



STATE OF RHODE ISLAND

DIVISION OF PUBLIC UTILITIES & CARRIERS
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April 26, 2023

Via Electronic Mail

Luly Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888

RE: Docket No. 22-47-WW – The Narragansett Bay Commission’s General Rate Filing

Dear Ms. Massaro:

On behalf of the Division of Public Utilities and Carriers (“Division”), I have enclosed the Division’s response to the Narragansett Bay Commission’s First Set of Data Requests in the above-referenced docket.

Thank you for your attention to this matter. If you have any questions, please contact me at (401) 780-2146.

Sincerely,

/s/ Mark A. Simpkins

Mark A. Simpkins, Esq.
Deputy Chief of Legal Services
Division of Public Utilities and Carriers

Enclosure

cc: 22-47-WW Service List

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate were electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission.

/s/ Mark A. Simpkins

Mark A. Simpkins, Esq.

April 24, 2023

Date

**Docket No. 22-47-WW Narragansett Bay Commission – General Rate Filing
Service List – updated 2/21/2023**

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Request:

On page 30 of his testimony, Mr. Smith stated that “ Three years of data is not sufficient to establish whether there is a “trend”...” How many years of data does Mr. Smith believe is necessary to establish a trend?

Response:

More than three years. The more data points that are available, generally the better the basis for analyzing whether there is a trend. With more data, there is a better chance of reliably determining whether the data being examined constitutes a trend, versus something else, such as random year-to-year fluctuations with no reliable predictive value. Using only three data points can also result in inadequately supported and wrong conclusions. Using only three annual data points can also result “trend” identification that is unreliable and resulting trend-based forecasts that are not statistically reliable. Trend-based forecasts that rely on only three years of annual information can be way off the mark, i.e., such forecasts are not statistically valid and can vary substantially from subsequent actual results.

As one illustration of how a limited set of only three annual data points can be “analyzed” to identify a “trend” and thereby lead to an unreliable conclusion and a forecast that has little or no statistical reliability and which would produce projected results that are way off the mark from subsequent period actual statistics, consider the following information from National Football League statistics on Kansas City Chiefs quarterback Patrick Mahomes fumbles during the three-year period 2019-2021, a forecast derived from analyzing the “trend” based on only those three annual data points, as well as the subsequent actual 2022 statistics:¹

¹ See, <https://www.nfl.com/players/patrick-mahomes/stats/career>

Fumbles					
YEAR	TEAM	G	FUM	LOST	
2022	Kansas City Chiefs	17	5	0	
2021	Kansas City Chiefs	17	9	4	
2020	Kansas City Chiefs	15	5	2	
2019	Kansas City Chiefs	14	3	2	

In the 2019 season, Mahomes played 14 games, had 3 fumbles and 2 of those fumbles were lost (i.e., were recovered by the opposing team). In the 2020 season, Mahomes played 15 games, had 5 fumbles, and 2 of those fumbles were lost. In the 2021 season, Mahomes played in 17 games, had 9 fumbles, and 4 of those were lost. Reviewing only the three-year 2019-2021 information would indicate an increasing “trend” for QB Mahomes in each of these statistics: total fumbles, fumbles lost and average fumbles per game. Extrapolating and applying that “trend” to forecast Mahomes’ related 2022 statistics in each of those areas would result in forecasts of 2022 that were unreliable and significantly different than the reported actual 2022 results.

To illustrate the point that relying on only three annual data points for “trend” analysis and forecasting can be unreliable, the following tables focus only on KC Chiefs QB Patrick Mahomes’ annual fumble statistics for only the three years, 2019, 2020 and 2021, to produce the following “analysis” and projections of the same statistics for 2022:

Kansas City Chiefs Quarterback Patrick Mahomes Fumble Statistics								
Statistics per NFL*				Calculated	Year-Over-Year Percentage Changes			
Year	Games	Fumbles	Fumbles Lost	Average Fumbles Per Game	Percentage Increase in Fumbles Total	Percentage Increase in Fumbles Lost	Percentage Increase in Fumbles Per Game	
2019	14	3	2	0.21				
2020	15	5	2	0.33	67%	0%	56%	
2021	17	9	4	0.53	80%	100%	59%	
Average Percentage Increase						73%	50%	57%

Projection for 2022 Based On Above				
Using Average Percentage Increase Applied to Third Year of Three-Year Data				
	Games	Fumbles	Fumbles Lost	Average Fumbles Per Game
2021 statistic	17	9	4	0.53
Average percent increase		73%	50%	57%
Projected 2022		15.6	6	0.83
	Games	Fumbles	Fumbles Lost	Average Fumbles Per Game
2022 Projection	17	15.6	6	0.83
2022 Actual*	17	5	0	0.29
Error in Projection		10.6	6	0.54
Source of Actual Information				
https://www.nfl.com/players/patrick-mahomes/stats/career				

As the above illustrative example shows, three years of annual information is not sufficient or reliable enough to establish a trend and restricting analysis of a “trend” to only three years can result in grossly off-the-mark forecasts.

For purposes of reviewing fluctuations of a utility’s expenses or revenues, we would generally like to have more than three years, and ideally at least five or more years of data available to determine whether or not there is a trend. Depending on the type of analysis being done, a larger set of data points may be required for statistical reliability. Statistical concepts such as confidence interval and sample size can impact the reliability of conclusions reached.

In summary, more than three years of information should be examined to determine whether or not there is a trend.

Prepared by: Ralph Smith