Q. (Reference NLH-NP-031) It is stated "*The 2022 inspections determined that the line had deteriorated to the point that 253 of 490 poles on the line required replacement. In addition, 61 structures were identified as either having deteriorated insulators, crossarms, or hardware deficiencies*." Please provide corresponding data for the inspections undertaken in each of the previous 10 years, together with any reports and documentation.

A. In 2022, an engineering assessment was conducted on the physical condition of Transmission Line 55L. The engineering assessment involved a detailed inspection to quantify the total number of deficiencies currently present on the transmission line. This was done to provide a comprehensive assessment of the line's overall condition for capital planning purposes. The results of this engineering assessment can be found in the *2023 Capital Budget Application,* report *3.1 2023 Transmission Line Rebuild.* This represents the only report or documentation that provides a comprehensive condition assessment of Transmission Line 55L.

Transmission Line 55L has been inspected annually over the last decade. Annual inspections are conducted by experienced Planners following the Company's *Transmission Line Inspection and Maintenance Practices*. In conducting annual inspections, Planners are focused on identifying the work required in the field to correct identified deficiencies. The primary outcomes of inspections are work requests to address these deficiencies.

The highest priority for Planners inspecting transmission lines is to identify deficiencies categorized as Emergencies, TD1 or TD2. These deficiencies require action over the near term to address or avoid the failure of transmission assets.[1] As examples, Emergencies include broken poles, while TD1 and TD2 deficiencies include poles with serious cracks or deterioration.

Planners inspecting transmission lines also create work requests for deficiencies categorized as TD4. These are deficiencies that require correction as part of Newfoundland Power's longer term capital planning process. The purpose of creating TD4 work requests is to track the level of deficiencies on a transmission line in order to inform future capital investment priorities. Examples of TD4 deficiencies include poles with serious splits or decay.[2]

Tracking work requests for TD4 deficiencies allows the Company's Regional Operations and Professional Engineers to monitor trends in the maintenance required on a transmission line over time. When the condition of a transmission line deteriorates significantly, an engineering assessment is completed for capital planning purposes to quantify the line's overall condition.

[1] Work requests for Emergency deficiencies must be addressed immediately. Work requests for TD1 deficiencies must be addressed within seven days and those for TD2 deficiencies must be addressed within one month.

[2] See the response to Request for Information NLH-NP-027.

Table 1 provides the number of TD4 work requests created following inspections of Transmission Line 55L over each of the past 10 years.[3]

Table 1
Transmission Line 55L
TD4 Work Requests

Year	Annual	Cumulative
2013	0	0
2014	0	0
2015	9	9
2016	0	9
2017	1	10
2018	0	10
2019	28	38
2020	45	83
2021	8	91
2022	93	184

The number of TD4 work requests created for Transmission Line 55L has increased over the last decade. The number of work requests created in recent years was such that the Company determined capital upgrades could no longer be deferred.[4] An engineering assessment was subsequently completed to quantify the overall condition of the line. This enabled Newfoundland Power to identify the least cost alternative to address the line's deteriorated condition.

Attachment A to this response provides additional photos of the deficiencies identified on Transmission Line 55L through the engineering assessment completed in 2022, including examples of shell separation and core sampling.

[3] Table 1 does not include Emergency, TD1 or TD2 work requests as these would have been previously corrected through capital maintenance.

[4] Transmission Line 55L was included in the original capital plan filed with the *Transmission Line Rebuild Strategy* as part of the Company's *2006 Capital Budget Application*. The rebuilding of Transmission Line 55L has been deferred over time through annual inspections and maintenance.

ATTACHMENT A:

Photographs of Transmission Line 55L

Shell Separation

Shell separation occurs when the pole shrinks over time and the outer shell separates from the core of the pole. Leaving the untreated core exposed will allow moisture and fungus to enter and over time will compromise the strength of the pole resulting in pole failure.

Figure 1 shows examples of shell separation occurring on the wood pole structures of Transmission Line 55L.

Figure 1 - Shell Separation

The wood pole structures on Transmission Line 55L are experiencing significant shell separation, with many poles in a condition where they can no longer be climbed safely by Powerline Technicians.

Core Sampling

Core sampling is completed by drilling through the centre line of a pole and extracting a sample of the wood. A healthy pole would have a core sample that has a light wood colour, fresh wood scent and firm texture. A poor core sample would have black and dark brown coloured wood, a moldy smell and soft texture indicating decay.

Figure 2 shows examples of the core sampling tests completed to assess the presence of decay within the wood pole structures on Transmission Line 55L.

Figure 2 - Pole Core Sample

The core sampling tests revealed internal decay on the wood pole structures of Transmission Line 55L.