Report for January 2019 G-NRUF – Canadian NPAs
to the
Canadian Steering Committee on Numbering (CSCN)

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Issued by:
Canadian Numbering Administrator
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1. Purpose of G-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.

The CNA has prepared this report in accordance with the *Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline* (the Guideline), Version 5.1 approved by the Canadian Radio-television and Telecommunications Commission (CRTC) on 29 April 2015 in Telecom Decision CRTC 2015-166.

Included as attachments to this report are:

- 2019 G-NRUF Aggregate Results and Quantity of CNA CO Codes as of 1 January 2019;
- Historical January NRUF Graphs for Canadian NPAs; and,
- CSCN Letter dated 16 October 2018 including Methodology and Assumptions.

2. High Level Summary

The results from the January 2019 G-NRUF show significant changes in several NPAs compared to the January 2018 G-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 where as 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 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 2018 NRUF	**2019 NRUF**	
NPA	**PED**	**PED**	**Remarks**
249/705	Jun-2026	Jul-2025	Entering relief planning window
289/365/905	Nov-2021	Jun-2022	
	Aug-2031	Oct-2031	
306/639	Sep-2022	May-2022	
343/613	Aug-2022	Dec-2023	
	Feb-2036	Dec-2036	

	Most Recent 2018 NRUF	2019 NRUF	
NPA	**PED**	**PED**	**Remarks**
403/587/780/825	Mar-2022	Jun-2022	
	May-2030	Jul-2029	
		Feb-2037	
416/437/647	Feb-2027	Jan-2024	Entering relief planning window
		Jan-2033	
438/514	Jan-2026	Oct-2023	Entering relief planning window
450/579	Mar-2021	Jun-2024	Relief Date October 24, 2020 iaw Telecom Decision CRTC 2019-13.
	Jun-2035	Jul-2038	
506	Sep-2022	Aug-2022	Relief Date November 21, 2020 iaw Telecom Decision CRTC 2018-332.
709	May-2023	Aug-2023	Relief Date May 20, 2022 iaw Telecom Decision CRTC 2018-333.
819/873	Dec-2026	Oct-2025	Entering relief planning window

3. Current and Past G-NRUF Projected Exhaust Dates

NPA	*LOCATION*	*2015*	*2016*	*2017*	*2018*	*2019*
204/431	Manitoba	Jan. 2032	Aug. 2027	Aug. 2023	Mar. 2026	Jul. 2026
226/519	S. Ontario	Dec. 2017 Mar. 2029	Feb. 2017 Feb. 2027	Oct. 2026	Jan. 2029	Nov. 2026
236/250/604/778	BC	Jan. 2024 Apr. 2033	Apr. 2021 Nov. 2030	May 2020 Jun. 2029 May 2038	Jul. 2020 Dec. 2028 Aug. 2037	Sep. 2020 Sep. 2026 Feb. 2034 Jul. 2041
249/705	N. E. Ontario	Jul. 2030	Feb. 2025	Jul. 2024	Jun. 2026	Jul. 2025
289/365/905	Toronto Fringe	Jan. 2026 Beyond 2037	Jul. 2023. Jul. 2032	Sep. 2023 Sep. 2033	Nov. 2022 Sep. 2032	Jun. 2022 Oct. 2031
306/639	Saskatchewan	Beyond 2037	Jan. 2025 Apr. 2037	Jul. 2022 Oct. 2034	Jun. 2022	May 2022
343/613	Ottawa area	Sep. 2033	Mar. 2024 Dec. 2034	Apr. 2025	Feb. 2024	Dec. 2023 Dec. 2036
367/418/581	N. E. Quebec	Nov. 2023	Apr. 2019 May 2026 Jul. 2033	Sep. 2020 Nov. 2031	Oct. 2019 Aug. 2038	Nov. 2029
403/587/780	Alberta	May 2017 Nov. 2026	Nov. 2022 Dec. 2029	Mar. 2022 Jul. 2029 Jul. 2037	Sep. 2022 Nov.2030	Jun. 2022 Jul. 2029 Feb. 2037
416/437/647	Toronto	Jan. 2027 Beyond 2037	Aug. 2025 Feb 2034	Apr. 2030 Beyond 2039	Feb. 2027	Jan. 2024 Jan. 2033
438/514	Montreal	Aug. 2026	Aug. 2026	Sep. 2028	Jan. 2026	Oct. 2023 Aug. 2037
450/579	Montreal Fringe	Nov. 2032	Jan. 2023 Oct. 2032	Jun. 2022 Oct. 2036	Jun. 2021 Jan. 2036	Jun. 2024 Jul. 2038
506	New Brunswick	Apr. 2025	Feb. 2021	Dec. 2021	Dec. 2021	Aug. 2022
709	Nfld & Labrador	Aug. 2024	May 2019 Feb 2032	Aug. 2019	Apr. 2023	Aug. 2023

NPA	*LOCATION*	*2015*	*2016*	*2017*	*2018*	*2019*
782/902	Nova Scotia & PEI	Oct. 2036	May 2030	Nov. 2029	Mar. 2033	Apr. 2034
807	N.W. Ontario	Beyond 2037	Beyond 2038	Beyond 2039	Beyond 2040	Beyond 2042
819/873	N. W. Quebec	Beyond 2037	Jun. 2024	Aug. 2023 Mar. 2037	Oct. 2026	Oct. 2025
867	Yukon, NWT, Nunavut	Beyond 2036	Beyond 2037	Jan. 2033	Jul. 2036	Aug. 2042

4. Schedule of Future NRUF Activities in the Current Year

Due Date	NRUF Type	NRUF Format	NPA(s)
9 August	R–NRUF	NPA level	249/705
9 August	R–NRUF	NPA level	289/365/905
9 August	R–NRUF	NPA level	306/639
9 August	R–NRUF	NPA level	343/613
9 August	R–NRUF	NPA level	403/587/780/825
9 August	R–NRUF	NPA level	416/437/647
9 August	R–NRUF	NPA level	438/514
9 August	R–NRUF	NPA level	450/579
9 August	R–NRUF	NPA level	506
9 August	R–NRUF	NPA level	709
9 August	R–NRUF	NPA level	819/873

NOTE: During a conference call held 4 April 2019, the CSCN and RPCs agreed that the July 2019 R-NRUF should be conducted at the NPA level instead of the Exchange level based on changes made to the *Canadian NPA Relief Planning Guideline* in accordance with Telecom Decision CRTC 2019-24.

5. Summary of Challenges Encountered during the G-NRUF Process

a) The majority of problems with NRUF submissions are created by companies not knowing how many CO Codes they held as of 1 January 2019. A few companies only indicated their growth projection rather than the total number of CO Codes (i.e. non-cumulative data was submitted).

b) Some TSPs submit their NRUF after the requested date, even after a reminder is sent.

c) 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.

6. 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, Reserved and Held reports).

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.

7. G-NRUF Assumptions

The assumptions used for the January 2019 G-NRUF are the assumptions that were provided on 16 October 2018 to the CNA by the Canadian Steering Committee on Numbering (CSCN) for conducting the January 2019 NRUF.

Item 4 of the 16 October 2018 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.

8. 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 2019 growth with current and historical forecasts to determine whether the 2019 NRUF results are reasonable and the Projected Exhaust Dates for all NPAs are realistic.

The CNA notes that the Canadian telecommunications environment continues to go through a period of significant change due to emerging technologies and TSPs continue to take advantage of Telecom Decision CRTC 2004-46, *Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers*.

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 to the CNA's questions, the G-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	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
204-431	1132	1287	1345	1389	1435	1486	1524	1572	1642	1690	1738	1786	1834	1882	1930	1978	2026	2074	2122	2170	2218	2266	2314
226-519-548	1615	1785	1904	1993	2100	2197	2257	2329	2425	2497	2569	2641	2713	2785	2857	2929	3001	3073	3145	3217	3289	3361	3433
236-250-604-778	2892	3112	3270	3401	3554	3698	3823	3927	4059	4163	4267	4371	4475	4579	4683	4787	4920	5024	5128	5232	5336	5440	5544
249-705	1164	1233	1283	1333	1418	1456	1575	1658	1705	1752	1799	1846	1893	1940	1987	2034	2081	2128	2175	2222	2269	2316	2363
289-365-905	1929	2075	2192	2334	2502	2613	2682	2758	2834	2910	2986	3062	3138	3246	3322	3398	3474	3550	3626	3702	3778	3854	3930
306-639	1399	1475	1539	1590	1641	1673	1701	1741	1781	1821	1861	1901	1941	1981	2021	2061	2101	2141	2181	2221	2261	2301	2341
343-613	1242	1336	1404	1443	1534	1636	1671	1732	1793	1854	1915	1976	2037	2098	2159	2220	2281	2342	2436	2497	2558	2619	2680
403-587-780-825	2773	2911	3015	3144	3289	3431	3524	3627	3730	3833	3936	4066	4169	4272	4375	4478	4581	4684	4787	4916	5019	5122	5225
416-437-647	1730	1863	2000	2135	2264	2400	2548	2629	2710	2791	2872	2953	3034	3115	3196	3299	3380	3461	3542	3623	3704	3785	3866
418-581	1648	1771	1884	1950	2025	2070	2124	2181	2238	2295	2352	2438	2495	2552	2609	2666	2723	2780	2837	2894	2951	3008	3065
438-514	1185	1280	1368	1455	1537	1642	1717	1771	1825	1879	1933	1987	2041	2095	2149	2203	2257	2311	2365	2443	2497	2551	2605
450-579	1223	1301	1358	1435	1517	1584	1655	1710	1765	1820	1875	1930	1985	2040	2095	2150	2205	2260	2315	2372	2459	2514	2569
506	593	704	741	780	838	865	884	902	920	938	956	974	992	1010	1028	1046	1064	1082	1100	1118	1136	1154	1172
709	578	654	718	767	788	833	843	855	870	882	894	906	918	930	942	954	966	978	990	1002	1014	1026	1038
782-902	1002	1076	1118	1158	1198	1234	1257	1294	1331	1368	1405	1442	1479	1516	1553	1590	1649	1686	1723	1760	1797	1834	1871
807	250	267	279	289	301	309	320	328	336	344	352	360	368	376	384	392	400	408	416	424	432	440	448
819-873	1202	1285	1362	1420	1459	1511	1557	1649	1704	1759	1814	1869	1924	1979	2034	2089	2144	2199	2254	2309	2364	2419	2474
867	255	298	312	349	372	394	412	434	456	478	500	522	544	566	588	610	632	654	676	698	720	742	764
NPA / Years	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041

	Non-Geographic NPAs																						
	As of January 1																						
NPA / Years	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
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	82	219	233	251	294	351	368	398	428	458	488	518	548	578	608	638	668	698	728	758	788	818	848
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	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041

NPA / Years	2014			2015			2016			2017			2018			5 Year
	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Actual	Forecast	Delta	Average
204-431	31	152	20.4%	25	101	24.8%	87	83	104.8%	100	113	88.5%	64	151	42.4%	56.1%
226-519-548	38	152	25.0%	75	155	48.4%	72	181	39.8%	69	216	31.9%	113	177	63.8%	46.3%
236-250-604-778	76	211	36.0%	67	256	26.2%	332	228	145.6%	104	476	21.8%	122	238	51.3%	55.5%
249-705	25	82	30.5%	21	92	22.8%	47	96	49.0%	106	94	112.8%	71	84	84.5%	68.8%
289-365-905	30	146	20.5%	105	147	71.4%	82	182	45.1%	98	195	50.3%	62	183	33.9%	51.8%
306-639	64	132	48.5%	64	58	110.3%	206	83	248.2%	158	181	87.3%	136	127	107.1%	113.5%
343-613	18	71	25.4%	76	59	128.8%	56	79	70.9%	85	107	79.4%	126	74	170.3%	89.9%
403-587-780-825	86	166	51.8%	103	207	49.8%	261	185	141.1%	82	362	22.7%	240	158	151.9%	79.5%
416-437-647	34	116	29.3%	48	85	56.5%	66	76	86.8%	70	104	67.3%	95	95	100.0%	64.8%
418-581	58	85	68.2%	26	90	28.9%	36	77	46.8%	57	139	41.0%	166	141	117.7%	60.1%
438-514	25	76	32.9%	28	80	35.0%	38	70	54.3%	33	68	48.5%	56	86	65.1%	48.8%
450-579	29	82	35.4%	47	82	57.3%	65	81	80.2%	60	106	56.6%	72	88	81.8%	57.8%
506	39	30	130.0%	18	59	30.5%	25	41	61.0%	11	81	13.6%	12	54	22.2%	57.0%
709	22	35	62.9%	17	48	35.4%	14	50	28.0%	3	51	5.9%	2	57	3.5%	35.2%
782-902	42	64	65.6%	45	29	155.2%	87	95	91.6%	16	133	12.0%	90	84	107.1%	85.0%
807	10	8	125.0%	8	9	88.9%	9	14	64.3%	4	21	19.0%	5	14	35.7%	75.5%
819-873	34	90	37.8%	76	71	107.0%	56	75	74.7%	70	129	54.3%	96	82	117.1%	78.2%
867	26	8	325.0%	20	13	153.8%	33	58	56.9%	23	54	42.6%	5	24	20.8%	119.8%
			65.0%			68.4%			82.7%			47.5%			76.5%	

Notes:

Actual is based on Part 3 assignment date.

Forecast is from G-NRUF submissions, ignoring CNA codes.

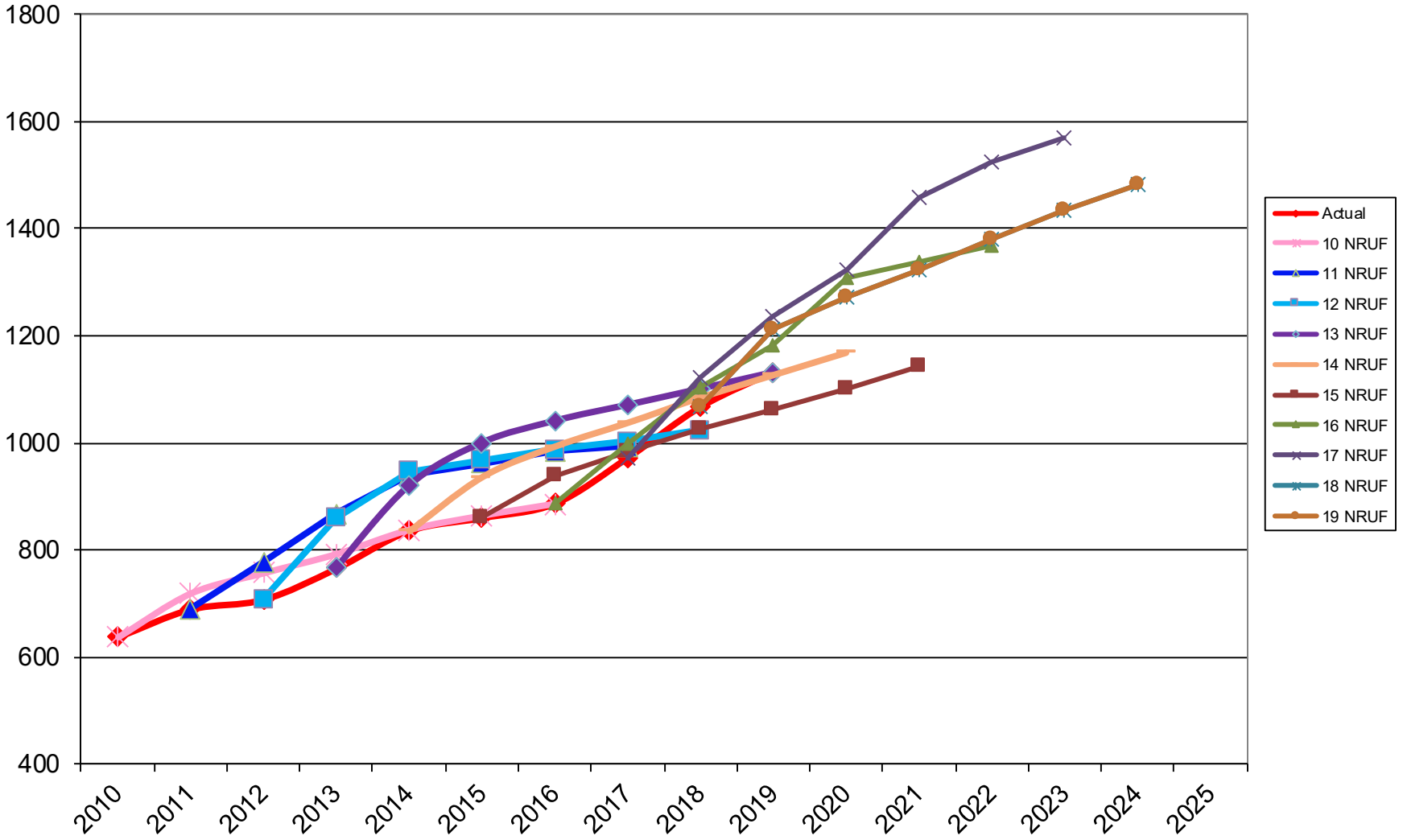
Delta is Actual/Forecast.

January 2019 G-NRUF Aggregate Results

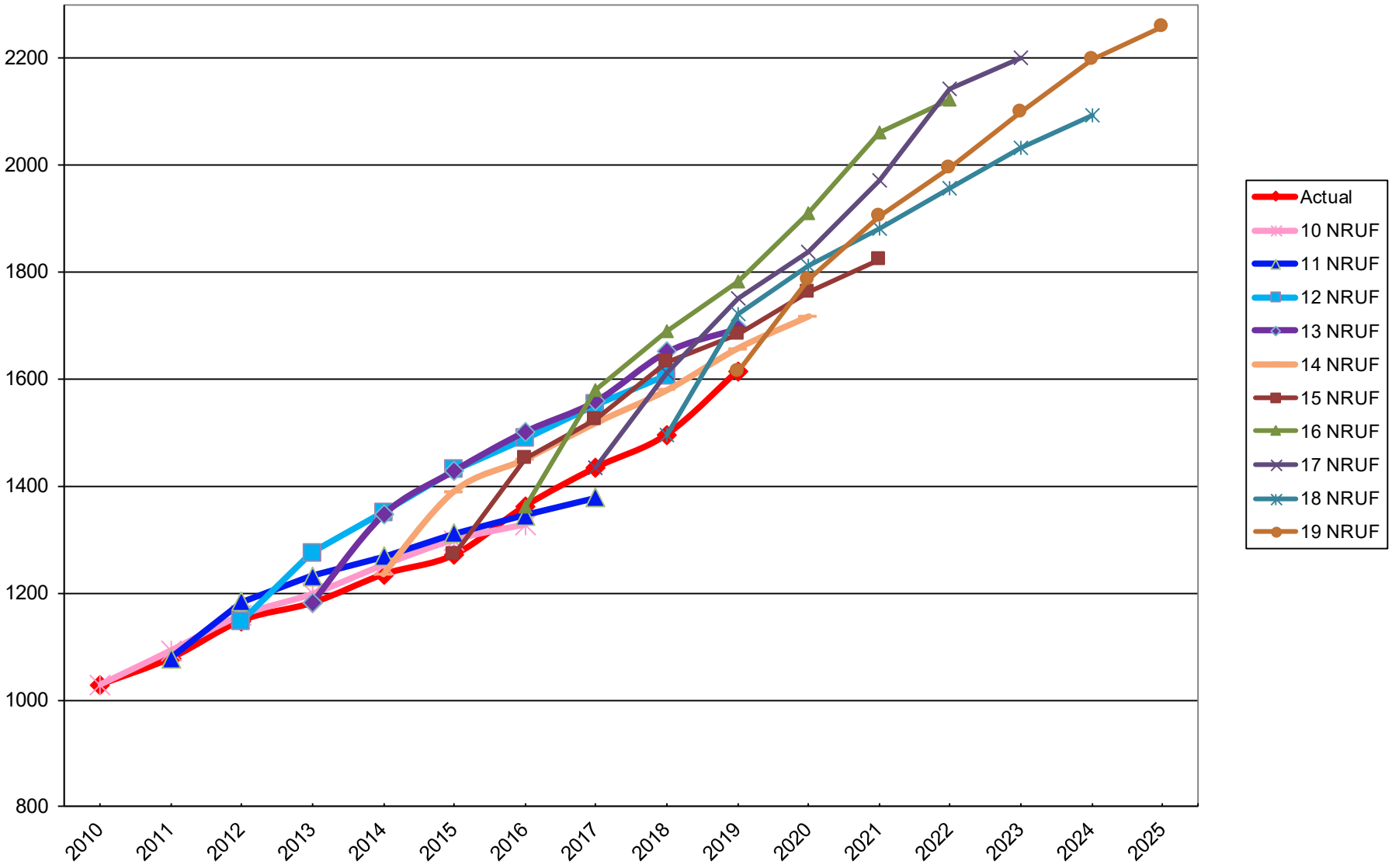
Attachment 1

	January 1, 2019																	
NPAs	204-431	226-519-548	236-250-604-778	249-705	289-365-905	306-639	343-613	367-418-581	403-587-780-825	416-437-647	438-514	450-579	506	709	782-902	807	819-873	867
New Entrants iaw PNs/NOCs/ Decisions	0	0	0	0	0	0	0	10	0	0	0	0	3	2	0	0	0	0
Initial Code iaw PNs/NOCs/ Decisions	0	0	0	0	0	0	0	3	0	0	0	0	4	0	0	0	0	0
Protected	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N11 Service Codes	16	24	32	16	24	16	16	24	32	24	16	16	8	8	16	8	16	8
Special Use Codes (555, 950 & 976)	6	8	12	5	9	6	5	8	12	8	5	6	3	3	6	2	5	3
Industry Plant Test Codes	3	6	8	4	6	4	4	6	8	6	4	4	2	2	4	2	4	2
Home NPAs NXX Codes	4	9	15	4	9	4	4	9	16	9	4	4	1	1	4	1	4	1
Neighbour NPAs NXX Codes	2	6	0	18	27	6	16	9	1	3	4	8	4	3	2	4	16	6
Future NPAs NXX Codes	6	9	0	18	12	10	14	21	1	15	14	24	10	9	6	14	18	17
Limited Availability (USA 7D Problem)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	0
911 Misdial Codes (912, 914 & 915)	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	3	0	3
Special 7 Digit Dialing Codes (310, 610 & 810)	5	8	10	5	8	5	5	8	10	8	5	5	2	2	5	2	5	3
Relief NPA	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
Unforecasted Demand	3	5	7	5	7	3	7	0	7	6	6	5	0	0	3	2	2	2
Total	**45**	**75**	**90**	**75**	**102**	**54**	**71**	**98**	**87**	**82**	**58**	**72**	**41**	**33**	**46**	**39**	**74**	**45**

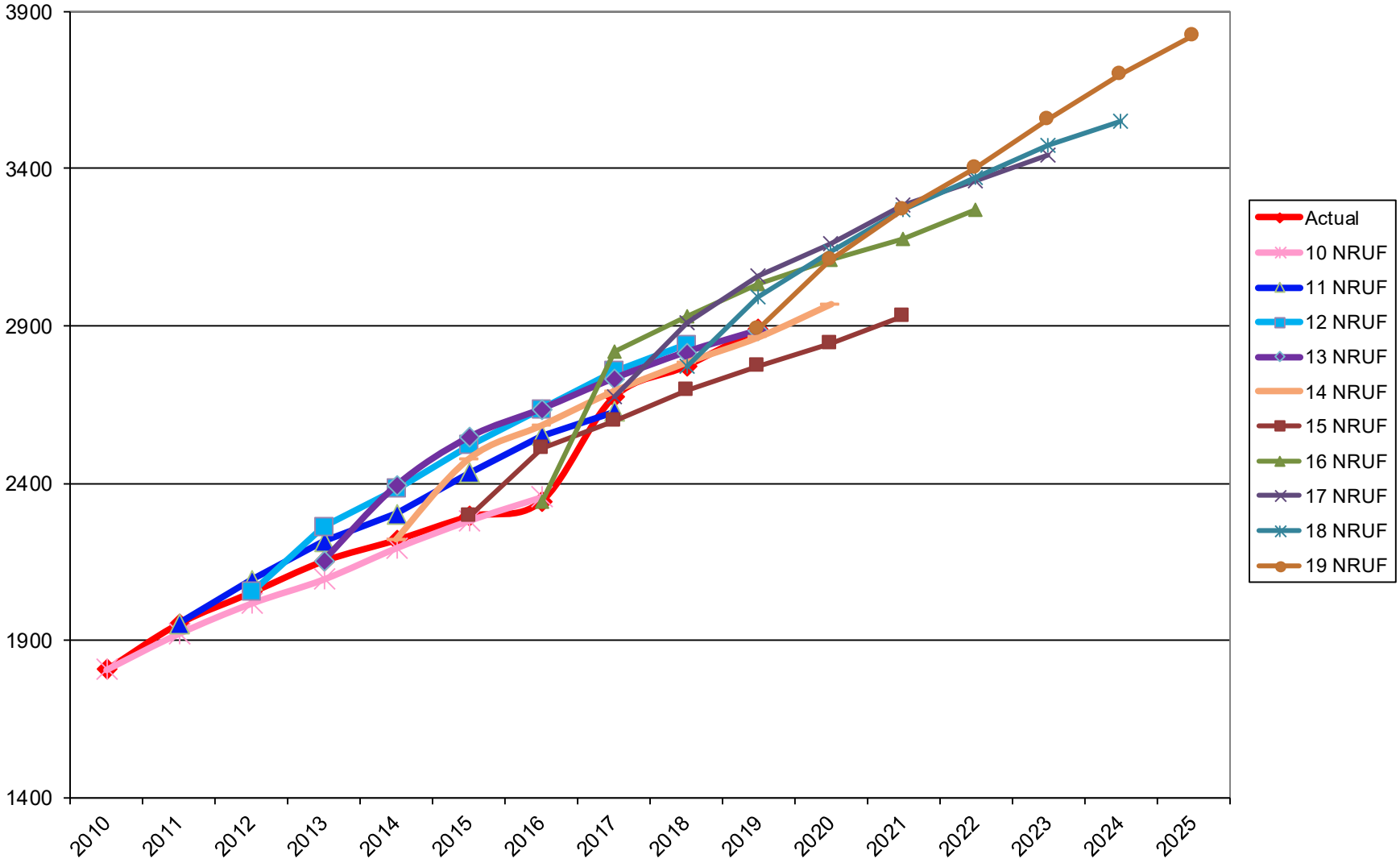
NPA 204/431 Manitoba

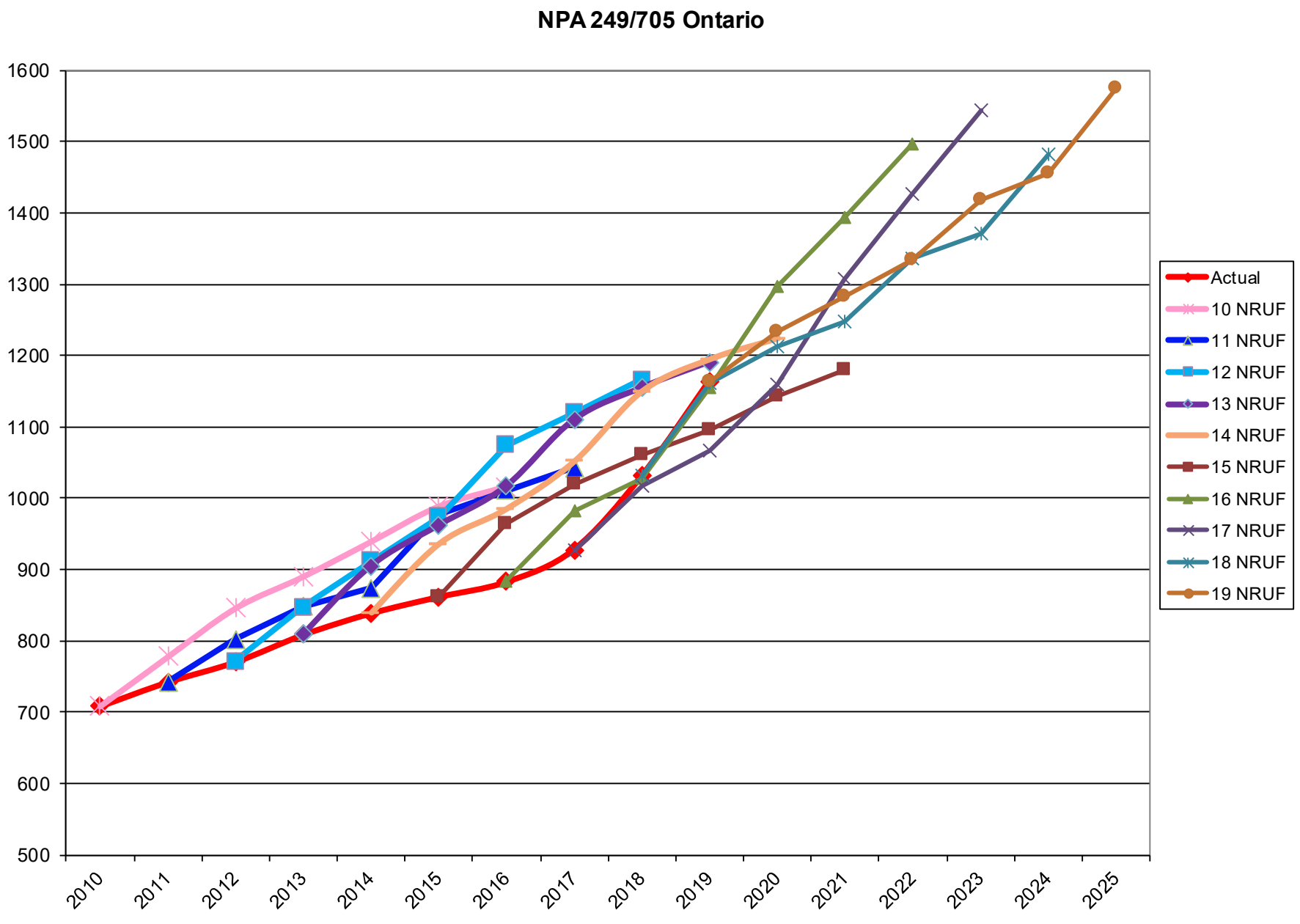


NPA 226/519/548 Ontario

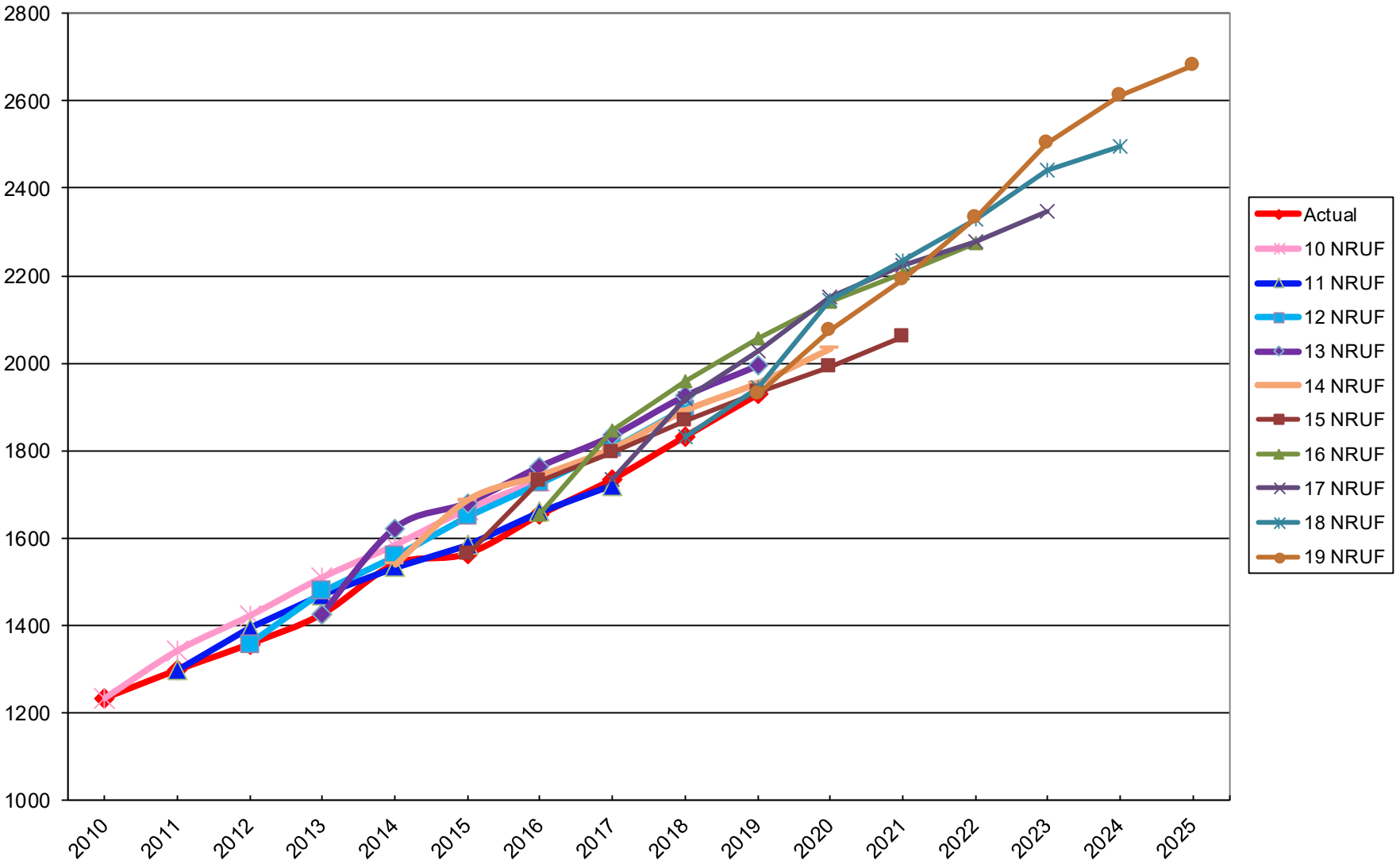


NPA 236/250/604/778 British Columbia

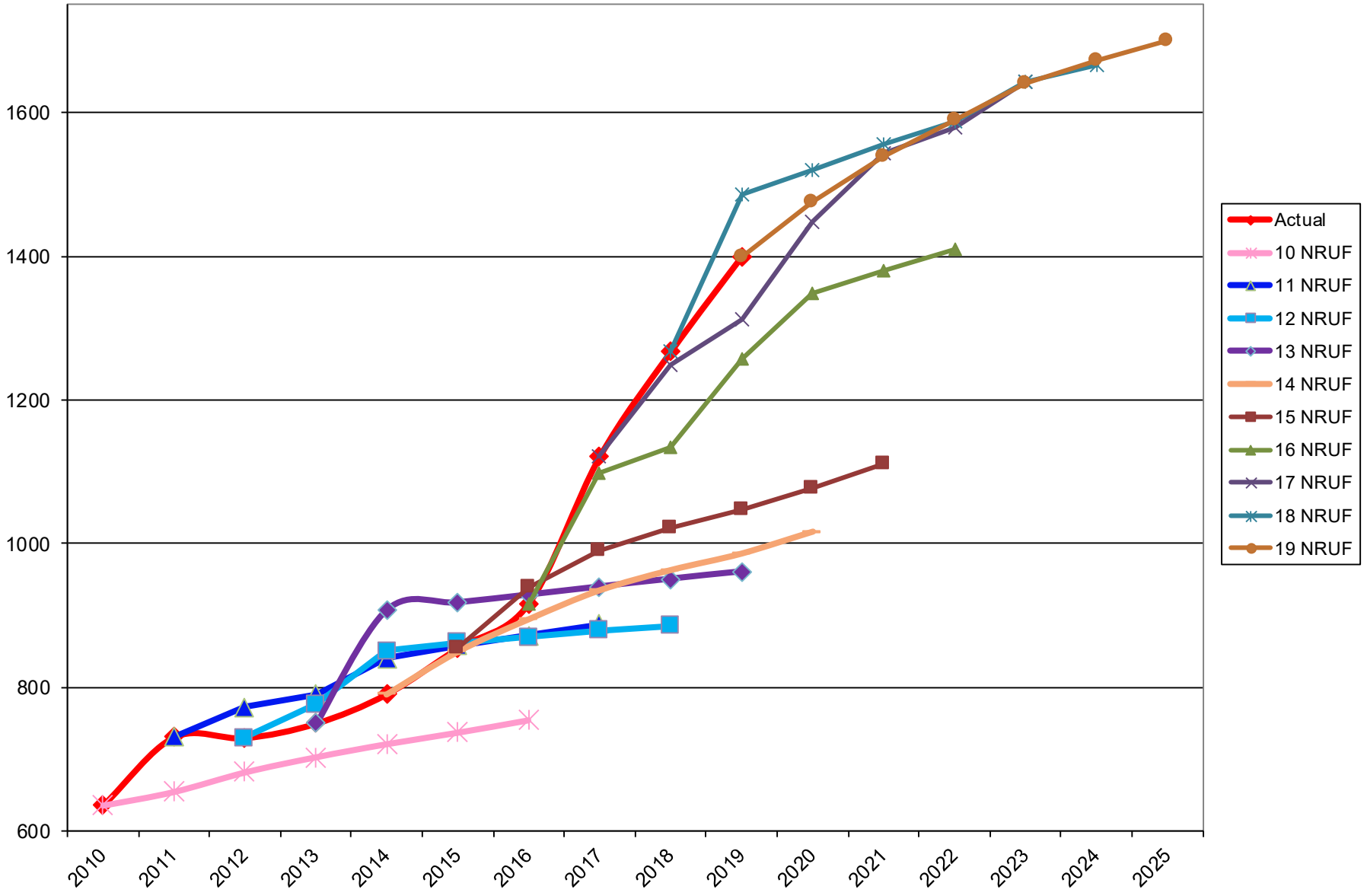


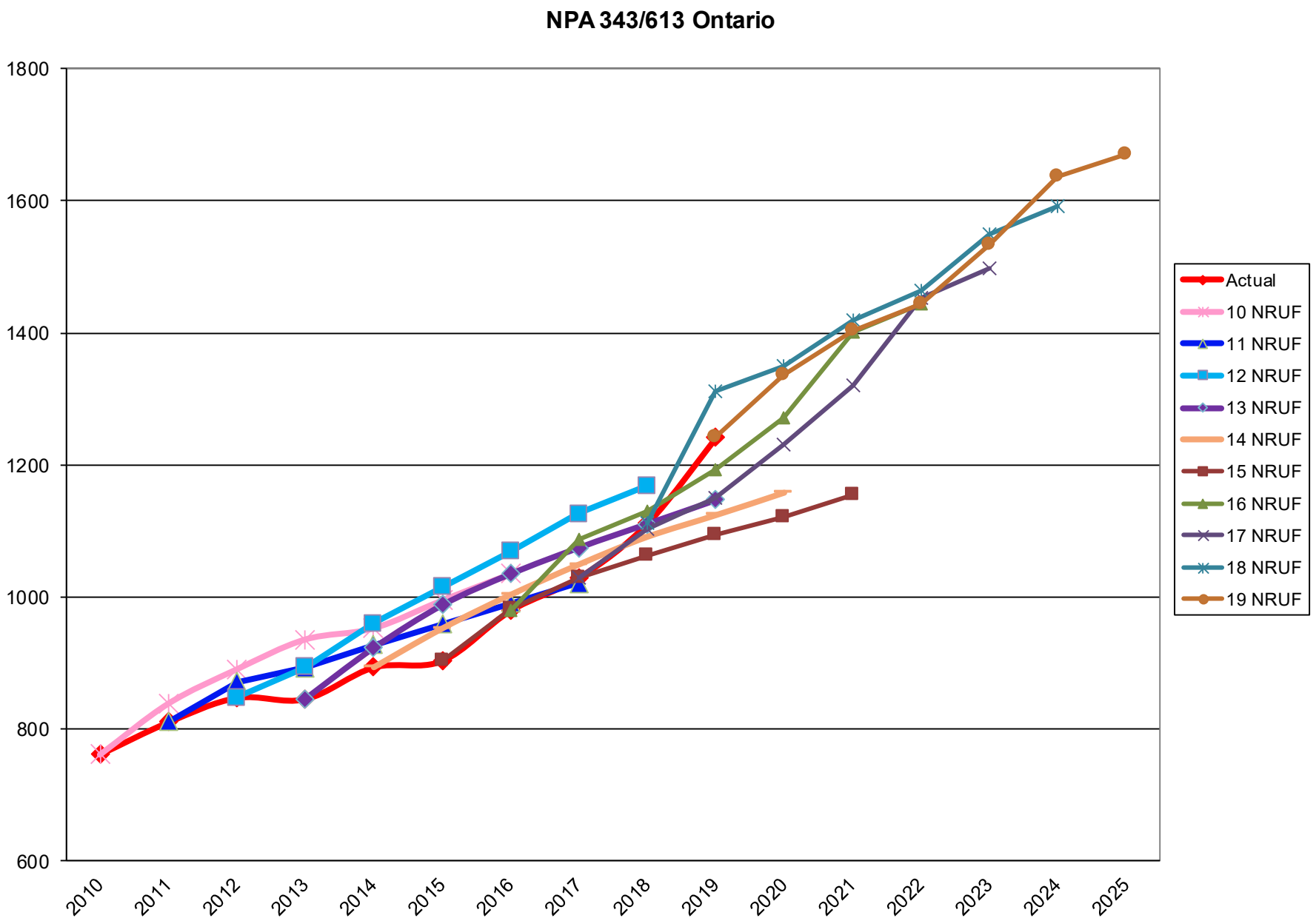

NPA 249/705 Ontario
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
Actual
10 NRUF
11 NRUF
12 NRUF
13 NRUF
14 NRUF
15 NRUF
16 NRUF
17 NRUF
18 NRUF
19 NRUF

NPA 289/365/905 Ontario

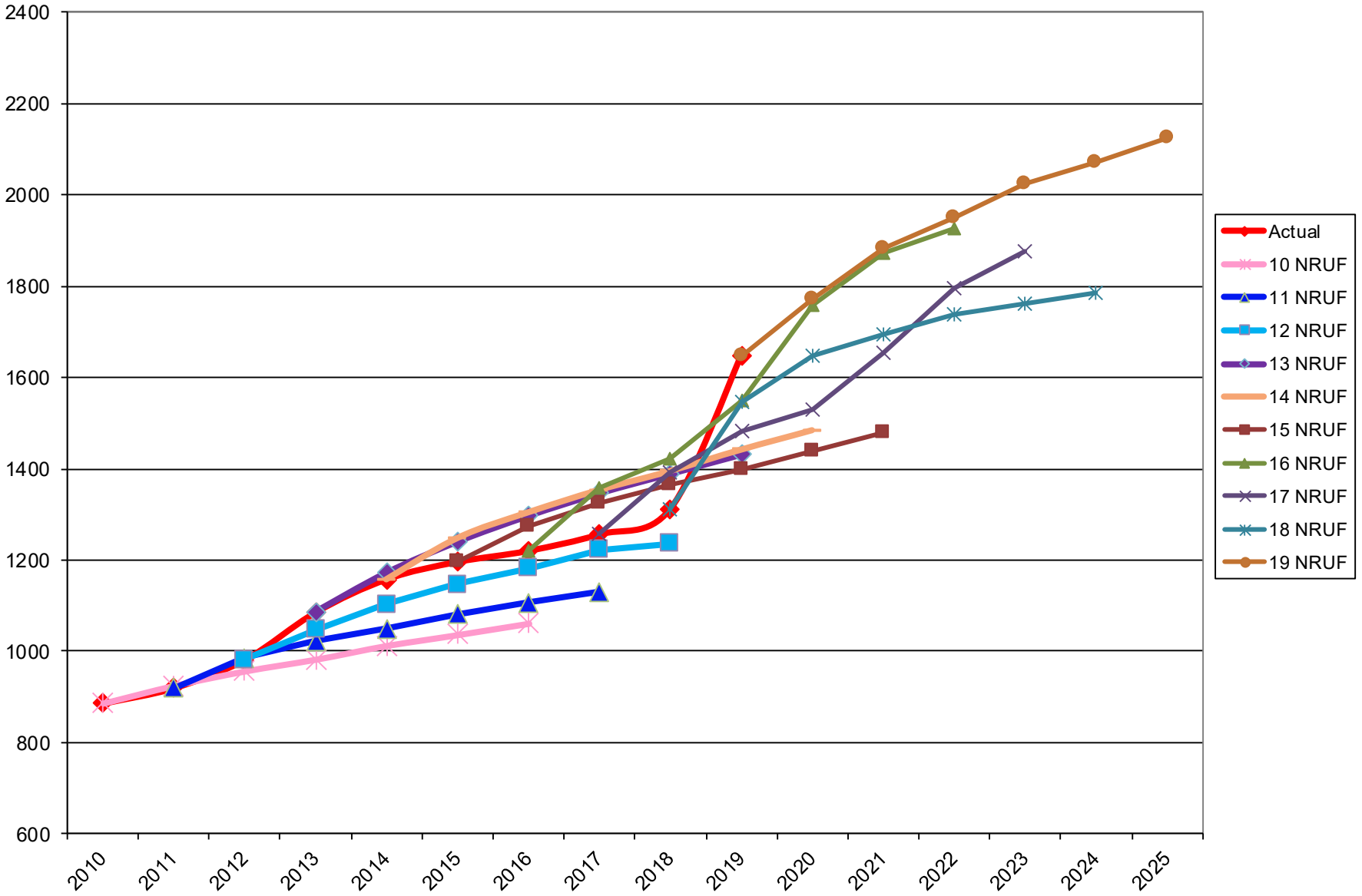


NPA 306/639 Saskatchewan




NPA 343/613 Ontario
1800
1600
1400
1200
1000
800
600
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
Actual
10 NRUF
11 NRUF
12 NRUF
13 NRUF
14 NRUF
15 NRUF
16 NRUF
17 NRUF
18 NRUF
19 NRUF

NPA 367/418/581 Quebec



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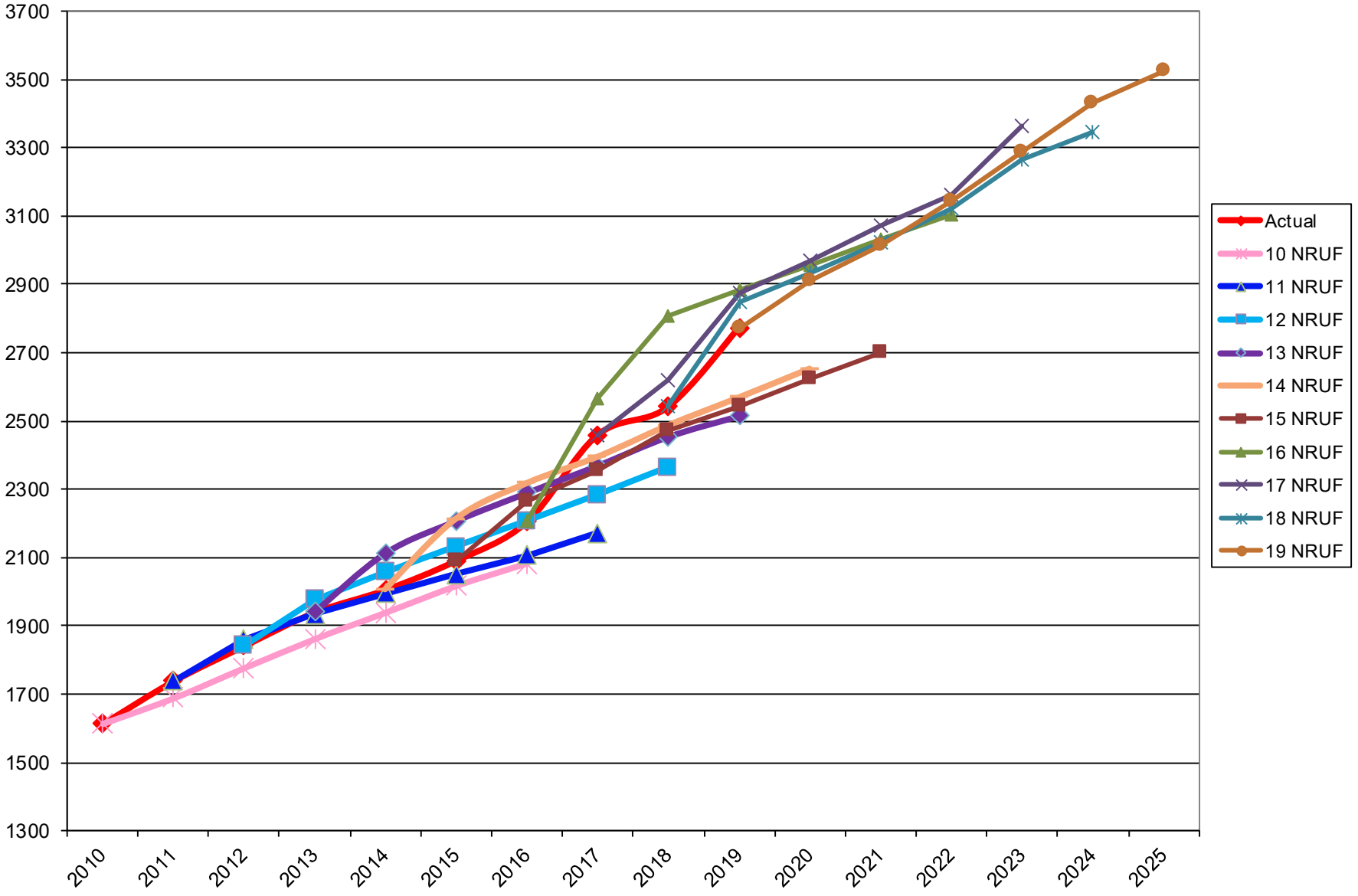

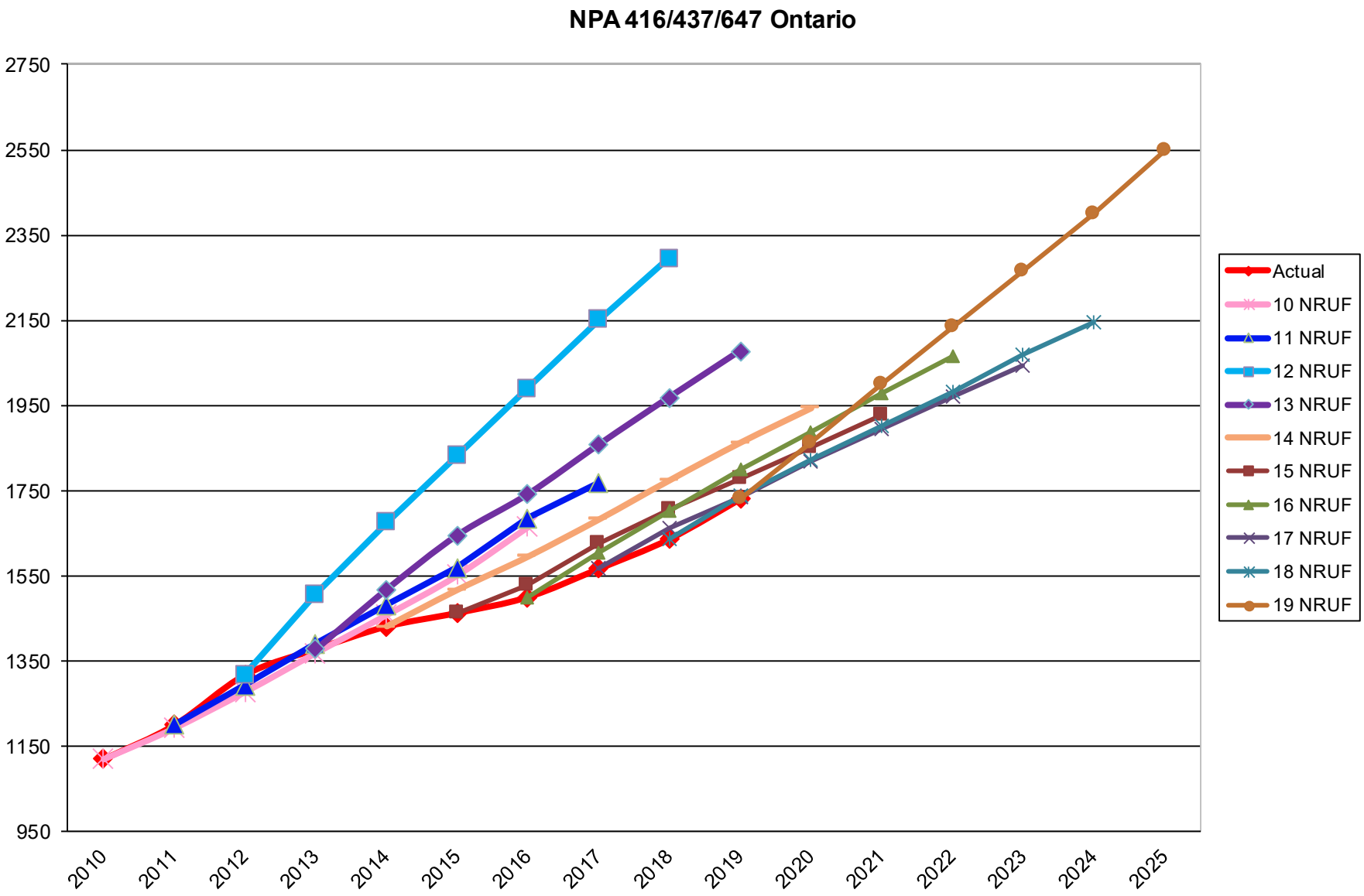
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2550
2350
2150
1950
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1350
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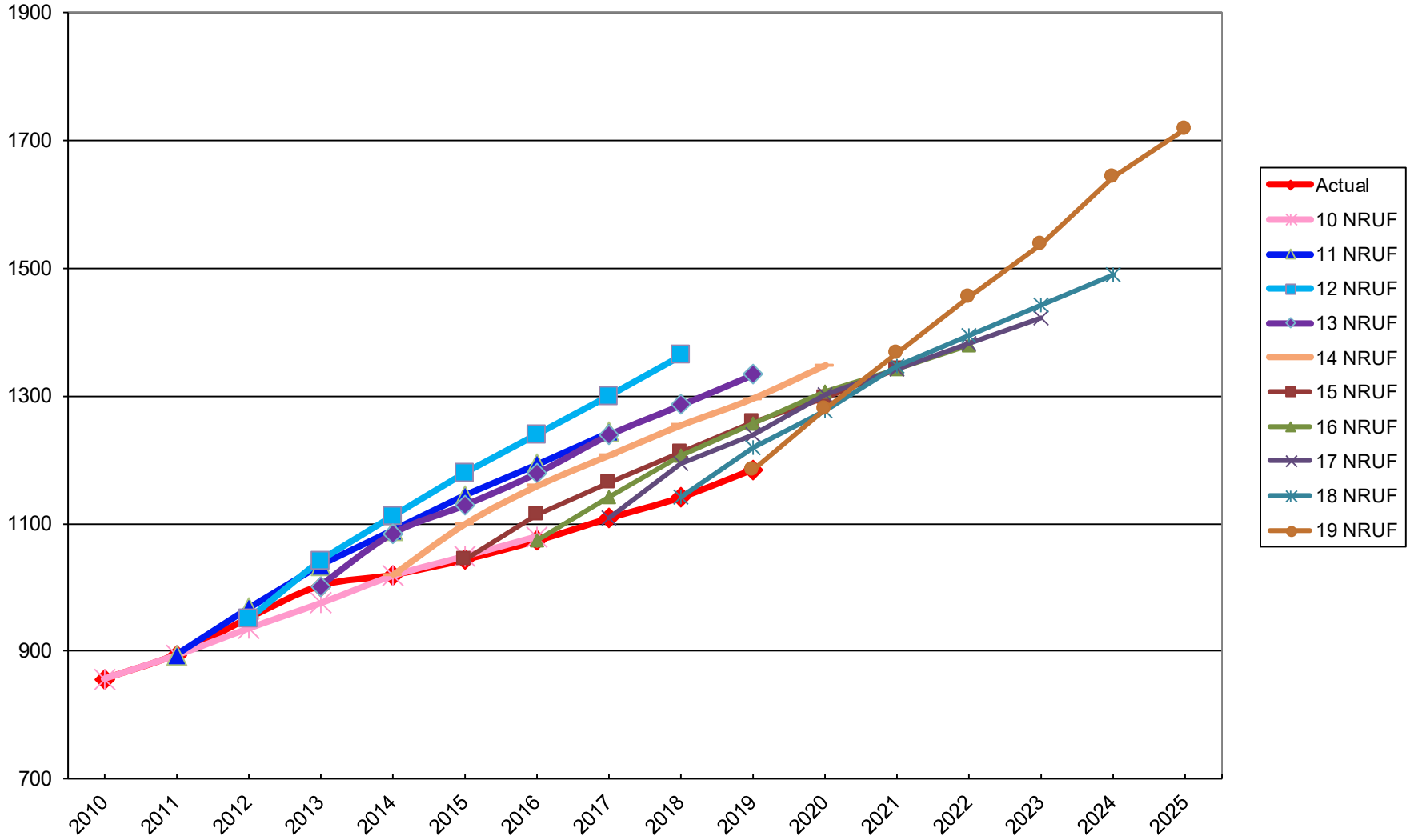
950
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
Actual
10 NRUF
11 NRUF
12 NRUF
13 NRUF
14 NRUF
15 NRUF
16 NRUF
17 NRUF
18 NRUF
19 NRUF

NPA 438/514 Quebec



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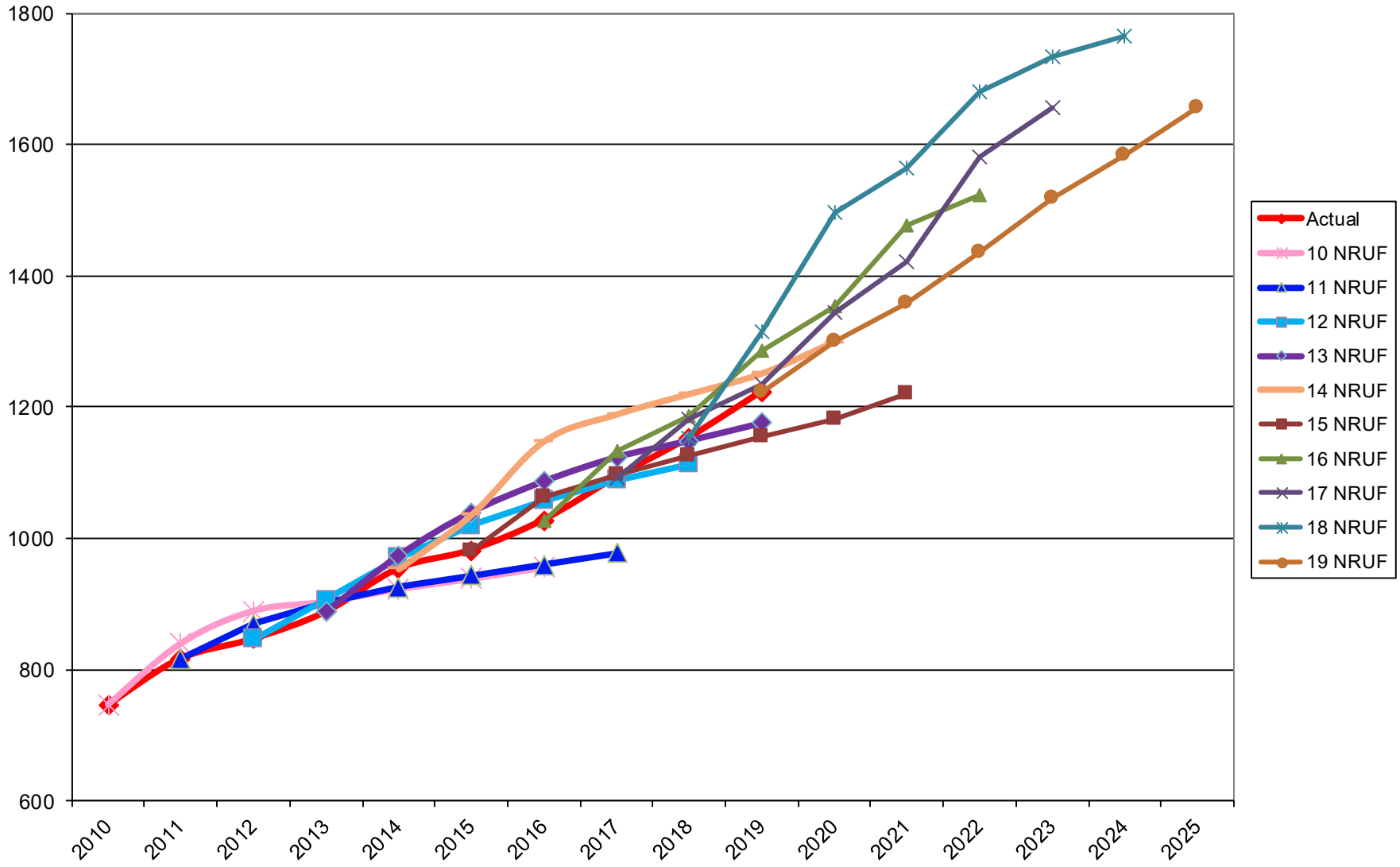

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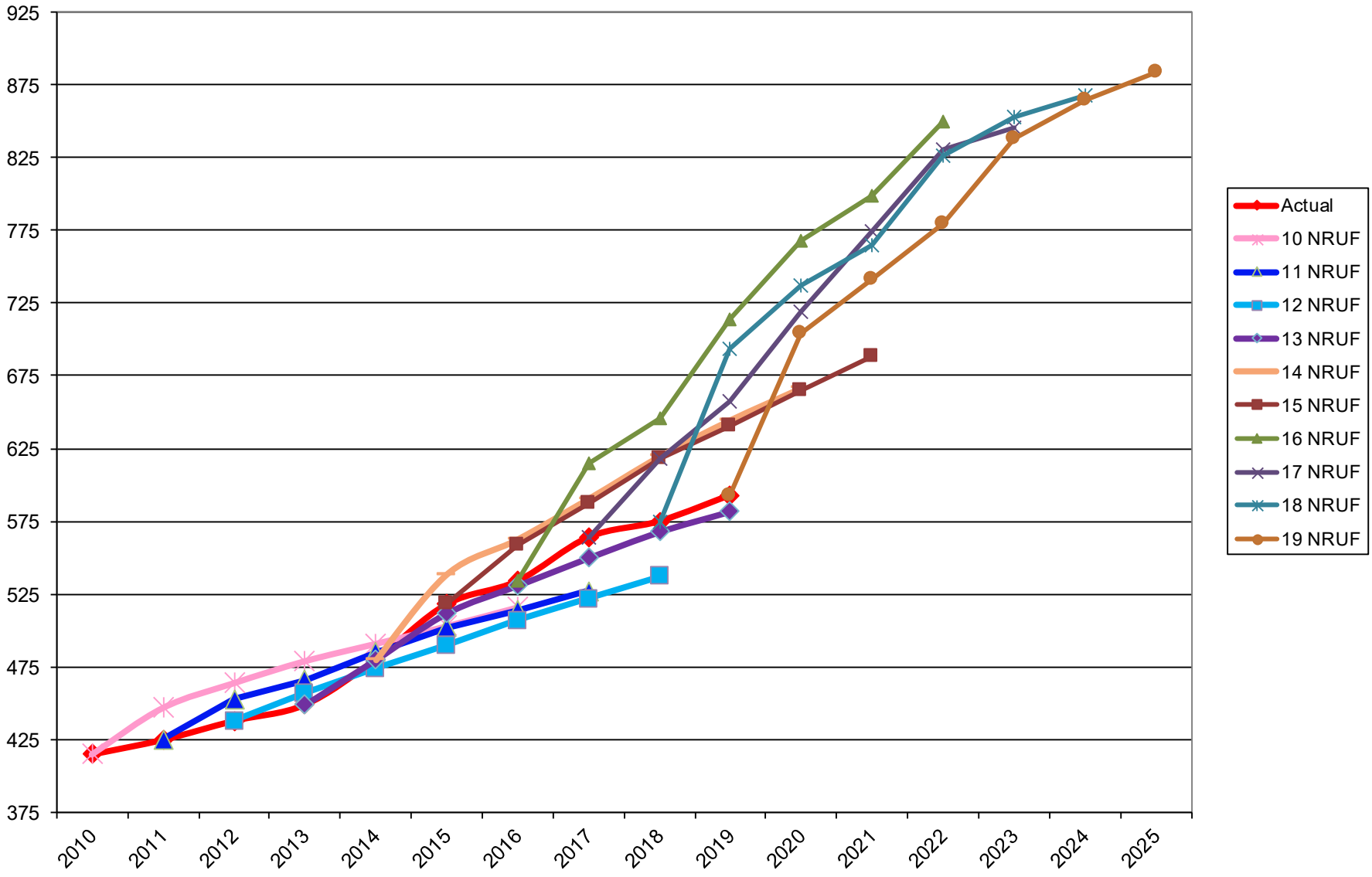
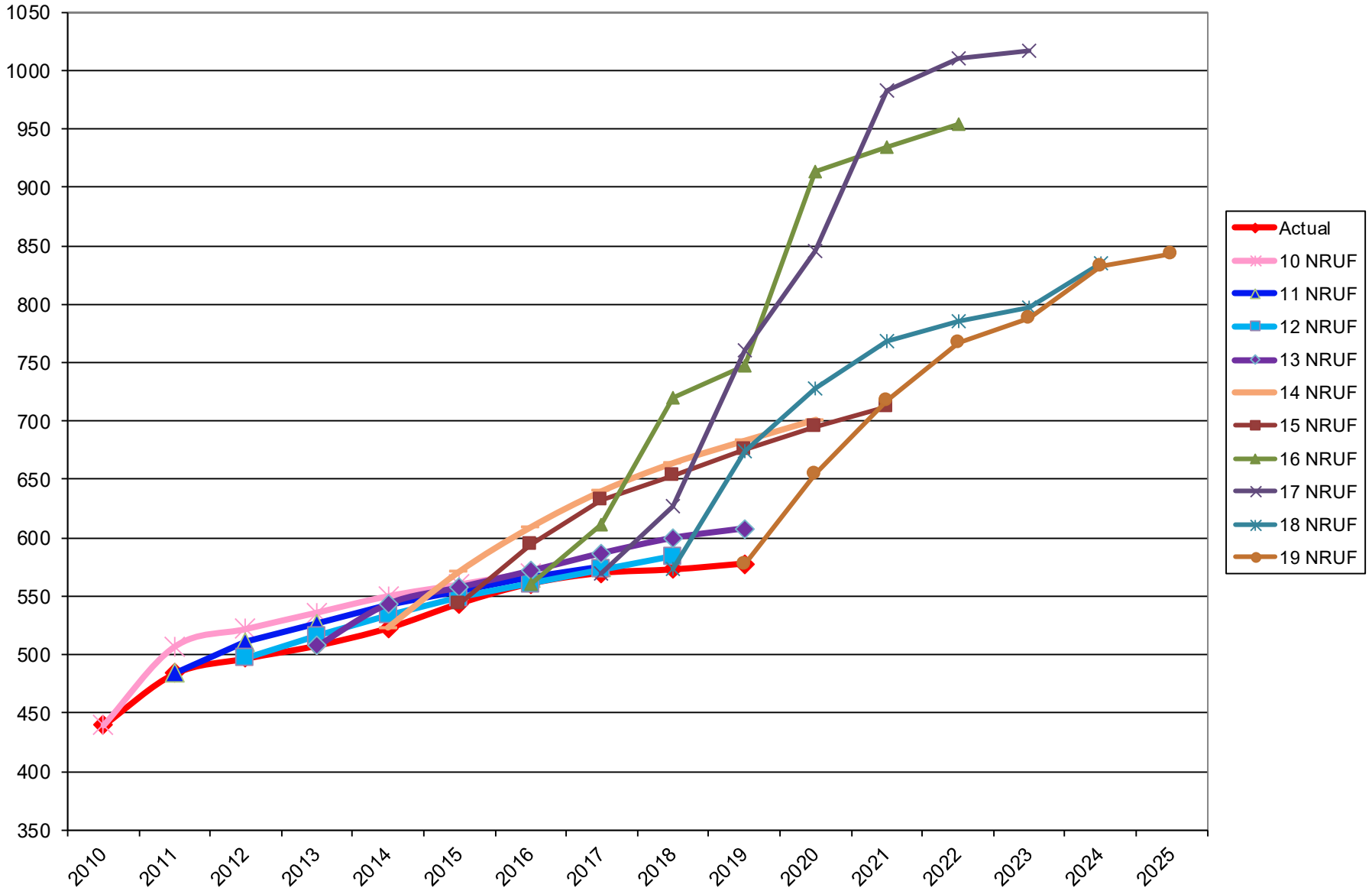


NPA 709 Newfoundland and Labrador



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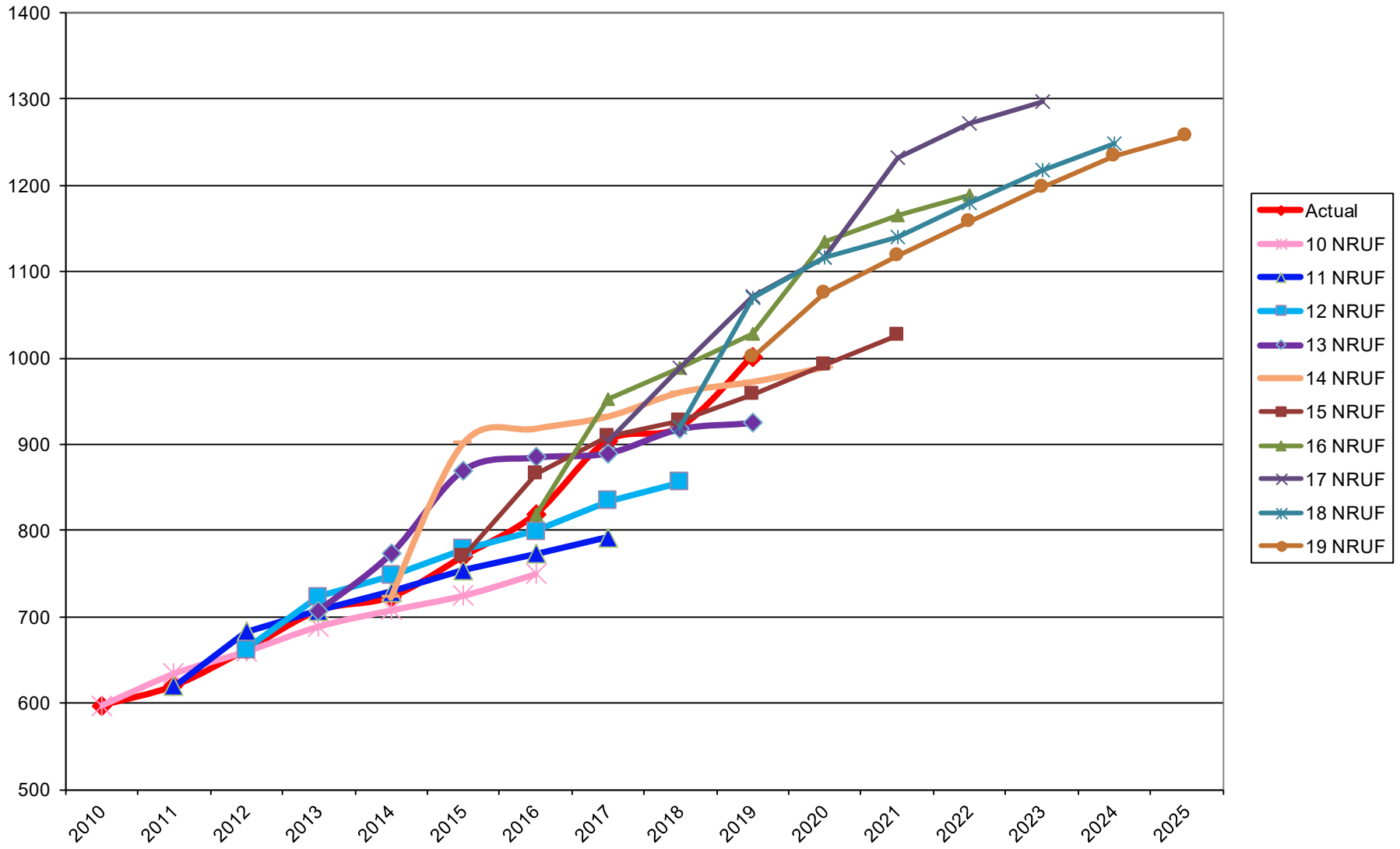
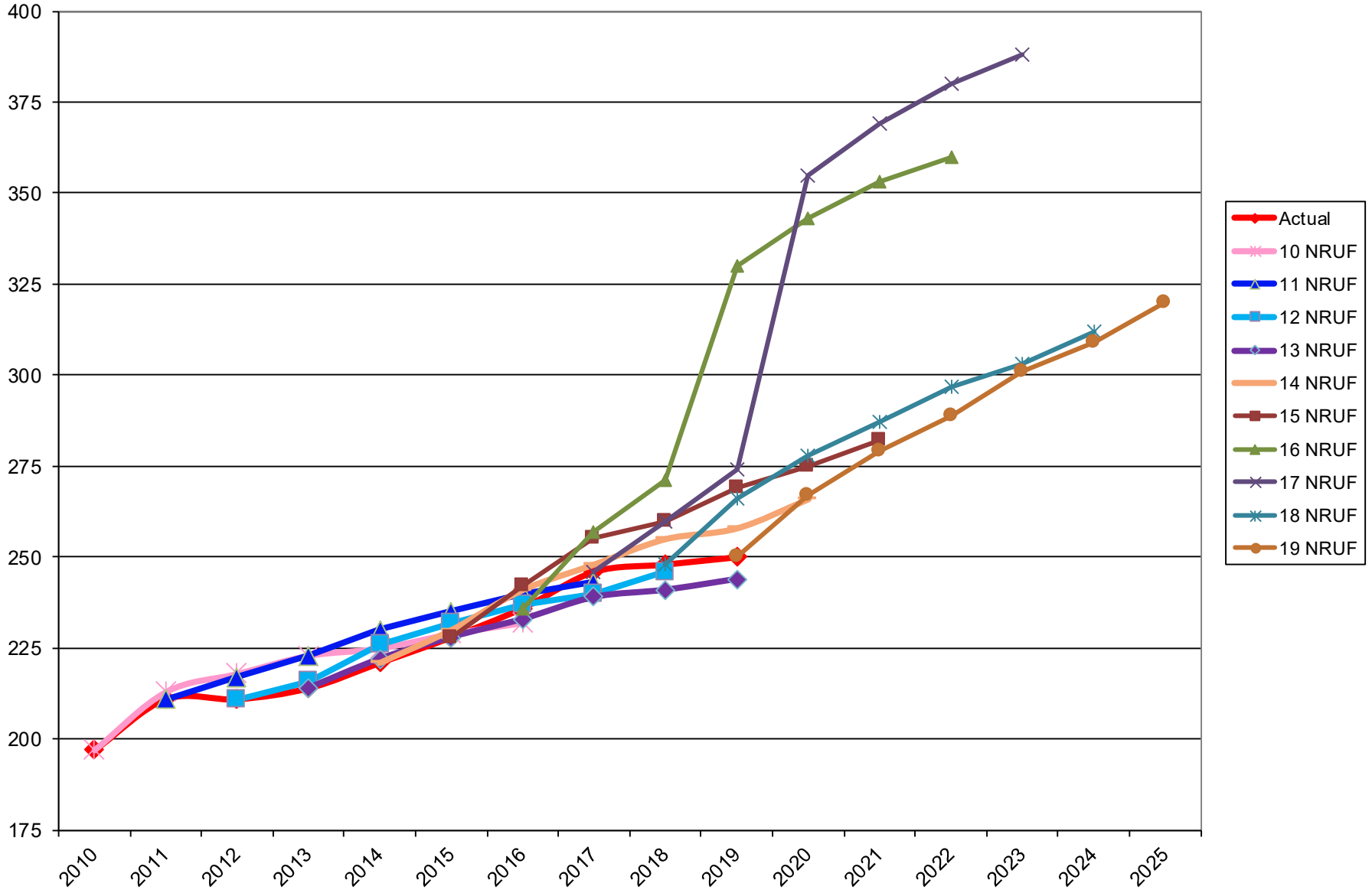


NPA 807 Ontario



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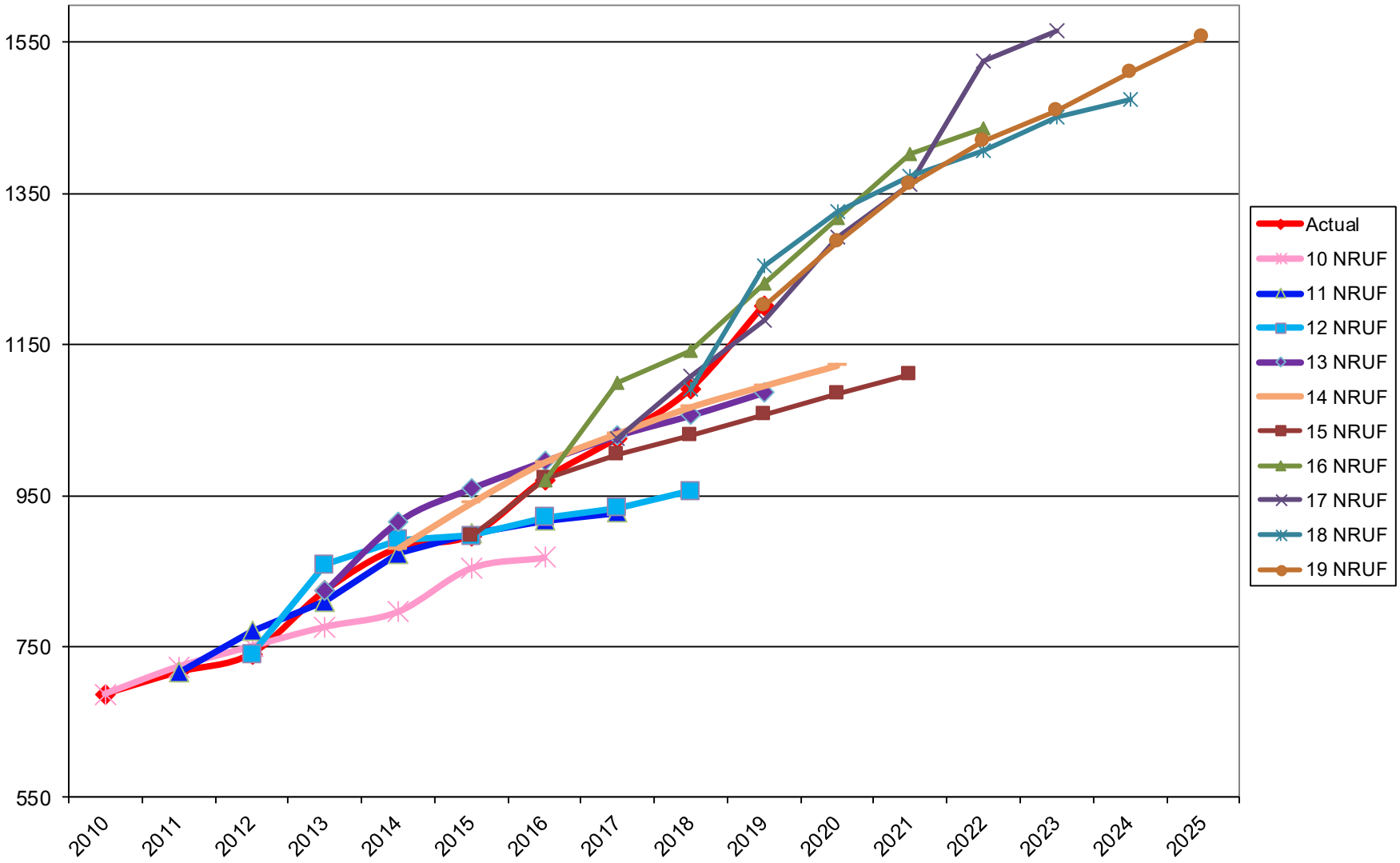

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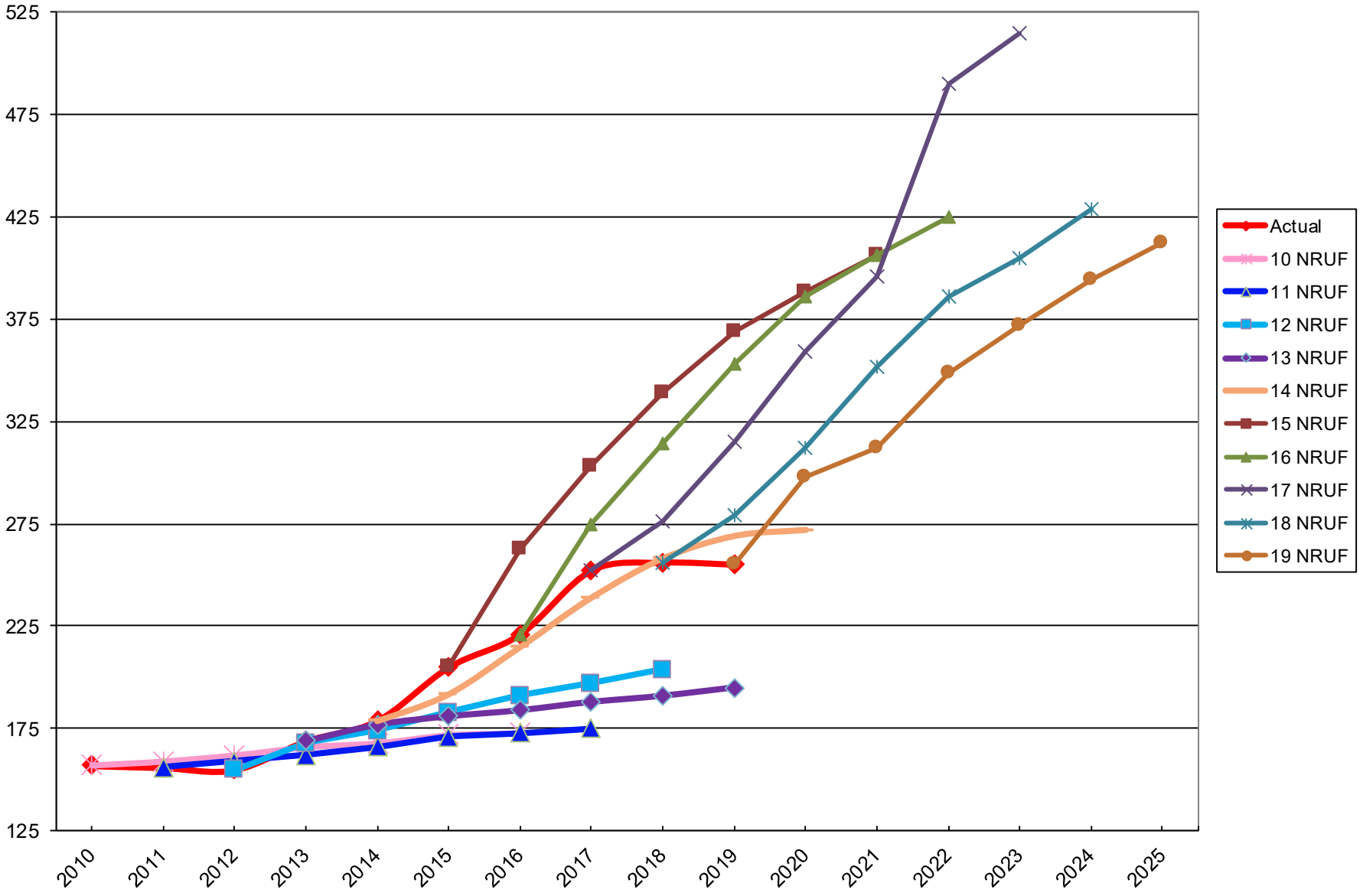

CSCN

Attachment 3

Glen Brown
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Email: browng@leidos.ca
Tel: 613-683-3291
Fax: 613-563-9293

Canadian Steering Committee on Numbering

16 October 2018

TRANSMITTED ELECTRONICALLY

Glen Brown
Project Manager
Canadian Numbering Administrator (CNA)
Leidos Canada Inc.
60 Queen Street, Suite 1516
Ottawa, Ontario K1P 5Y7

Subject: CSCN Direction to Canadian Numbering Administrator (CNA) re the 2019 Numbering Resource Utilization Forecast (2018 NRUF) Methodology and Assumptions

On 16 October 2018, the Canadian Steering Committee on Numbering (CSCN) discussed and agreed to the direction for the CNA with respect to the 2019 NRUF Methodology and Assumptions.

The attached document contains the direction titled "CSCN Direction to CNA re the 2019 NRUF Methodology and Assumptions, 16 October 2018".

Sincerely,

Original signed by

Glen Brown
CSCN Chair

c.c.: Joseph Cabrera – CRTC
Valerie Plaskacz – CRTC

Attachment

CSCN Direction to CNA re the 2019 NRUF Methodology and Assumptions
16 October 2018

The CSCN submits the following methodology and assumptions to the CNA for the 2019 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 2019, 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 2019 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
403/587/780/825	7
416/437/647	6
418/581	3
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**
418/581	13	2018	2021	Notice 2016-207
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 2019 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 2039 timeframe, the CNA should exercise its best judgment in finalizing the forecast for those NPAs.