

**January 2019 R-NRUF Report – NPA 289/365/905, NPA306/639, NPA 343/613,
NPA 403/587/780/825, NPA 450/579, NPA 506 and NPA 709 to the
Canadian Steering Committee on Numbering (CSCN)**

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1. Purpose of R-NRUF

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 2019 G-NRUF results, the CNA determined that, in addition to NPA 289/365/905, NPA 306/639, NPA 343/613, NPA 403/587/780/825, NPA 450/579, NPA 506, and 709, additional NPAs had also entered the 6-year window for relief planning. The additional NPAs are NPA 249/705, NPA 416/437/647, NPA 438/514, and NPA 819/873.

2. High Level Summary

The results from the January 2019 R-NRUF are quite different from the July 2018 R-NRUF results due to various Telecommunications Service Providers (TSPs) submitting updated data. The CNA has verified the input from various TSPs and the variance from previous inputs can be rationalized.

Specific changes are listed below:

NPA	PED from May or July 2018 R-NRUF	PED from January 2019 R-NRUF	Change in PED
289/365/905	November 2021	June 2022	Delayed 7 months
306/639	September 2022	May 2022	Advanced 4 months
343/613	August 2022	December 2023	Delayed 16 months
403/587/780/825	March 2022	June 2022	Delayed 3 months
450/579	March 2021	June 2024	Delayed 39 months
506	September 2022	August 2022	Advanced 1 month
709	May 2023	August 2023	Delayed 3 months

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 289/365/905

NPA 289/365/905 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
1929	2075	2192	2334	2502	2613	2682
Projected Exhaust Date - June 2022						

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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 306/639

NPA 306/639 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
1399	1539	1590	1641	1673	1701	1741
Projected Exhaust Date - May 2022						

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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 343/613

NPA 343/613 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
1246	1336	1404	1443	1534	1636	1671
Projected Exhaust Date - December 2023						

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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 403/587/780/825

NPA 403/587/780/825 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
2773	2911	3016	3145	3290	3432	3525
Projected Exhaust Date - June 2022						

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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 450/579

NPA 450/579 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
1223	1301	1358	1435	1517	1584	1655
Projected Exhaust Date - June 2024						

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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 506

NPA 506 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
593	704	741	780	838	865	884
Projected Exhaust Date - August 2022						

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 March 2016	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

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

NPA 709

NPA 709 - January 2019 R-NRUF Aggregate Results						
Actual	Forecast					
Total quantity of existing CO Codes assigned & reserved as of	Total quantity of existing and future CO Codes forecast to be assigned & reserved as of					
2019-01-01	2020-01-01	2021-01-01	2022-01-01	2023-01-01	2024-01-01	2025-01-01
578	654	718	767	788	833	843
Projected Exhaust Date - August 2023						

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 2018 R-NRUF	26 March 2019*	August 2023

* Results reviewed by CSCN and RPC during 4 April 2019 conference call

3. Schedule of Future R- NRUF Activities in this Calendar Year

Due Date	NRUF Type	NRUF Format	NPA
August 7, 2019	R-NRUF	NPA level	249/705
			289/365/905
			306/639
			343/613
			403/587/780/825
			416/437/647
			450/579
			438/514
			506
			709
			819/873

4. R-NRUF Assumptions

The assumptions used for the January 2019 R-NRUF for NPAs 289/365/905, 306/639, 343/613, 403/587/780/825, 450/579, 506, and 709 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 NPAs 289/365/905, 306/639, 343/613, 403/587/780/825, 450/579, 506, and 709 as per following chart.

<u>NPA</u>	<u>Future PED Method</u>
289/365/905	Use Historical Average
306/639	Use Five Year Average of Growth
343/613	Use Five Year Average of Growth
403/587/780/825	Use Historical Median
450/579	Use Historical Average

NPA	Future PED Method
506	Use Five Year Median
709	Use Historical Average

5. Summary of Challenges Encountered During the R-NRUF Process

The CNA sent an e-mail reminder on 25 January 2019 and started contacting individual companies during the last full week of January to remind them of the 1 February 2019 due date. Nevertheless, some R-NRUF submissions were a few days late. Two companies were repeatedly reminded up to 8 February 2019.

6. Conclusion

In accordance with Section 4 of the *Canadian Numbering Resource Utilization Forecast (C-NRUF) Guideline*, the CNA has conducted an assessment, at a total aggregate level, to determine whether the January 2019 R-NRUF results are reasonable.

Numbering resource requirements for some Carriers in both the wireless and LEC services have been volatile over the last few years resulting in only moderately accurate short term and long term NRUF submissions. The CNA has endeavoured to mitigate this volatility by distinguishing companies that are establishing a footprint in an NPA from those that already have one.

The CNA believes that emerging technology growth has been responsible for a good part of the 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.

At this time, based on the data and supporting justifications provided by the various TSPs, the January 2019 R-NRUF results for NPA complexes 289/365/905, NPA 306/639, NPA 343/613, NPA 403/587/780/825, NPA 450/579, NPA 506, and 709 are as realistic as they can be.