

DESCRIPTION AND JUSTIFICATION

1.0 Introduction and Description of Filing

In this tariff filing, scheduled to become effective February 15, 2024, Somos, Inc. (hereinafter referred to as “Company”) proposes changes to Tariff F.C.C. No. 1, 800 Service Management System (SMS800) Toll-Free Number Registry (TFNRegistry™) Functions (TFN Registry Tariff) including: clarify that permitting fraud and illegal robocalling on numbers in a Resp Org’s account are grounds for suspension under the tariff; add new information required for new Resp Org Service Establishment Applications; and modify rates and charges based on an updated cost study and current cost and demand data. The proposed modifications are detailed below.

1.1 Modify Regulations and Service Offerings

On page 23, affirmatively stating that Resp Orgs could be suspended for “permitting toll free numbers in their account to be used for any unlawful purpose, including, but not limited to, fraud and illegal robocalling.”

On page 24, addition to Section 2.2.2, clarifying that permitting fraud and illegal robocalling on numbers in a Resp Org’s account are grounds for suspension under Section 2.1.8 of the tariff.

On page 34, Section 2.3.2 (A), information to be collected at the time of application to include: “Resp Org officer, director, or employee name, telephone number and physical address; Physical address may be an office or residence, but cannot be a Post Office Box or shared work space.”

On page 34, Section 2.3.2 (A), information to be collected at the time of application to include: “Any additional information requested in the Resp Org Service Establishment Application.”

On page 34, Section 2.3.2 (A), at the end, add “Any officer, director, or owner with 10% interest or more in a Resp Org disconnected for violating Section 2.2.2 of the tariff on unlawful use of TFNs, may not be an officer, director, or owner with 10% interest in a Resp Org for a period of five years. The company itself will also be banned from being a Resp Org for a period of five years.”

1.2 Modify Rates and Charges

This tariff filing is being made by Company to modify rates and charges in the TFN Registry Tariff. The proposed changes, reflecting Company’s most current estimates of demand and cost for services provided under the tariff, would increase revenue over the prospective one-year period of February 15, 2024 through February 14, 2025 by \$1,179,508. A comparison of current and proposed rates, as well as the revenue impact of the rate changes, is displayed in Table 1.

2.0 Revenue Requirement Development

The prospective revenue requirement for TFN Registry from February 15, 2024 through February 14, 2025 consists of expenditures for ongoing operations and continued development of the TFN Registry platform. Specific budget items for Company's ongoing operations are:

- TFN Registry Operation and Administration which consists of: (a) Help Desk operational support to TFN Registry users including telephone assistance related to interfacing with TFN Registry and preparation/maintenance of Toll-Free Number (TFN) records, service establishment, and processing of requests for changes in Responsible Organization (Resp Org) for TFNs; and, (b) day-to-day management, planning and administrative oversight provided by Company, external operational support services such as billing, accounting, cost analysis, website support and TFN authentication, and expenses associated with Company's membership and Board of Directors to support management, operation and administration of the TFN Registry.

The estimated revenue requirement for TFN Registry operation and administration, which includes the effort related to obtaining STIR/SHAKEN certificates for Toll-Free outbound calling, for the one-year period of February 15, 2024 through February 14, 2025 is \$53,325,074.

- TFN Registry Data Center Operation reflects the cost of the ongoing support, maintenance of the existing production and test/disaster recovery TFN Registry data centers and operation of a Service Center (Help Desk) facility to handle security and access problems. The estimated revenue requirement for the data center operation is \$7,667,190.
- TFN Registry Software Support includes the provision of software maintenance, computer site and application support, and software development for new features for the existing TFN Registry system. The estimated revenue requirement for software support is \$5,870,070.

A comparison of projected past year and actual past year costs, and projected future year costs are shown in Table 2.

2.1 Revenue Requirement Distributions

A detailed hardware, software and activity-based cost study was performed to identify average unit costs for the TFN Registry rate elements. The updated costing methodology is consistent with the methodology used for previous TFN Registry Tariff filings. The average unit costs developed are shown in Table 5. The resulting revenue requirement for each rate element is shown in Table 4. Cost-causation analyses were performed and applied to budget elements as follows:

- A Task Oriented Costing (TOC) study was used to distribute Help Desk costs to rate elements. Help Desk managers identified the primary tasks performed, how often the tasks were performed, and the average time spent performing them. Each task was then analyzed and associated with the particular rate element it supports. To the extent that Help Desk costs are not specific to a rate element, the costs are included in the CRA rate element. The resulting unit costs are shown in Table 5, column (a).
- Data center costs consist primarily of cloud-based: (a) network equipment and facilities needed to provide communications access; (b) storage hardware for TFN record data; and (c) a processing community used to respond to and execute customer requests for TFN Registry services. The processing community and storage costs are related exclusively to the support and processing of customer records and were therefore assigned to the CRA rate element.
- The cost of software support includes software maintenance, site support and software development for new features. The software maintenance and site support dollars were attributed on the basis of analyses of effort by software personnel for the basic functions of software development, software maintenance and support services and are almost exclusively related to the processing of customer records and are therefore assigned to the CRA rate element. The software development staff also supports production of some reports. Activity based analyses were used to capture these costs and associate them with the appropriate rate elements. The average unit costs developed for software costs are shown in Table 5, column (c).
- The Operations and Administration cost are analyzed to determine if they explicitly support any of the TFN Registry rate elements. With the exception of a small amount associated with Resp Org restoration (post suspension), the operations and administration costs are shared and common costs. The resulting average unit costs are shown in Table 5, column (d).

3.0 Basis of Ratemaking

The rate structure for TFN Registry consists of service elements that are used by Resp Orgs. The proposed rate for each element is based on its projected revenue requirement and demand. The only exception is the proposed hourly rate for Resp Org requested WSI Additional Resp Org Testing. This rate is based on changes to vendor contracts. The contractual rate of \$100 per hour is expected to remain valid for the proposed tariff period. This information is shown in Table 6.

4.0 Demand Forecast

The demand forecast for the prospective tariff period is displayed in Table 3B. Information and/or data considered in developing the forecast are discussed in the following sections.

4.1 Customer Record Administration (CRA)

This rate element represents the quantity of toll-free numbers for which customer records exist in the TFN Registry and is charged on a recurring (monthly) basis for each number record administered. Following the methodology used to produce prior CRA forecasts, we examined alternative statistical models (e.g., simple regression, ARIMA), searching to find the best fit of the historical data. These models predict the future value of the dependent variable (toll-free number demand) largely by analysis of past values of that variable.¹

The first issue addressed involved data frequency. The toll-free number data is collected and reported daily, but previous tariff filings (as well as the CRA rate element charge) use monthly data. A two-year forecast of monthly data requires a 24-period forecast. Because data typically contain random elements, projections tend to become less reliable with the number of periods forecast. This problem can be mitigated by using lower data frequency, allowing random influences to offset, smoothing observed values. When high frequency forecasts are not needed, modeling the dynamics at a lower frequency is usually more accurate. For example, estimating a moving average error term with quarterly data provides an average over three months to improve the forecast, while using monthly data produces just one month's worth of moving average correction. When the individual months are not required in their own right—as is the case here—the longer observation period provides an error correction more closely related to the longer forecast needed. Of course, lower frequency data yield fewer observations over the same time frame and, all else equal, additional observations tend to improve estimation accuracy. Given that the use of annual data is ruled out due to insufficient degrees of freedom, we chose to perform our estimations with demand measured quarterly. This approach is designed to balance forecast variance against loss of observations.

The monthly forecasts for December 2023 through February 2025 reported in Table 3A represent either linear interpolations of the quarterly forecasts (2Q2024 -1Q2025) or the result of estimated monthly CRA (1Q2024).² For the quarterly forecast, we used the unweighted average of the three months in each quarter to construct the quarterly series of toll-free numbers. The average monthly toll-free numbers for a quarter is considered to be that number which would accrue to the middle month of each quarter. For example, the middle month for the quarter ending March 2008 is February 2008, the middle month for the quarter ending June 2008 is May 2008, etc. Use of this averaging methodology tended to smooth out fluctuations, as desired.

It should be noted that this forecast makes use of 13 quarters of CRA. To better estimate the first quarter of the tariff period, monthly data were used to estimate the months of November 2023 to March 2024 (actual CRA data were available through October 2023 with an estimate from November 2023). The estimated months were then used to complete the 13-quarter series

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² In the case of linear interpolations, if toll-free lines were projected to rise from 25,000,000 to 25,300,000 from one quarter to the next, the consecutive monthly totals would be 25,100,000, 25,200,000 and 25,300,000.

for the quarterly CRA tariff forecast period of 1Q2021 - 1Q2024. The CRA tariff quarterly forecast begins with 2Q2024.

In general, whenever actual data available ends mid-quarter, data for the remaining months of that quarter are unknown. This means that either some known data must be disregarded or that the remaining months in the quarter must be forecast. Since the former option requires disregarding actual data, the latter option is preferable. The methodology for forecasting demand for the remaining months of the quarter is similar to the methodology used for forecasting quarterly estimates (i.e., simple regression, ARIMA). The difference is that only monthly data will be used in this forecast, as opposed to smoothed quarterly data. The lack of smoothing is acceptable because the demand will only be forecasted three to four months ahead, which is a fairly short-run forecast.

Forecasting December 2023 to March 2024 Monthly Demand

Because of the available data mid-November 2023, to produce a quarterly forecast as described above, it is first necessary to produce a monthly forecast for December 2023 and for the first quarter of 2024. Since monthly CRA data for the prior month are not released until the 15th of the following month, daily CRA data was used as an approximation of the billing calculations to generate an estimate of CRA count for November 2023. This provided a complete monthly CRA series through November 2023 which was used to estimate CRA for the period of December 2023 through March 2024.

The model that best fits the monthly CRA series and reflects the current CRA trend is a Linear Regression model (LS2) using monthly TFNsInUse and sum of counts of Disconnects & Transitionals lagged by 4-months to the CRA as independent variables. The model is defined by the following parameters and summary statistics:

LS2 MODEL TERM COEFFS

	Estimate	Std. Error	z value	Pr(> z)
INTERCEPT	2126477.6976	196326.6055	10.8313	1.83E-21
TFNSINUSE_LAG4	0.9614	0.0055	175.4895	8.97E-207
D+T (LAG4)	-0.4858	0.1375	-3.5325	5.20E-04

MODEL	<u>MPE</u>	<u>MAPE</u>	<u>MASE</u>	<u>SE SQ</u>	<u>AIC</u>
LS2	-0.0297	0.9989	0.0677	2.04E+11	5405.6716

The point forecast for the December 2023 to March 2024 period is shown below:

	Point Forecast
Dec-23	43,384,006
Jan-24	43,242,808
Feb-24	43,196,246
Mar-24	43,261,609

Forecasting Quarterly Demand Through February 2025

This monthly forecast model was used to complete the most recent 13 quarters of CRA data (1Q2021 - 1Q2024). Since using lagged regression models would have resulted in losing somewhat limited number of 13-quarterly datapoints, ARIMA Models were then fit to this quarterly series. The model that best fits the 13-quarters of CRA data and reflects the current CRA trend is a model an ARIMA (2,0,0) using undifferenced CRA with two auto-regressive terms but no moving average term. The model is defined by the following parameters and summary statistics:

ARIMA MODEL (2,0,0) TERM COEFFFS

	Estimate	Std. Error	z value	Pr(> z)
AR1	1.4265	0.2143	6.6554	2.34E-05
AR2	-0.6866	0.2130	-3.2233	0.0073

ARIMA MODEL STATISTICS FOR QLY FORECAST

MODEL	MPE	MAPE	MASE	ACF1	SE SQ	AIC
A(2,0,0)	0.0606	0.4181	0.6776	-0.2139	7.13E+10	368.8850

The point forecast for the 2024Q2 to 2025Q1 period is shown below:

	Point Forecast
2024Q2	43,156,513
2024Q3	43,087,061
2024Q4	43,040,882
2025Q1	43,022,693

The end of global pandemic, continued developments in the use of 10DLC numbers for messaging applications and technical innovations especially in area of Call Analytics add unique dynamics into the CRA forecast process for the upcoming tariff period. As an impact of end of global pandemic, need for communication services and technologies moderated since Y2022 and led to a flat use of demand for toll-free numbers in Y2023. The moderation is likely related to reduced demand for video and other conferencing resources needed due to return of workforce to offices and a return to normal ways of life like in-store shopping. Expectation is that, over time, as life returns to normal, toll-free demand will continue to moderate. Then, Company expects that demand related to pandemic driven investments in communication services to fall back to pre-pandemic patterns. Additionally, starting Q1-2024 and beyond, Company expects toll-free demand to be subdued due to continued use of 10DLC numbers for messaging applications and development of newer technologies is likely to improve productivity of Call Analytics providers and affect demand negatively, some impact of which was already seen in Y2023 and will likely continue into Y2024 and further.

The statistical analysis described above produces a point and interval forecast as follows:

	Point Forecast - 1*SE	Point Forecast	Point Forecast + 1.*SE
2024Q2	42,890,974	43,156,513	43,422,052
2024Q3	42,624,474	43,087,061	43,549,648
2024Q4	42,455,940	43,040,882	43,625,825
2025Q1	42,386,316	43,022,693	43,659,071

The interval forecast (+/- 1*standard forecast error (SE)) represents a 68% forecast interval, i.e., there is a 68% probability that actual tariff demand will lie within the interval forecast.

Company believes the substantive impacts related to the pandemic compounded with an developments in 10DLC numbers for messaging and Call Analytics technology described above, will lower the demand during the proposed tariff period and it will be less than the point forecast. Company remains confident that actual CRA will reside within the interval forecast and above the lower bound established by the point forecast less twice the standard forecast error. With further visibility into TFNs in Disconnect/Transitional state at end of Q42023 which are expected to Spare post their mandatory Aging period, Company establishes forecast to be point forecast less 1-standard forecast error as described below.

	Point Forecast - 1*SE
2024Q2	42,890,974
2024Q3	42,624,474
2024Q4	42,455,940
2025Q1	42,386,316

The linearized CRA forecast maintains the characteristics of the point forecast resulting in a total TFN Demand for the proposed tariff period of 511.95M, about 1.01% less than the point forecast. The linearized monthly results of this forecast are shown in Table 3A.

4.2 Change of Resp Org for Toll-Free Number

This element provides for changing the Resp Org for a TFN and is charged on a non-recurring (per request) basis. Demand during the prior tariff period was expected to be 1,200, but will likely fall short of that. Projected demand is expected to be 600 for the prospective one-year period of February 15, 2024 through February 14, 2025.

4.3 Service Establishment

This service element provides for various aspects of establishing service including: first logon ID, subsequent (additional) logon IDs, and the restoration of services for Resp Orgs that have had service suspended. Charges for these services are applied on a non-recurring (one time) basis. Demand for first logon IDs is expected to decrease during the upcoming tariff period to 12. Average monthly demand for subsequent logon IDs is anticipated to be higher than the prior tariff period, resulting in annualized demand projection of 300 for the prospective tariff period. The demand for Resp Org Restoration of service (post suspension) remains low, although it did increase in the past tariff year. It is anticipated to have a demand of 4 for the prospective tariff period.

4.4 Customer Reports

This service element provides for the preparation and delivery of customer specific off-line reports as well as the preparation and delivery of standard recurring on-line reports. The on-line report demand for the prospective tariff period February 15, 2024 through February 14, 2025 is 48, an increase based on the actual demand experienced in prior tariff period. The on-line report is charged “per report.” Off-line reports are charged “per hour” to prepare and deliver for each customer request. A one-time event increased that number to 173 for the prior tariff year (as of this filing). Since that was a one-time event, four and one-half (4.5) hours of effort are anticipated during the prospective tariff period of February 15, 2024 through February 14, 2025.

4.5 WSI Additional Resp Org Testing per Hour

This service element provides for initial and/or additional testing as requested from the TFN Registry support team and is charged on an hourly basis as required. There were no requests for WSI testing during the prior tariff period, and as the WSI is relatively mature, additional testing needs for WSI are not anticipated during the prospective tariff period February 15, 2024 through February 14, 2025.

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3.0 Basis of Ratemaking

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4.0 Demand Forecast

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The first issue addressed involved data frequency. The toll-free number data is collected and reported daily, but previous tariff filings (as well as the CRA rate element charge) use monthly data. A two-year forecast of monthly data requires a 24-period forecast. Because data typically contain random elements, projections tend to become less reliable with the number of periods forecast. This problem can be mitigated by using lower data frequency, allowing random influences to offset, smoothing observed values. When high frequency forecasts are not needed, modeling the dynamics at a lower frequency is usually more accurate. For example, estimating a moving average error term with quarterly data provides an average over three months to improve the forecast, while using monthly data produces just one month's worth of moving average correction. When the individual months are not required in their own right—as is the case here—the longer observation period provides an error correction more closely related to the longer forecast needed. Of course, lower frequency data yield fewer observations over the same time frame and, all else equal, additional observations tend to improve estimation accuracy. Given that the use of annual data is ruled out due to insufficient degrees of freedom, we chose to perform our estimations with demand measured quarterly. This approach is designed to balance forecast variance against loss of observations.

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LS2	-0.0297	0.9989	0.0677	2.04E+11	5405.6716

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The point forecast for the 2024Q2 to 2025Q1 period is shown below:

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2024Q4	42,455,940
2025Q1	42,386,316

The linearized CRA forecast maintains the characteristics of the point forecast resulting in a total TFN Demand for the proposed tariff period of 511.95M, about 1.01% less than the point forecast. The linearized monthly results of this forecast are shown in Table 3A.

4.2 Change of Resp Org for Toll-Free Number

This element provides for changing the Resp Org for a TFN and is charged on a non-recurring (per request) basis. Demand during the prior tariff period was expected to be 1,200, but will likely fall short of that. Projected demand is expected to be 600 for the prospective one-year period of February 15, 2024 through February 14, 2025.

4.3 Service Establishment

This service element provides for various aspects of establishing service including: first logon ID, subsequent (additional) logon IDs, and the restoration of services for Resp Orgs that have had service suspended. Charges for these services are applied on a non-recurring (one time) basis. Demand for first logon IDs is expected to decrease during the upcoming tariff period to 12. Average monthly demand for subsequent logon IDs is anticipated to be higher than the prior tariff period, resulting in annualized demand projection of 300 for the prospective tariff period. The demand for Resp Org Restoration of service (post suspension) remains low, although it did increase in the past tariff year. It is anticipated to have a demand of 4 for the prospective tariff period.

4.4 Customer Reports

This service element provides for the preparation and delivery of customer specific off-line reports as well as the preparation and delivery of standard recurring on-line reports. The on-line report demand for the prospective tariff period February 15, 2024 through February 14, 2025 is 48, an increase based on the actual demand experienced in prior tariff period. The on-line report is charged “per report.” Off-line reports are charged “per hour” to prepare and deliver for each customer request. A one-time event increased that number to 173 for the prior tariff year (as of this filing). Since that was a one-time event, four and one-half (4.5) hours of effort are anticipated during the prospective tariff period of February 15, 2024 through February 14, 2025.

4.5 WSI Additional Resp Org Testing per Hour

This service element provides for initial and/or additional testing as requested from the TFN Registry support team and is charged on an hourly basis as required. There were no requests for WSI testing during the prior tariff period, and as the WSI is relatively mature, additional testing needs for WSI are not anticipated during the prospective tariff period February 15, 2024 through February 14, 2025.