

DESCRIPTION AND JUSTIFICATION

1.0 Introduction and Description of Filing

In this tariff filing, scheduled to become effective February 15, 2021, Somos, Inc. (hereinafter referred to as “Company”) proposes changes to Tariff F.C.C. No. 1, 800 Service Management System (SMS/800) Toll-Free Number Registry (TFN Registry) Functions (SMS/800 Tariff) including: update to Technical Publications; an extension of the MGI and WBA availability; 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 pages 10 and 11, update the titles, issue numbers and dates for certain Technical Publications. All publications are available as of the filing date for this tariff.
- On pages 10 and 11, MGI and WBA access will be available through September 30, 2021, an extension from the prior date of April 30, 2021. The new dates have been communicated to Resp Orgs prior to this tariff filing.
- Sections 3.3.3 and 3.5, availability for MGI has been extended through September 30, 2021. The new date has been communicated to Resp Orgs prior to this tariff filing.

1.2 Modify Rates and Charges

This tariff filing is being made by Company to modify rates and charges in the SMS/800 Tariff. The proposed changes, reflecting the 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, 2021 through February 14, 2022 by \$2,230,510. 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 SMS/800 from February 15, 2021 through February 14, 2022 consists of expenditures for ongoing operations of the existing system as well as expenses related to the design, architecture and development of the SMS/800 platform. Specific budget items for the Company’s ongoing operations are:

- SMS/800 Operation and Administration which consists of: (a) Help Desk operational support to SMS/800 users including telephone assistance related to interfacing with SMS/800 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 the Company’s membership and Board of Directors to support management, operation and administration of the SMS/800.

The estimated revenue requirement for SMS/800 operation and administration for the one-year period of February 15, 2021 through February 14, 2022 is \$39,062,967.

- SMS/800 Data Center Operation reflects the cost of the ongoing support, maintenance of the existing production and test/disaster recovery SMS/800 data centers and operation of a Service Center (Help Desk) facility to handle security and access problems. It also includes costs associated with a technologically updated data center that will replace the existing data center. The estimated revenue requirement for the data center operation is \$20,008,595.
- SMS/800 Software Support includes the provision of software maintenance, computer site and application support, and software development for new features for the existing SMS/800 system. It also includes costs associated with the design and architecture of an updated software platform. The estimated revenue requirement for software support is \$6,261,383.

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 SMS/800 rate elements. The updated costing methodology is consistent with the methodology used for previous SMS/800 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: (a) network equipment and facilities needed to provide communications access for customers' links; (b) storage hardware for TFN record data; and (c) a processing community used to respond to and execute customer requests for SMS/800 services. *Network costs* are attributable almost entirely to rate elements required to access SMS/800. A unit cost analysis of each type of connection to SMS/800 was used to determine its cost. The processing community, consisting of central processing units and server-based distributed processors, and storage costs are related almost exclusively to the support and processing of customer records and were therefore, with only a few minor exceptions, assigned to the CRA rate element. The Data Center also supports production of some reports and batch updates. Activity based analyses were used to capture these costs and associate them with the appropriate rate elements. The resulting average unit costs for the Data Center are shown in Table 5, column (b).
- 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. The costs of the various functions were attributed to rate elements based on these analyses. 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 SMS/800 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 SMS/800 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 are the proposed hourly rates for Resp Org requested MGI/WSI Additional Testing. This rate is based on changes to vendor contracts. The contractual rate of \$200 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 SMS/800 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 numbers) largely by analysis of past values of that variable.¹

The first issue addressed involved data frequency. The toll-free number data are collected and reported weekly, 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

¹ This is an example of the Box-Jenkins approach to time-series modeling that only uses past values of a variable to predict future values. In addition to past values, a time trend may also be considered as well as transformations of the variable (e.g. natural logarithms) and seasonal indicators (e.g. quarter). Indicator variables take on a value of 1 or 0 (e.g. an indicator for the first quarter of a year takes on a value of 1 for the first quarter; 0 for all other quarters).

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 January 2021 through February 2022 reported in Table 3A represent either linear interpolations of the quarterly forecasts (2Q2021 - 2Q2022) or the result of estimated monthly CRA (1Q2021).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.

Similar to the choice of quarterly data, a three-year estimation window represents a tradeoff between regime stability and the number of estimation observations. Shorter time periods for estimation were considered, but there was reason to believe that these estimates were more susceptible to short term fluctuations and were less precise. Longer periods were not used because it is believed that factors that might drive demand change over time, and that factors that affected the market as recently as four years ago might not have any influence over current market conditions.

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 December 2020 – March 2021 (actual CRA data were available through November 2020). The estimated months were then used to complete the 13-quarter series for the quarterly CRA tariff forecast (1Q2018 - 1Q2021). The CRA tariff quarterly forecast begins with 2Q2021.

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 2020 to March 2021 Monthly Demand

Because the available data end in November 2020, to produce a quarterly forecast as described above, it is first necessary to produce a monthly forecast for December 2020 and for the first quarter of 2021. Although monthly CRA data for the prior month are not released until the 15th of the

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.

following month, daily CRA data for the following month are available around the 15th of the month. An approximation of the billing calculations was used to process these daily data and estimate the December 2020 CRA value. This provided a complete monthly CRA series through December 2020 which was used to estimate a model to forecast January through March 2021.

The model that best fits the monthly CRA series and reflects the current CRA trend is a regression model explaining undifferenced CRA using one lagged CRA term (CRA), the lagged average of disconnected and transitional toll-free numbers in use as a percentage of the average toll-free numbers in use during the month (DISC_TRANS_AVG_PCT) and the lagged average number of disconnected toll-free numbers in use during the month (DISC_AVG). The model is defined by the following parameters and summary statistics:

Monthly Regression Model: R-Squared = 0.7479 R-Squared Adjusted = 0.7328

PARAMETER	ESTIMATES	STD ERROR	T-STAT
CONSTANT	10,583,588	3,195,777	3.3117
CRA(-1)	0.7403	0.0777	9.5264
DISC_TRANS_AVG_PCT(-11)	11,831,336	4,752,129	2.4897
DISC_AVG(-7)	0.2500	0.1292	1.9346

In equation form, the model indicates that:

$$\text{Forecasted Monthly CRA}_t = 10,583,588 + 0.7403 \cdot \text{CRA}_{t-1} + 11,831,336 \cdot \text{DISC_TRANS_AVG_PCT}_{t-11} + 0.2500 \cdot \text{DISC_AVG}_{t-7} + u_t$$

The point forecast for the January 2021 to March 2021 period is shown below:

	Point Forecast
Jan-21	41,834,517
Feb-21	41,707,562
Mar-21	41,613,228

Forecasting Quarterly Demand Through February 2022

The monthly forecast model was used to complete the most recent 13 quarters of CRA data (1Q2018 - 1Q2022). Models were then fit to this quarterly series. The model that best fits the data and reflects the current CRA trend is a model using undifferenced CRA with two lagged CRA terms. The model is defined by the following parameters and summary statistics:

Quarterly Regression Model: R-Squared = 0.5953 R-Squared Adjusted = 0.5144

PARAMETER	ESTIMATES	STD ERROR	T-STAT
CONSTANT	35,574,166	11,344,912	3.1357
CRA(-1)	0.7072	0.2088	3.3864
CRA(-3)	-0.5635	0.2267	-2.4859

In equation form, the model indicates that:

$$\text{Forecasted Quarterly CRA}_t = 35,574,166 + 0.7072 \cdot \text{CRA}_{t-1} - 0.5635 \cdot \text{CRA}_{t-3} + u_t$$

The point forecast for the 2021Q2 to 2022Q1 period is shown below:

	Point Forecast
2021Q2	41,901,191
2021Q3	41,676,074
2021Q4	41,537,717
2022Q1	41,336,899

The global pandemic introduced a unique dynamic into the CRA forecast process for the upcoming tariff period. Through September 2020 actual CRA averaged 41.1M per month, slightly less than the prior tariff forecast of 41.3M per month. However, during the final quarter of 2020, the actual average CRA rose to 41.75M per month, versus the prior CRA forecast of 41.3M, resulting in CRA in excess of forecast by over 400,000 per month. As can be seen from the data in Table 3, the overall forecast differential for the entire tariff period is expected to 0.17%. The decline in the early part of the year was likely related to the macroeconomic impacts of the pandemic. The increase in demand beginning in September 2020 is likely related to additional video and other conferencing resources needed to accommodate the educational system, from kindergarten through colleges, responding to a need for additional access for their students, as well as an increase in demand related to pandemic driven remote shopping via Internet and phone, and business call/video conferencing from a largely at-home workforce. With vaccines now available and the vaccination plans rolling out across the United States and Canada, the expectation is that, over time, toll-free demand will return to pre-pandemic levels. Company expects that demand related to pandemic driven remote shopping will fall off in 2021Q1. However, Company expects toll-free demand related to education will be sustained into 2021Q2 before declining in the second half of 2021 and returning to pre-pandemic levels late in 2021.

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

	Point Forecast - 2*SE	Point Forecast	Point Forecast + 2*SE
2021Q2	41,444,478	41,901,191	42,357,905
2021Q3	41,118,258	41,676,074	42,233,889
2021Q4	40,929,160	41,537,717	42,146,275
2022Q1	40,681,004	41,336,899	41,992,793

The interval forecast (+/- 2*standard forecast error (SE)) represents a 95% forecast interval, i.e., there is a 95% probability that actual tariff demand will lie within the interval forecast. Absent the pandemic impact, the Company would ordinarily use the point forecast to represent the tariff period. That would result in a tariff period linearized CRA forecast of 499.7M, which

includes a spike over 42M in June 2021.

Company believes the recent substantive impacts related to the pandemic, described above, led to this spike and that the demand during the proposed tariff period 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. Without further data to specify the forecast, Company establishes the midpoint between the point forecast and the lower bound of the interval forecast, i.e., the point forecast less one standard forecast error.

	Point Forecast – 1*SE
2021Q2	41,672,835
2021Q3	41,397,166
2021Q4	41,233,439
2022Q1	41,008,951

The linearized CRA forecast maintains the characteristics of the point forecast, including increases April through June 2021, resulting in a total for the proposed tariff period of 496.6M, just 0.6% 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 is expected to be 1,645 above the anticipated demand due to one Resp Change event that Company does not expect to reoccur. Projected demand is expected to be 1,088 for the prospective one-year period of February 15, 2021 through February 14, 2022.

4.3 SMS/800 Access

This service element provides for the connection of dedicated and non-dedicated communications links to the SMS/800 and is charged on a recurring (monthly) basis. WBA and MGI access will be retired as of September 30, 2021. As Resp Orgs continue to migrate away from the legacy forms of access, the Company will not charge Resp Orgs a monthly access fee. Company expects demand for all three forms of access to decline throughout upcoming tariff period. Non-dedicated demand is expected to fall to 2,686, non-MGI dedicated access is expected to decline to 1,177 and MGI access is expected to decline to 331 in the prospective one-year period of February 15, 2021 through February 14, 2022.

4.4 Service Establishment

This service element provides for various aspects of establishing service, i.e., first logon ID, subsequent (additional) logon IDs and Security Keys as well as 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 remain steady over the upcoming tariff period at 14. Average monthly demand for subsequent logon IDs is anticipated

to increase resulting in annualized demand projection of 457 for the prospective tariff period. The issuance of Security Keys is projected to remain low at 12 for the prospective tariff period as Resp Orgs migrate to new forms of access which do not require security tokens. The demand for Resp Org Restoration of service (post suspension) remains low, in part, due to changes in process and thus is anticipated to have no demand for the prospective tariff period.

4.5 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, 2021 through February 14, 2022 is 64 as Resp Orgs continue to develop more reports without the support of Company. The on-line report is charged “per report.” Off-line reports are charged “per hour” to prepare and deliver for each customer request. Five (5) hours of effort are anticipated during the prospective tariff period of February 15, 2021 through February 14, 2022.

4.6 MGI/WSI Additional Testing per Hour

This service element provides for initial and/or additional testing as requested from the SMS/800 software support team and is charged on an hourly basis as required. There were no requests for MGI testing during the prior tariff period, and as MGI users prepare to transition to API interfaces, additional testing needs for MGI are not anticipated during the prospective tariff period February 15, 2021 through February 14, 2022.

4.7 Batch Updates

This service element allows customers to request changes and updates for multiple Toll-Free records and is charged per file processed. Historically, this rate element combined two batch updates, those that required SMS/800 Help Desk and Data Center support, and those that required only Data Center support. The latter required very little effort, while the former required more manual intervention from the Help Desk. Recent updates in the platform software have eliminated the need for Data Center support to perform batch updates. Thus, beginning with this prospective tariff period, only Resp Orgs that require SMS/800 Help Desk support for batch updates will be charged this rate element. Annual demand in the prior tariff period is projected to be two (2) batch updates. Company expects demand to remain low for the prospective tariff period February 15, 2021 through February 14, 2022 and is projected to be six (6) batch updates.

4.8 Batch Update Testing per Hour

This service element provides for initial testing of batch update files and formats required to properly conduct batch updates on the SMS/800 system as requested from the SMS/800 support team and is charged on an hourly basis as required. No additional Resp Orgs are anticipated to be adding this functionality and thus there is no activity expected for the prospective tariff period February 15, 2021 through February 14, 2022.