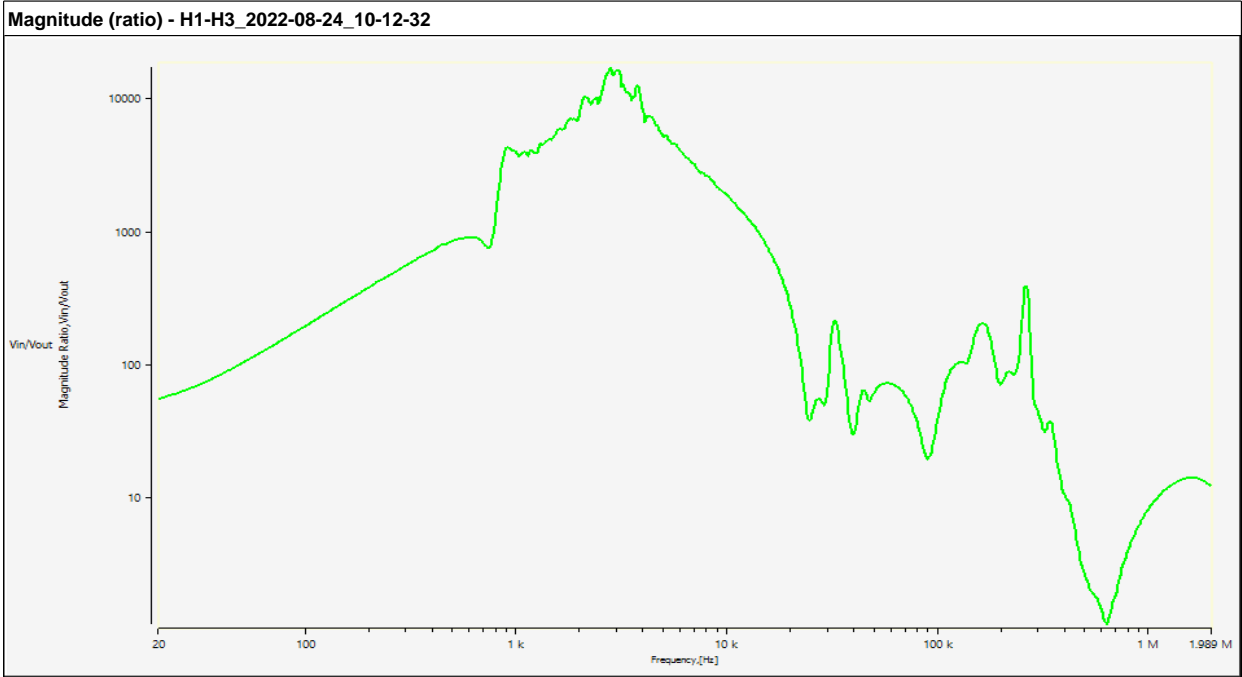
Impedance - H1-H3_2022-08-24_10-12-32



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■

[Header]

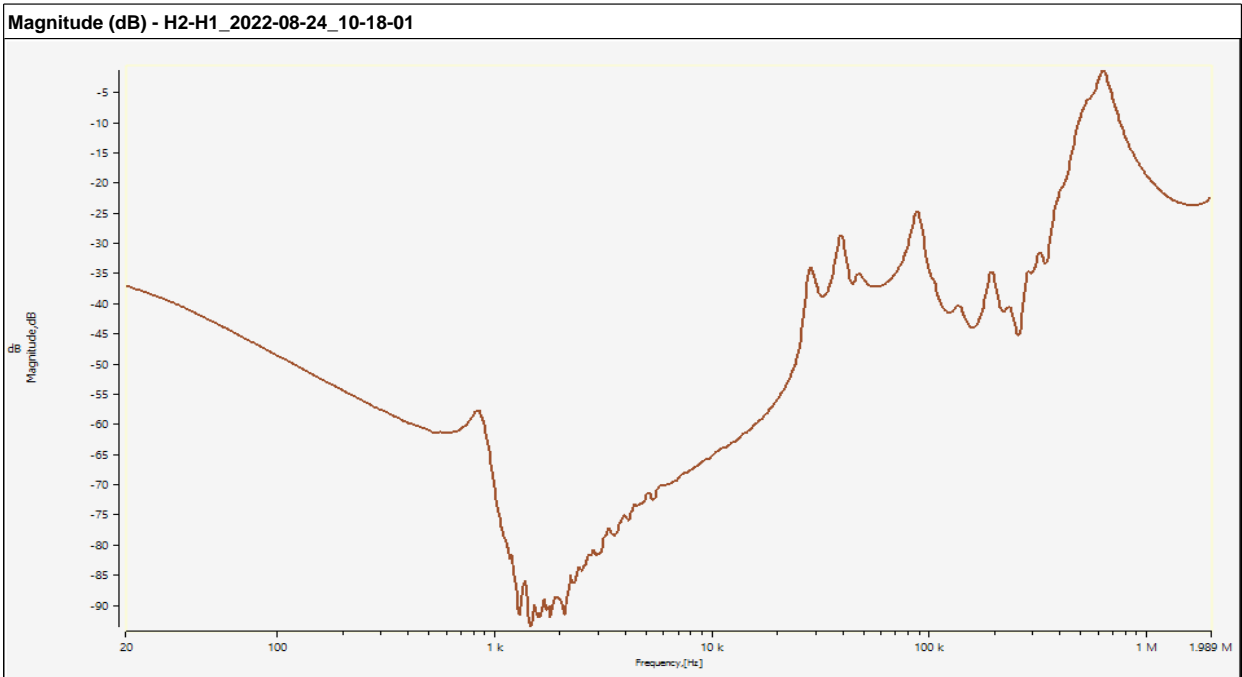
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-12-32	DETC-1:3	OLTC-1:	H1	H3	none	none	8/24/2022 10:12:32 AM		■

[Header]

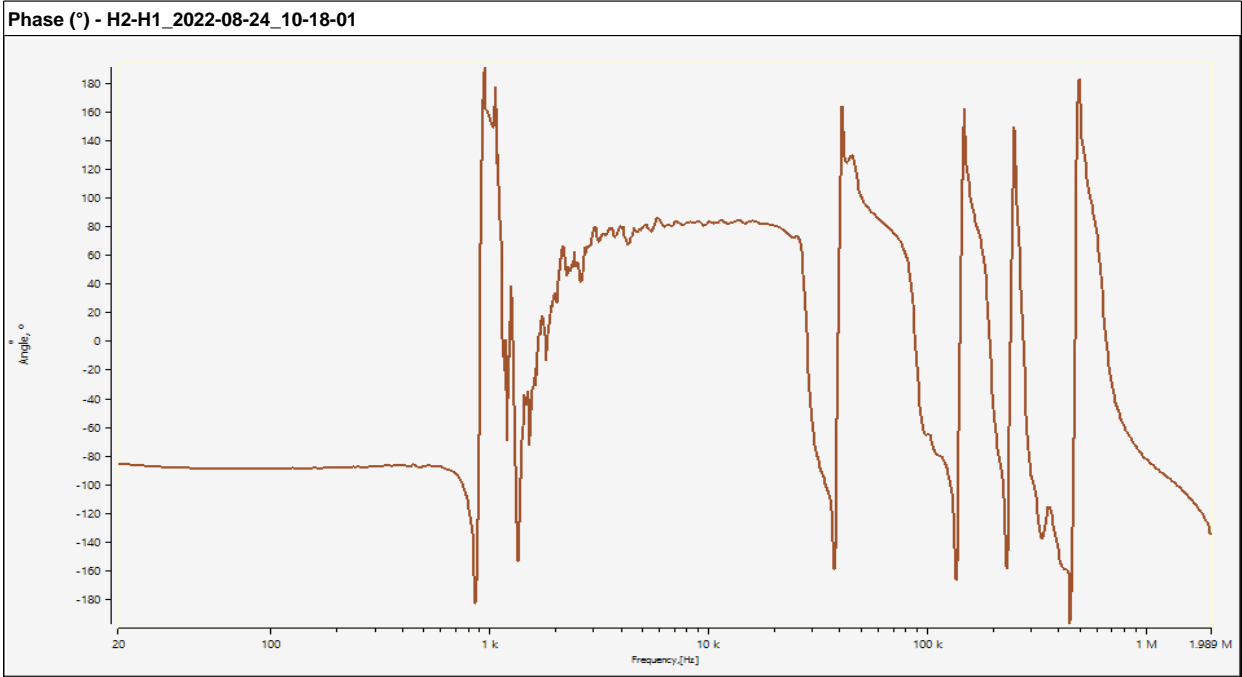
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■

[Header]

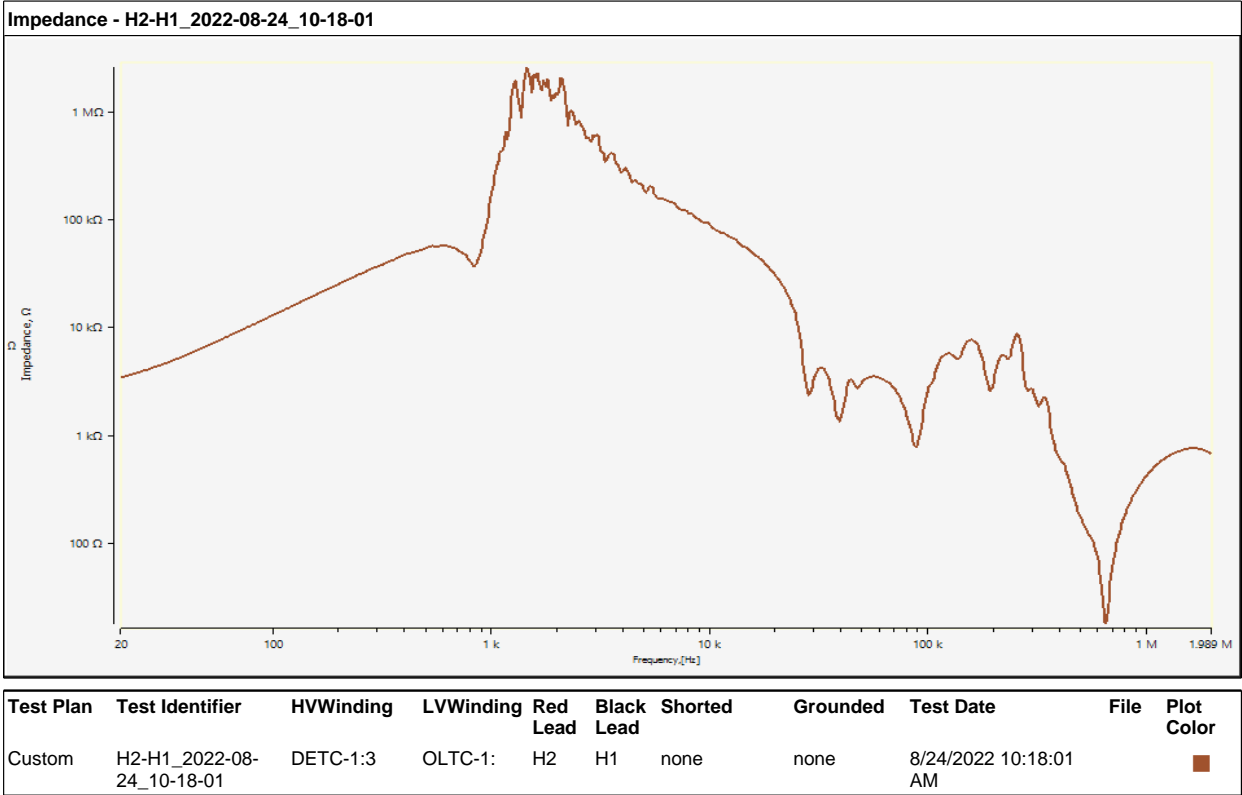
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■

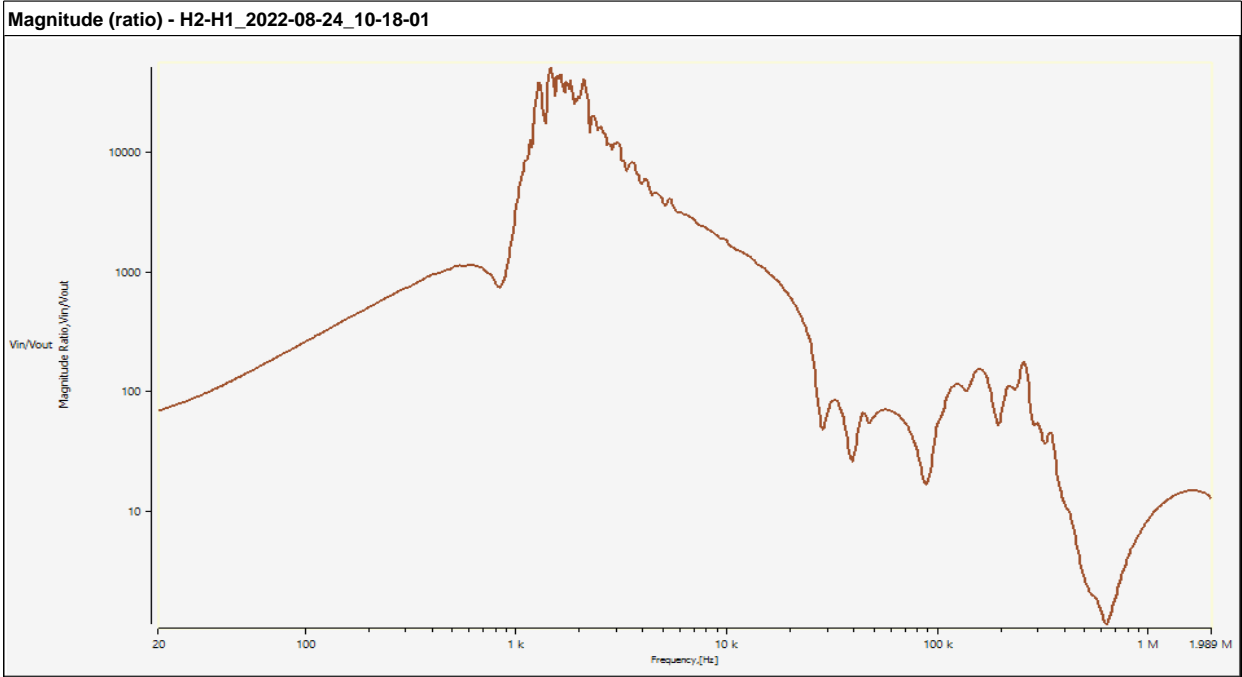
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

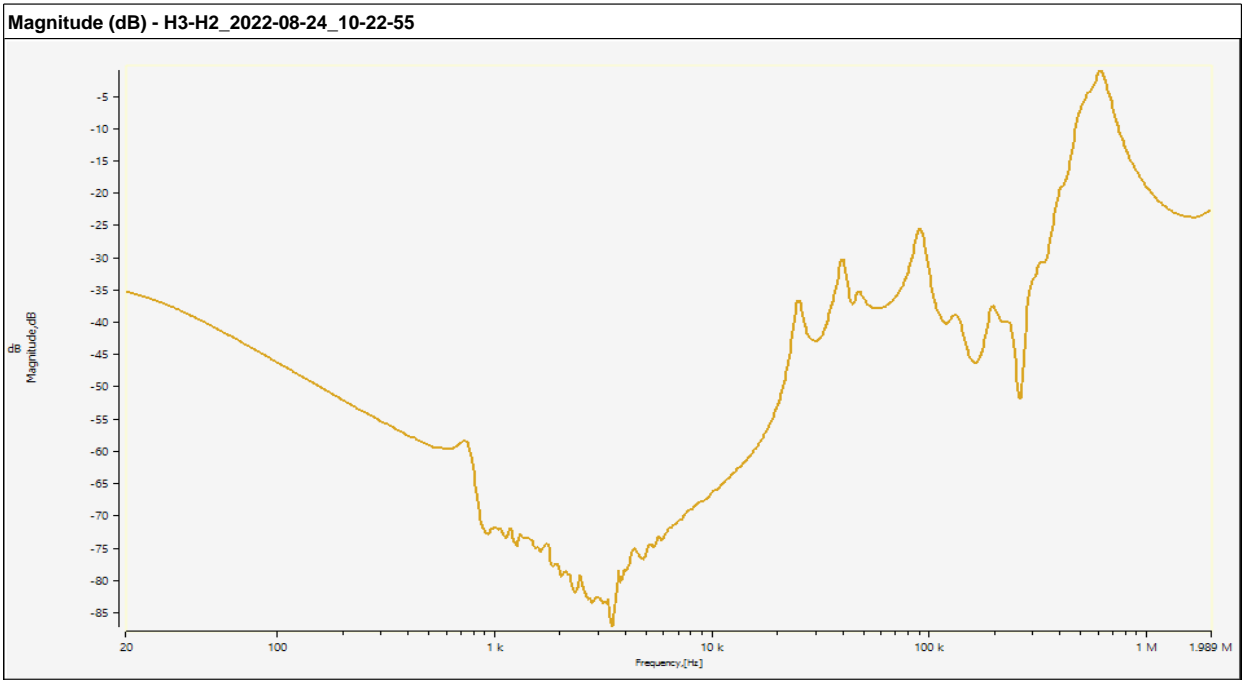
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-18-01	DETC-1:3	OLTC-1:	H2	H1	none	none	8/24/2022 10:18:01 AM		■

[Header]

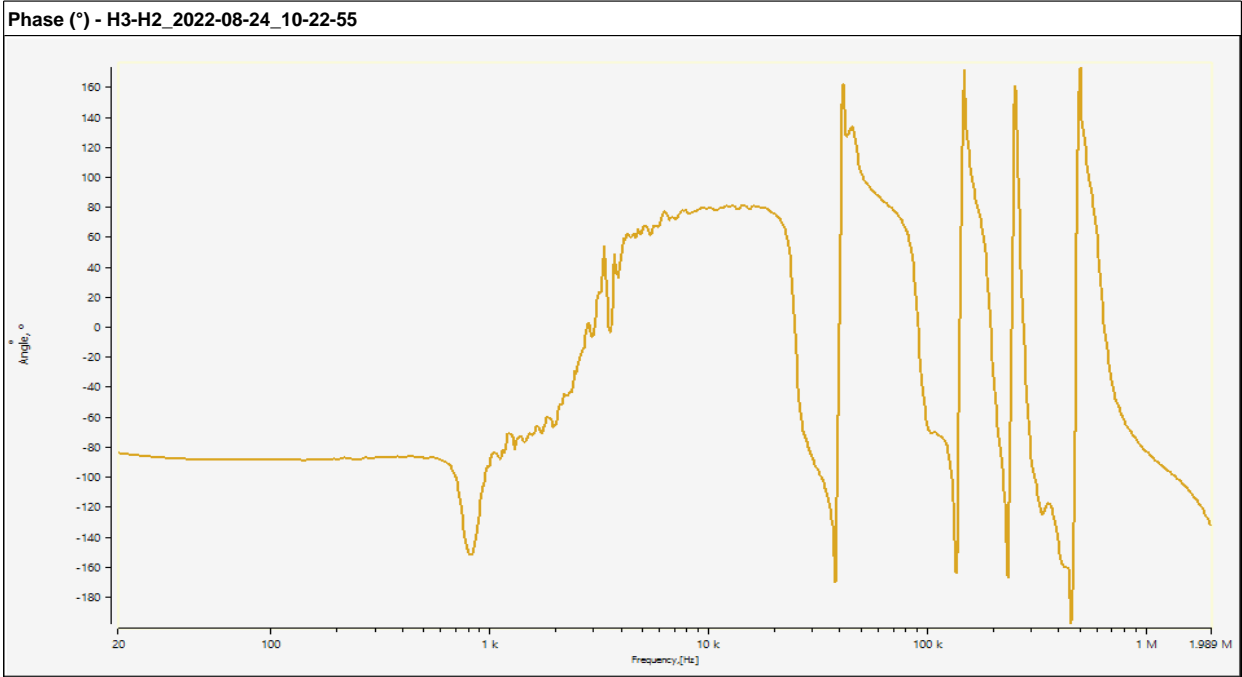
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■

[Header]

Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■

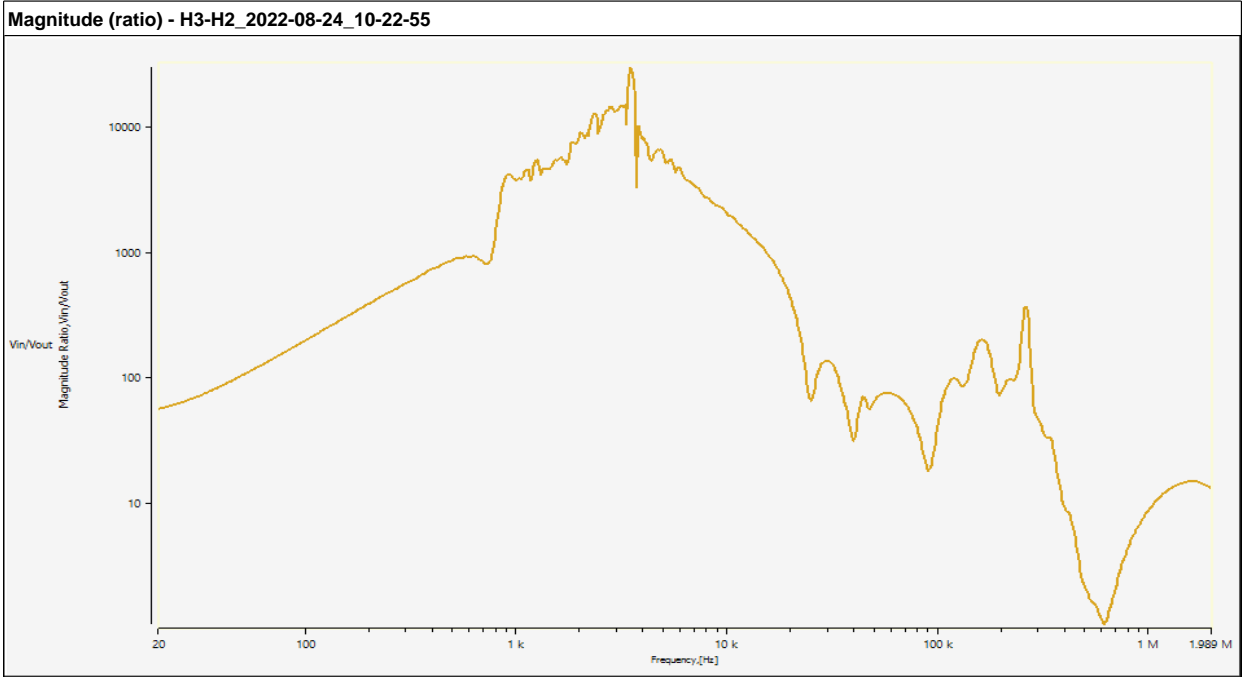
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

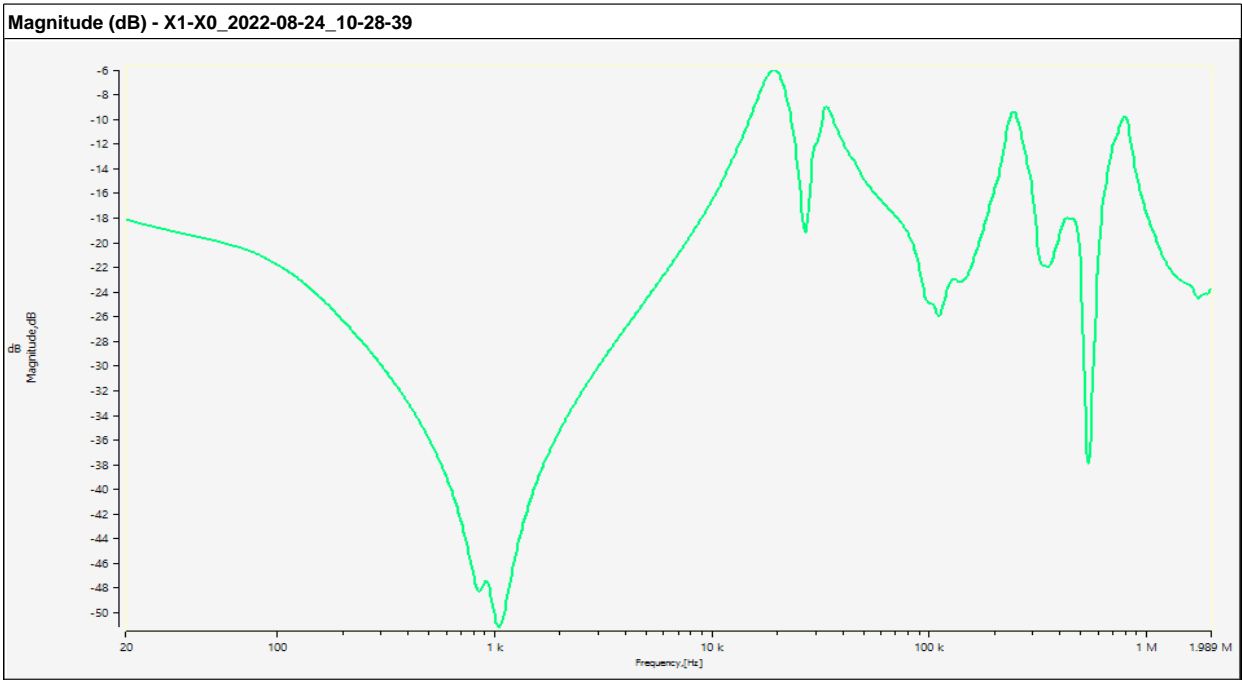
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H3-H2_2022-08-24_10-22-55	DETC-1:3	OLTC-1:	H3	H2	none	none	8/24/2022 10:22:55 AM		■

[Header]

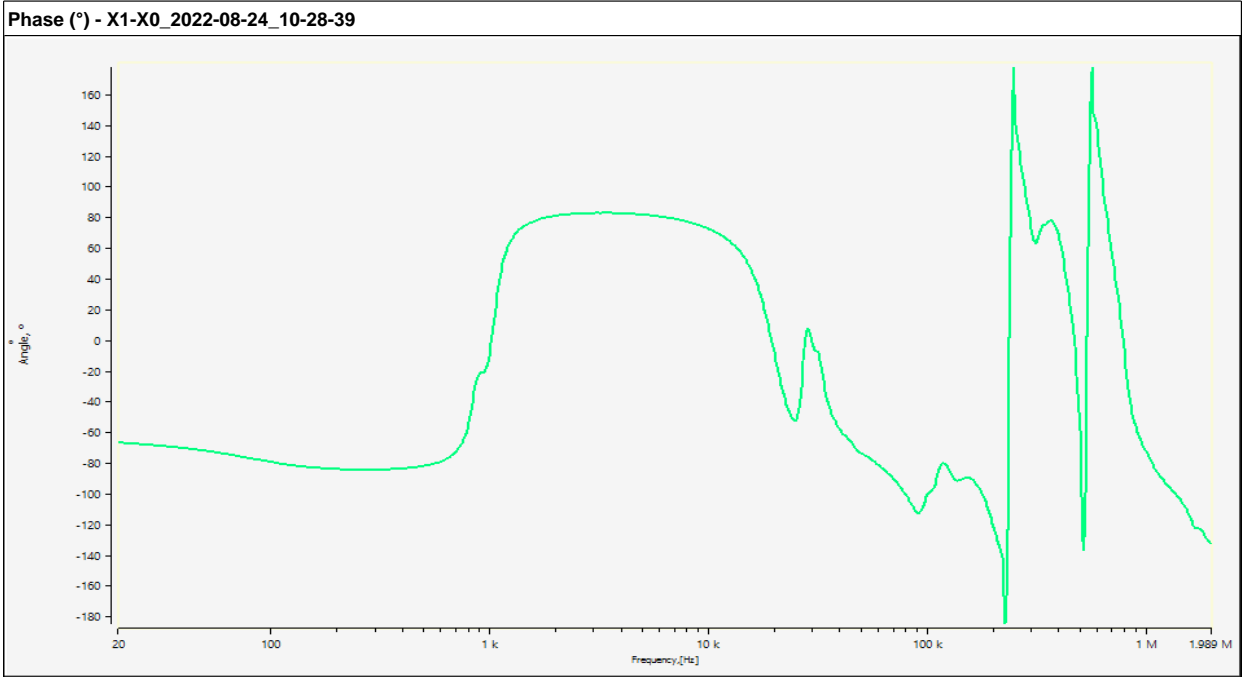
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■

[Header]

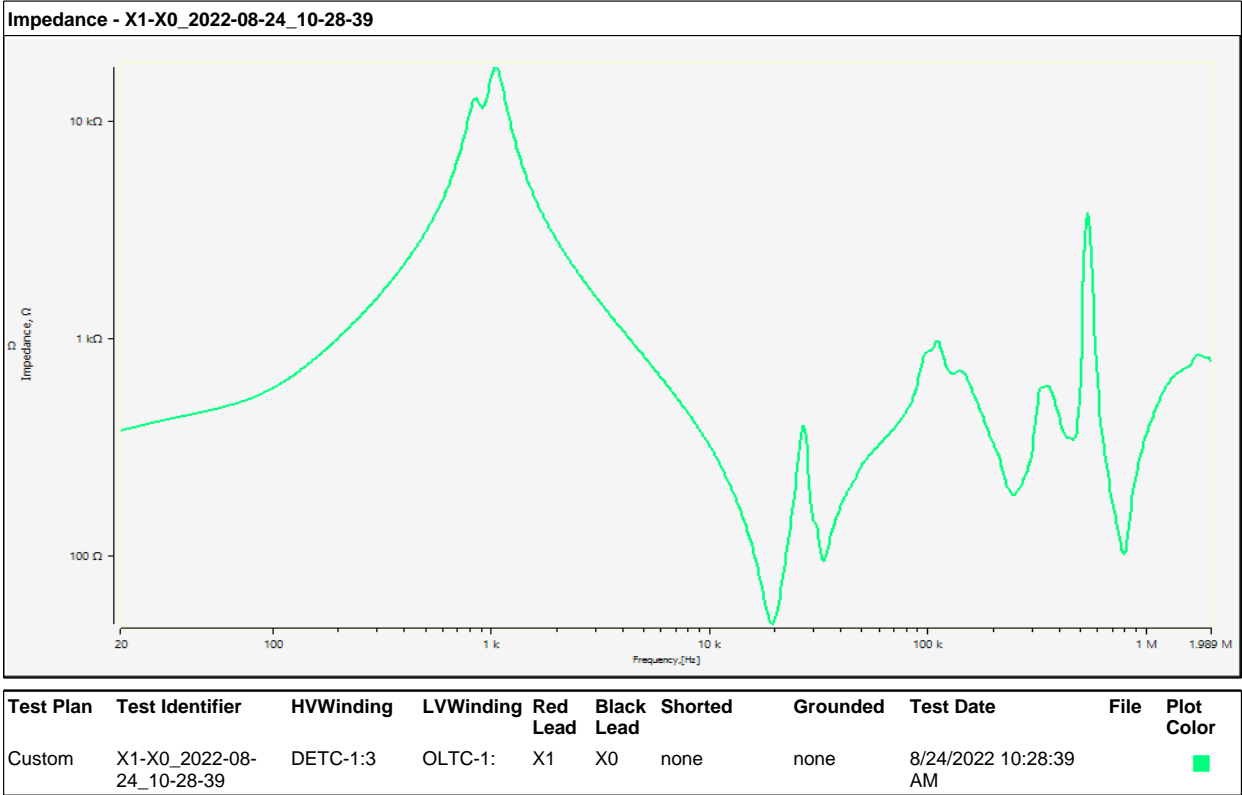
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X1-X0_2022-08-24_10-28-39	DETC-1:3	OLTC-1:	X1	X0	none	none	8/24/2022 10:28:39 AM		■

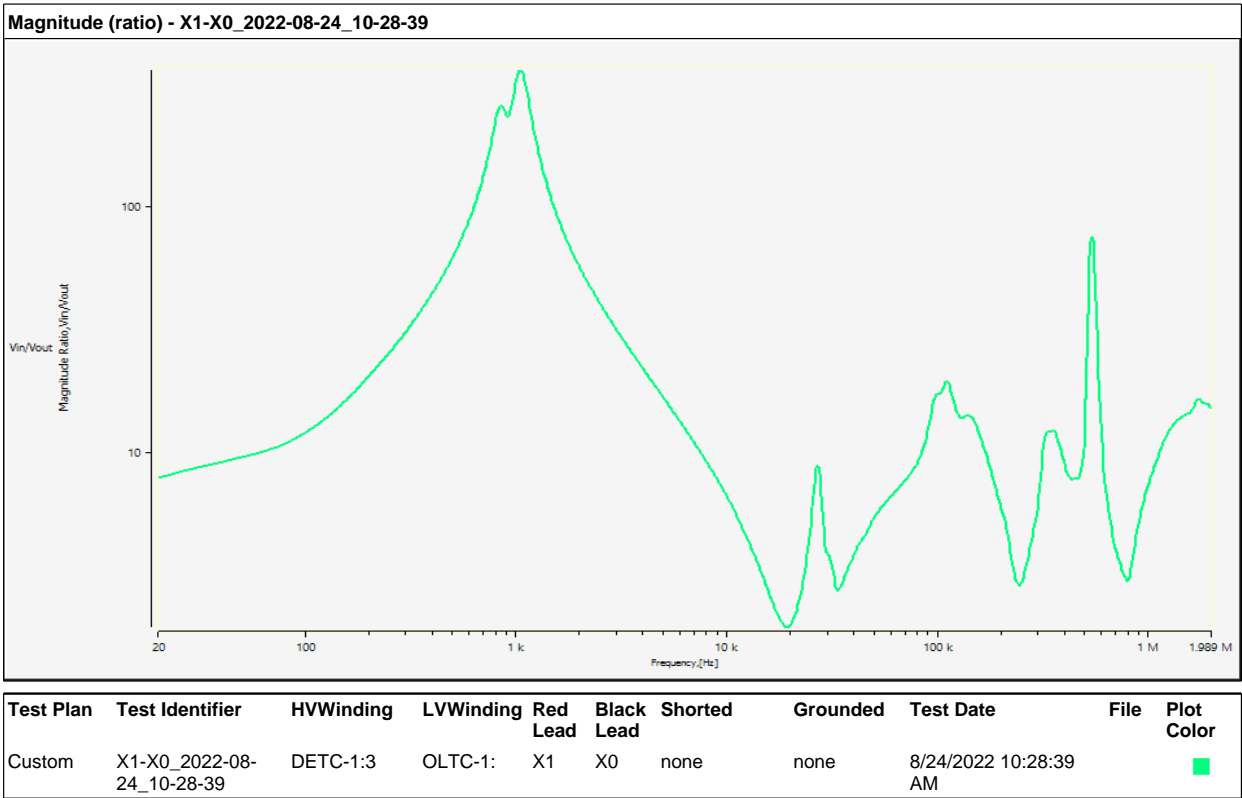
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



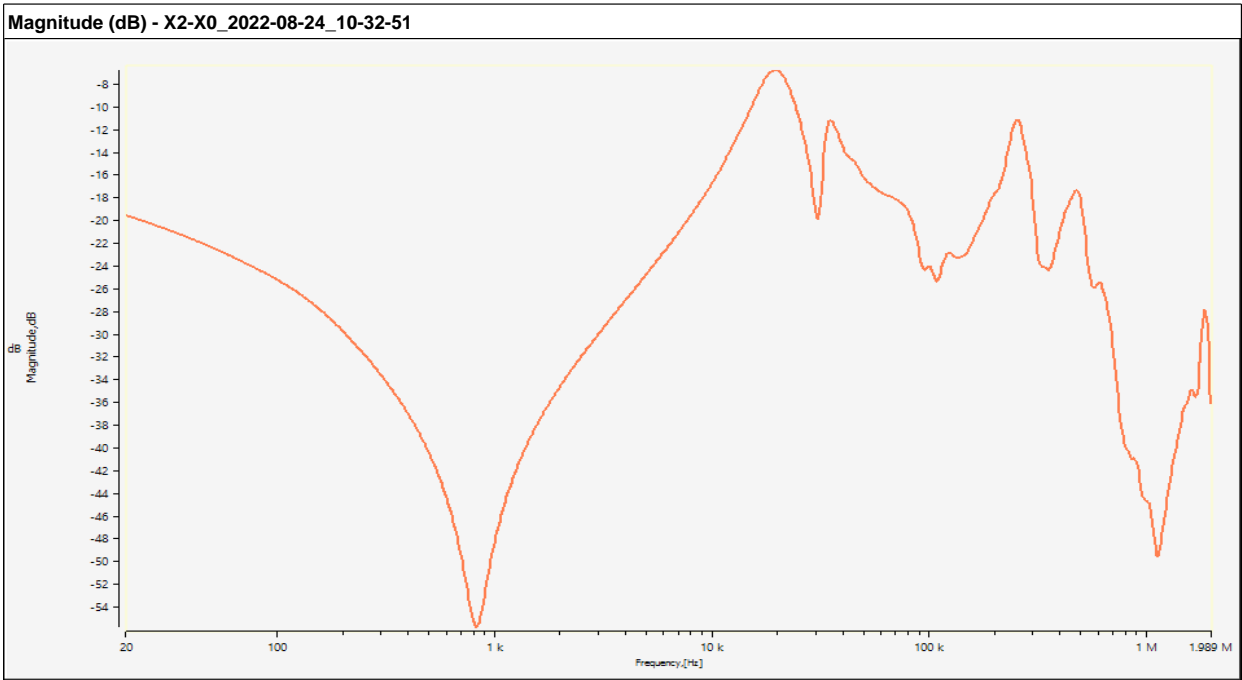
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

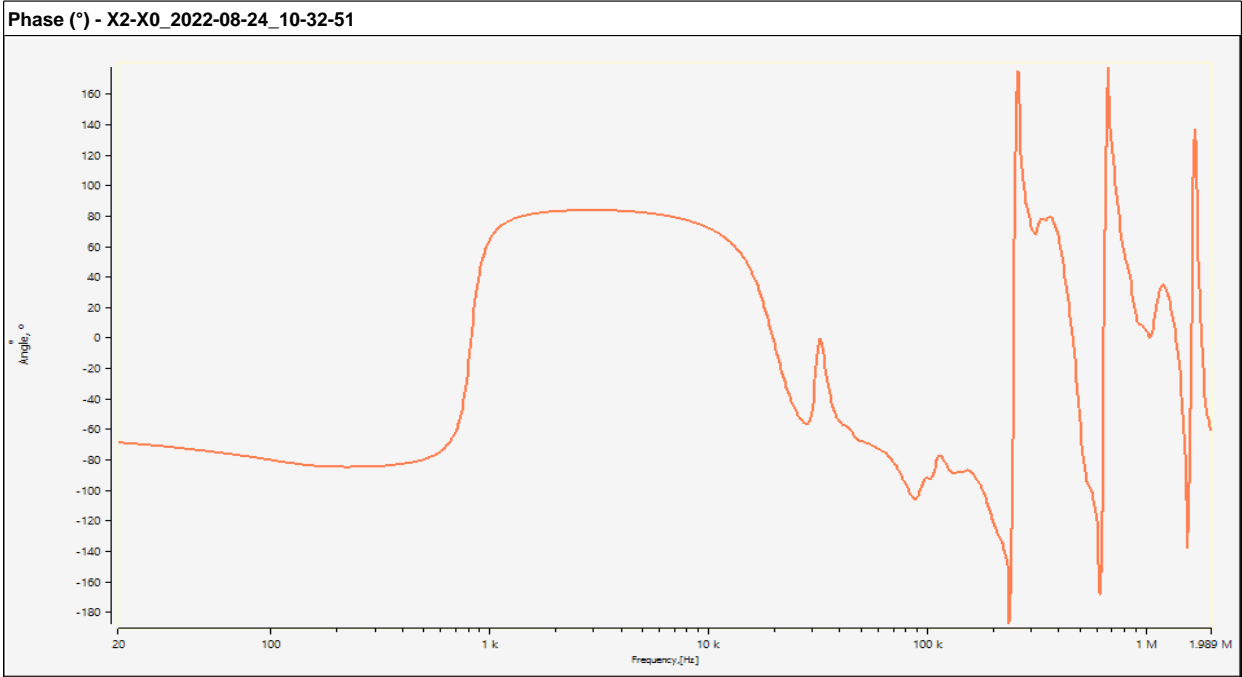
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■

[Header]

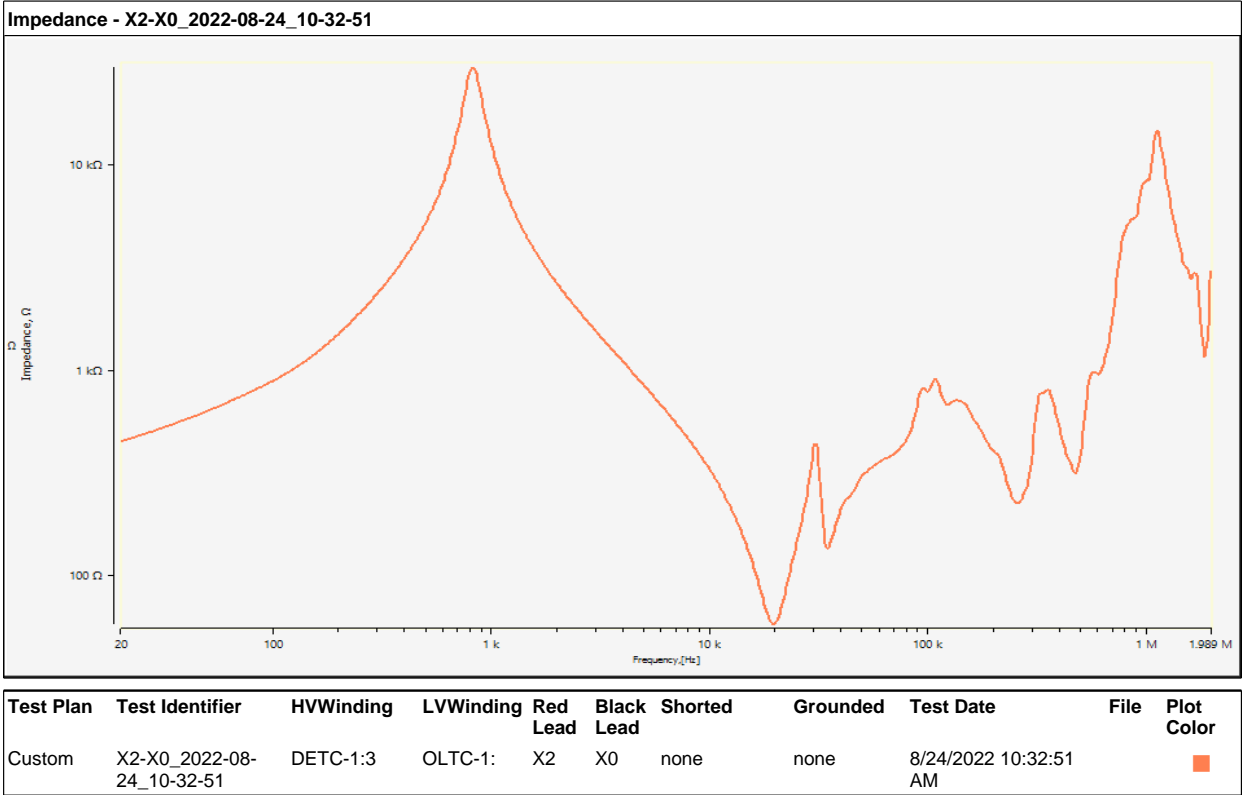
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■

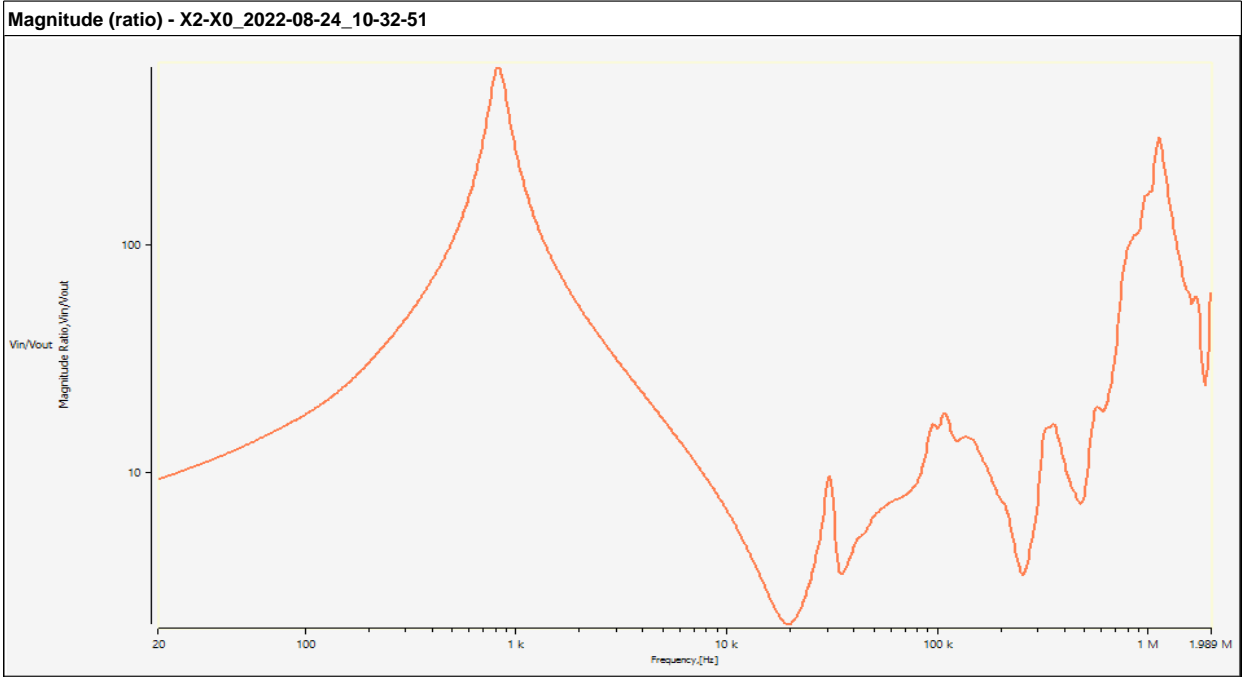
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

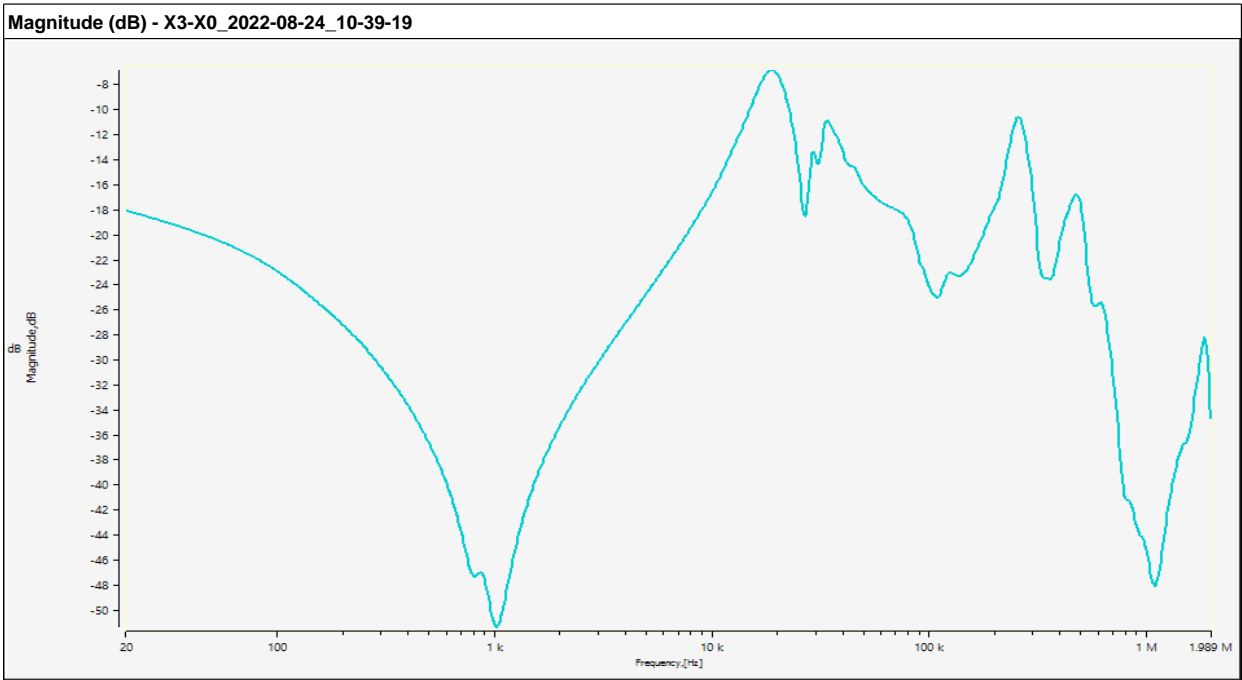
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X2-X0_2022-08-24_10-32-51	DETC-1:3	OLTC-1:	X2	X0	none	none	8/24/2022 10:32:51 AM		■

[Header]

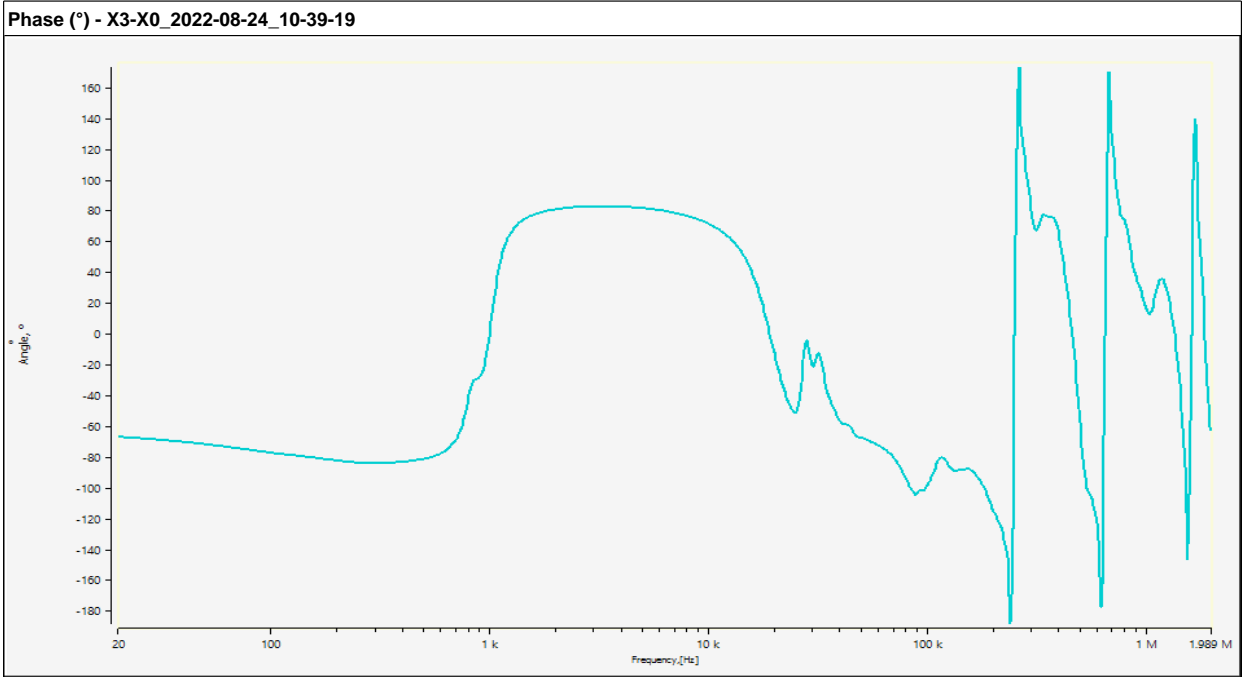
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■

[Header]

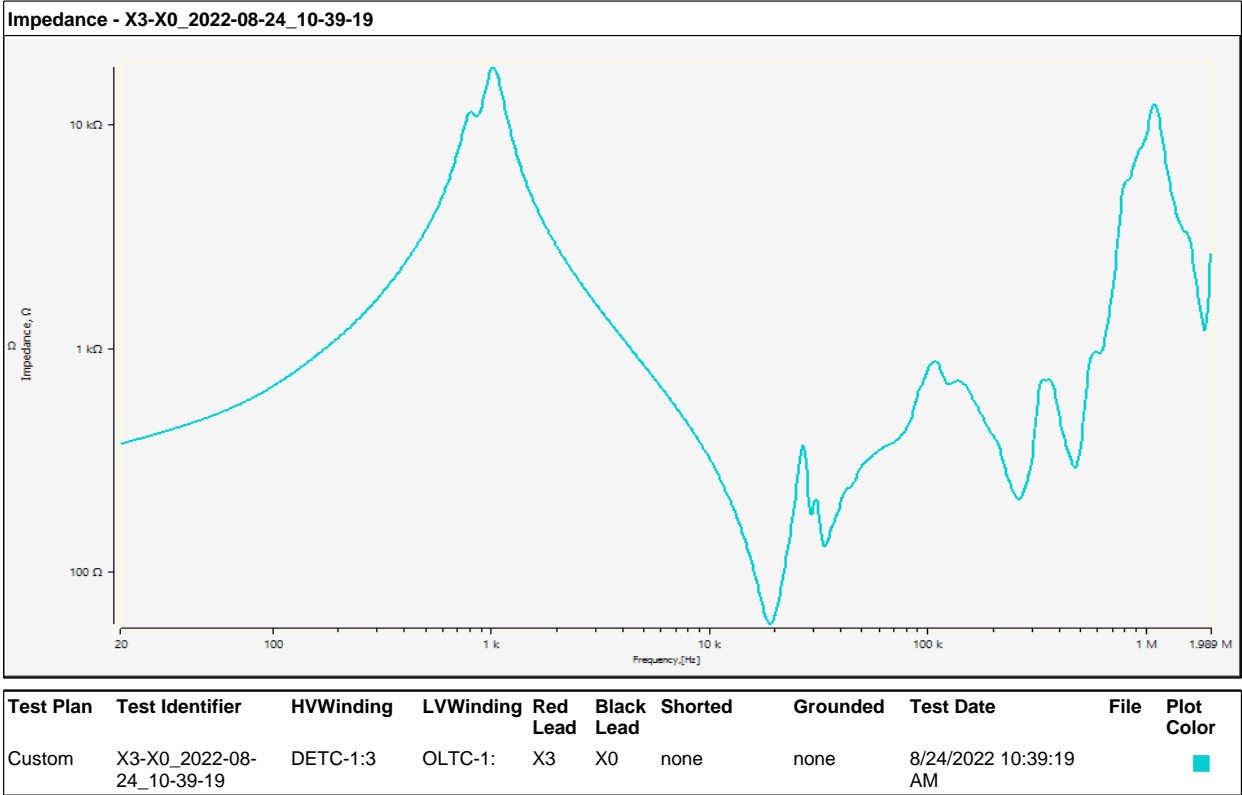
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■

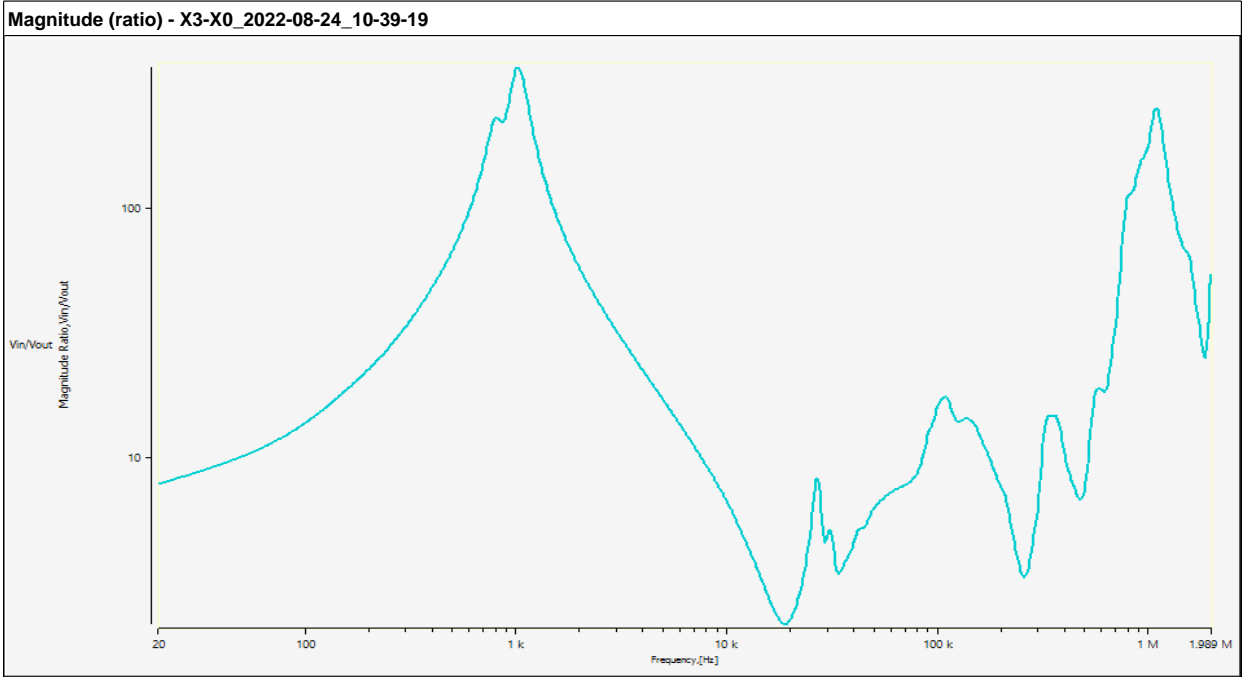
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

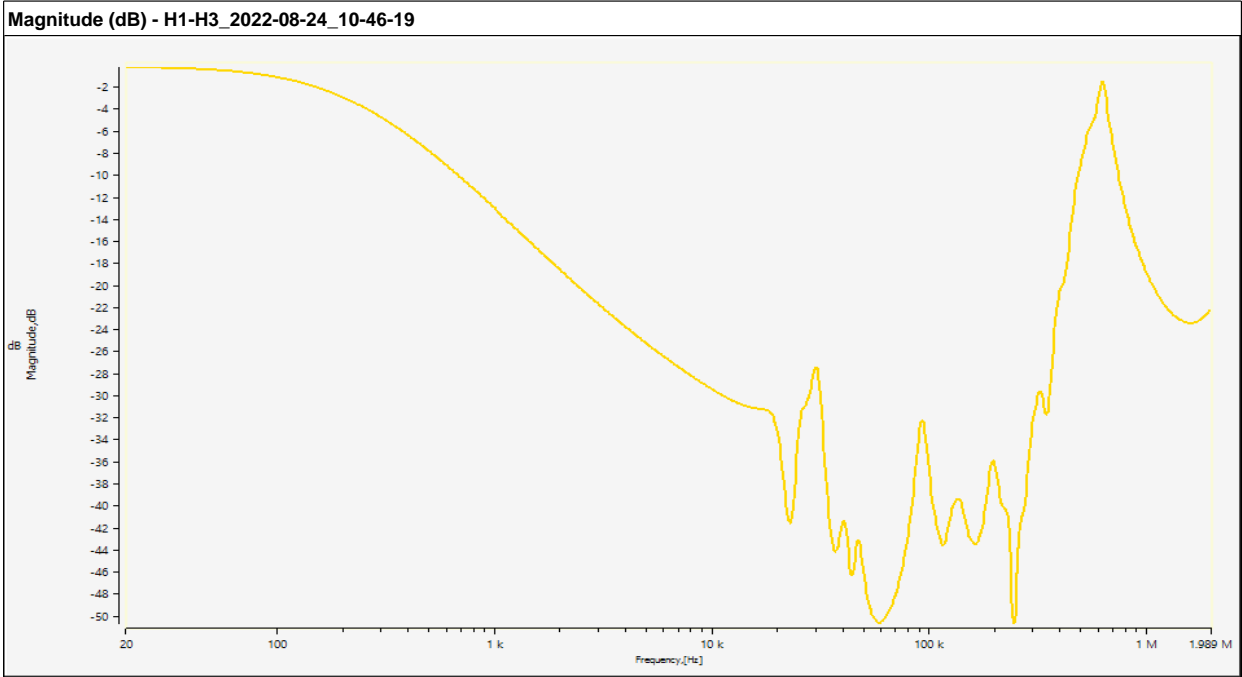
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	X3-X0_2022-08-24_10-39-19	DETC-1:3	OLTC-1:	X3	X0	none	none	8/24/2022 10:39:19 AM		■

[Header]

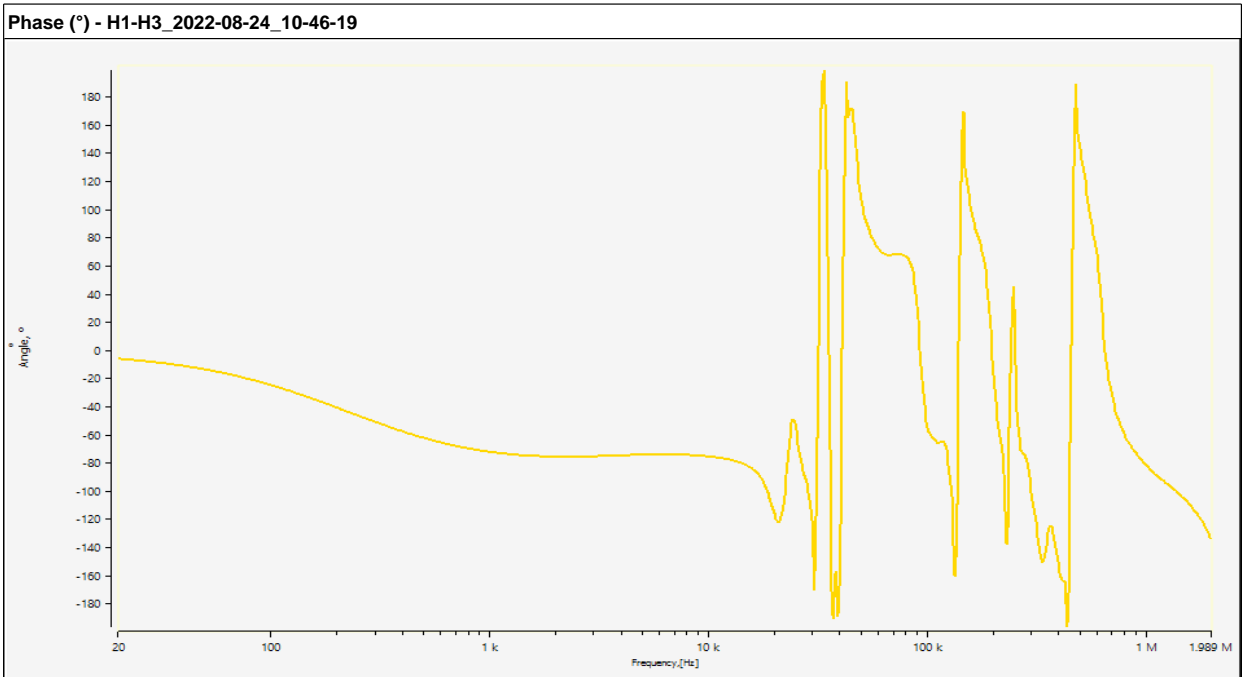
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■

[Header]

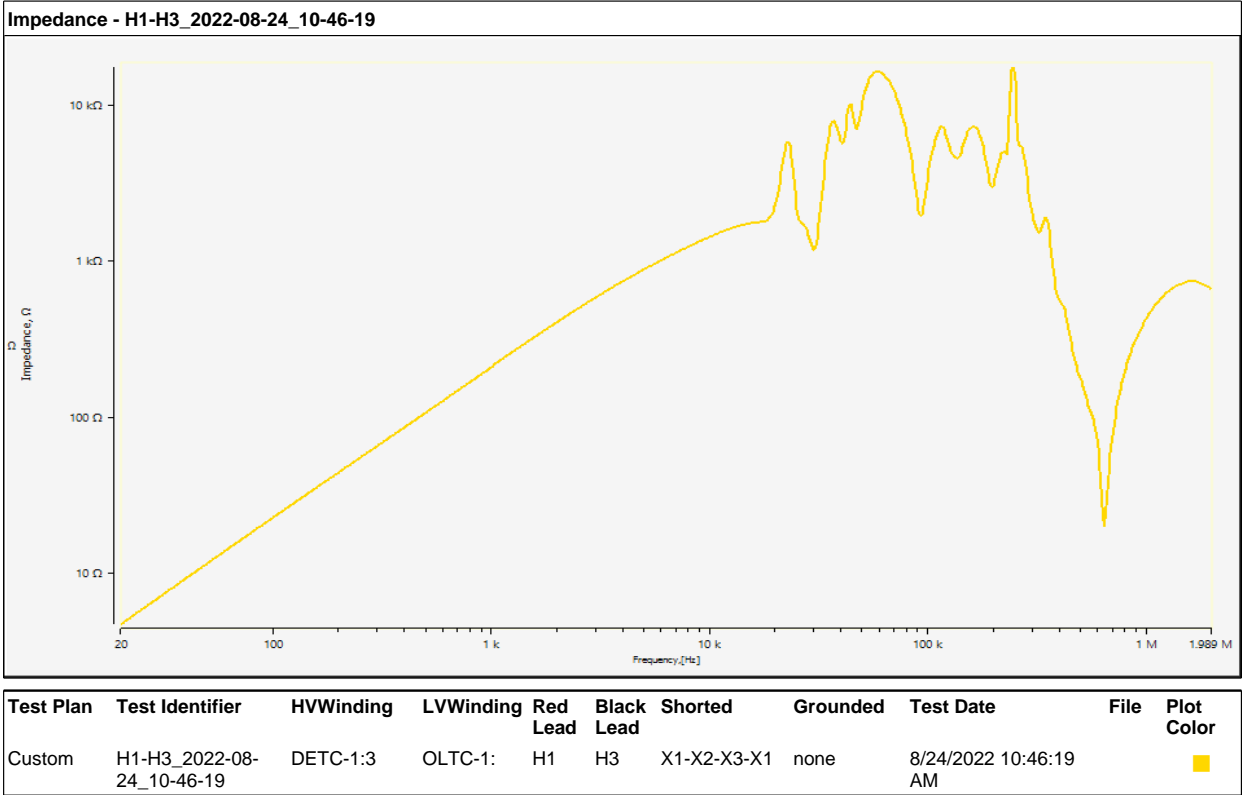
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H1-H3_2022-08-24_10-46-19	DETC-1:3	OLTC-1:	H1	H3	X1-X2-X3-X1	none	8/24/2022 10:46:19 AM		■

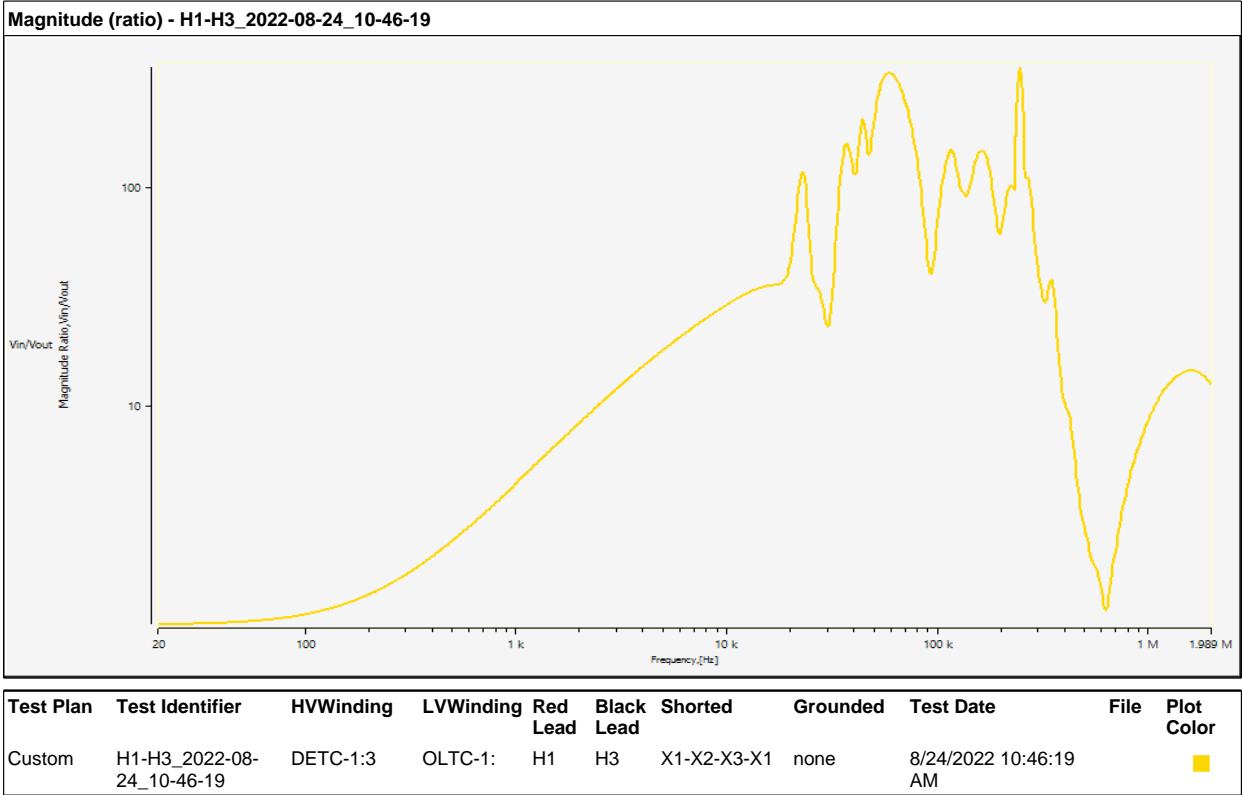
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



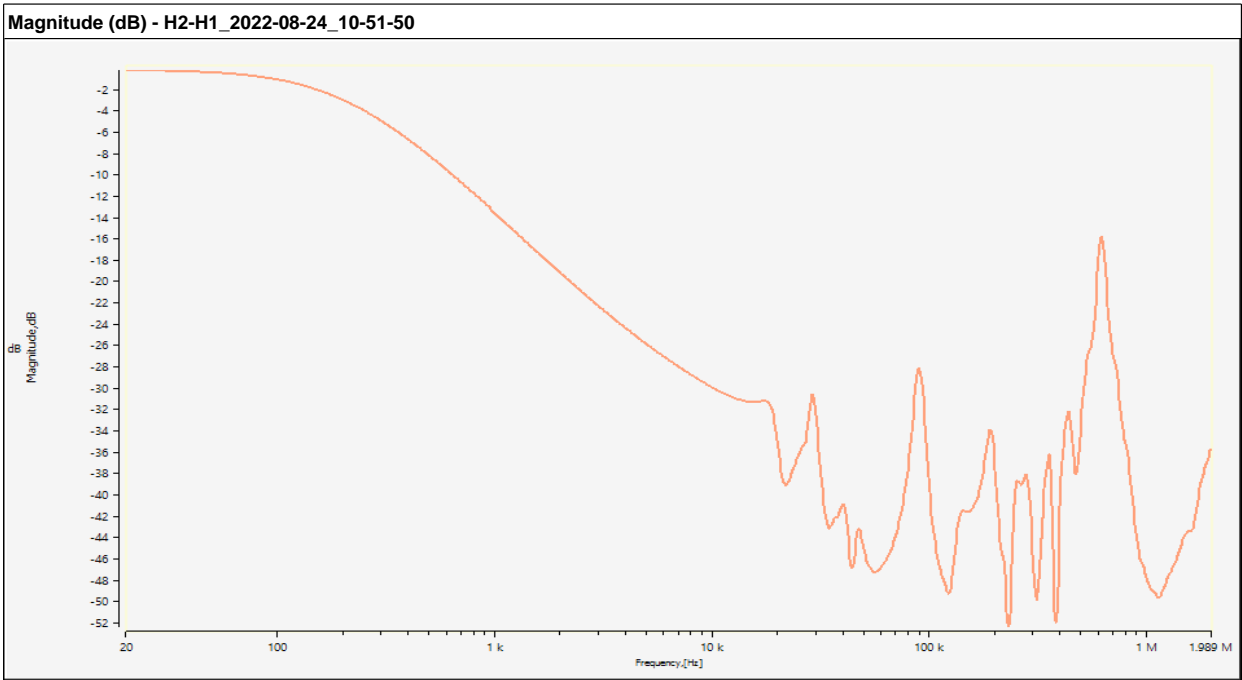
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

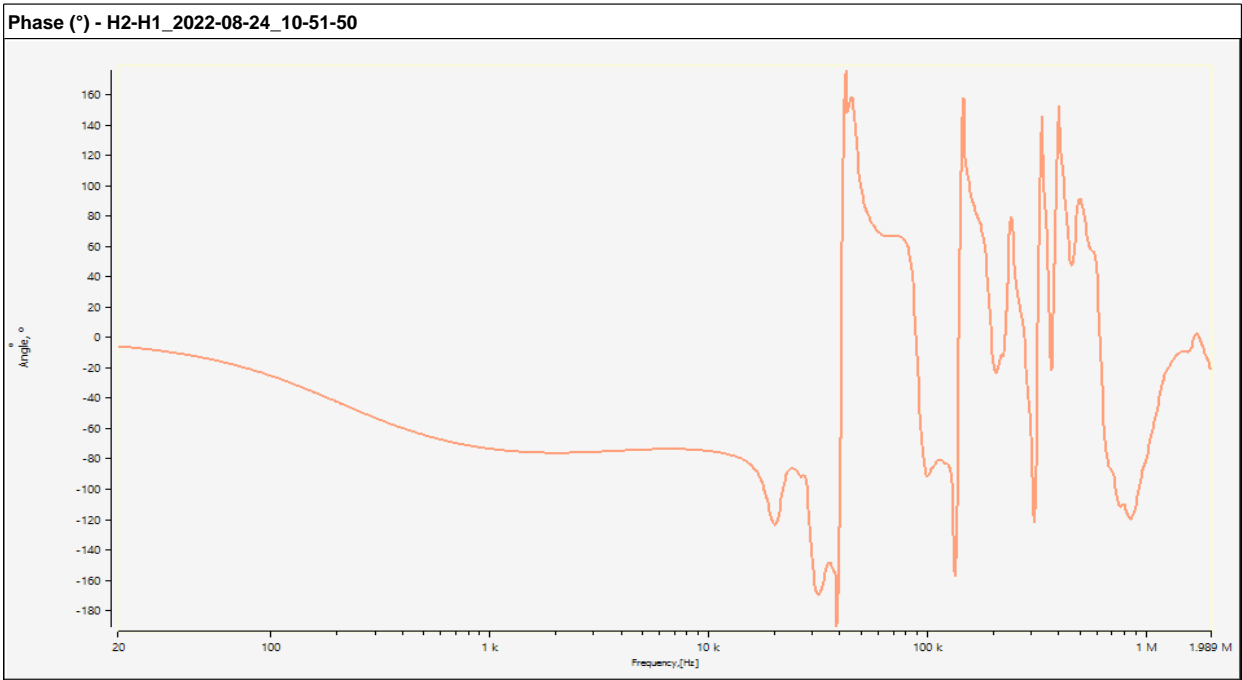
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■

[Header]

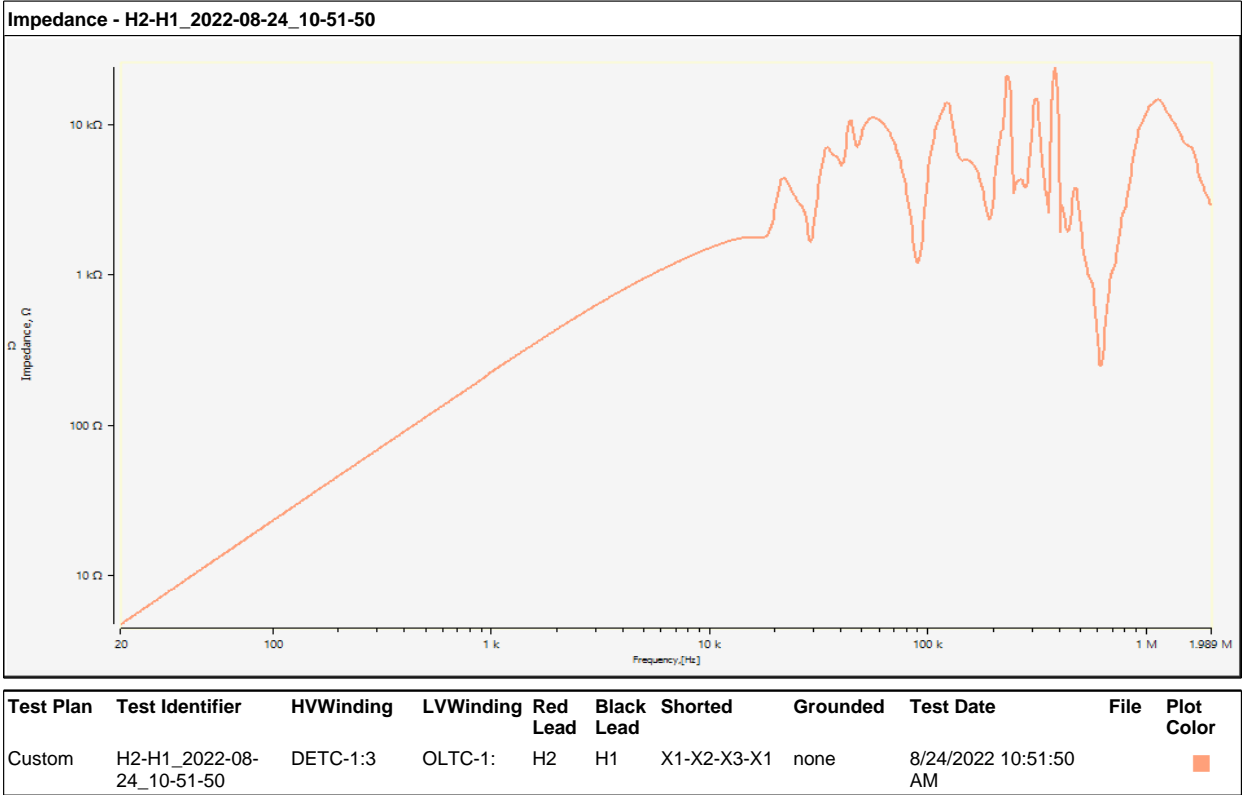
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■

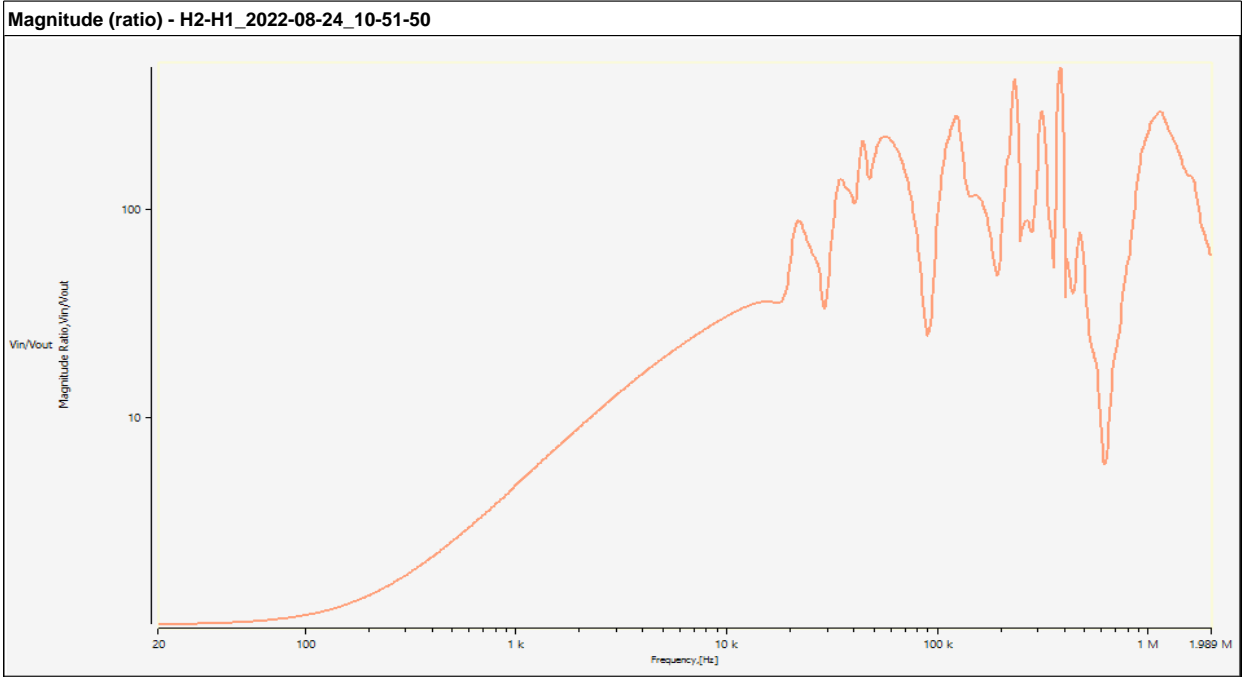
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

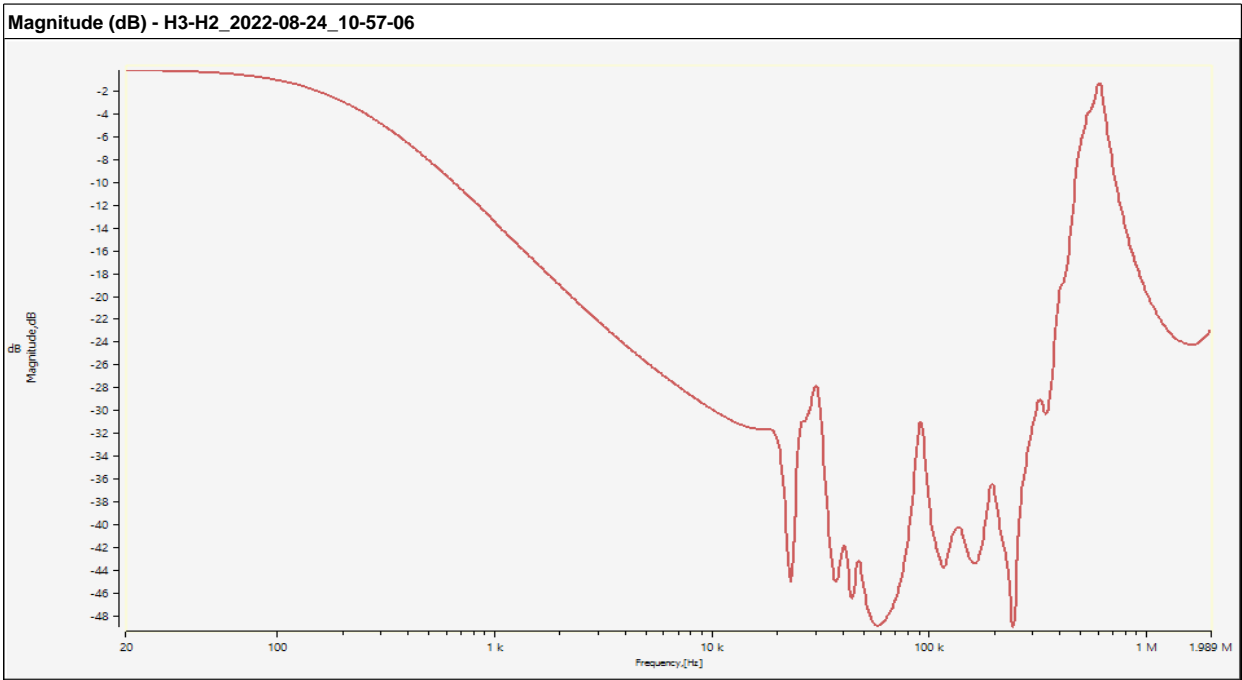
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H2-H1_2022-08-24_10-51-50	DETC-1:3	OLTC-1:	H2	H1	X1-X2-X3-X1	none	8/24/2022 10:51:50 AM		■

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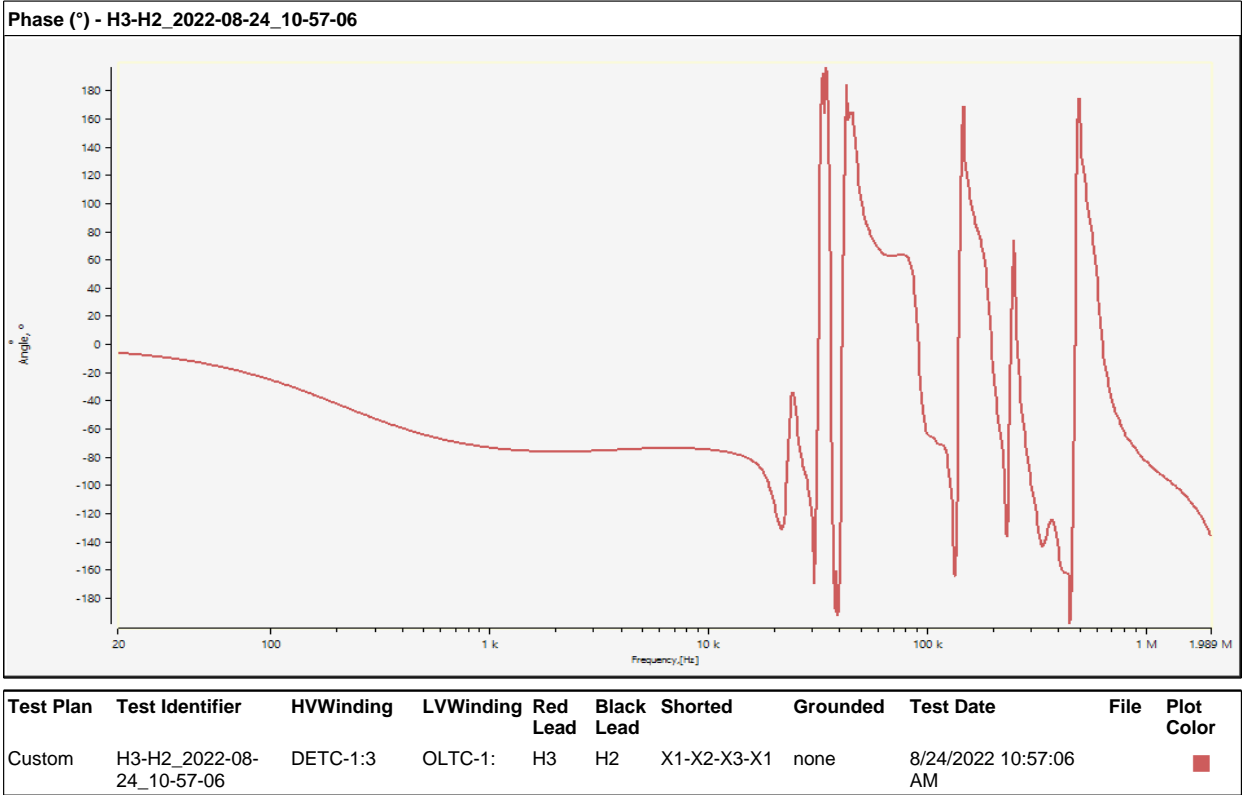
Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■

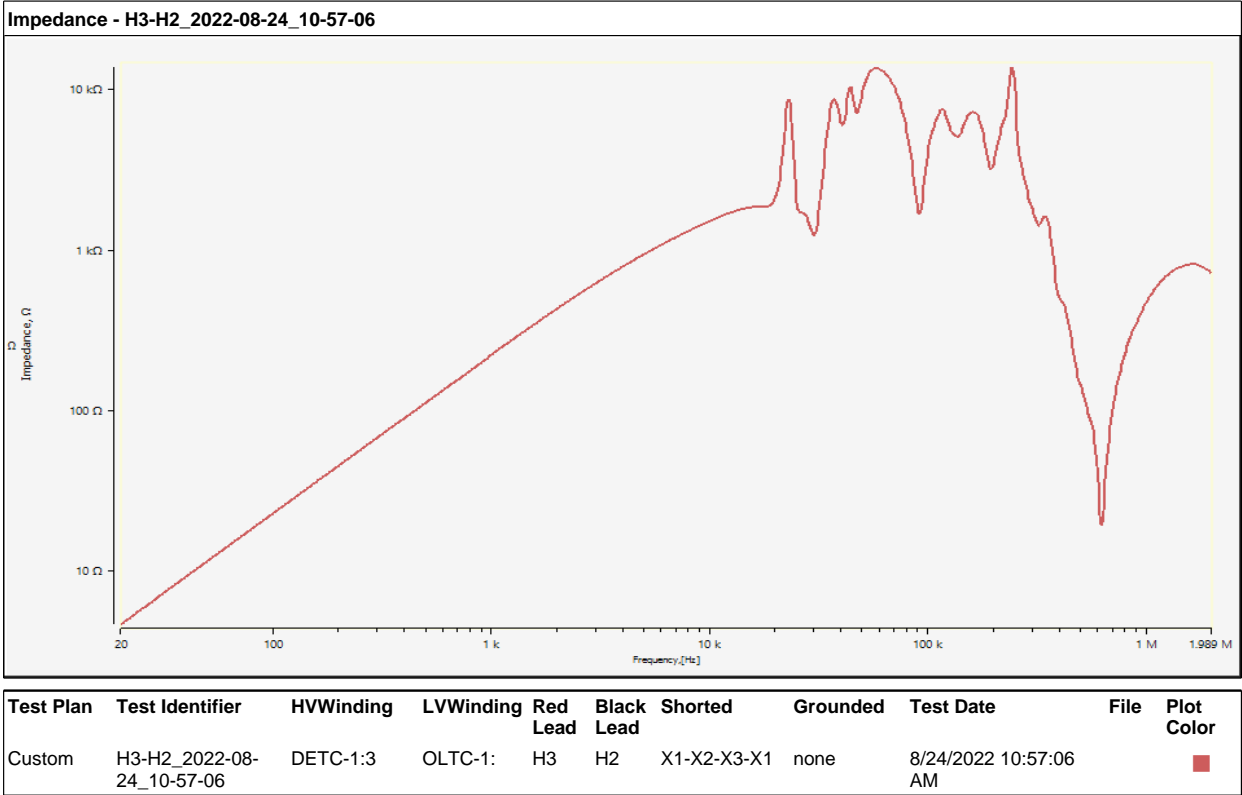
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



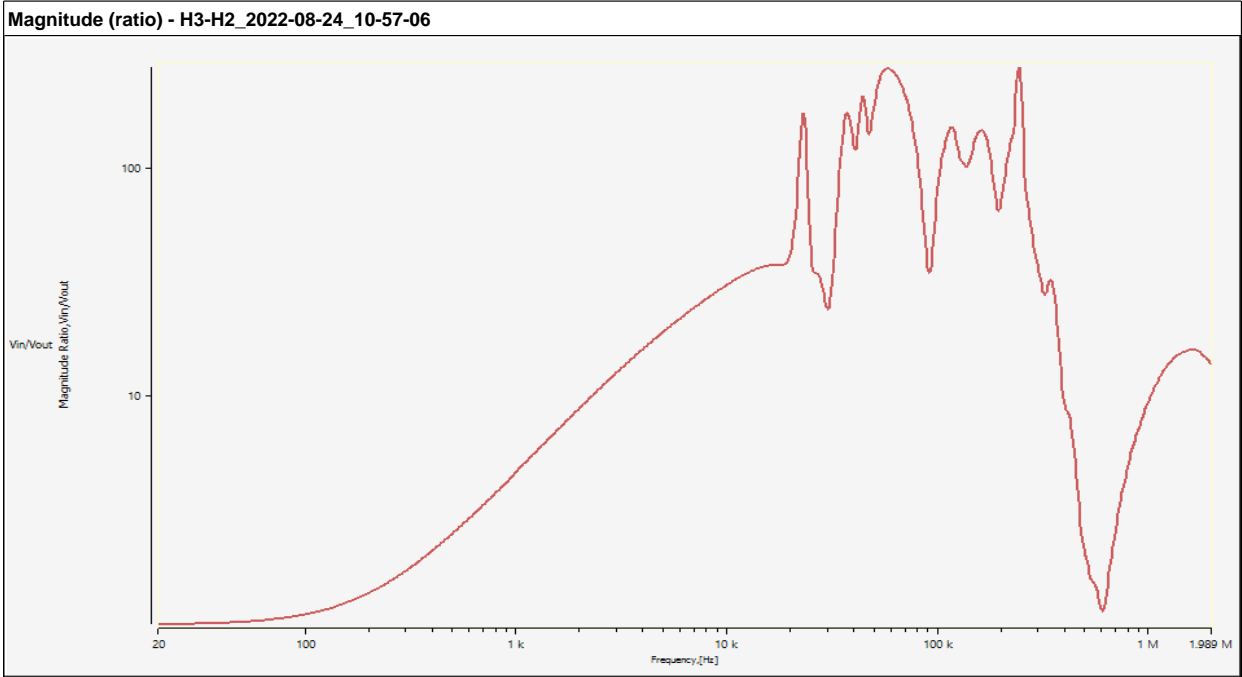
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Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



[Header]

Results - Session: 8/24/2022 10:12:32 AM - 8/24/2022 10:57:06 AM



Test Plan	Test Identifier	HVWinding	LVWinding	Red Lead	Black Lead	Shorted	Grounded	Test Date	File	Plot Color
Custom	H3-H2_2022-08-24_10-57-06	DETC-1:3	OLTC-1:	H3	H2	X1-X2-X3-X1	none	8/24/2022 10:57:06 AM		■



Client				Location						Date		
Rhode Island Energy				West Greenwich, RI						8/25/2022		
MVA/kVA	High Voltage	Low Voltage	Manufacturer			Job Number			Meter Reading			
KVA	33,600	7,200	General Electric			J29742						
Transformer Serial Number				Quantity of oil				Operator(s)		Rig Number		
62216				3450 Gallons				D,H./D.V.		2		
Time	Ambient Temp	Transformer		Processor					PPM		Comments	
		Vacuum Torr (mm)	Vacuum Dew Point	Oil Temp C°	Oil In Temp C°	Oil Out Temp C°	Vacuum Torr (mm)	Gallons				In
0:00												
1:00												
2:00												
3:00												
4:00												
5:00												
6:00	-	-	-	-	-	-	-	-	-	-	-	
7:00	-	-	-	-	-	-	-	-	-	-	-	
8:00	-	-	-	-	-	-	-	-	-	-	-	
9:00	25°C	ATM	-	-	-	-	ATM	-	-	-	-	Started vacuum at 9:00 AM / Reached 2 Torr at 9:30 AM
10:00	28°C	0.67	-	-	-	-	0.178	-	-	-	-	
11:00	38°C	0.465	-	-	-	-	0.17	-	-	-	-	
12:00	39°C	0.427	-	-	-	-	0.164	-	-	-	-	
13:00	40°C	0.425	-	-	-	-	0.166	-	-	-	-	
14:00	39°C	0.425	-	-	-	-	0.164	-	-	-	-	Started preheat of oil at 2:30 P.M.
15:00	38°C	0.491	-	-	27°C	56°C	0.167	-	17	2°C	-	Started fill at 3:00 Pm>
16:00	38°C	0.573	-	-	28°C	59°C	0.513	1528	16	2	-	
17:00	38°C	0.522	-	60°C	31°C	60°C	0.562	3042	17	3	-	Finished fill at 4:15 P.M./ Broke vacuum
18:00	30°C	-	-	62°C	36°C	56°C	0.289	789	1	1	-	Started circulations at 5:30 P.M.
19:00	27°C	-	-	60°C	37°C	59°C	0.21	2283	1	1	-	
20:00	25°C	-	-	60°C	38°C	59°C	0.213	3468	1	1	-	
21:00	-	-	-	-	-	-	-	-	-	-	-	
22:00												
23:00												



NASS LABORATORY SERVICES
10330 Page Industrial Blvd, Ste. A - St. Louis, MO 63132

1-314-218-2522
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EQUIPMENT INFORMATION

Owner:	RHODE ISLAND ENERGY	Manufacturer:	GE	Region:	WEST GREENWICH, RI
Location:		Year Manufactured:	1991	Model:	
Equipment Type:	TRN	Voltage Rating:	33.6 kV	Oil Pressure:	INERT GAS-PRESSURE
Designation:	SUB#63	Apparent Power Rating:		Fluid Type:	MINERAL OIL
Equipment #:	M162216	Phase:	THREE PHASE	Fluid Volume:	34350 gal
Serial #:	M162216				

TESTING DATA

SAMPLE INFORMATION				Limits	Units
Sample Date:	2022-Aug-24	2022-Aug-26			
Job Number:	J29742	J29742			
Sampled By:	n/a	n/a			
Container ID:	FE753	FP864			
Fluid Temperature:	30	32			°C
Reason For Sampling:	INSPECTION	INSPECTION			
DISSOLVED GAS ANALYSIS				Limits	Units
ASTM D3612	Carbon Monoxide (CO):	101	1	900	ppm
	Carbon Dioxide (CO2):	3229	79	10000	ppm
	Hydrogen (H2):	131 ▲	0	100	ppm
	Methane (CH4):	310.8 ▲	1	110	ppm
	Ethane (C2H6):	122.8	0.4	150	ppm
	Ethylene (C2H4):	776.6 ▲	2.6	90	ppm
	Acetylene (C2H2):	11.3 ▲	0.1	1	ppm
	TDCG:	1453.5	5.2		ppm
	Oxygen (O2):	900	5100		ppm
	Nitrogen (N2):	28000	14500		ppm
FLUID QUALITY				Limits	Units
ASTM D1816 (1mm)	Dielectric Breakdown:	40.2	35.4	23	kV
ASTM D974	Neutralization Number:	0.05	0.03	0.1	mgKOH/g
ASTM D971	Interfacial Tension:	28.4	31	25	mN/m
ASTM D1298/D4058	Specific Gravity:	0.872	0.87		
ASTM D1500	Color:	0.5	0.5		
ASTM D1524	Visual:	CLEAR	CLEAR		
ASTM D924	Power Factor (25C):	0.0394	0.0373	0.5	%
ASTM D924	Power Factor (100C):	0.719	0.6931	5	%
ASTM D1533	Moisture:	12.4	10.4	35	ppm
ASTM D1533	Relative Saturation:	15	11	20	%
ASTM D1533	Dew Point:	-11	-14		°C

TESTING ANALYTICS

Dissolved Gas Analysis:	No recent anomalies.
Fluid Quality:	No oil quality problems were detected.
Moisture:	The water content of the oil is acceptable.
Suggested Retest Date:	2023-Aug-26
Analysis Basis:	In-service oil XFMR up to 69 kV - IEEE C57.104-2019, C57.106-2015

Insulation Fluid Test Report
Doc# 1160940706

Report 20224108001

NASS Contact Information

Thank you for choosing NASS to complete this project. I hope the project was completed to your satisfaction, in a safe and timely manner. If you have any other transformer needs please feel free to contact me using the information below.

Regards,



Brandt Nelson

Project Manager – Central & Northeast
10330 Page Industrial Blvd.

St. Louis, MO 63132

314-371-9114

nassusa.com 

Substation: Apponaug 3

Failure Date: 7/4/2023

Failed Equipment: Transformer

Manufacturer: GE

Voltage Class: 23kV

Equipment Position: T4

Targets: C,N, Fault pressure relay

Short Description:

After storms passed through the area the T4 transformer tripped with the targets above. DGA and headspace provided poor results, the unit was held out overnight. Electrical power factor testing failed on 7/5/2023. The transformer will be replaced with a system spare 7/6/2023.

Long Description:

On Sunday, June 25, 2023, the # 4 transformer at Apponaug Substation tripped on sudden pressure and C phase to neutral fault. There was lightning in the area. Portable DGA and TCG test results indicated arcing under oil.

The high voltage, low voltage, and high to low voltage insulation system power factors were elevated. Excitation and TTR test results were acceptable.

On August 23, 2023, a controlled teardown inspection was performed at G&S Technologies in Kearney, NJ. The inspection revealed arcing damage from the top of the H1 coil to the core frame and top cover. The high voltage winding was aluminum and was composed of twin conductors. The cross-section area of one of the twin conductors was "eroded" to about 40% with no varnish insulation for about 5" of conductor.

DGA Results:

Date: 7/4/2023

Date: 6/25/2023

Parameter	Value (7/4/2023)	Parameter	Value (6/25/2023)
Type:	Transformer	Type:	Transformer
Equipment:	4	Equipment:	4
Serial:	CX 650	Serial:	CX 650
Location:	apponoag #4	Location:	apponoag #4
Manufacturer:	GE	Manufacturer:	GE
Sampling Point:	main tank	Sampling Point:	main tank
Oil type:	Mineral Oil	Oil type:	Mineral Oil
Date:	2023-07-04 21:38	Date:	2023-06-25 12:14
Hydrogen	3557	Hydrogen	<5
Water	43	Water	33
Carbon Dioxide	1772	Carbon Dioxide	1633
Carbon Monoxide	160	Carbon Monoxide	45
Ethylene	585	Ethylene	14
Ethane	30	Ethane	8
Methane	461	Methane	4
Acetylene	1099.2	Acetylene	0.0
Vapour	<2	Vapour	<2
Ethanol	<2	Ethanol	<2
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TDCG	5891	TDCG	73
Flammability in air:	167%	Flammability in air:	0%
Warning Flammability	>100%		
Duval's Triangle	High energy discharges	Duval's Triangle	Thermal fault > 700°C
Transformer Condition	Warning	Transformer Condition	Normal

Visual Inspection:



Substation: Sprague St

Failure Date: 4/16/2023

Failed Equipment: Transformer

Manufacturer: Allis Chalmers

Voltage Class: 11.5/23 – 2.4 kV

Manufacturing Date: 1951

Equipment Position: T2

Targets: A phase

Description:

On Sunday April 16, 2023 the Sprague St. # 2 transformer tripped off line. The pressure relief device operated and blew oil out of the transformer with # 2 bus A phase directional overcurrent target. The transformer oil was black. Electrical dielectric testing was not performed because of the high probability that the transformer head space had high levels of combustible gasses.

The T3 at Olneyville was relocated to Sprague St. to replace the failed # 2 transformer.

A review of photos taken during the transformer tear down indicated overheating with some wooden support members showing evidence of burning.

Division 1-31
Damage/Failure Reporting

Request:

The Company's Central RI Area Study (completed 2017) recommended Apponaug short term work over FY19-FY21 and long term work over FY23-FY26. The Company completed the short term work (see FY 2025 ISR Plan page 75 - includes retiring/removing 23 kV station and installing relayed reclosers for transformer protection). When did the Company complete the short term work? When did the Company first introduce the long term work in the ISR Plan (station rebuild)? Was other system work required before the long term work could progress? Provide and describe the proposed Apponaug long term work construction planned for each year including when the transformers would have been ordered, received, and placed in service. What was the date of the Apponaug transformer failure?

Response:

The Company completed the construction of the Apponaug short term work in FY21 with the as-built drawing updates and work order closeout documents completed in early FY22.

The Company first introduced the Apponaug long-term work in the FY24 ISR Plan. No other system work was required before the long-term work could progress.

A detailed construction schedule is not developed until the detailed engineering process begins and equipment is ordered. Therefore, a detailed construction schedule cannot be shared at this time.

Long lead materials are not ordered until the end of preliminary engineering or at the beginning of detailed engineering, so a detailed schedule involving transformer lead times and delivery cannot be shared and would only be speculative at this time.

The Apponaug transformer failure occurred on July 4, 2023.

Even though the long-term project would not have been completed before the transformer failure in July, it should be noted that delaying asset condition projects does increase the chances of equipment failures. There are many different subject matter experts that provide input into equipment asset condition and life expectancy, which is then prioritized among all asset condition projects. Delay to these projects could cause equipment to be in-service longer than what is identified as being appropriate.

Division 1-32
Damage/Failure Reporting

Request:

For large equipment failures such as substation transformers, how does the Company determine when restoration and/or repair work should be allocated to the non-discretionary spend category (Damage/Failure) or a specific discretionary category?

Response:

For large equipment failures, such as substation power transformers, the Company allocates all costs that are associated with bringing the substation back to pre-contingency conditions to the non-discretionary spend category. This includes all costs for temporary equipment and the costs for the permanent equipment.