Report for January 2020 G- & R-NRUF – Canadian NPAs
to the
Canadian Steering Committee on Numbering (CSCN)

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1. Purpose of G- & R-NRUF

The purpose of the General Numbering Resource Utilization Forecast (G-NRUF) is to provide an annual forecast to aid in projecting Numbering Plan Area (NPA) and North American Numbering Plan (NANP) exhaust. The G-NRUF process requires current and prospective Central Office (CO) Code Holders to submit actual and forecast annual data regarding their current and future use of CO Codes to the Canadian Numbering Administrator (CNA) on an annual basis.

In accordance with the *Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline* (the Guideline), approved by the Canadian Radio-television and Telecommunications Commission (CRTC) in Telecom Decision CRTC 2015-166 dated 29 April 2015:

> When an NPA is entering the timeframe for NPA Relief Planning (e.g., within or about 72 months before the Projected Exhaust Date), an initial R-NRUF is conducted to obtain actual and forecast annual data at the Exchange Area level of detail. The purpose of the initial R-NRUF is to validate the Projected Exhaust Date for an exhausting NPA, and to provide the CNA with detailed information to be used to identify a potential Relief Date and to prepare the Initial Planning Document as outlined in the Canadian NPA Relief Planning Guideline. Typically, the initial R-NRUF will utilize Format 2 in Appendix A. In general, the CNA will conduct the initial R-NRUF when needed; however, the CNA should attempt to choose dates for the initial and subsequent R-NRUFs that will coincide with the annual G-NRUF and mid-year R/S-NRUF dates (e.g., as of January 1 and July 1 each year).
>
> Subsequent R-NRUFs will be conducted semi-annually in order to monitor CO Code forecast changes prior to implementing relief. These R-NRUFs shall be conducted until three months of when relief is implemented, or until they are replaced by S-NRUFs or J-NRUFs.

Based on the January 2020 G-NRUF results, the CNA determined that, in addition to NPA 249/705, NPA 289/365/905, NPA 343/613, NPA 403/587/780/825, NPA 416/437/647, NPA 438/514, NPA 450/579, NPA 506, NPA 709 and NPA 819/873, NPA 204/431 had also entered the 6-year relief planning window and NPA 306/639 was in a Jeopardy Condition.

NOTE: During CSCN 116 held on February 19, 2020, the CSCN agreed that the January 2020 GNRUF and the R-NRUF reports should be combined in a single report as the R-NRUF was also conducted at the NPA level of detail.

The CNA has prepared this report in accordance with the Guideline.

Included as attachments to this report are:

- 2020 G- & R-NRUF Aggregate Results and the Quantity of CNA CO Codes as of 1 January 2020;
- Historical January NRUF Graphs for Canadian NPAs; and,
- CSCN Letter dated 16 October 2019 providing direction to the CNA re: the 2020 Numbering Resource Utilization Forecast (2020 NRUF) Methodology and Assumptions.

2. High Level Summary

The results from the January 2020 G- & R-NRUF show significant changes in several NPAs compared to the January 2019 NRUF. The following are some of the factors that are driving these changes:

1) Several Telecommunications Service Providers (TSPs) have submitted forecasts that indicate an expansion of their footprint into new areas over the next few years as they take advantage of Telecom Decision CRTC 2004-46, *Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers*.

2) Some established TSPs have adjusted their forecast to meet the demand created by new technologies and new services whereas some TSPs have decreased their forecast as their business plans have changed.

3) The introduction of a new numbering resource under the *Canadian Non-Geographic Code Assignment Guideline* is expected to alleviate some of the issues associated with Machine-to-Machine demand but this is difficult for both the TSPs and the CNA to quantify at this time.

The impact of each of the above factors varies from NPA to NPA. See the following table for a list of NPAs that are currently undergoing or entering NPA Relief Planning:

	Most Recent 2019 NRUF	**2020 NRUF**	
NPA	**PED**	**PED**	**Remarks**
204/431	Jul-2026	Jan-2025	Entered relief planning window
249/705	Mar-2026	Apr-2026	In relief planning
289/365/905	Dec-2022	Sep-2023	In relief planning
306/639	Nov-2021	Jan-2022	Relief Date 2 October 2021 iaw Telecom Decision CRTC 2019-129. In a Jeopardy Condition.
343/613	Sep-2025	Jun-2025	In relief planning
403/587/780/825	Feb-2022	Dec-2022	Relief Date 15 May 2021 iaw Telecom Decision CRTC 2019-130.
416/437/647	Jun-2025	Jan-2025	In relief planning
438/514	Jun-2024	Mar-2026	In relief planning
450/579	Jun2024	Oct-2024	Deferred indefinitely the overlay of area code 354 iaw Telecom Decision CRTC 2019-347.
506	Apr-2023	Mar-2024	Relief Date 23 April 2022 iaw Telecom Decision CRTC 2020-135.
709	Aug-2023	Mar-2024	Relief Date May 20, 2022 iaw Telecom Decision CRTC 2018-333.
819/873	Mar-2025	Jul-2025	In relief planning

3. Current and Past G-NRUF Projected Exhaust Dates

NPA	*LOCATION*	*2016*	*2017*	*2018*	*2019*	*2020*
204/431	Manitoba	Aug. 2027	Aug. 2023	Mar. 2026	Jul. 2026	Jan. 2025
226/519	S. Ontario	Feb. 2017 Feb. 2027	Oct. 2026	Jan. 2029	Nov. 2026	Jan. 2028
236/250/604/672/ 778	BC	Apr. 2021 Nov. 2030	May 2020 Jun. 2029 May 2038	Jul. 2020 Dec. 2028 Aug. 2037	Sep. 2026 Feb. 2034 Jul. 2041	Oct. 2026 Mar. 2034 Aug. 2041
249/705	N. E. Ontario	Feb. 2025	Jul. 2024	Jun. 2026	Jul. 2025	Apr. 2026
289/365/905	Toronto Fringe	Jul. 2023. Jul. 2032	Sep. 2023 Sep. 2033	Nov. 2022 Sep. 2032	Jun. 2022 Oct. 2031	Mar. 2023 Jul. 2033
306/639	Saskatchewan	Jan. 2025 Apr. 2037	Jul. 2022 Oct. 2034	Jun. 2022	May 2022	Jan. 2022
343/613	Ottawa area	Mar. 2024 Dec. 2034	Apr. 2025	Feb. 2024	Dec. 2023 Dec. 2036	Jun. 2025 Oct. 2038
367/418/581	N. E. Quebec	Apr. 2019 May 2026 Jul. 2033	Sep. 2020 Nov. 2031	Oct. 2019 Aug. 2038	Nov. 2029	Feb. 2033
403/587/780/825	Alberta	Nov. 2022 Dec. 2029	Mar. 2022 Jul. 2029 Jul. 2037	Sep. 2022 Nov.2030	Jun. 2022 Jul. 2029 Feb. 2037	Dec. 2022 Mar. 2030 Sep. 2037
416/437/647	Toronto	Aug. 2025 Feb 2034	Apr. 2030 Beyond 2039	Feb. 2027	Jan. 2024 Jan. 2033	Jan. 2025 Jul. 2035
438/514	Montreal	Aug. 2026	Sep. 2028	Jan. 2026	Oct. 2023 Aug. 2037	Mar. 2026 Beyond. 2042
450/579	Montreal Fringe	Jan. 2023 Oct. 2032	Jun. 2022 Oct. 2036	Jun. 2021 Jan. 2036	Jun. 2024 Jul. 2038	Oct. 2024 Oct. 2037
506	New Brunswick	Feb. 2021	Dec. 2021	Dec. 2021	Aug. 2022	Mar. 2024
709	Nfld & Labrador	May 2019 Feb 2032	Aug. 2019	Apr. 2023	Aug. 2023	Mar. 2024
782/902	Nova Scotia & PEI	May 2030	Nov. 2029	Mar. 2033	Apr. 2034	Nov. 2033
807	N.W. Ontario	Beyond 2038	Beyond 2039	Beyond 2040	Beyond 2042	Beyond 2042
819/873	N. W. Quebec	Jun. 2024	Aug. 2023 Mar. 2037	Oct. 2026	Oct. 2025	Jul. 2025
867	Yukon, NWT, Nunavut	Beyond 2037	Jan. 2033	Jul. 2036	Aug. 2042	Beyond 2042

4. R-NRUF – High Level Summary

The results from the January 2020 R-NRUF are quite different from the July 2019 R-NRUF results due to some TSPs submitting updated data. The CNA has verified the input from TSPs and the variance from previous inputs can be rationalized.

The NRUF results were reviewed by the CSCN and RPCs during a joint conference call held on 1 April 2020.

NPA 204/431

NRUF data, including the most recent results, is summarized in the following chart.

NPA 204/431 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
204/431	January 2019 G-NRUF	26 March 2019	July 2026
204/431	January 2020 G-NRUF	24 March 2020*	January 2025

NPA 249/705

NRUF data, including the most recent results, is summarized in the following chart.

NPA 249/705 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
249/705	January 2019 G-NRUF	26 March 2019	July 2025
249/705	July 2019 R-NRUF	20 September 2019	March 2026
249/705	January 2020 G-NRUF	24 March 2020*	April 2026

NPA 289/365/905

NRUF data, including the most recent results, is summarized in the following chart.

NPA 289/365/905 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
289/365/905	January 2017 G-NRUF	29 March 2017	September 2023
289/365/905	July 2017 R-NRUF	25 September 2017	May 2023
289/365/905	January 2018 R-NRUF	20 March 2018	November 2022
289/365/905	July 2018 R-NRUF	5 September 2018	November 2021
289/365/905	January 2019 R-NRUF	26 March 2019	June 2022
289/365/905	July 2019 R-NRUF	20 September 2019	December 2022
289/365/905	January 2020 G-NRUF	24 March 2020*	March 2023

NPA 306/639

NRUF data, including the most recent results, is summarized in the following chart.

NPA 306/639 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
306/639	January 2017 G-NRUF	29 March 2017	July 2022
306/639	July 2017 R-NRUF	25 September 2017	November 2024
306/639	January 2018 R-NRUF	20 March 2018	June 2022
306/639	May 2018 R-NRUF	27 July 2018	September 2022
306/639	January 2019 R-NRUF	26 March 2019	May 2022
306/639	July 2019 R-NRUF	20 September 2019	November 2021

306/639	January 2020 G-NRUF	24 March 2020*	January 2022

NPA 343/613

NRUF data, including the most recent results, is summarized in the following chart.

NPA 343/613 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
343/613	January 2017 G-NRUF	29 March 2017	April 2025
343/613	January 2018 R-NRUF	20 March 2018	February 2024
343/613	July 2018 R-NRUF	5 September 2018	August 2022
343/613	January 2019 R-NRUF	26 March 2019	December 2023
343/613	July 2019 R-NRUF	20 September 2019	September 2025
343/613	January 2020 G-NRUF	24 March 2020*	June 2025

NPA 403/587/780/825

NRUF data, including the most recent results, is summarized in the following chart.

NPA 403/587/780/825 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
403/587/780/825	January 2017 G-NRUF	29 March 2017	March 2022
403/587/780/825	July 2017 R-NRUF	25 September 2017	January 2023
403/587/780/825	January 2018 R-NRUF	20 March 2018	September 2022
403/587/780/825	July 2018 R-NRUF	5 September 2018	March 2022
403/587/780/825	January 2019 R-NRUF	26 March 2019	June 2022
403/587/780/825	July 2019 R-NRUF	20 September 2019	February2022
403/587/780/825	January 2020 G-NRUF	24 March 2020*	December 2022

NPA 416/437/647

NRUF data, including the most recent results, is summarized in the following chart.

NPA 416/437/647 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
416/437/647	January 2019 G-NRUF	26 March 2019	January 2024
416/437/647	July 2019 R-NRUF	20 September 2019	June 2025
416/437/647	January 2020 G-NRUF	24 March 2020*	January 2025

NPA 438/514

NRUF data, including the most recent results, is summarized in the following chart.

NPA 438/514 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
438/514	January 2019 G-NRUF	26 March 2019	October 2023
438/514	July 2019 R-NRUF	20 September 2019	June 2024
438/514	January 2020 G-NRUF	24 March 2020*	March 2026

NPA 450/579

NRUF data, including the most recent results, is summarized in the following chart.

NPA 450/579 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
450/579	January 2017 G-NRUF	29 March 2017	June 2022
450/579	July 2017 R-NRUF	25 September 2017	August 2023
450-579	January 2018 R-NRUF	20 March 2018	June 2021
450/579	July 2018 R-NRUF	5 September 2018	March 2021
450-579	January 2019 R-NRUF	26 March 2019	June 2024
450/579	July 2019 R-NRUF	20 September 2019	June 2024
450/579	January 2020 G-NRUF	24 March 2020*	October 2024

NPA 506

NRUF data, including the most recent results, is summarized in the following chart.

NPA 506 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
506	January 2015 G-NRUF	27 March 2015	April 2025
506	January 2016 G-NRUF	21 March2016	February 2021
506	July 2016 R-NRUF	12 October 2016	May 2020
506	January 2017 R-NRUF	29 March 2017	December 2021
506	July 2017 R-NRUF	8 September 2017	November 2024
506	January 2018 R-NRUF	20 March 2018	December 2021
506	July 2018 R-NRUF	5 September 2018	January 2022
506	January 2019 R-NRUF	26 March 2019	August 2022
506	July 2019 R-NRUF	20 September 2019	April 2023
506	January 2020 G-NRUF	24 March 2020*	March 2024

NPA 709

NRUF data, including the most recent results, is summarized in the following chart.

NPA 709 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
709	January 2015 G-NRUF	27 March 2015	August 2024
709	January 2016 G-NRUF	21 March 2016	May 2019
709	April 2016 J-NRUF	15 May 2016	March 2019
709	July 2016 J-NRUF	2 September 2016	March 2019
709	October 2016 J-NRUF	5 December 2016	March 2019
709	January 2017 J-NRUF	29 March 2017	August 2019
709	April 2017 J-NRUF	2 June 2017	August 2019
709	July 2017 J-NRUF	5 September 2017	May 2023
709	January 2018 R-NRUF	20 March 2018	April 2023
709	July 2018 R-NRUF	5 September 2018	March 2023
709	January 2019 R-NRUF	26 March 2019	August 2023
709	July 2019 R-NRUF	20 September 2019	October 2023
709	January 2020 G-NRUF	24 March 2020*	March 2023

NPA 819/873

NRUF data, including the most recent results, is summarized in the following chart.

NPA 819/873 Summary of Projected Exhaust Dates			
NPA	**Type of C-NRUF**	**Date of Publication**	**Projected Exhaust Date**
819/873	January 2019 G-NRUF	26 March 2019	October 2025
819/873	July 2019 R-NRUF	20 September 2019	March 2025
819/873	January 2020 G-NRUF	24 March 2020*	July 2025

5. Schedule of Future NRUF Activities in the Current Year

Due Date	NRUF Type	NRUF Format	NPA(s)
15 July	S–NRUF	Exchange Area level	306/639
31 July	R–NRUF	NPA level	204/431
31 July	R–NRUF	NPA level	249/705
31 July	R–NRUF	NPA level	289/365/905
31 July	R–NRUF	NPA level	343/613
31 July	R–NRUF	NPA level	403/587/780/825
31 July	R–NRUF	NPA level	416/437/647
31 July	R–NRUF	NPA level	438/514
31 July	R–NRUF	NPA level	450/579

31 July	R–NRUF	NPA level	506
31 July	R–NRUF	NPA level	709
31 July	R–NRUF	NPA level	819/873
15 October	J- or S–NRUF	Exchange Area level	306/639

NOTE: During CSCN 115 held on 16 October 2019, the CSCN agreed that the January 2020 R-NRUF should be conducted at the NPA level of detail instead of the Exchange Area level based on changes made to the *Canadian NPA Relief Planning Guideline* in accordance with Telecom Decision CRTC 2019-24.

6. Summary of Challenges Encountered during the G- & R-NRUF Process

a) The majority of problems with NRUF submissions are created by companies not knowing how many CO Codes they held on 1 January 2020.

b) Some TSPs submitted their NRUF after the requested date, even after a reminder email was sent.

c) Some companies sent their NRUFs to the old Leidos Canada email addresses.

d) The CNA continues to monitor and track the accuracy of the NRUF submissions between the forecast and actual assignment rates and continues to report this data to the CSCN. The way the current process works, there are potential consequences for under-forecasting (e.g., constant resubmissions, limited to a previous forecast in the situation of a Jeopardy Condition) and there are no perceived negative consequences for over-forecasting.

7. Potential Solutions Identified by the CNA to Address G-NRUF Process Issues

a) The CNA strives to instill the importance of an accurate forecast to TSPs, highlighting the consequences of inaccurate forecasting to both the industry and the public. Until the industry makes accurate forecasting a priority in the allocation of appropriate resources the CNA believes that the forecasts will remain unpredictable.

b) The CSCN should strive to increase the participation of TSPs in its activities, such that they are more conversant with the significance of various numbering requirements (e.g., the G-NRUF process, relief planning).

c) Given the volatility of the forecast and the extra work required by the RPCs to constantly adjust Relief Implementation Schedules, the CNA suggests that the RPCs consider recommending in their Planning Documents and Relief Implementation Plans that once the initial Relief Implementation Date is established, this date would not be advanced, however could be delayed in extenuating circumstances. This would allow for better forecasting, budgeting plans and allocation of resources within a given time frame as well as providing a consistent message to the public.

8. G-NRUF Assumptions

The assumptions used for the January 2020 G-NRUF are the assumptions that were provided on 16 October 2019 to the CNA by the Canadian Steering Committee on Numbering (CSCN) for conducting the January 2020 NRUF.

Item 4 of the 16 October 2019 letter states, in part:

> Where the CNA believes, based on its analysis of past growth and NRUF forecast data for an NPA, that the six-year forecast average annual growth may not be the best methodology for that NPA for projecting growth beyond the six-year forecast period, the CNA shall seek guidance from CRTC staff and will advise the CSCN of the alternative method used.

In this instance, the CNA compared the average forecast growth for the next five years, the median forecast growth for the next five years and the median and average historical growth for the past five years. The lowest number resulting from these calculations was the one used to identify the PED for each NPA.

9. Conclusion

In accordance with Section 4, Item 6 h) of the *Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline*, the CNA has conducted assessments, sought clarification and/or explanation from various TSPs to reconcile 2020 growth with current and historical forecasts to determine whether the 2020 NRUF results are reasonable and the Projected Exhaust Dates for all NPAs are realistic.

The CNA believes that emerging technology growth has been responsible for a good part of the recent demand. It is assumed that the introduction of the *Canadian Non-Geographic Code Assignment Guideline*, will alleviate some of the issues associated with Machine-to-Machine demand but it is difficult to quantify. Some TSPs are applying for non-geographic codes.

Based on the data and explanations provided by TSPs in response to the CNA's questions, the NRUF results appear reasonable and the Projected Exhaust Dates for Canadian NPAs are generally realistic and appear to be no more volatile than the NANPA is reporting for the United States.

Geographic NPAs																							
As of January 1																							
NPA / Years	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**
204-431	1217	1345	1407	1494	1551	1598	1667	1727	1787	1847	1907	1967	2027	2087	2147	2207	2267	2327	2387	2468	2528	2588	2648
226-519-548	1657	1833	1967	2049	2130	2184	2254	2326	2398	2492	2564	2636	2708	2780	2852	2924	2996	3068	3140	3212	3284	3356	3428
236-250-604-672-778	2980	3194	3344	3507	3657	3802	3916	4048	4152	4256	4360	4464	4568	4672	4776	4909	5013	5117	5221	5325	5429	5533	5667
249-705	1143	1207	1270	1326	1420	1502	1587	1667	1714	1761	1808	1855	1902	1949	1996	2043	2090	2137	2184	2231	2278	2325	2372
289-365-905	1953	2163	2229	2384	2487	2558	2633	2708	2783	2858	2933	3008	3083	3158	3261	3338	3413	3488	3563	3638	3713	3788	3863
306-639	1432	1507	1595	1677	1706	1758	1791	1843	1895	1947	1999	2051	2103	2155	2207	2259	2311	2363	2439	2491	2543	2595	2647
343-613	1231	1334	1383	1435	1516	1580	1657	1715	1773	1831	1889	1947	2005	2063	2121	2179	2237	2295	2353	2442	2500	2558	2616
367-418-581	1549	1662	1750	1834	1892	1947	1996	2053	2110	2167	2224	2281	2338	2395	2480	2537	2594	2651	2708	2765	2822	2879	2936
403-587-780-825	2840	2941	3063	3238	3357	3485	3571	3674	3777	3880	3983	4113	4216	4319	4422	4525	4628	4731	4860	4963	5066	5169	5272
416-437-647	1836	1945	2058	2176	2284	2398	2531	2601	2671	2741	2811	2881	2951	3021	3091	3161	3260	3330	3400	3470	3540	3610	3680
438-514	1243	1320	1375	1432	1487	1536	1593	1652	1685	1718	1751	1784	1817	1850	1883	1916	1949	1982	2015	2048	2081	2114	2147
450-579	1244	1316	1387	1461	1524	1646	1696	1756	1816	1876	1936	1996	2056	2116	2176	2236	2296	2356	2445	2505	2565	2625	2685
506	610	662	710	756	792	842	872	890	908	926	944	962	980	998	1016	1034	1052	1070	1088	1106	1124	1142	1160
709	585	646	723	776	796	843	858	867	876	885	894	903	912	921	930	939	948	957	966	975	984	993	1002
782-902	1040	1101	1136	1186	1228	1264	1293	1332	1371	1410	1449	1488	1527	1566	1626	1665	1704	1743	1782	1821	1860	1899	1938
807	265	287	301	310	320	329	338	346	354	362	370	378	386	394	402	410	418	426	434	442	450	458	466
819-873	1234	1325	1373	1445	1515	1572	1660	1721	1782	1843	1904	1965	2026	2087	2148	2209	2270	2331	2392	2453	2514	2575	2636
867	266	316	334	369	384	401	418	436	454	472	490	508	526	544	562	580	598	616	634	652	670	688	706
NPA / Years	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**

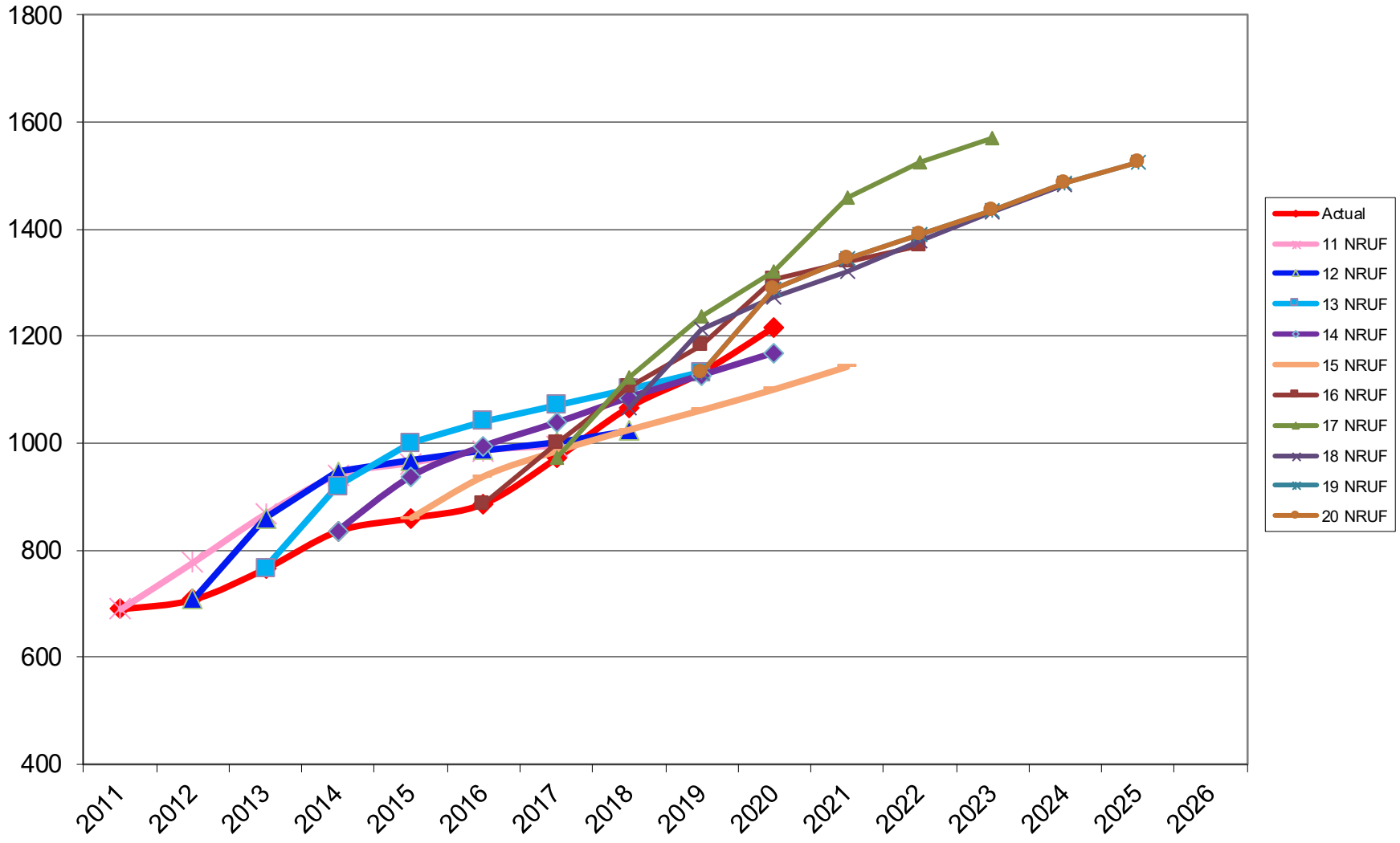
	Non-Geographic NPAs																						
	As of January 1																						
NPA / Years	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**
5YY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6YY	122	274	340	438	606	812	1037	1190	1343	1496	1649	1802	1955	2108	2261	2414	2567	2720	2873	3026	3179	3332	3485
9YY	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
NPA / Years	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**

NPA / Years	2015			2016			2017			2018			2019			5 Year
	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Average
204-431	25	101	24.8%	87	83	104.8%	100	113	88.5%	64	151	42.4%	80	145	55.2%	61.9%
226-519-548	75	155	48.4%	72	181	39.8%	69	216	31.9%	113	177	63.8%	59	224	26.3%	46.5%
236-250-604-778	67	256	26.2%	332	228	145.6%	104	476	21.8%	122	238	51.3%	65	219	29.7%	55.6%
249-705	21	92	22.8%	47	96	49.0%	106	94	112.8%	71	84	84.5%	44	126	34.9%	68.5%
289-365-905	105	147	71.4%	82	182	45.1%	98	195	50.3%	62	183	33.9%	75	112	67.0%	59.3%
306-639	64	58	110.3%	206	83	248.2%	158	181	87.3%	136	127	107.1%	33	219	15.1%	106.8%
343-613	76	59	128.8%	56	79	70.9%	85	107	79.4%	126	74	170.3%	20	201	10.0%	88.3%
403-587-780-825	103	207	49.8%	261	185	141.1%	82	362	22.7%	240	158	151.9%	50	304	16.4%	73.0%
416-437-647	48	85	56.5%	66	76	86.8%	70	104	67.3%	95	95	100.0%	70	106	66.0%	70.5%
418-581	26	90	28.9%	36	77	46.8%	57	139	41.0%	166	141	117.7%	115	240	47.9%	56.3%
438-514	28	80	35.0%	38	70	54.3%	33	68	48.5%	56	86	65.1%	30	81	37.0%	46.5%
450-579	47	82	57.3%	65	81	80.2%	60	106	56.6%	72	88	81.8%	56	162	34.6%	55.6%
506	18	59	30.5%	25	41	61.0%	11	81	13.6%	12	54	22.2%	33	119	27.7%	38.8%
709	17	48	35.4%	14	50	28.0%	3	51	5.9%	2	57	3.5%	9	101	8.9%	23.2%
782-902	45	29	155.2%	87	95	91.6%	16	133	12.0%	90	84	107.1%	41	150	27.3%	78.0%
807	8	9	88.9%	9	14	64.3%	4	21	19.0%	5	14	35.7%	14	19	73.7%	57.2%
819-873	76	71	107.0%	56	75	74.7%	70	129	54.3%	96	82	117.1%	35	163	21.5%	74.9%
867	20	13	153.8%	33	58	56.9%	23	54	42.6%	5	24	20.8%	8	23	34.8%	61.8%
			68.4%			82.7%			47.5%			76.5%			35.2%	

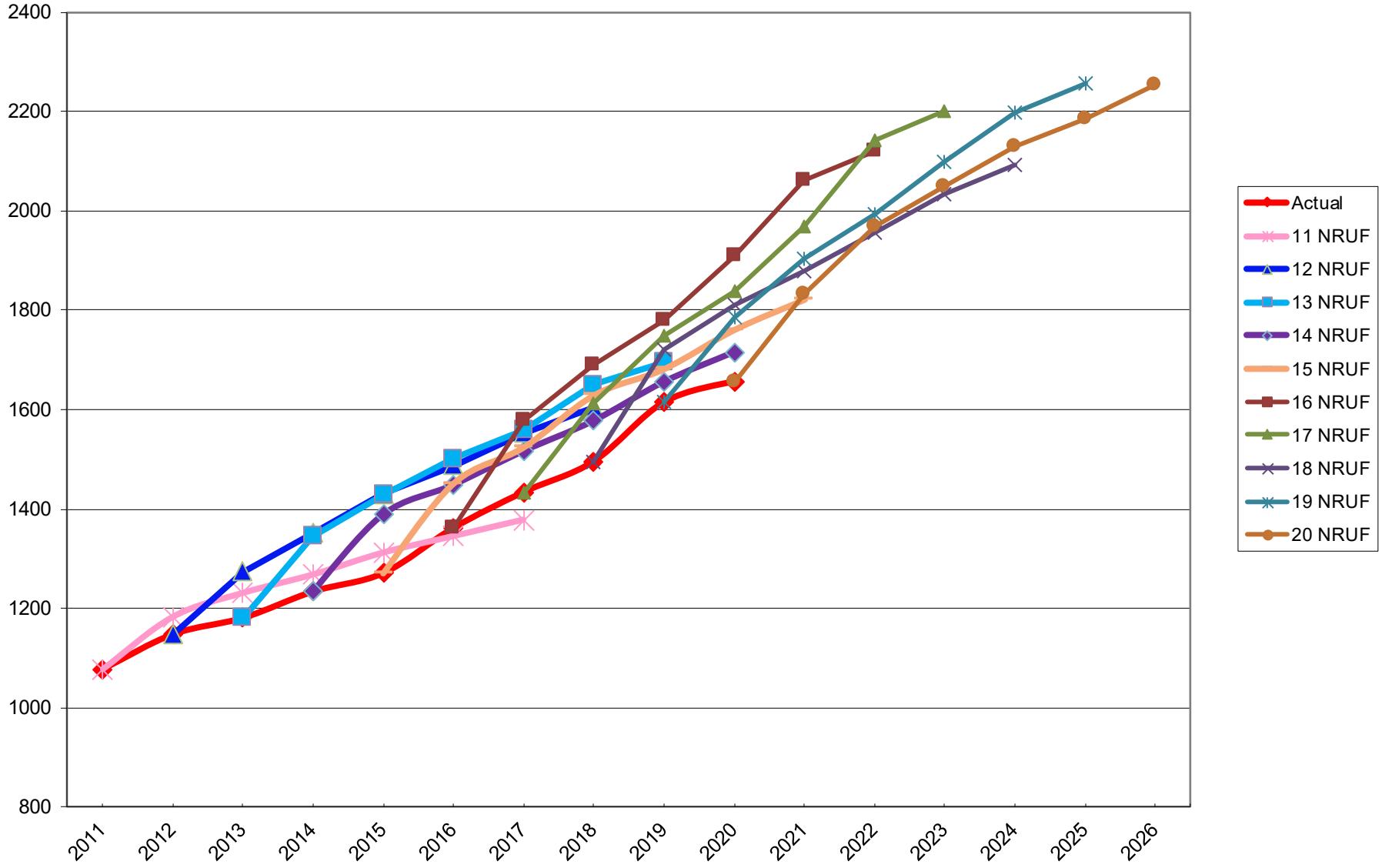
Notes:
Actual is based on Part 3 assignment date.
Forecast is from G-NRUF submissions, ignoring CNA codes.
Delta is Actual/Forecast.

January 1, 2020																		
NPAs	**204-431**	**226-519-548**	**236-250-604-672-778**	**249-705**	**289-365-905**	**306-639**	**343-613**	**450-579**	**367-418-581**	**403-587-780-825**	**416-437-647**	**506**	**438-514**	**709**	**782-902**	**807**	**819-873**	**867**
New Entrants iaw PNs/NOCs/ Decisions	0	0	0	0	0	0	0	0	10	0	0	3	0	2	0	0	0	0
Initial Code iaw PNs/NOCs/ Decisions	0	0	0	0	0	0	0	0	3	0	0	4	0	0	0	0	0	0
Protected	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
N11 Service Codes	16	24	40	16	24	16	16	16	24	32	24	8	16	8	16	8	16	8
Special Use Codes (555, 950 & 976)	6	8	15	5	9	6	5	6	8	12	8	3	5	3	6	2	5	3
Industry Plant Test Codes	3	6	10	4	6	4	4	4	6	8	6	2	4	2	4	2	4	2
Home NPAs NXX Codes	4	9	23	4	9	4	4	4	9	16	9	1	4	2	4	1	4	1
Neighbour NPAs NXX Codes	0	0	0	16	21	4	14	8	0	1	0	2	4	3	0	4	12	8
Future NPAs NXX Codes	6	9	0	16	6	8	12	16	18	0	15	7	14	7	6	12	16	15
Limited Availability (USA 7D Problem)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4	0
911 Misdial Codes (912, 914 & 915)	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	3
Special 7 Digit Dialing Codes (310, 610 & 810)	5	8	11	5	8	5	5	5	5	10	8	5	5	2	5	2	5	3
Relief NPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unforecasted Demand	3	5	7	5	7	3	7	5	0	7	6	0	6	0	3	2	2	2
Total	**43**	**69**	**106**	**71**	**90**	**50**	**67**	**58**	**83**	**86**	**76**	**40**	**58**	**32**	**44**	**37**	**68**	**45**

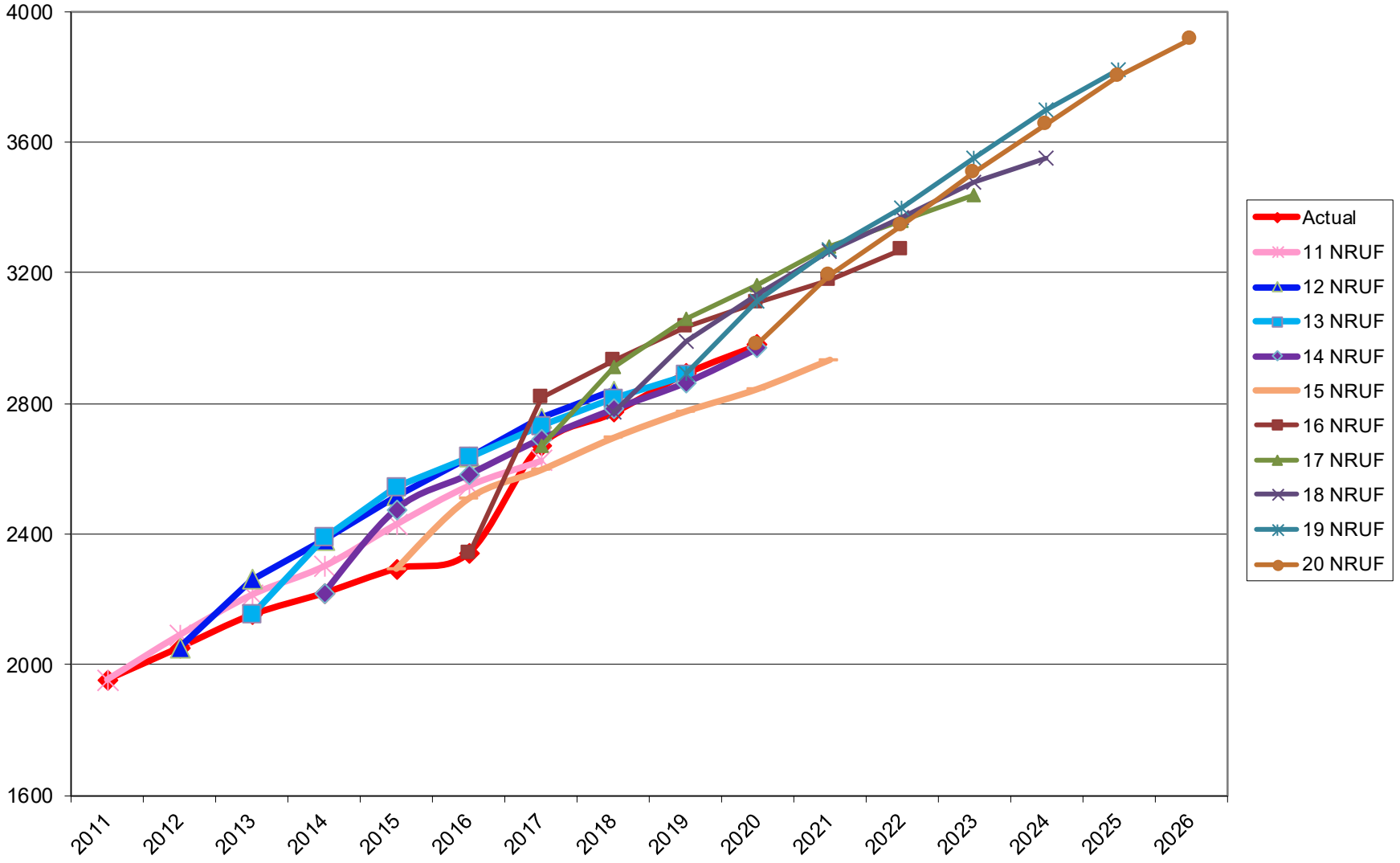
NPA 204/431 Manitoba



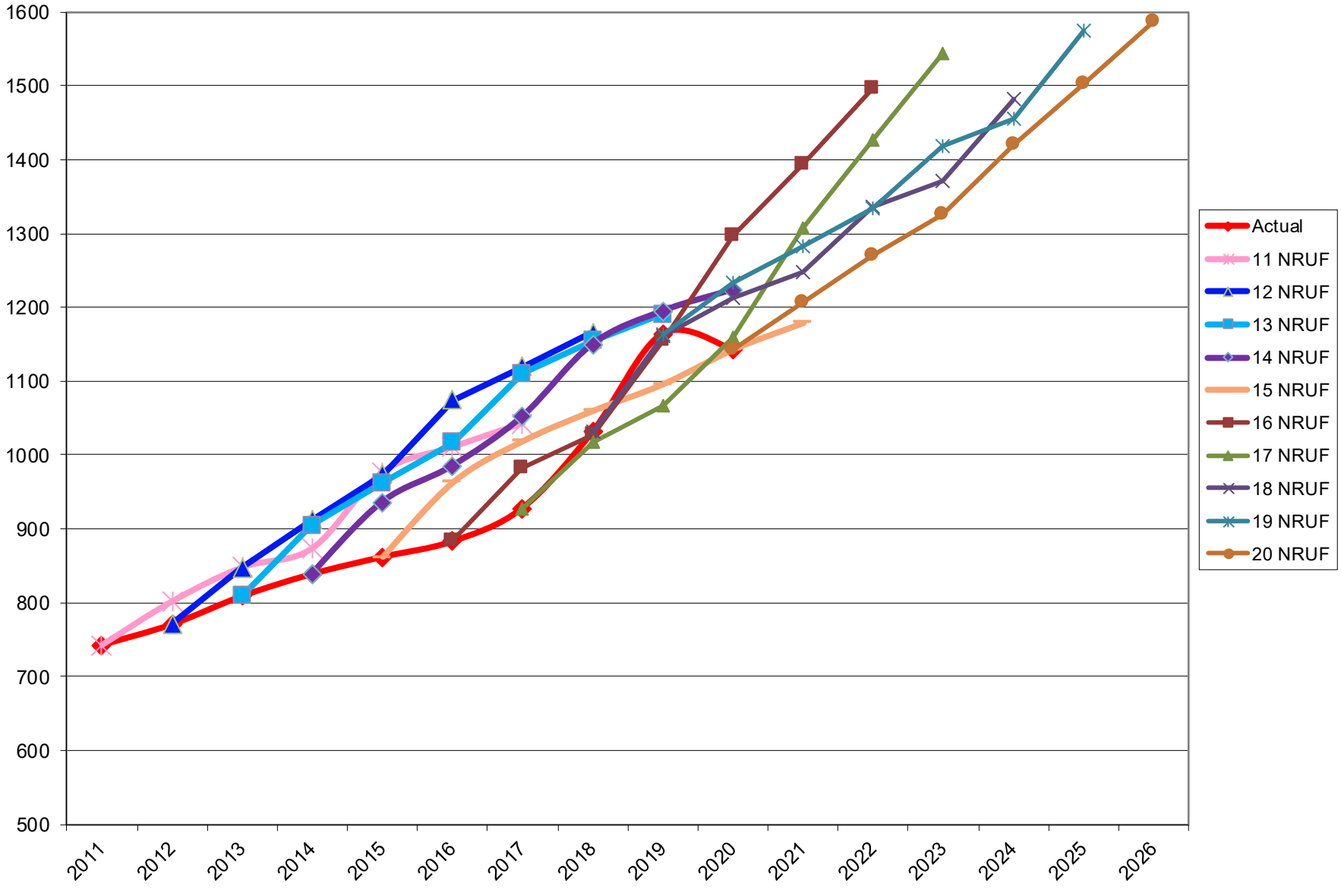
NPA 226/519/548 Ontario



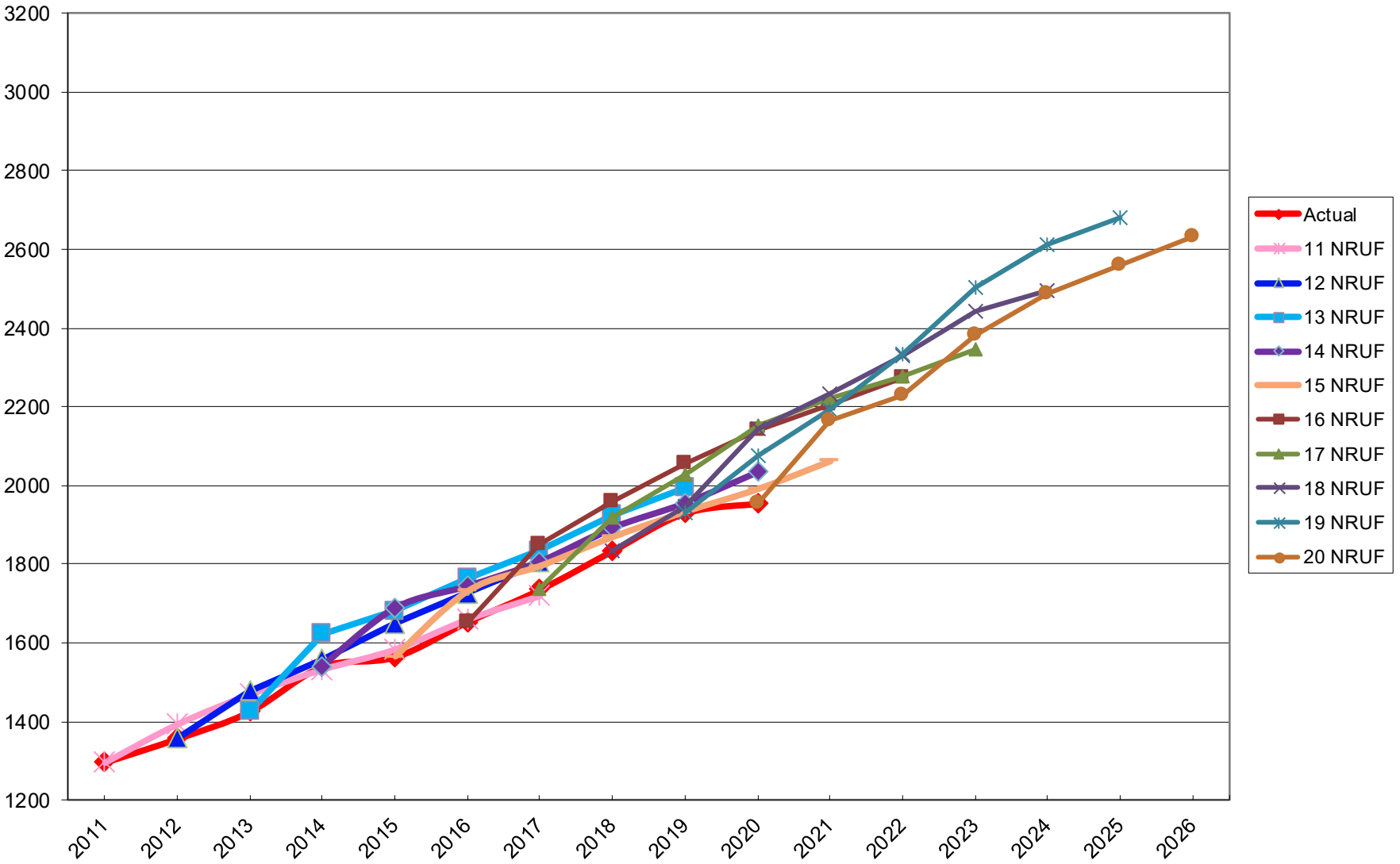
NPA 236/250/604/672/778 British Columbia

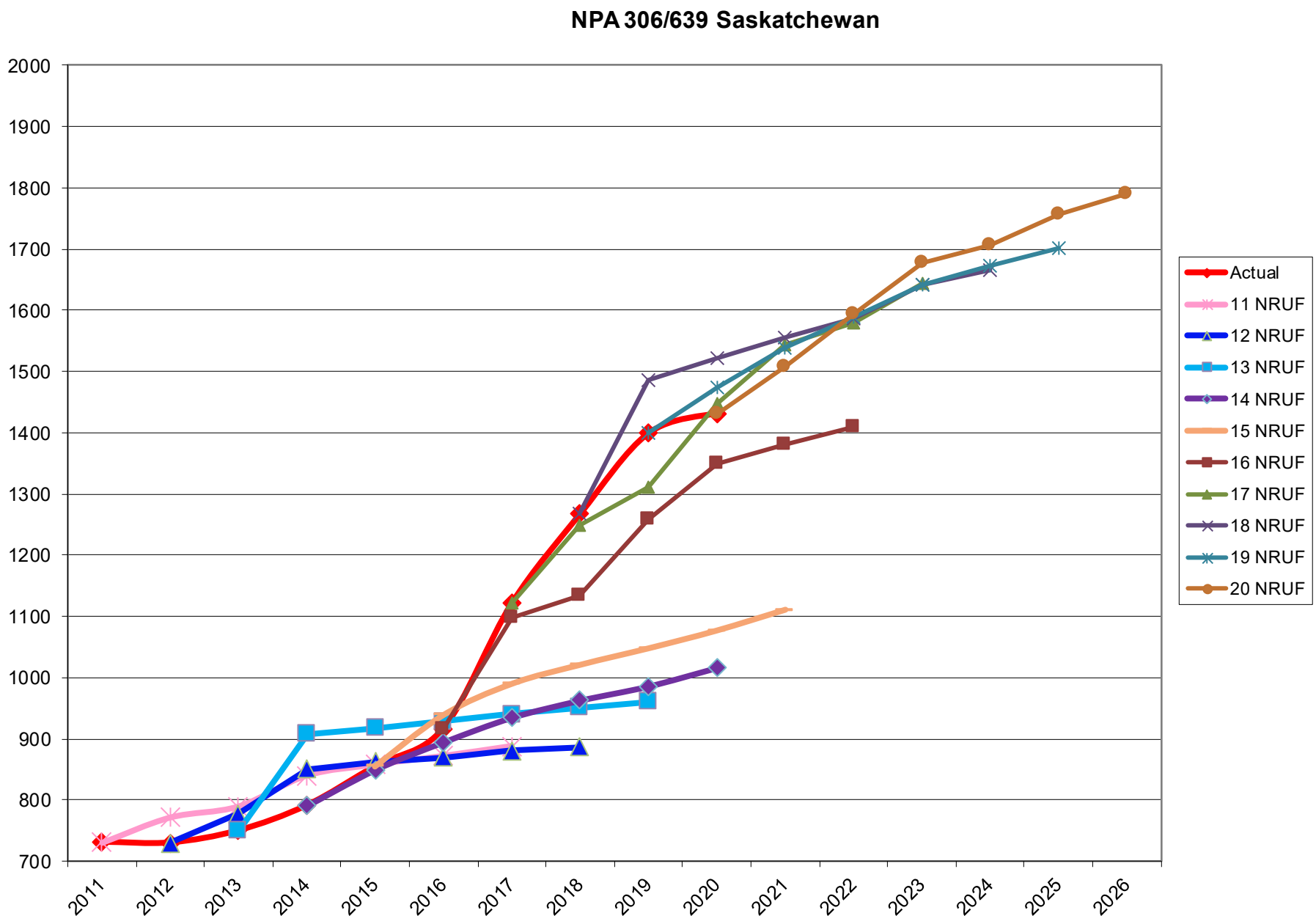


NPA 249/705 Ontario



NPA 289/365/905 Ontario

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14 NRUF
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17 NRUF
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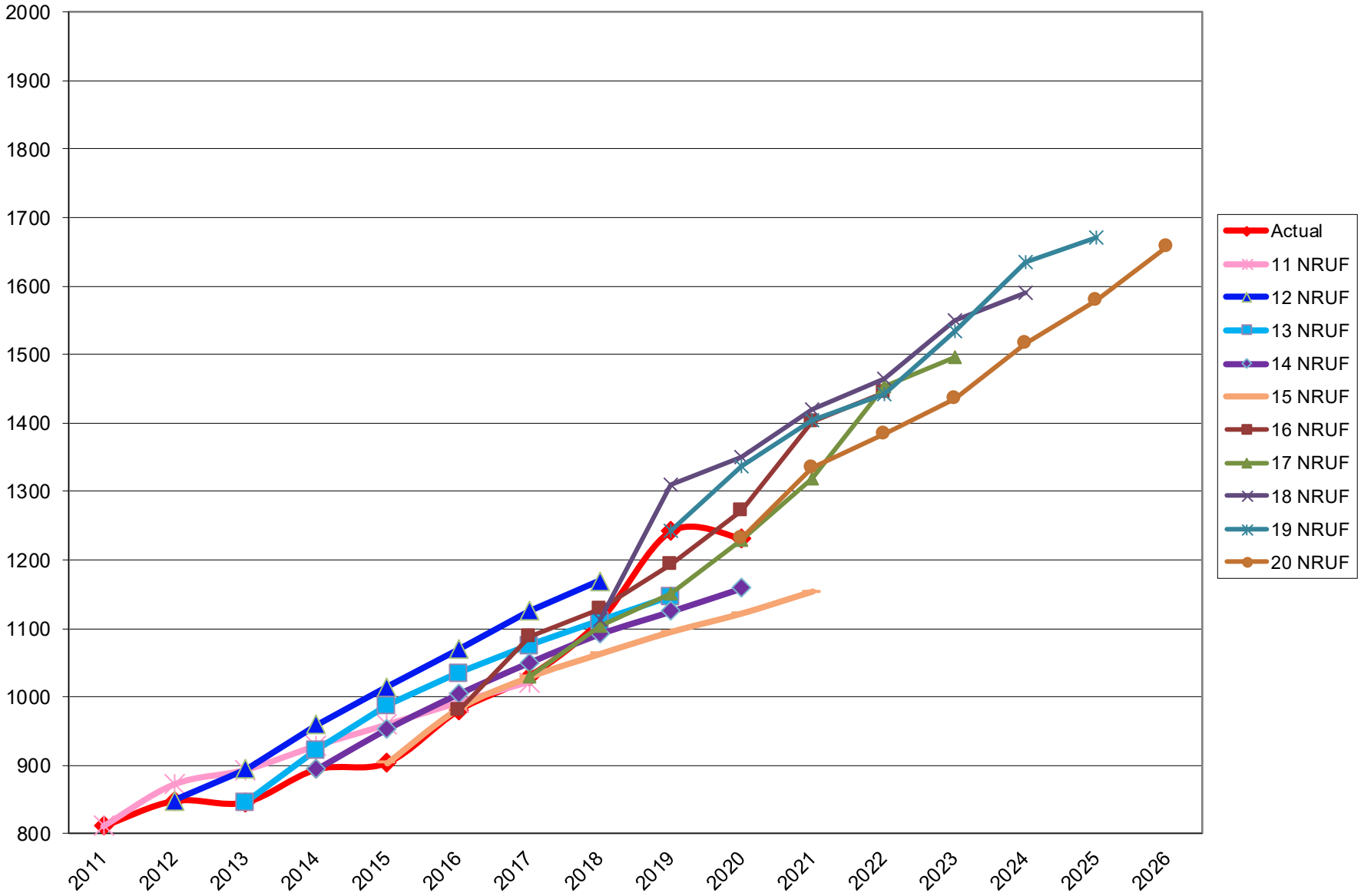
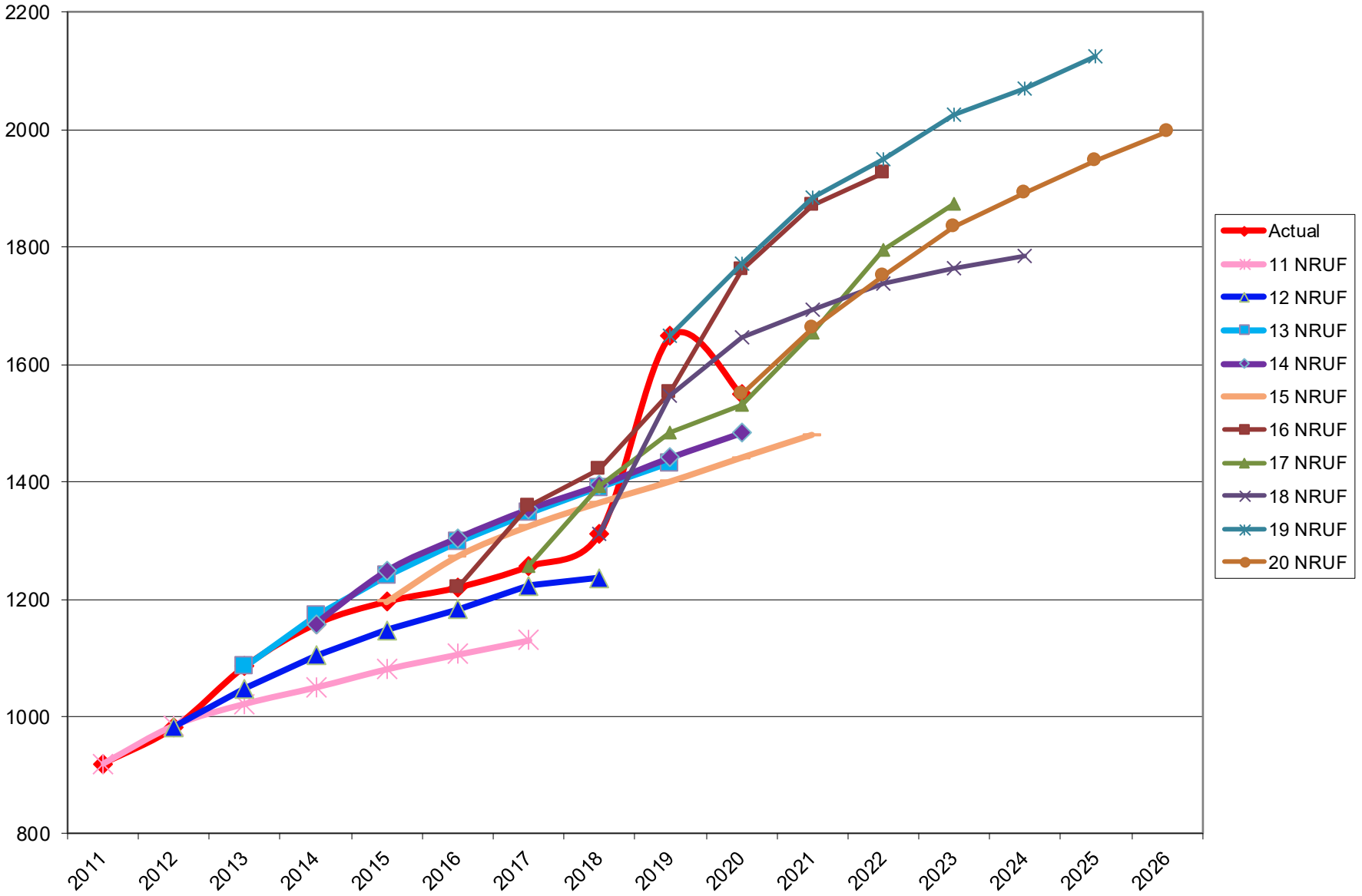
19 NRUF
20 NRUF

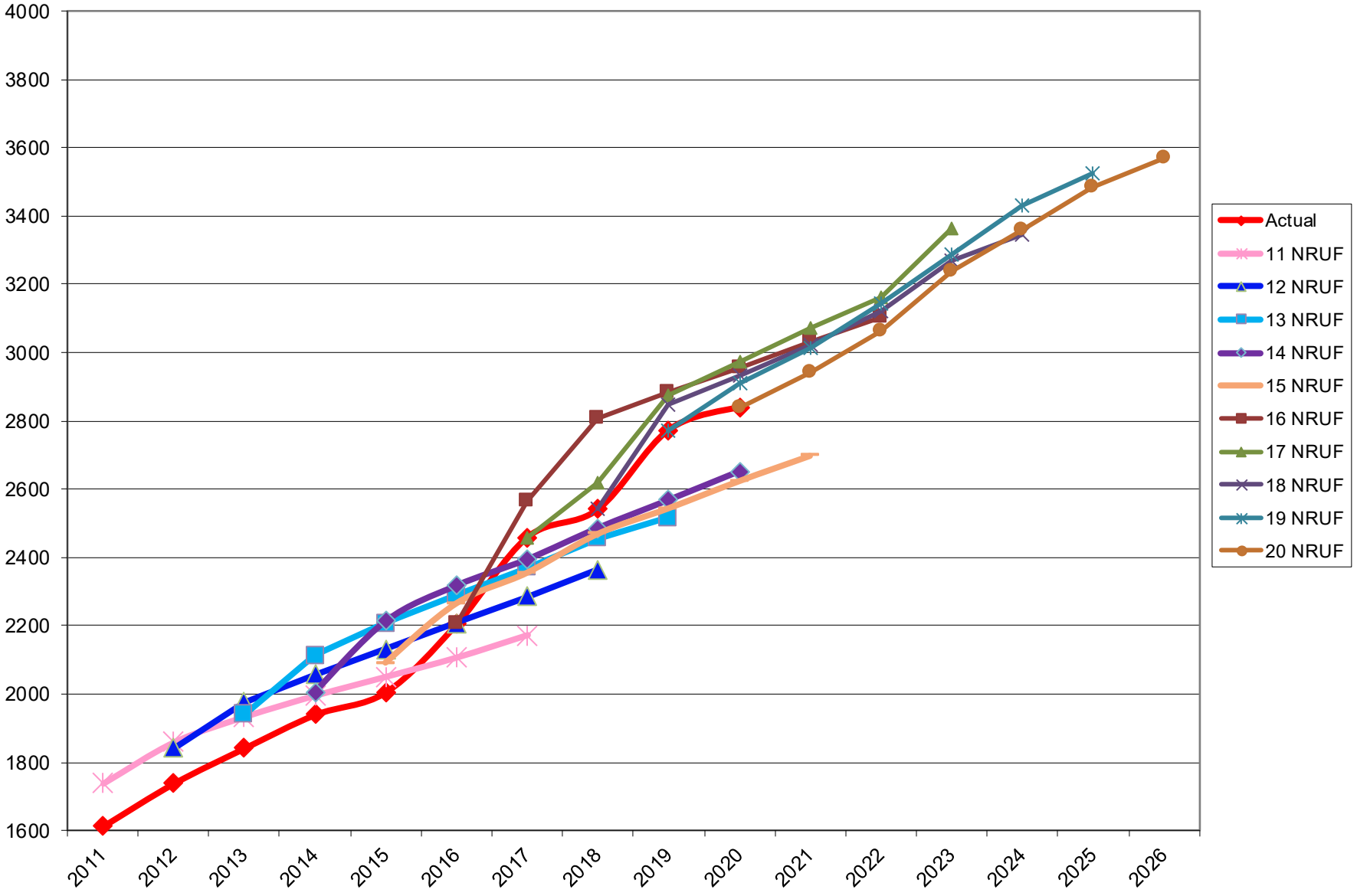
NPA 343/613 Ontario



NPA 367/418/581 Quebec



NPA 403/587/780/825 Alberta



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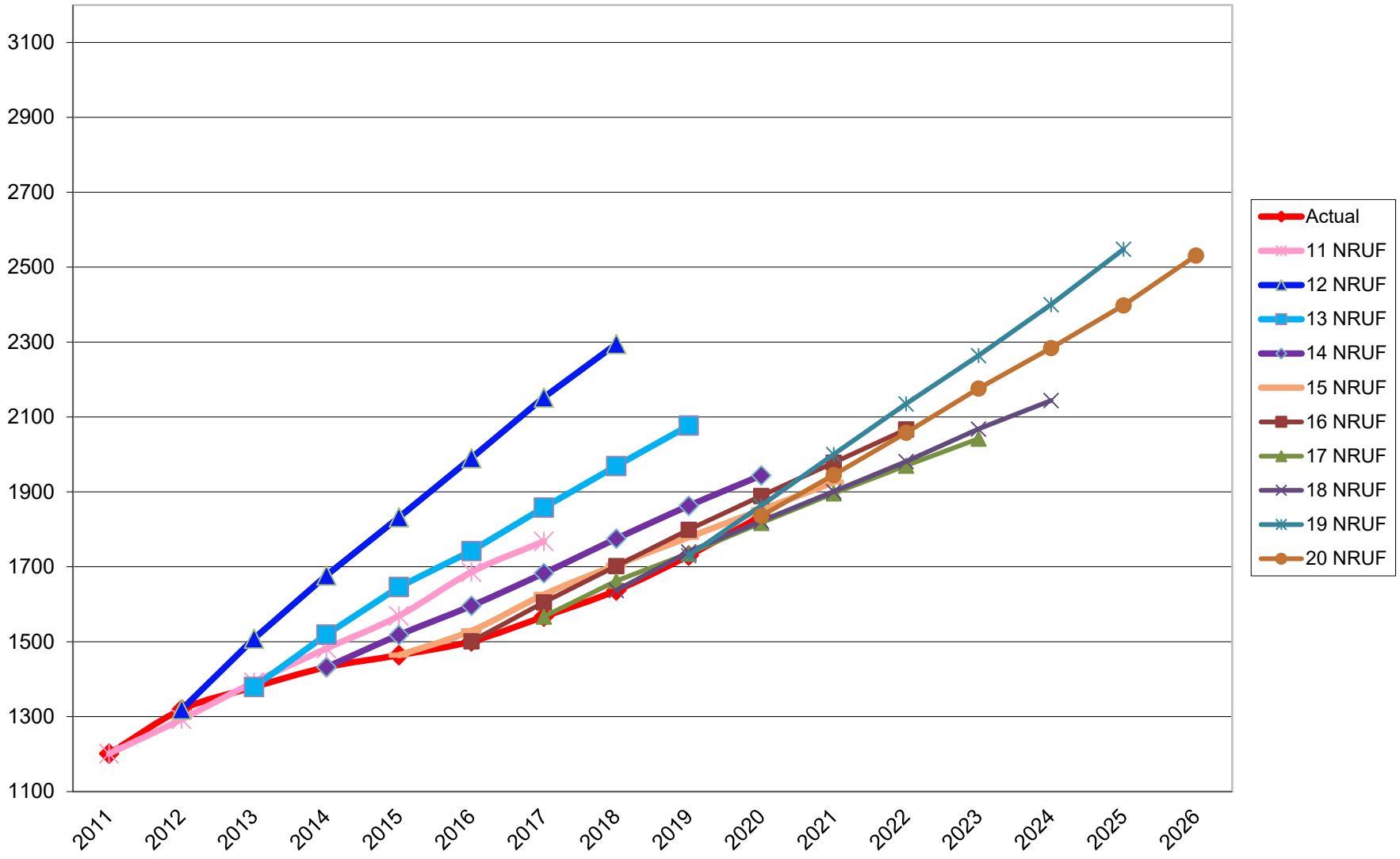

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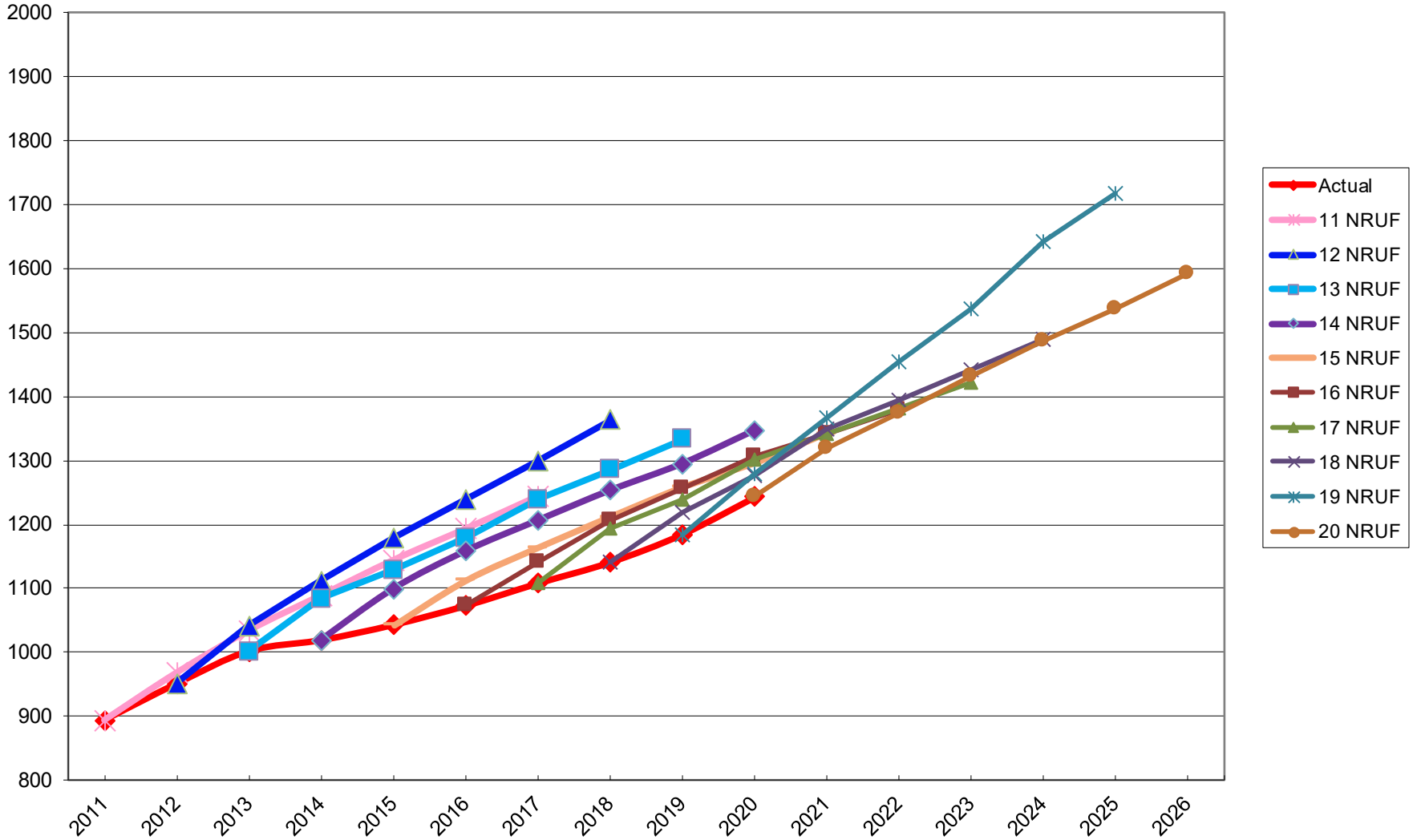

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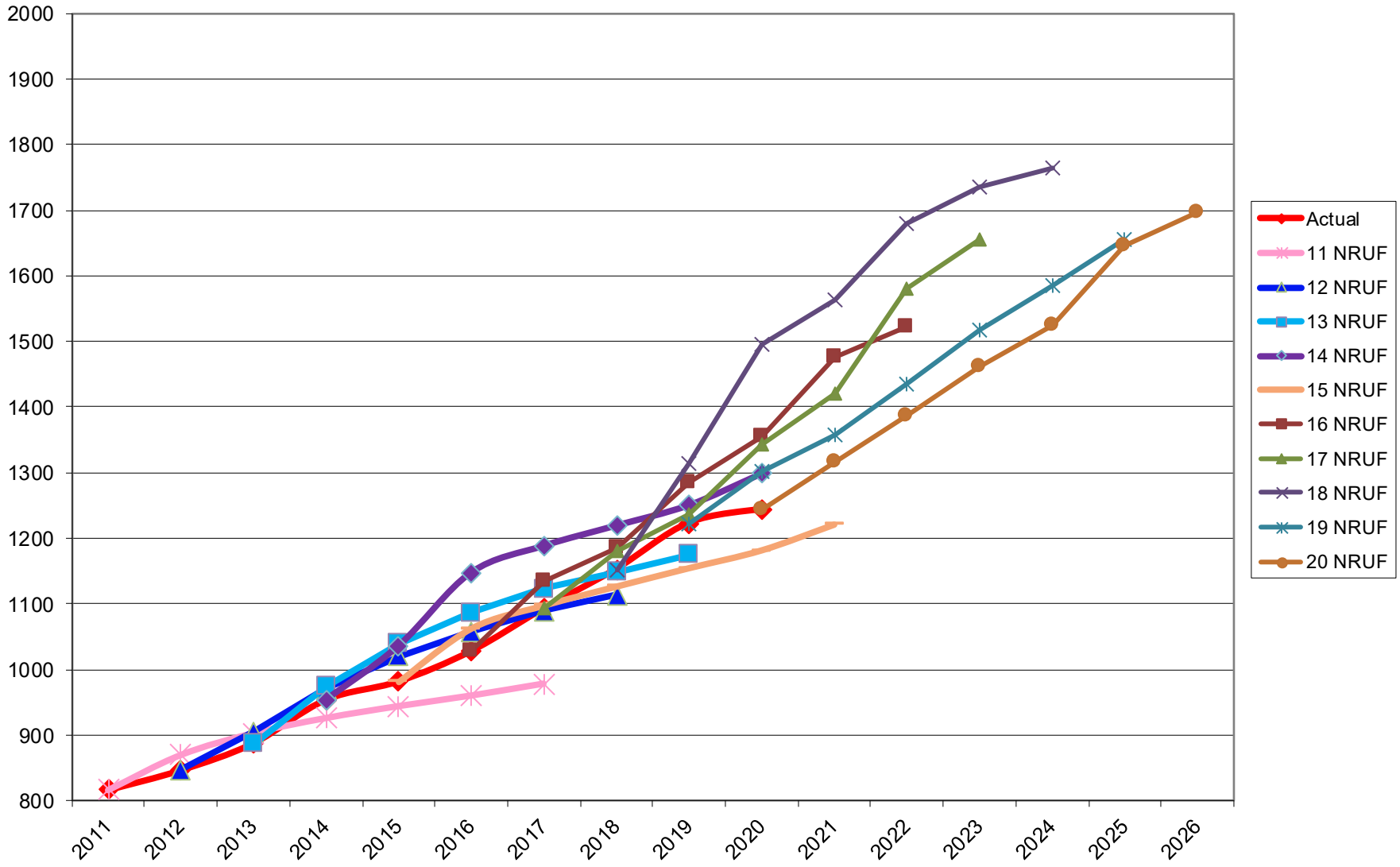
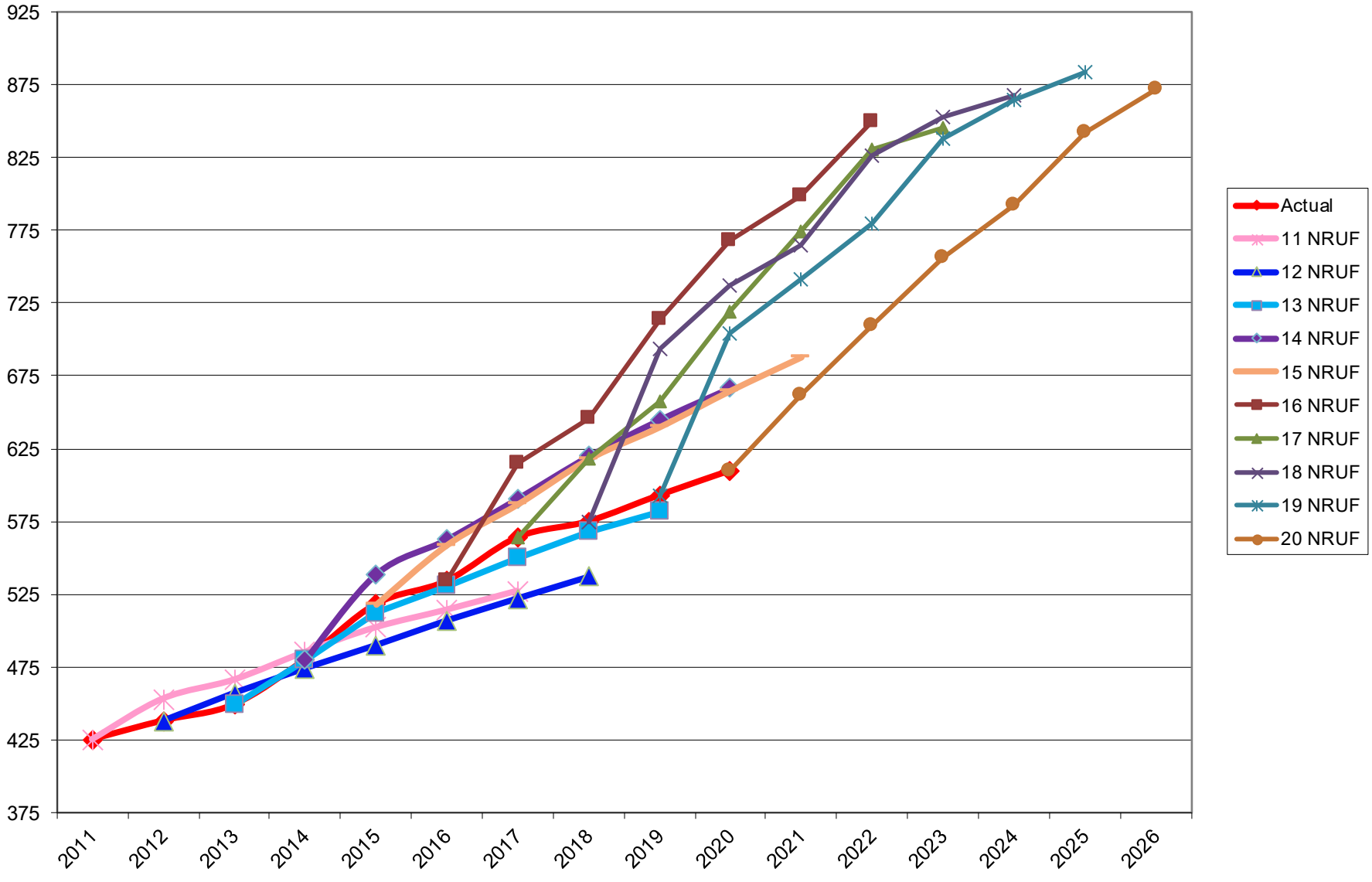
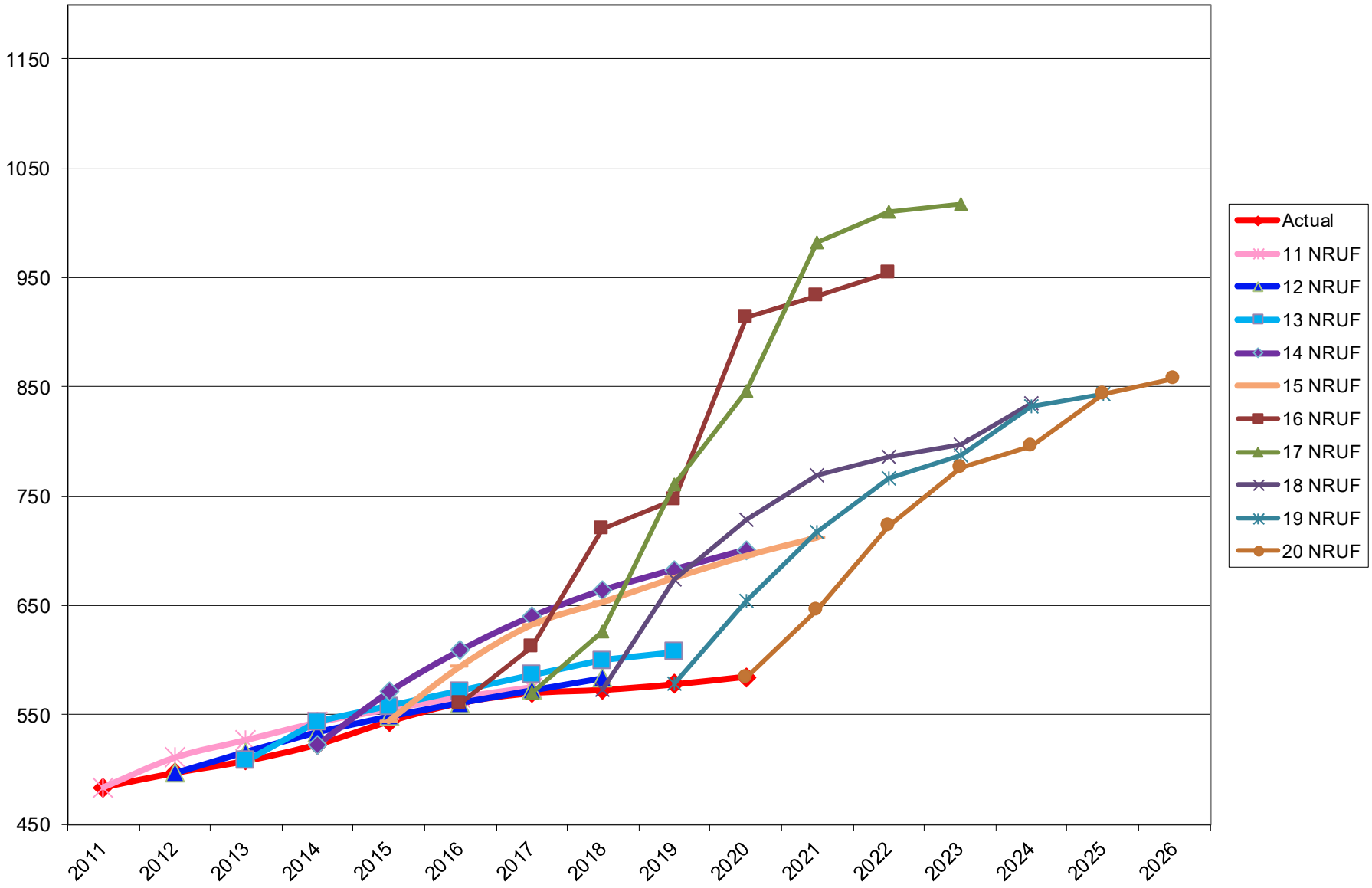


NPA 506 New Brunswick



NPA 709 Newfoundland and Labrador



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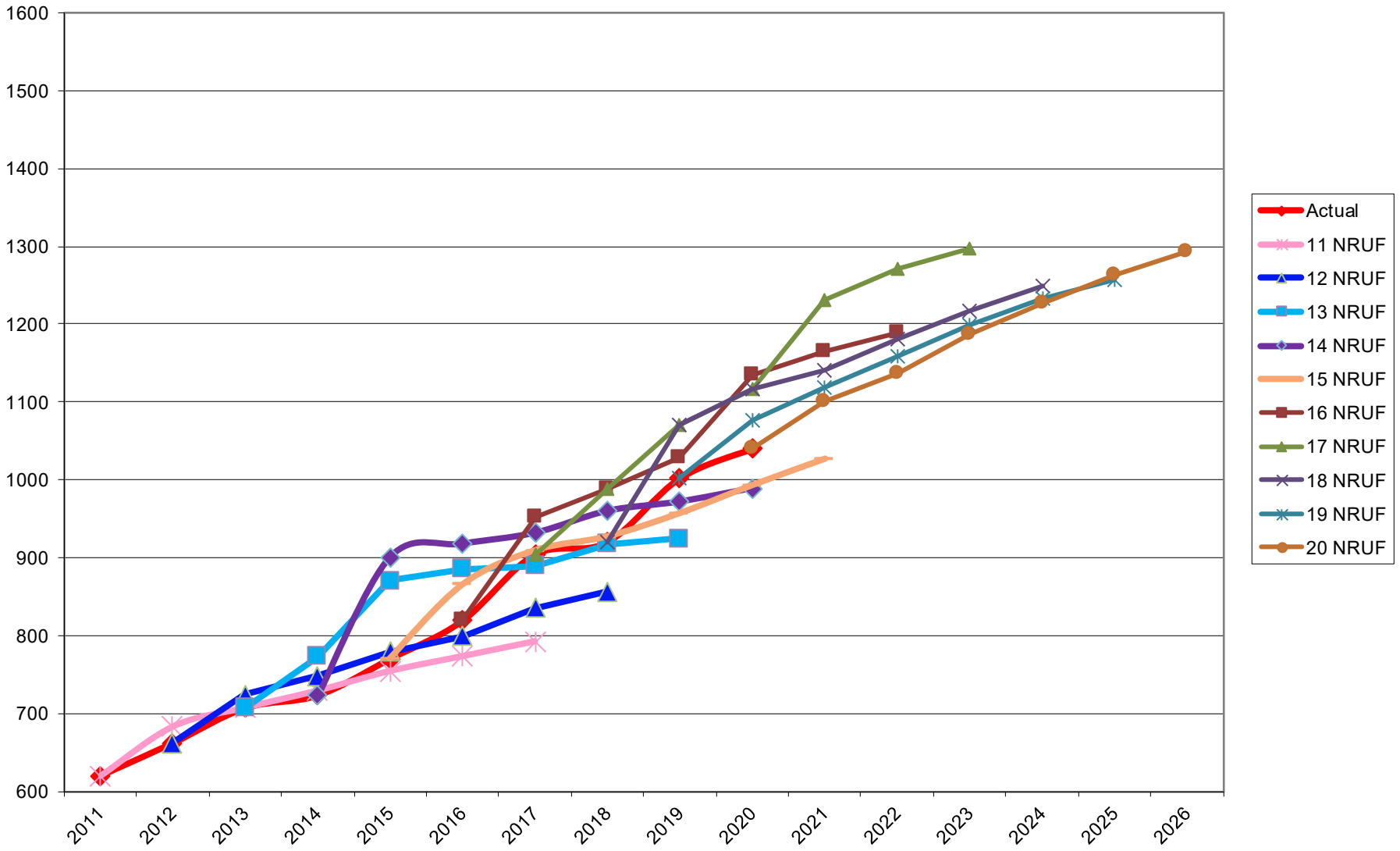
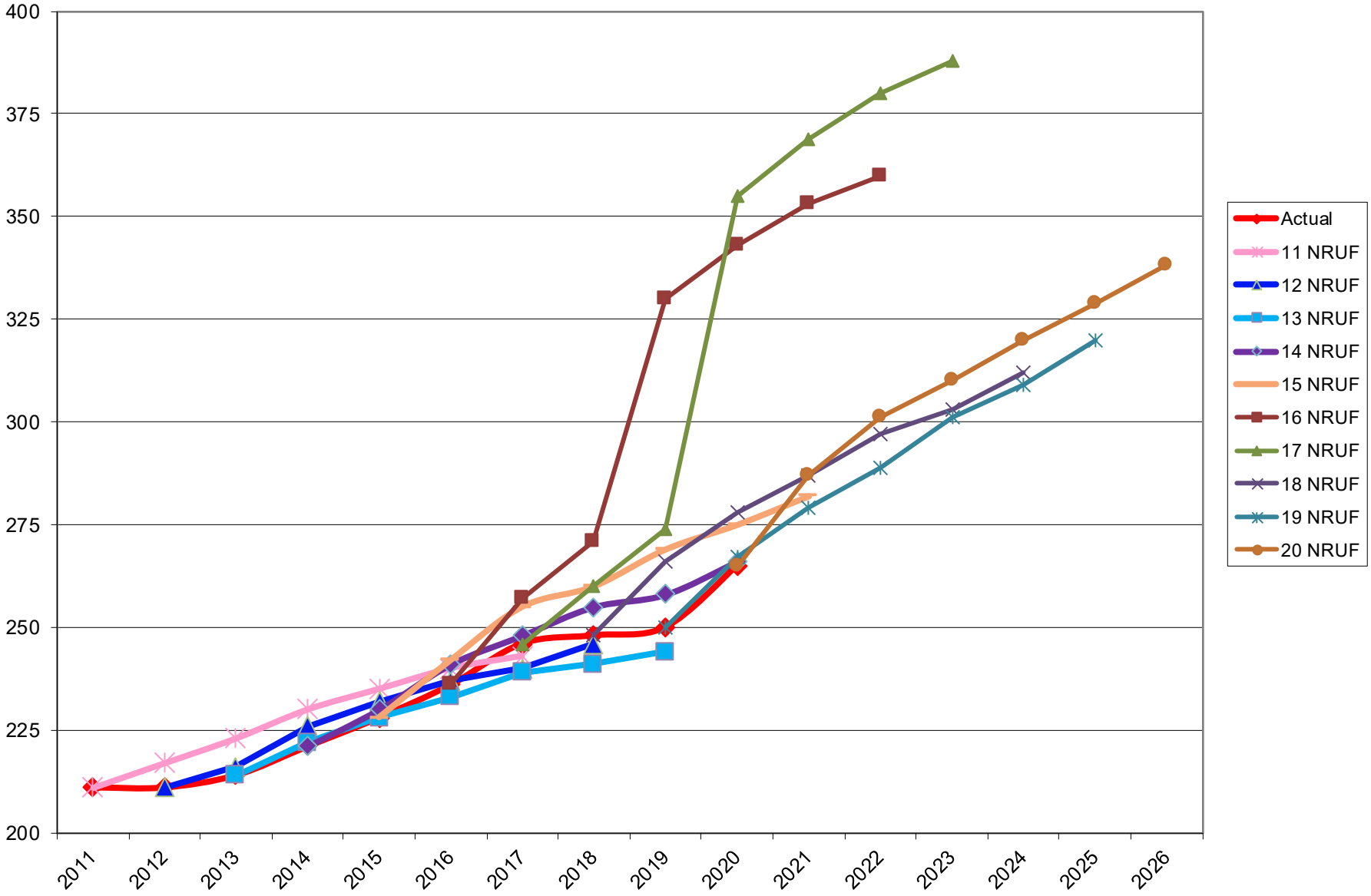
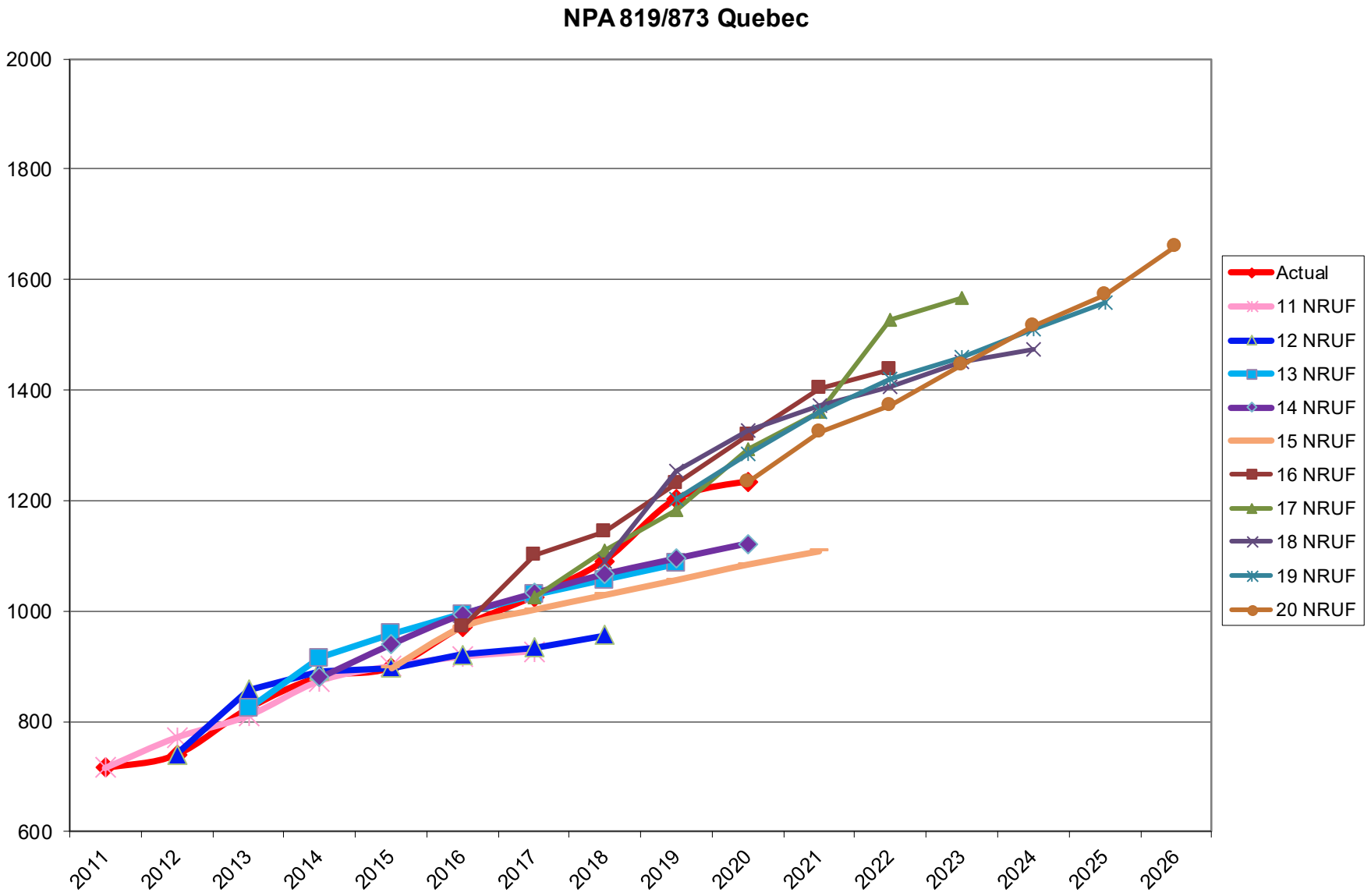


NPA 807 Ontario

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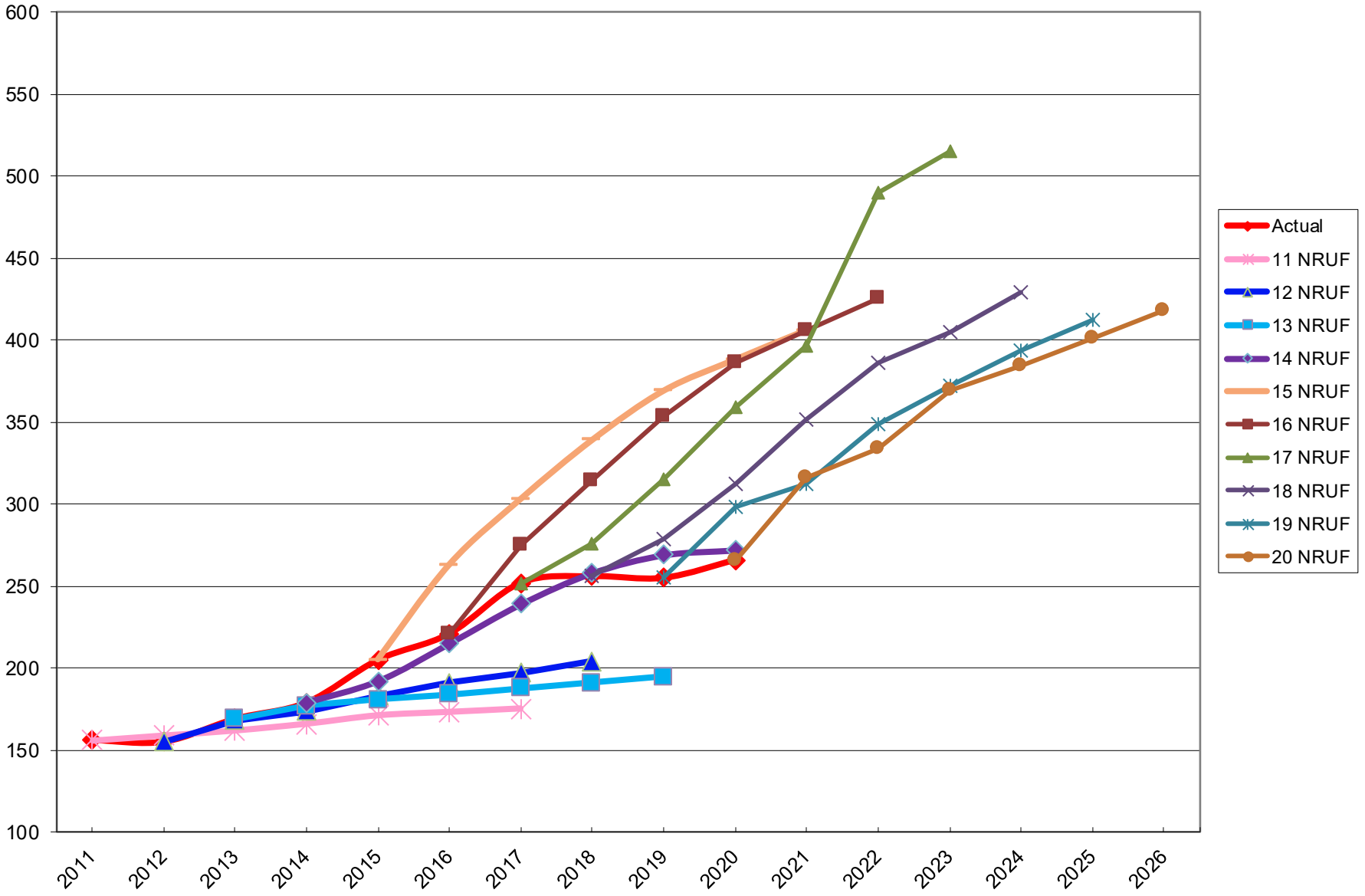
NPA 867 Northwest Territories-Nunavut-Yukon



CSCN

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Tel: 613-702-0016
Fax: 613-702-0017

Canadian Steering Committee on Numbering

16 October 2019

TRANSMITTED ELECTRONICALLY

Edward Antecol
General Manager
Canadian Numbering Administrator (CNA)
COMsolve Inc.
150 Isabella St., Suite 605
Ottawa, Ontario K1S 1V7

Subject: CSCN Direction to Canadian Numbering Administrator (CNA) re: the 2020 Numbering Resource Utilization Forecast (2020 NRUF) Methodology and Assumptions

On 16 October 2019, the Canadian Steering Committee on Numbering (CSCN) discussed and agreed to the direction for the CNA with respect to the 2020 NRUF Methodology and Assumptions.

The attached document contains the direction titled "CSCN Direction to CNA re: the 2020 NRUF Methodology and Assumptions, 16 October 2019".

Sincerely,

Original signed by

Edward Antecol
CSCN Chair

c.c.: Bill Mason – CRTC
Valerie Plaskacz – CRTC

Attachment

CSCN Direction to CNA re: the 2020 NRUF Methodology and Assumptions
16 October 2019

The CSCN submits the following methodology and assumptions to the CNA for the 2020 Numbering Resource Utilization Forecast (NRUF).

1. If there is a discrepancy between the CNA records and those submitted by the CO Code Holder with respect to the quantities of actual CO Codes assigned and reserved as of 1 January 2020, the CNA will attempt to rectify the discrepancy. However, if the discrepancy cannot be resolved, the quantity of CO Codes appearing in the CNA's records will be used. The CO Code Holder and the CNA should attempt to resolve the discrepancy before the next NRUF is conducted.

   This problem has generally occurred when a CO Code:

   - is still "being recovered" (i.e., a Part 3 Form has not been issued but the CO Code Holder believes the CNA has recovered the CO Code);
   - is a Plant Test Code (i.e., legacy, NPA Relief, industry plant test codes and Appendix D temporary plant test codes); or
   - has been assigned and a Part 4 Form has not been received. In the past some CO Code Holders have not counted assigned codes.

2. CRTC staff instructed the CNA to reserve a number of CO Codes to be used for new unknown entrants, new technologies and other unforecast demand. The CSCN recommends that the quantities identified by CRTC staff should be carried forward to the 2020 NRUF, except in NPAs where pools of CO Codes have been established for initial CO Code assignments, in which case the allowance for unforecast demand should only be included for forecast years following the dissolution of the pool for initial CO Code assignments as noted in the table below.

CRTC Staff Allowance for Unforecast Demand based on CRTC staff letter, dated 16 Oct 2007 (http://cnac.ca/NRUF/NRUF.htm)	
NPA	**Quantity of CO Codes**
204/431	3
226/519/548	5
236/250/604/672/778	7
249/705	5
289/365/905	7
306/639	3
343/613	7
367/418/581	3
403/587/780/825	7
416/437/647	6
438/514	6
450/579	5
506	3
709	2
782/902	3
807	2
819/873	2

CRTC Staff Allowance for Unforecast Demand based on CRTC staff letter, dated 16 Oct 2007 (http://cnac.ca/NRUF/NRUF.htm)	
NPA	**Quantity of CO Codes**
867	2

Where a Notice of Consultation (NoC) is currently in effect in an NPA complex, the number of CO Codes listed under "Quantity of CO Codes" in the table above is superceded by any quantities specified in the related NoC. That number may be further impacted by recent CO Code assignments from the new entrant pools.

CRTC Staff Allowance for Unforecast Demand based on NoC				
NPA	**Quantity of CO Codes**	**Relief year (est. = estimated)**	**Allowance to be excluded from forecast total quantities prior to the year below (= year after the dissolution of the pool, which is 2 years after relief)**	**CRTC Telecom Decision or Notice establishing pool of CO Codes for initial CO Code assignments**
506	7	est. 2020	est. 2023	Notice 2016-206
709	2	est. 2022	est. 2025	Notice 2016-205

The quantities of CO Codes in the above tables should be carried forward for the 20-year study period with no growth.

3. Where the CRTC has ordered or an RPC has recommended that quantities of CO Codes be set aside for a specified period of time for assignment to initial CO Code Applicants for a 2-year period after implementation of an Overlay, the CNA shall add such quantities to the actual quantity of CO Codes for 1 January of the current year and carry them forward in the forecasts until the Relief Date, since these set-aside CO Codes are unassignable from the date of the Decision until immediately prior to the Relief Date, after which they become assignable (with limitations). The CNA should exclude such set-aside CO Codes from the calculation of annual growth rates.

4. Future projections beyond the six year forecast period will be calculated using linear extrapolation and the average annual growth in quantity of CO Codes for the six year forecast period, excluding any extraordinary factors such as returns or reclamations of large quantities of CO Codes and Codes identified in item 3 above that would create an unreasonable projected future growth rate. Where the CNA believes, based on its analysis of past growth and NRUF forecast data for an NPA, that the six-year forecast average annual growth may not be the best methodology for that NPA for projecting growth beyond the six-year forecast period, the CNA shall seek guidance from CRTC staff and will advise the CSCN of the alternative method used. The six-year average growth of CO Codes per year shall be calculated as follows and rounded to one decimal point at a maximum (e.g., 5.14 rounds down to 5.1; 5.15 rounds up to 5.2):

6 Year Average Growth of CO Codes per Year =
[(Forecast Quantity of CO Codes in year six) – (Actual Quantity in 1 January of Current Year)]/6

When extending the forecast from 7 to 20 years, the CNA should use the six year forecast average annual growth, calculated to one decimal point, to develop the 1 January quantity of CO Codes for each year (e.g., in year seven 100+5.4=105.4 rounds up to 106; in year eight 105.4+5.4=110.8 rounds up to 111).

5. The CNA shall provide for each NPA the total quantity of actual and forecast CO Codes and a breakdown of the quantity of "Unassignable CO Codes" as per section 3.7 of the Commission-approved Canadian Central Office Code (NXX) Assignment Guideline, or as otherwise directed in writing by CRTC staff when the draft aggregate results are released, and in the subsequent 2020 NRUF Report to the CSCN after the aggregate results are finalized.

6. The "Administrative Codes" and "Stranded Codes" shall not be used in the calculation of the average annual future growth used for the 7 to 20 year projection. At this time, there are no "Stranded Codes".

7. The CNA shall not add or include any demand for CO Codes for proposed CLECs that did not submit NRUF forecasts, other than the demand that is already allowed for in the quantity of CO Codes for unforecast demand specified by CRTC staff.

8. For the purpose of the NRUF the CNA should assume that the Overlay Method will be used for future NPA Reliefs unless CRTC staff advises otherwise.

9. With respect to NPAs that are due to exhaust approximately in the 2040 timeframe, the CNA should exercise its best judgment in finalizing the forecast for those NPAs.