UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

STATE OF NEW YORK, et al.,

Plaintiffs,

- against -

DEUTSCHE TELEKOM AG, et al.,

Defendants.

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19 Civ. 5434 (VM)

DECISION AND ORDER

VICTOR MARRERO, United States District Judge.

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Plaintiffs, the States of New York, California, Connecticut, Hawaii, Illinois, Maryland, Michigan, Minnesota, Oregon, and Wisconsin, the Commonwealths of Massachusetts, Pennsylvania, and Virginia, and the District of Columbia (collectively, "Plaintiff States"), acting by and through the respective Offices of their Attorneys General, brought this action against Deutsche Telekom AG ("DT"), T-Mobile US, Inc. ("T-Mobile"), Softbank Group Corp. ("Softbank"), and Sprint Corporation ("Sprint," and collectively with DT, T-Mobile, and Softbank, "Defendants") seeking to enjoin the proposed acquisition of Sprint by T-Mobile (the "Proposed Merger"). Plaintiff States claim that the effect of the Proposed Merger would be to substantially lessen competition in the market for retail mobile wireless telecommunications services (the "RMWTS Market" or "RMWTS Markets"), in violation of Section 7 of the Clayton Act, codified at 15 U.S.C. Section 18 ("Section 7"). Defendants counter that the Proposed Merger would in fact increase competition in the RMWTS Market and that Plaintiff States have thus failed to state a claim for relief.

The Court held a bench trial to adjudicate Plaintiff States' claim from December 9 to December 20, 2019 and heard post-trial closing arguments from both sides on January 15, 2020. The Court now sets forth its findings of fact and conclusions of law pursuant to Rule 52(a) of the Federal Rules of Civil Procedure.

INTRODUCTION

Adjudication of antitrust disputes virtually turns the judge into a fortuneteller. Deciding such cases typically calls for a judicial reading of the future. In particular, it asks the court to predict whether the business arrangement or conduct at issue may substantially lessen competition in a given geographical and product market, thus likely to cause price increases and harm consumers. To aid the courts perform that murky function demands a massive enterprise. In most cases, the litigation consumes years at costs running into millions of dollars. In furtherance of their enterprise, the parties to the dispute retain battalions of the most skilled and highest-paid attorneys in the nation. In turn, the lawyers enlist the services of other professionals -- engineers, economists, business executives, academics -- all brought into the dispute to render expert opinions regarding the potential procompetitive or anticompetitive effects of the transaction.

The qualifications of litigants' specialists, impressive by the titles they have held and the tomes their CVs fill, can be humbling and intimidating. And those witnesses' authoritative views stated on the stand under oath in open court can leave the lay person wondering whether word so expertly crafted and credentialed can admit room for error or even doubt. Together, counsel and experts amass documentary and testimonial records for trial that can occupy entire storage rooms to capacity.

Multiplying the complexity of antitrust proceedings, while also adding to the outlay of time and resources they demand, is the role of the federal government. In many cases, as occurred in the action at hand, the United States of America steps into the fray. Acting through the United States Department of Justice ("DOJ") or regulatory agencies, or both, the government intervenes to express its interest for or against the underlying transaction, filing objections or support, or imposing conditions that could affect its viability.

Perhaps most remarkable about antitrust litigation is the blurry product that not infrequently emerges from the parties' huge expenditures and correspondingly exhaustive efforts. Each side, bolstered by the mega records of fact discovery and expert reports it generates, as supplemented by the product of any governmental investigation and resulting action, offers the court evidence the party declares should guide the judge in reaching a compelling and irrefutable decision in the declarant's favor. In fact, however, quite often what the litigants propound sheds little light on a clear path to resolving the dispute. In the final analysis, at the point of sharpest focus and highest clarity and reliability, the adversaries' toil and trouble reduces to imprecise and somewhat suspect aids: competing crystal balls.

The case now before the Court follows the pattern. Plaintiff States contend that T-Mobile's merger with Sprint will likely stifle competition in the RMWTS Market, even in the short term, forcing consumers to pay higher prices for use of their cell phones. In support, they cite the results of their experts' spectral efficiency studies, engineering modeling, and computer-run data analytics. Defendants, similarly reinforced by their stellar cast of authorities, proclaim with equal conviction and no less intensity that after the merger, under a market newly energized by New T-Mobile's more vigorous competition, the prices consumers will pay for wireless services likely will not only not increase, but actually will decline. Accordingly, the parties' costly and conflicting engineering, economic, and scholarly business models, along with the incompatible visions of the competitive future their experts' shades-of-gray forecasts portray, essentially cancel each other out as helpful evidence the Court could comfortably endorse as decidedly affirming one side rather than the other.[1]

The resulting stalemate leaves the Court lacking sufficiently impartial and objective ground on which to rely in basing a sound forecast of the likely competitive effects of a merger. But the expert witnesses' reports and testimony, however, do not constitute the only or even the primary source of support for the Court's assessment of that question. There is another evidentiary foundation more compelling in this Court's assessment than the abstract or hypothetical versions of the relevant market's competitive future that the adversaries and their experts advocate. Conceptually, that underpinning supports a projection of what will happen to competition post-merger that emerges from the evidence in the trial record that the Court heard, admitted through the testimony of fact witnesses, and

[1] This outcome recalls the heated conflicts over what the Founders meant in framing particular provisions of the Constitution, often engendering unproductive textual, historical, and doctrinal debates about which Justice Robert Jackson remarked: "A century and a half of partisan debate and scholarly speculation yields no net result but only supplies more or less apt quotations from respected sources on each side of any question. They largely cancel each other." Youngstown Sheet & Tube Co. v. Sawyer, 343 U.S. 579, 634-35 (1952) (Jackson, J., concurring). Nonetheless, in the discussion below the Court thoroughly considers the trial testimony and related documentation offered by all the expert witnesses and explains where and why it found the presentations convincing in some respects, but in others unconvincing and on balance not sufficiently creditable.

evaluated with respect to its credibility and the weight it deserves.

How the future manifests itself and brings to pass what it holds is a multifaceted phenomenon that is not necessarily guided by theoretical forces or mathematical models. Instead, causal agents that engender knowing and purposeful human behavior, individual and collective, fundamentally shape that narrative. Confronted by such challenges, courts acting as fact-finders ordinarily turn to traditional judicial methods and guidance more aptly fitted for the task. Specifically, they resort to their own tried and tested version of peering into a crystal ball. Reading what the major players involved in the dispute have credibly said or not said and done or not done, and what they commit to do or not do concerning the merger, the courts are then equipped to interpret whatever formative conduct and decisive events they can reasonably foresee as likely to occur.

For this purpose, however, the courts rely less on the equipoise of mathematical computations, technical data, analytical modeling, and adversarial scientific assumptions that the litigants proffer. Rather, they apply the judge's own skills and frontline experience in weighing, predicting, and judging complex and often conflicting accounts of human conduct, those actions and inactions drawn from the factual evidence. In performing that function, courts employ various behavioral measures that even the most exhaustive and authoritative technical expert study could not adequately capture or gauge as a reliable prognosticator of likely events set in motion fundamentally by business decisions made by various live sources: relevant market competitors, other market participants, public agencies, and even consumers.

Evaluation of the likely competitive effects of a prospective business merger implicates these observations. The task provides the Court occasion to engage in such a prophetic role. To this end, the Court weighs what actions taken by the parties to the merger and other proponents could substantially influence consumer choices and thus affect competition and product pricing in the relevant markets.

In this context, several considerations emerge from the evidentiary record that the Court regards as especially relevant and compelling. Foremost among them is the plausibility and persuasiveness of particular witnesses' trial presentations based on various behavioral guideposts that the Court details in Section II.D.

During the two-week trial of this action the Court had ample occasion to observe the witnesses and assess their credibility and demeanor on the witness stand, and to consider the weight their testimony warranted in the light of the pointers referred to here and articulated below. As elaborated, in crafting the framework for its decision, and applying the evidence and governing legal principles, the Court took those considerations into account. The Court adopted this course because it regards as a guiding principle the proposition that behavioral drives and motivational forces such as those suggested serve to actuate as well as to restrain personal and business practices. Hence, they can function as a forecasting device, providing the Court substantial guidance about how the corporate officers and companies involved in the case are likely to conduct themselves under particular market conditions prevailing after a merger.

The approach detailed above assists the Court's adjudication by shedding light on a basic question presented here that was intensely debated by the parties, and that is central to a resolution of their dispute: whether a deeply embedded pattern of commercial conduct closely and publicly associated with a company or executive is likely to be abandoned or substantially altered after a merger so as to openly embrace a materially conflicting course, especially in the short term.

More significant for the purposes of deciding the issues before the Court is another salient point. The considerations the Court references here as supplying persuasive guidance also figure as judicial stock-in-trade, encompassing things courts commonly weigh in rendering predictive rulings such as, for instance, the judgment calls they routinely make in determining whether a rational person would or would not behave in a particular way, or whether to grant or deny bail, or to impose a custodial sentence, where in each case the likelihood of the defendant's reoffending if released comes into question.

Weighing the evidence in the trial record, and mindful of the considerations described here, the Court rejects Plaintiff States' objections on three essential points. First, the Court is not persuaded that Plaintiff States' prediction of the future after the merger of T-Mobile and Sprint is sufficiently compelling insofar as it holds that New T-Mobile would pursue anticompetitive behavior that, soon after the merger, directly or indirectly, will yield higher prices or lower quality for wireless telecommunications services, thus likely to substantially lessen competition in a nationwide market. Second, the

Court also disagrees with the projection Plaintiff States present contending that Sprint, absent the merger, would continue operating as a strong competitor in the nationwide market for wireless services. Similarly, the Court does not credit Plaintiff States' evidence in arguing that DISH would not enter the wireless services market as a viable competitor nor live up to its commitments to build a national wireless network, so as to provide services that would fill the competitive gap left by Sprint's demise. Accordingly, the Court concludes that judgment should be entered in favor of Defendants and Plaintiff States' request to enjoin the Proposed Merger should be denied.

I. FINDINGS OF FACT[2]

This is a case about competition in the retail market for mobile wireless telecommunications services. The significance of these services, as described in greater detail in Section II.D. below, has increased greatly since their inception roughly four decades ago, transforming from solely a method of voice communication to a critical means for consumers to manage countless facets of their daily lives. Among the variety of consumer uses enabled by these

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[2] While the Court has reviewed and considered all of the live testimony and accompanying exhibits admitted in evidence in connection with the trial in this matter, the Court addresses only those portions of the evidence relevant to its legal conclusions.

services are transportation applications such as Uber and Lyft, applications enabling mobile banking and transactions with various retail outlets, and personal entertainment uses such as streaming audio, video, and high-speed gaming. As mobile wireless telecommunications services now also enable consumers to communicate with each other through voice, video, and text in various ways, the importance of such services is hard to overstate.

Consumers choose retail mobile wireless telecommunications services ("RMWTS") providers, or "carriers," based on several considerations. These include the nominal price of the services, whether those services are bundled with consumer services in other retail markets, and the terms on which those services can be extended to consumers' families. Of equal or potentially greater importance, consumers also choose carriers based on the quality of the carriers' wireless telecommunications networks, including the speeds and consistency of coverage provided by those networks as well as the mobile applications that can be used given the quality of the networks. Because carriers compete on these dimensions of network quality, and because it is important to understand how these dimensions of network quality are determined, the

Court provides below a brief overview of mobile wireless network design and mobile wireless technological standards.

A. SPECTRUM AND MOBILE WIRELESS NETWORKS

1. Spectrum

Mobile wireless telecommunications services basically entail voice or data transmission via radio waves, which are generally referred to as spectrum. Because spectrum is necessary for the transmission of data, it is potentially the most critical resource for any aspiring RMWTS provider. Tr. 1152:3-9. Spectrum is a fixed resource that is limited in quantity, and its availability and use is thus regulated by the Federal Communications Commission ("FCC"). The FCC licenses spectrum in order to ensure the unique use of each radio frequency, without which there would be signal interference that would render mobile wireless telecommunications incomprehensible. Tr. 1152:10-21. The FCC also determines which frequencies of spectrum will be dedicated to specific communications industries, such as wireless telecommunications, cable television, and satellite services, as well as to other users such as the United States Department of Defense. The FCC occasionally reapportions certain spectrum frequencies to different industries based on their relative importance to consumers, and it may then auction the reapportioned spectrum to service providers in the relevant industry. Service providers may also privately transact in spectrum among themselves, although the FCC may need to approve the transfer of the relevant spectrum licenses.

The radio frequencies used for mobile wireless telecommunications services can be broadly divided into three categories of spectrum: "low-band," "mid-band," and "millimeter wave" ("mmWave") spectrum. Low-band spectrum, defined as covering frequencies below one gigahertz ("GHz"), can cover broad distances of up to 18 miles and penetrate into buildings effectively. It may thus be used to effectively provide mobile wireless telecommunications services in both urban environments with many buildings and less densely populated rural areas. However, low-band spectrum is in scarce supply because it is also used for television and radio broadcasting, and because the mobile wireless telecommunications networks that were built in the industry's infancy primarily used low-band spectrum. Def. Ex. 8180 at 3; Tr. 1153:8-20.

Mid-band spectrum covers frequencies between one and six GHz and has a maximum effective range of between two to six miles. While it does not have the same broad coverage or in-building penetration capabilities of low-band spectrum, it is plentiful in comparison and currently supports the majority of mobile wireless network traffic in the United States. Although 5G, the latest technological standard for mobile wireless telecommunications services, is primarily being deployed across the mid-band spectrum worldwide, this type of deployment has been relatively difficult in the United States because additional undeployed mid-band spectrum is not readily available. Def. Ex. 8180 at 3; Tr. 1153:21-1154:13.

MmWave spectrum covers frequencies above 20 GHz and is relatively new to mobile wireless networks. It is in plentiful supply and can be used to create additional capacity and higher speeds for consumers, but it has the least capability to penetrate buildings and the most limited range of all three spectrum bands, reaching only 300 yards at best. Def. Ex. 8180 at 3; Tr. 1154:14-1155:4.

2. Mobile Wireless Network Infrastructure

Data and voice communications are transmitted between consumers' mobile phones, or "handsets," through a complex and expensive set of infrastructure developed and maintained by certain RMWTS providers. Consumers' handsets transmit and receive data through radios that are hosted on "cell sites," which are either large steel lattice towers or antennas and related equipment mounted on rooftops.[3] Cell sites connect to each other through fiber cables called "backhaul," which also connect the cell sites to a central set of computing hardware called either the "mobile core" or "core network." The mobile core serves as a centralized station that manages network traffic and directs communications between handsets through the interconnected network of cell sites. Def. Ex. 8180 at 2; Tr. 504:14-505:15, 1150:8-1151:21.[4]

The reliability and quality of a consumer's mobile wireless telecommunications services depend largely on the coverage and capacity of the underlying mobile network. Tr. 505:22-506:13, 1143:16-25. Coverage refers to the range in which a carrier's customers can use their mobile wireless services; it is a function of both the location of the carrier's cell sites and the effective range of the spectrum deployed at those cell sites. Because consumers generally desire mobile services that do not limit their freedom of movement, the ideal network will have enough

[3] These large towers, sometimes called "macros," can be supplemented by smaller devices called "small cells," which cover smaller distances but are less expensive to install. Radio equipment may also vary based on the type of cell site and the radio frequencies that it will receive and transmit.

[4] The portions of this network infrastructure that specifically relate to radio transmission are sometimes referred to as the Radio Access Network ("RAN").

cell sites and spectrum to ensure consistent coverage wherever a carrier's customers are likely to travel.

Capacity refers to the amount of traffic that a mobile wireless network can support. Capacity is a multiplicative function of the number of cell sites in a network, the amount of spectrum deployed per cell site, and "spectral efficiency," which determines the amount of data that can be transmitted over a given quantity of spectrum. "Traffic" is a function of both the number of consumers that use a particular amount of spectrum and how much data those consumers' applications require. In other words, the more consumers who use a given amount of spectrum, the less data each consumer will be able to use at any given point in time. Consumers experience these data limitations either in the form of caps on how much data they can use or in the form of lower speeds that may limit or prohibit the consumers' ability to use data-intensive applications such as streaming video. RMWTS carriers seek to avoid exceeding their maximum capacity, and consequently downgrading the quality of their service, by acquiring more spectrum or building more cell sites to utilize their existing spectrum, either of which increases the carriers' capacity to carry additional network traffic. Def. Ex. 8180 at 6-7; Tr. 1163:2-15, 1165:10-1166:3, 1167:2-1168:17.

The preceding summary indicates that RMWTS carriers would like as much spectrum and as many cell sites as possible in order to have consistent coverage and sufficient capacity to ensure reliable, high-quality services. However, as noted above, spectrum is a scarce resource and consequently costly to acquire. Cell sites are similarly expensive to construct and connect to network infrastructure, and they can take months or even years to build because of the time-consuming process of securing the permitting and licenses necessary to build and operate them. Tr. 1144:13-22, 1167:2-1168:17.

B. GENERATIONAL STANDARDS FOR MOBILE WIRELESS SERVICES

The applications that RMWTS consumers can use also depend upon the technological standards that apply to the spectrum deployed on the mobile wireless network. There have been five generations of wireless technology standards, each of which has significantly increased spectral efficiency and thus facilitated increasingly data-intensive consumer uses.

The first generation of wireless technology standards governed the first mobile phones, which could only provide voice services, during a period that corresponds roughly to the 1980s. The second generation, referred to as 2G, came into operation in the 1990s and saw the development of basic non-voice data services; the archetypal 2G service was text messaging. 3G developed in the 2000s and featured a more comprehensive rollout of data services that allowed users of mobile devices to access email and browse the internet. 4G, also called LTE (for "long term evolution"), developed in the last decade. Coupled with the advent of smartphones, 4G has enabled data services far beyond basic internet browsing, including the creation of applications for varied consumer uses such as personal finance, entertainment, health and fitness, and much more. Tr. 1155:5-1157:4.

The RMWTS industry is currently in a transitional period, as providers begin to roll out 5G, the fifth-generation wireless technological standard. Although the full impact of 5G remains to be seen, it promises significant increases in the speeds available to consumers, lower consumption of mobile devices' batteries, and reduced latency, or the time required for a mobile device and mobile network to communicate with each other. 5G will likely enable consumers to use augmented reality ("AR") or virtual reality ("VR") applications and to stream video at a significantly higher picture quality referred to as 4K. 5G may also facilitate the development of various applications that may not strictly fall under the umbrella of retail services, such as autonomous driving, near-simultaneous translation, and healthcare applications that require minimal delays in network-to-device communication. Tr. 927:11-928:6, 1157:20-1159:2. In total, consumers are projected to demand more than five times as much data for 5G services as they currently demand for 4G services. Def. Ex. 8180 at 4.

The implementation of such a significant change in technological standards is costly and time-consuming. Industry estimates place the cost of deploying 5G across the United States at approximately $250 billion, including the costs of buying equipment, upgrading networks, and hiring new personnel. Tr. 1160:5-15. Because this process takes time, prominent experts in the RMWTS industry have expressed concerns that other countries like China or South Korea may fully implement 5G first and dominate the market for innovative applications made possible through 5G.

C. COMPETITION IN THE RMWTS MARKET

Service providers in this dynamic and rapidly changing market can be divided broadly into two categories: those which have built and operate their own mobile networks (Mobile Network Operators, or "MNOs"), and those which lease RAN access from the MNOs (Mobile Virtual Network Operators, or "MVNOs"). Notable competitors from both categories are described further below, as well as potential RMWTS Market entrant DISH Network Corporation ("DISH").

1. Mobile Network Operators

a. Verizon and AT&T

There are four MNOs with nationwide mobile wireless telecommunications network infrastructure, which serve a substantial majority of the United States population: Verizon Communications, Inc. ("Verizon"), AT&T Inc. ("AT&T"), T-Mobile, and Sprint.[5] Verizon and AT&T are the largest MNOs, with each approaching roughly one hundred million or more subscribers. Both earn revenues of over $4 billion and have significant spectrum portfolios, which they have leveraged in developing their mobile networks. Their networks have consequently developed a reputation for reliability and high quality, but their prices also tend to be higher than those of competitors, including T-Mobile and Sprint. The representations of both sides and the evidence developed at trial suggest that while Verizon and AT&T have high quality networks, neither MNO is distinguished for innovation of beneficial consumer services, such as

[5] While there are smaller MNOs with regional network infrastructure, none were discussed at length during trial. Accordingly, the Court will generally use the term "MNOs" to refer to the four with nationwide reach.

unlimited data plans or the bundling of services such as Netflix with their mobile wireless services. To the extent Verizon and AT&T have implemented measures such as these, those moves have frequently been reactions to innovations first made by T-Mobile or Sprint.

b. T-Mobile

T-Mobile is the third largest MNO, currently serving approximately 70 to 80 million subscribers and earning revenues of approximately $2-3 billion. The evidence at trial suggests that T-Mobile has seen remarkable success since 2011, transforming from an MNO with serious spectrum limitations and financial constraints to an aggressive competitor that has taken market share from the other three MNOs and delivered consumer benefits through numerous innovative offerings. T-Mobile's success may be attributed in significant part to its negotiation of a "break fee" that it would receive if AT&T did not acquire it during a proposed merger in 2011. Because regulatory challenges prevented AT&T from completing the merger, T-Mobile acquired approximately $3 billion in cash, $3 billion worth of spectrum, and a roaming agreement that allowed T-Mobile customers to use AT&T's network in areas that T-Mobile's network did not reach at the time. Tr. 160:25-163:4, 234:14-16.

At roughly the same time, in 2012, T-Mobile hired a new executive team led by current Chief Executive Officer John Legere ("Legere") and current Chief Operating Officer and future Chief Executive Officer Michael Sievert ("Sievert"). This new leadership team instituted an innovative strategy and culture referred to as the "Un-carrier." Under this strategy, T-Mobile would identify features of the RMWTS relationship between carriers and consumers that consumers disliked and then remove those features from its offerings to differentiate itself from the other major carriers such as AT&T and Verizon. Many aspects of T-Mobile's approach, such as the elimination of the prevailing two-year service contracts, the elimination of international roaming charges, and the provision of service plans that did not limit consumers' data usage, succeeded in attracting positive consumer attention. This success and the resources provided by the break fee convinced T-Mobile's controlling shareholder, DT, to provide $40 billion in funding for T-Mobile to invest in its network. That investment resulted in excess network capacity, and T-Mobile offered lower prices than AT&T and Verizon in order to attract customers and fill its resulting capacity. T-Mobile's lower prices and innovative consumer offerings thus combined to greatly improve its brand image. Tr. 884:2-888:12, 892:1-898:17.

c. Sprint

Sprint is the fourth largest MNO, serving approximately 40 million subscribers and earning revenues of just under $2 billion. Unlike T-Mobile, Sprint's trajectory over the past decade has been largely downward, as it has lost subscribers and been eclipsed by T-Mobile as the third largest MNO. Due in part to several questionable technological choices, Sprint's network is poorer in quality than those of its competitors and its brand image is correspondingly poor. Sprint has also struggled financially, failing to earn net income for eleven straight years until 2017. Having approached the verge of insolvency by 2013, Sprint embarked on a cost-cutting campaign and brought in Marcelo Claure ("Claure") as its new chief executive officer to help engineer a turnaround of its troubled state.

During Claure's term as CEO, Sprint implemented a number of low-priced consumer offers aimed at attracting new customers. As transpired with those offered by T-Mobile, those offers at least temporarily helped to lower prices in the industry and accelerated the adoption of pro-consumer services such as unlimited data plans. However, Sprint has struggled to retain the customers it initially attracted with its aggressive offers, due in large part to its underlying poor network quality. Sprint has attempted to find cost-effective ways to develop its network, such as reaching innovative partnerships with MVNOs to use small cells to fill gaps in network coverage. Sprint finally managed to achieve profitability under Claure in 2017, but it remains $37 billion in debt and has a poor credit rating as well. Also telling of severe financial, operational, and marketing difficulties, Sprint experiences the highest rate of loss of customers it has gained, who then switch service to one of the other carriers, a measure known in the industry as the "churn" rate. Sprint's churn rate is currently around two percent, or over twice that of T-Mobile, Verizon, or AT&T. Tr. 93:6-94:4. Because of its poor past performance and uncertain future prospects, Sprint has considered merging with T-Mobile and various other carriers on multiple occasions.

MNOs sell mobile wireless services either under their own brand names or through subsidiaries, depending on whether their customers pay in arrears ("postpaid" customers) or in advance of receiving services ("prepaid" customers). Tr. 110:18-25. While all four MNOs provide postpaid services under their own brand names, they provide prepaid services through subsidiaries. Since acquiring a competitor named MetroPCS via merger in 2013, T-Mobile offers prepaid services under its Metro by T-Mobile ("Metro") brand. Sprint offers prepaid services under the brand names Boost Mobile, Virgin Mobile (collectively with Boost Mobile, "Boost"), and Assurance Wireless. Despite the issues regarding Sprint's brand perception noted above, Boost has enjoyed remarkably positive consumer perception. Apart from the manner of payment, prepaid customers form a distinct segment of the RMWTS Market because they tend to be relatively price-conscious; prepaid subscribers' household incomes range from approximately $20,000 to $45,000, and prepaid subscribers are more likely to have subprime credit or be more cash-constrained than postpaid subscribers. Pl. Ex. 1205 at 9; Tr. 118:6-16.

2. Mobile Virtual Network Operators

The second major category of service providers in the RMWTS Market comprises the MVNOs, which differ from MNOs primarily in that they do not have the RAN necessary to support the provision of RMWTS. Tr. 539:5-540:16, 542:24-543:7. Although MVNOs compete with MNOs for subscribers in the RMWTS Market, their lack of proprietary RANs means they must simultaneously lease mobile wireless network access from MNOs. In one sense, MNOs can be considered wholesalers of their network access, which MVNOs then resell to their retail subscribers. Tr. 543:15-544:4.

There are a variety of MVNOs. The most successful to date has been TracFone Wireless, Inc. ("TracFone"), a provider of prepaid services that claims to have 22 million customers. Def. Ex. 5294 at 1. There are also numerous relatively new MVNOs operated by successful cable companies, including Comcast Corporation ("Comcast"), which operates under the Xfinity Mobile brand; Charter Communications ("Charter"), which operates under the Spectrum Mobile brand; and Altice USA, Inc. ("Altice"), which operates under the Altice Mobile brand. These cable MVNOs currently have a combined national market share of less than two percent, but they have attracted roughly one-third of all new subscribers in the RMWTS Market since 2018. Tr. 601:10-602:1, 845:17-846:19, 2272:1-22.

3. <u>DISH as a Potential Market Entrant</u>

Beyond the current carriers in the RMWTS Market, satellite television service provider DISH has expressed interest in entering the wireless market since at least 2012. Over the past eight years, DISH has amassed a large portfolio of spectrum, roughly equivalent in size to that of Verizon, through a series of private transactions and purchases at FCC auctions. DISH is also financially stable, being a successful provider of consumer services in the satellite TV industry.

Despite having expressed desire to enter the RMWTS Market, DISH has not done so to date. Because DISH is currently not using its large spectrum holdings, industry figures such as Claure have previously cast doubt on the sincerity of DISH's expressed intent and suggested that DISH is speculatively hoarding spectrum in the hopes of later selling it to companies such as T-Mobile and Sprint at a premium. DISH has also been accused of questionable compliance with prior commitments it has made to the FCC, with some of the same industry figures suggesting that DISH might build only a nominal wireless network and thus barely fulfill its regulatory commitments. See, e.g., Pl. Ex. 375; Tr. 219:25-220:4, 1346:12-1347:23.

DISH chairman Charles Ergen ("Ergen") has taken issue with these statements, viewing them, as he testified at trial, as mere discouragement by threatened industry incumbents. Tr. 1615:16-1616:16. According to Ergen, DISH has been engaging in extensive preparations to ensure it is able to construct a quality network. With respect to timing, he has stated that DISH was first prioritizing the construction of an unrelated Internet-of-Things ("IoT") network, as it would prefer to construct its mobile wireless network once 5G becomes available. Tr. 1573:4-22, 1734:15-1735:15. Regardless of DISH's intentions, its extensive preparations to build a mobile wireless network as well as its initial opposition to the Proposed Merger made it a significant participant during FCC and DOJ review of the T-Mobile/Sprint merger at issue here.

D. THE PROPOSED MERGER

Sprint and T-Mobile have considered merging on multiple occasions, including in 2010 and 2014. Among other reasons for merging, both parties have highlighted the complementarity of their spectrum holdings. T-Mobile has large low-band holdings, which allow it relatively broad coverage. Sprint has large mid-band holdings, which give Sprint extra capacity to carry network traffic as the era of 5G approaches. While the previously considered mergers in 2010 and 2014 obviously did not come to fruition, Sprint and T-Mobile initiated a new round of discussions in the summer of 2017. Tr. 1320:13-19. Sprint viewed a merger with T-Mobile as a sustainable path forward given its financial struggles and tarnished brand image, both of which hindered its ability to adequately invest in its network and provide superior service in the future. T-Mobile, which had built its success in part on the significant break fee and extra capacity that it gained in 2011 following the failed merger with AT&T, saw a merger with Sprint as an opportunity to avoid exhaustion of its capacity and thus maintain its aggressive pro-consumer strategies. Both parties also envisioned that the merged firm ("New T-Mobile") would have comparable scale to its two largest competitors, AT&T and Verizon.

Despite this initial optimism, talks between T-Mobile and Sprint temporarily broke down around November 2017. At that time, both parties released a joint press statement indicating that they intended and expected to continue competing vigorously in the RMWTS Market on a standalone basis. Sprint also considered mergers with a variety of other potential or actual market participants, including DISH, Comcast, and Charter, shortly after the announcement. Tr. 1320:20-1321:22, 1340:18-1341:4.

However, following a diagnostic assessment by newly appointed Chief Financial Officer Michel Combes ("Combes") in early 2018, Sprint concluded that a merger with T-Mobile was a more strategically sound path forward than either operating on a standalone basis or merging with any of the alternative market competitors. Tr. 1372:4-1375:4. Accordingly, Sprint resumed talks with T-Mobile in March 2018 and in April 2018 concluded the terms of the Proposed Merger, which the parties finalized in a merger agreement.

Sprint concurrently negotiated a roaming agreement with T-Mobile that would last for four years even if the Proposed Merger did not occur. Tr. 1307:24-1308:15.

E. REVIEW OF AND CHALLENGES TO THE PROPOSED MERGER

1. Federal Regulatory Review

As primary regulator of the telecommunications industry, in June 2018 the FCC began assessing the Proposed Merger with respect to various public interest factors including the merger's potential competitive impact. Throughout an extensive process spanning over a year, the FCC observed that while the unconditioned Proposed Merger could accelerate and broaden the use of 5G across the United States and thus improve the quality of mobile wireless services, the FCC remained concerned about the merger's potential impact on price-conscious consumers in densely populated areas. Def. Ex. 5385 (FCC Memorandum Opinion and Order 19-103) ¶¶ 8-11, 20.

T-Mobile and Sprint accordingly made several commitments to the FCC in May 2019 aimed at addressing its concerns. Sprint committed to divesting its Boost business, including its retail stores, employees, and current subscribers, to an independent buyer, and T-Mobile committed that New T-Mobile would provide the independent buyer of Boost with wholesale rates and terms sufficient to ensure it could aggressively compete in the market. Among many other conditions, Sprint and T-Mobile committed that New T-Mobile would: provide 5G service to 97 percent of the United States population within three years and 99 percent within six years; provide 5G service with speeds of at least 50 megabits per second ("mbps") to 75 percent of the same population and speeds of at least 100 mbps to 63 percent within three years; and provide 5G service to 85 percent of the United States rural population within three years, with at least 66 percent receiving speeds of 50 mbps and 55 percent receiving speeds of 100 mbps. They committed to achieve even more ambitious targets with respect to each metric within six years. Id. at ¶¶ 25-27. Sprint and T-Mobile committed that New T-Mobile would pay up to $2.4 billion in fines if it failed to fulfill their promises over the three- and six-year timeframes. Id. at ¶ 32. After several months of further consideration, the FCC ultimately concluded on October 16, 2019 that the Proposed Merger as conditioned would not substantially lessen competition and would be in the public interest. Id. at ¶ 11.

The DOJ's Antitrust Division concurrently began reviewing the Proposed Merger in 2018 to determine whether it would violate Section 7. The DOJ met with several interested parties throughout this process, including the merging companies, cable MVNOs, and DISH. In particular, the DOJ began to discuss with DISH Chairman Ergen whether DISH might be amenable to involvement in any proposed remedies to the unconditioned transaction. Tr. 1584:21-1587:14. On July 26, 2019, the DOJ and multiple other states filed a complaint in the United States District Court for the District of Columbia, alleging that the effect of the Proposed Merger would be to substantially lessen competition in the RMWTS Market unless additional relief were granted. Pl. Ex. 1261 ¶¶ 6, 16.

Along with its complaint, the DOJ filed a proposed final judgment containing numerous remedies that it contended would preserve the competition that would otherwise be lost as a result of the Proposed Merger. Def. Ex. 5363 at 2. The DOJ further declared that the proposed final judgment would provide substantial long-term benefits to American consumers by making available substantial amounts of unused or underused spectrum in the form of 5G networks. Def. Ex. 5386 at 4. The DOJ's proposed remedies provided that Sprint would divest to DISH all of its spectrum holdings in the 800 megahertz ("MHz") band, as well as Boost and its assets and subscribers. New T-Mobile would then sign an MVNO agreement providing DISH with low wholesale rates to use its network, which rates would decline according to a predefined formula as New T-Mobile's capacity increases. An independent monitor would also be appointed to ensure that New T-Mobile would not hinder DISH's ability to use its network. Additionally, DISH would use an interconnected mobile core that would allow it to transition its customers away from the New T-Mobile network to a purely 5G network that DISH would be required to build, and DISH would have the option to use cell sites that New T-Mobile would otherwise decommission for the construction of its 5G network. DISH committed to the FCC that if it did not deploy a nationwide 5G network covering at least 70 percent of the population by June 2023, it would pay up to $2 billion in fines and divest up to $12 billion worth of spectrum. Def. Ex. 5363 at 6-28; Def. Ex. 5385 ¶¶ 33-36; Def. Ex. 7207; Tr. 1590:9-1602:19. The District Court for the District of Columbia has yet to rule on the proposed final judgment.

2. <u>Plaintiff States' Challenge</u>

Like the federal regulators, several state attorneys general scrutinized the Proposed Merger to assess its likely effect on competition in the RMWTS Market. On June 11, 2019, Plaintiff States and the States of Colorado, Mississippi, Nevada, and Texas filed the instant action, alleging that the Proposed Merger would substantially lessen competition in the RMWTS Market unless enjoined. The States of Colorado, Mississippi, Nevada, and Texas eventually withdrew from this action. Despite the DOJ and FCC's proposed remedies and conditions to the transaction, Plaintiff States maintained their position that the Proposed Merger would likely substantially lessen competition. Accordingly, this action proceeded to a bench trial held before this Court between December 9 to December 20, 2019. Plaintiff States and Defendants then concluded by summarizing their respective positions in post-trial closing arguments on January 15, 2020. Having heard the parties' arguments and considered all relevant facts in this case, the Court now sets forth its conclusions of law.

II. CONCLUSIONS OF LAW

Section 7 prohibits a merger if its effect "may be substantially to lessen competition in any line of commerce in any section of the country." United States v. Phila. Nat'l Bank, 374 U.S. 321, 355 (1963) (internal quotation marks omitted). This prohibition requires a finding of a reasonable probability of a substantial impairment of competition, rather than a mere possibility. Fruehauf Corp. v. FTC, 603 F.2d 345, 351 (2d Cir. 1979); see also United States v. Marine Bancorporation, Inc., 418 U.S. 602, 622-23 (1974) (noting that Section 7 "deals in probabilities, not ephemeral possibilities" (internal quotation marks omitted)). Courts must judge the likelihood of anticompetitive effects in the context of the "structure, history, and probable future" of the particular markets that the merger will affect. United States v. Gen. Dynamics Corp., 415 U.S. 486, 498 (1974) (quoting Brown Shoe Co. v. United States, 370 U.S. 294, 322 n.38 (1962)).

Courts generally assess Section 7 cases through a three-part burden-shifting framework:

> Typically the [plaintiff] establishes a *prima facie* case by showing that the transaction in question will significantly increase market concentration, thereby creating a presumption that the transaction is likely to substantially lessen competition. Once the [plaintiff] establishes the *prima facie* case, the [defendant] may rebut it by producing evidence to cast doubt on the accuracy of the [plaintiff]'s evidence as predictive of future anti-competitive effects. Finally, if the [defendant] successfully rebuts the *prima facie* case, the burden of production shifts back to the [plaintiff] and merges with the ultimate burden of persuasion, which is incumbent on the [plaintiff] at all times.

Chi. Bridge & Iron Co. N.V. v. FTC, 534 F.3d 410, 423 (5th Cir. 2008) (internal citations omitted).

The Court structures its conclusions of law to track this framework, beginning with Plaintiff States' prima facie evidence of undue market concentration, shifting to Defendants' rebuttal evidence, and then reviewing the additional evidence and arguments offered by Plaintiff States in support of their case. The Court concludes by elaborating on the particular qualities of the RMWTS Market that render improbable any potential anticompetitive effects of the Proposed Merger.

A. PLAINTIFF STATES' PRIMA FACIE CASE

Plaintiff States may establish a presumption that the Proposed Merger would be anticompetitive by demonstrating that it would result in undue market concentration in an area of effective competition. This area "must be determined by reference to a product market (the 'line of commerce') and a geographic market (the 'section of the country')." Brown Shoe, 370 U.S. at 324. Proper market definition is deeply fact-intensive and requires a factual inquiry into the commercial realities faced by consumers. See United States v. Am. Express Co., 838 F.3d 179, 196-97 (2d Cir. 2016). "The basic principle is that the relevant market definition must encompass the realities of competition." Balaklaw v. Lovell, 14 F.3d 793, 799 (2d Cir. 1994) (internal quotation marks omitted).

1. The Relevant Product Market

"A relevant product market consists of 'products that have reasonable interchangeability for the purposes for which they are produced -- price, use and qualities considered.'" PepsiCo, Inc. v. Coca-Cola Co., 315 F.3d 101, 105 (2d Cir. 2002) (quoting United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 404 (1956)).

The parties in this case agree that the relevant product market is the RMWTS Market, but they disagree on various details regarding what exactly the RMWTS Market encompasses. Their disputes reduce to one major point: whether MVNOs should be attributed market shares, or whether MVNOs are not independent competitors, the subscribers or revenues of which should thus be attributed to the MNOs from which they lease network access.[6] There does not appear to be much case law specifically addressing whether and when one competitor's subscribers should be attributed to another competitor for market definition purposes. It is clear, however, that "the mere fact that a firm may be termed a competitor in the overall marketplace does not necessarily require that it be included in the relevant product market for antitrust purposes." FTC v.

[6] Defendants briefly raised issues with, but did not seriously dispute, Plaintiff States' arguments that "connected devices," such as smartwatches, and enterprise customers should be excluded when measuring the competitors' RMWTS Market shares. The Court concludes that both are rightly excluded. As Plaintiff States' economic expert Carl Shapiro ("Shapiro") noted, enterprise customers typically purchase through a procurement process rather than visiting retail stores, and corporate or government entities pay for the mobile wireless services rather than the individual employees who use them. Tr. 627:19-628:9, 649:20-24. Shapiro similarly noted that connected devices are not designed to handle mobile data and voice services in the same manner as standard mobile handsets, and one Sprint witness suggested that including connected devices with handsets could inaccurately portray the state of Sprint's wireless services business because of their materially different revenues. Tr. 101:9-16, 105:9-20, 628:10-20.

Staples, Inc., 970 F. Supp. 1066, 1075 (D.D.C. 1997). "The goal in defining the relevant market is to identify the market participants . . . that restrain an individual firm's ability to raise prices or restrict output." Geneva Pharm. Tech. Corp. v. Barr Labs. Inc., 386 F.3d 485, 496 (2d Cir. 2004); see also FTC v. Advocate Health Care Network, 841 F.3d 460, 469 (7th Cir. 2016) (noting that the relevant market need include only "the competitors that would 'substantially constrain [the merged firm's] price-increasing ability'" (quoting AD/SAT, Div. of Skylight, Inc. v. Associated Press, 181 F.3d 216, 228 (2d Cir. 1999))).

Based on these principles, the Court is persuaded that MVNOs should not be considered independent competitors in the RMWTS Market, and it adopts Plaintiff States' position that MVNO shares should thus be attributed to the MNOs from which the MVNOs lease network access. The weight of the evidence at trial suggested that MVNOs could not restrain the pricing behavior of MNOs to any truly significant degree. MVNOs have a miniscule share of the RMWTS Market overall; for example, even though Defendants cite Comcast as one of the fastest growing MVNOs in the market, it nevertheless has only two million customers (measured by connected lines) in a market of over 300 million lines.

Even as the smallest nationwide MNO, Sprint dwarfs this figure with its roughly 40 million lines. Tr. 816:16-24; 817:10-15. Comcast's Chief Business Development Officer, Samuel Schwartz ("Schwartz"), testified that he had seen no evidence of MNOs altering their pricing or service plans in response to Comcast's actions in the market, and he did not believe Comcast's Xfinity Mobile brand served as a competitive constraint on the MNOs. Tr. 817:16-818:1.[7]

That MVNOs necessarily rely on MNOs for use of the MNOs' mobile wireless networks further demonstrates their limited ability to constrain the MNOs' market power. See Tr. 539:5-15 (testimony of Altice Chief Operating Officer Abdelhakim Boubazine ("Boubazine")), 815:15-22 (Schwartz testimony). Comcast's service agreement with Verizon, which is termed a "Reseller Agreement," offers an illustrative example. Comcast cannot independently improve the quality of its cellular coverage or address service outages because the underlying network belongs to Verizon. Pl. Ex. 236; Tr. 819:10-820:1. Similarly, although TracFone has over 20 million subscribers, it cannot meaningfully compete with

[7] At closing arguments, Defendants cited two documents as evidence that T-Mobile was in fact reacting to moves by Comcast. Def. Exs. 5303, 5306. Upon review of the documents, however, the Court is not so persuaded. While the documents certainly demonstrate an awareness that Comcast is a growing player in the market, there was little to suggest that that awareness actually spurred T-Mobile to make specific changes in the RMWTS Market in response.

MNOs on network quality because it lacks a network of its own to invest in. Tr. 658:20-659:11. Because of these limitations, Schwartz opined that an MVNO like Comcast operates essentially as a reseller of an MNO's network services rather than an independent provider of its own cellular services; the title of the "Reseller Agreement" between Comcast and Verizon underscores this point. Tr. 813:5-23.

MNOs may also limit MVNOs' ability to compete as a condition of leasing their network services. Comcast's Reseller Agreement, for example, allows it to offer wireless services only as part of a bundle package with its non-wireless services, which eliminates its ability to attract customers who are uninterested in those other services. Verizon also limits Comcast's ability to offer unlimited data plans, which again limits the consumer options that Comcast can provide in the RMWTS Market. Tr. 820:2-821:5, 822:12-823:20. Similarly, the MVNO agreement between Altice and Sprint provides that Altice must pay Sprint a fee every time a customer switches from Sprint to Altice (although the agreement provides that this arrangement will eventually become reciprocal). Tr. 2275:11-2276:10.

That MVNOs pay MNOs for network access also limits their ability to compete independently. Paying wholesale fees to MNOs necessarily cuts the profits that an MVNO could receive from a retail customer, and those wholesale fees allow MNOs to generate their own revenues from MVNO subscribers' use of their networks. According to Plaintiff States' economic expert Shapiro as well as Altice COO Boubazine, MVNO margins are much thinner than those of MNOs as a result, which limits their ability to profitably initiate price decreases that would increase the competitive pressure on MNOs. Tr. 546:10-20, 659:12-662:2.

Finally, MNO control of RAN access affects various aspects of consumer experience. For example, MNOs control MVNO subscribers' SIM cards, which are chips lodged in mobile devices that enable user authentication and grant rights to access various classes of services. Tr. 541:5-22. This power to control the RAN services available to an MVNO subscriber is termed "core control," and MVNOs that lack core control necessarily face restrictions on the services they can provide their customers. Tr. 541:18-542:8.

Considering the totality of the evidence, the Court concludes that MVNOs face significant constraints on their ability to compete independently with MNOs and thus lack the ability to significantly constrain the MNOs. The Court is persuaded that the attribution of MVNO subscribers or revenues to the MNOs which provide the underlying network access constitutes an appropriate method of reflecting that MVNOs essentially depend on MNOs for RMWTS transmission, and that in some ways they operate as resellers of the MNOs' network services. Trial testimony indicated that doing so would be consistent with prior FCC practice in reviewing the mobile wireless industry. Tr. 668:5-15, 2270:3-15.[8] Indeed, the FCC expressly noted when analyzing the Proposed Merger that it "typically has seen MVNOs as limited in their ability to constrain the prices of [MNOs] because they rely on those [MNOs] for network access," and it would "exclude MVNOs from consideration when computing initial concentration measures." Def. Ex. 5385 ¶¶ 78, 201. The DOJ similarly declined to include MVNOs in its discussion of post-merger market shares. Pl. Ex. 1261 ¶¶ 8, 16.[9]

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[8] That T-Mobile itself attributes MVNO shares to MNOs in at least some contexts further supports the conclusion that this is a reasonable practice with respect to the mobile wireless telecommunications industry. Pl. Ex. 813 at 79.

[9] Plaintiff States also note that courts and the Federal Trade Commission ("FTC") have attributed companies' market shares to others in different industries. See United States v. Anthem, Inc., 236 F. Supp. 3d 171, 208, 210 (D.D.C. 2017); Matter of the Echlin Mfg. Co., 105 F.T.C. 410 ¶¶ 194-95(June 28, 1985) ("It is settled that . . . it is appropriate to include a firm's sales to resellers (private branders) in the firm's market share for the purposes of market share analysis.").

Of course, as Defendants argued before, during, and after trial, there is some legal authority suggesting that assigning market shares to MVNOs would be appropriate. For example, some courts have noted that "[d]efining a relevant product market is primarily a process of describing those groups of producers which, because of the similarity of their products, have the ability -- actual or potential -- to take significant amounts of business away from each other." Polypore Int'l, Inc. v. FTC, 686 F.3d 1208, 1217 (11th Cir. 2012) (internal quotation marks omitted). Defendants also cite the "Merger Guidelines," which the DOJ and FTC use to assess horizontal mergers, for the proposition that "[a]ll firms that currently earn revenues in the relevant market are considered market participants." See United States Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines § 5.1 (Aug. 19, 2010) (the "Merger Guidelines").

The two considerations discussed above would favor the calculation of market shares for MVNOs, as they undoubtedly earn revenues in the RMWTS Market and have taken at least some business from MNOs. Calculating such market shares, however, would risk overlooking the salient aspects of the RMWTS Market that indicate MVNOs could not meaningfully restrain the anticompetitive behavior of MNOs. For example, it is dubious that MVNOs have the ability to take "significant amounts of business" away from the MNOs, see Polypore, 686 F.3d at 1217, because of their remarkably small market shares and the fact that they would continue to rely on MNOs to provide network access to the MVNOs' growing customer base.

Similarly, while Altice might be able to take business from Sprint, Sprint can and does, as a condition of providing network access, require Altice to pay a fee to Sprint every time it does so. Because market definition focuses on the firms that could substantially restrain price-increasing ability, simply attributing market shares to MVNOs would not capture the reality that they do not compete with MNOs on an independent basis.

To the same effect, the Merger Guidelines recognize that calculating market shares for limited competitors may not always be appropriate. Specifically, they state that "the [DOJ and FTC] may measure market concentration using the number of significant competitors in the market[, which] is most useful when there is a gap in market share between significant competitors and smaller rivals." Merger Guidelines § 5.3. Although MVNOs earn revenues in the RMWTS Market, there is no denying the large gap in market share between each one and the four major MNOs. These numerous market-specific considerations lead the Court to conclude that calculating market shares for MVNOs would be inappropriate.

Though the Court concludes that MVNOs lack the ability to substantially constrain MNOs and thus should not be attributed market shares, MVNOs do undoubtedly compete with MNOs in some ways and should not be altogether excluded from broader consideration. Despite low overall market shares, the cable MVNOs have collectively attracted roughly one-third of all new wireless service subscribers over the last two years, signaling their significant growth. Tr. 601:2-602:1, 845:24-846:19. And while MVNOs cannot compete on the quality of their underlying network services, they may attempt to differentiate themselves through marketing and other forms of customer service, such as providing exclusive deals on Samsung handsets. Def. Ex. 8138; Tr. 857:11-859:11, 1802:1-12. Though the Court does not consider this evidence sufficient to require independent treatment of MVNOs for the purposes of market share analysis, evidence of MVNOs' competitiveness may bear on the overarching competitive analysis in other ways.

One way in which this preliminary market share analysis may not adequately reflect the role of MVNOs relates to DISH, which would enter the market as an MVNO but eventually transition to an MNO with its own 5G network. Considerations like this, which Plaintiff States' market share analysis does not fully capture, may ultimately reduce the persuasive force of market share statistics in the final analysis.

2. The Relevant Geographic Markets

"The geographic market selected must . . . 'correspond to the commercial realities' of the industry and be economically significant." Brown Shoe, 370 U.S. at 336-37. The Supreme Court has defined the relevant geographic market as "the area in which the goods or services at issue are marketed to a significant degree by the acquired firm" and noted that "[i]n cases in which the acquired firm markets its products or services on a local, regional, and national basis, the [Supreme Court] has acknowledged the existence of more than one relevant geographic market." Marine Bancorporation, 418 U.S. at 621. "Courts generally measure a market's geographic scope, the 'area of effective competition,' by determining the areas in which the seller operates and where consumers can turn, as a practical matter, for supply of the relevant product." Concord Assocs., L.P. v. Entm't Props. Tr., 817 F.3d 46, 53 (2d Cir. 2016) (internal quotation marks omitted). The relevant geographic markets need not be defined with scientific precision, as "an element of fuzziness would seem inherent" in any attempted definition. United States v. Conn. Nat'l Bank, 418 U.S. 656, 669 (1974) (internal quotation marks omitted).

Here, the parties agree that there is a national RMWTS Market, but disagree on whether there are additional local markets that correspond to the Cellular Market Areas ("CMAs") defined by the FCC for licensing purposes. Plaintiff States argued throughout trial for the existence of local markets because the quality of mobile wireless network service varies at a local geographic level and because carriers market and advertise locally. Defendants responded at trial that MNOs price nationally, make network engineering decisions nationally, and advertise in large part on a national scale. Local competition is for Defendants incidental to national competition, rather than probative evidence of discrete local markets.

The Court concludes that, based on controlling case law and the weight of the evidence adduced at trial, there are local RMWTS Markets which should be considered in determining the relevant geographic market here. As a practical matter, it seems highly unlikely that a consumer in a locality like New York City could simply turn to anywhere else in the nation, such as California, to obtain wireless services. On the contrary, consumers likely rely primarily on local services in the area in which they live and/or work.

Shapiro's testimony supports this perception. One method economists typically employ to define geographic markets is known as the hypothetical monopolist test, which asks whether consumers in a market with only one firm would buy the relevant product outside of that market in response to a small but significant non-transitory increase in their market price.[10] Applying this test, Shapiro concluded that a customer in a CMA such as that for New York would not seek RMWTS outside of that CMA in response to such a price increase. Tr. 637:23-638:13.

While Defendants' contention regarding the national scope of carriers' decision-making processes is both accurate and relevant, Section 7 also recognizes and focuses on the realistic choices available to consumers. See Heerwagen v. Clear Channel Commc'ns, 435 F.3d 219, 230-31 (2d Cir. 2006) (noting that Supreme Court's geographic market analysis turns not only on seller's practices but also where "purchaser[s] can practicably turn for supplies"), overruled on other grounds by Teamsters Local

[10] As Plaintiff States note, the Second Circuit has previously used this test to define relevant markets in antitrust cases. See Am. Express, 838 F.3d at 198-99.

445 Freight Div. Pension Fund v. Bombardier Inc., 546 F.3d 196, 201 (2d Cir. 2008). Even if prices do not vary locally, consumers undoubtedly choose RMWTS providers by accounting for other considerations, including the providers' quality of service. The undisputed evidence at trial reflects that network quality varies locally because of mobile wireless networks' physical aspects, and MNOs improve network quality more quickly in some areas than in others. Tr. 97:6-97:19, 383:7-15.

Recognizing that consumers care about the quality of mobile wireless services in their particular localities, Sprint, T-Mobile, and their competitors engage in a significant degree of local marketing. For example, Sprint has issued numerous press releases touting the high download speeds and reliability of its network, as well as its plans to deploy 5G service, in cities such as New York, Boston, Los Angeles, and Denver. Pl. Exs. 155, 159-161. T-Mobile similarly engages in a significant degree of local advertising; for example, T-Mobile increased its local advertising in New York in response to a Verizon campaign that promoted Verizon's network as the "best in New York." Pl. Ex. 852; Tr. 404:15-406:2. Other internal T-Mobile documents reflect the local competition that occurs in areas like New York City, with T-Mobile employees remarking on Sprint's successful ability to attract customers through "massive billboards on key transit areas . . . and guerilla street marketing." Pl. Ex. 953; Tr. 408:22-410:14. Even if local advertising is a small fraction of Defendants' national advertising budgets, it nevertheless reflects an awareness that consumers do care about the local quality of their wireless service and can be convinced to choose a carrier based at least in part on the local strength of its network. This point is further strengthened by evidence at trial indicating that T-Mobile decides where to construct retail stores based on where it already has substantial network coverage. Tr. 390:10-391:4.

The FCC similarly found that local markets as delineated by CMAs were relevant to its analysis of the competitive aspects of the Proposed Merger. Def. Ex. 5385 ¶¶ 66-69. Recognizing that the national breadth of the transaction and MNOs' pervasive competition across the national market obviated the need to assess the Proposed Merger's effect in each individual CMA, the FCC stated that it

> has found repeatedly that because most consumers use their mobile wireless services at or close to where they live, work, and shop, they generally purchase mobile wireless services from service providers that offer and market such services locally. Wireless service sold in distant locations is generally not a good substitute for service sold near a consumer's

> home or work. In addition, service providers compete at the local level on factors such as coverage and service quality. With respect to mobile telephony/broadband services, nothing in our record causes us to doubt that in the event of a price increase (or service quality decrease) that is limited to one CMA, that has the effect of raising the quality-adjusted price in that locality, too few buyers would switch to purchasing mobile wireless services for service providers operating in another area to make that quality-adjusted price increase unprofitable.

Id. at ¶ 68. The FCC's conclusion essentially mirrors the Court's findings with respect to local competition.

That the FCC also uses CMAs to delineate local market boundaries when analyzing the competitive impact of mergers suggests that CMAs would not be imprecise or uninformative local markets for the purposes of the Court's Section 7 analysis. See Phila. Nat'l Bank, 374 U.S. at 361 (noting that three federal banking agencies' views of the area of effective competition helped to define the relevant geographic market); United States v. Phillipsburg Nat'l Bank & Tr. Co., 399 U.S. 350, 364-65 (1970) (agreeing with federal agencies' definition of local geographic market).

The DOJ and at least one other court have also used CMAs to define local geographic markets when assessing the competitive impact of mergers upon markets for mobile wireless telecommunications services, further indicating that CMAs provide a workable framework for the calculation of local market shares in this context. See United States v. AT&T Inc., 541 F. Supp. 2d 2, 4-5 (D.D.C. 2008).[11] Accordingly, the Court concludes that the national RMWTS Market and the CMAs defined by the FCC constitute the relevant geographic markets in this case.

3. Market Share Analysis

Having defined the relevant product and geographic markets, the Court may assess the presumptive competitive impact of the Proposed Merger by reviewing two different measures. By one measure, a merger will be presumptively anticompetitive if the merged firm would have more than a 30 percent market share. See Phila. Nat'l Bank, 374 U.S. at 364-66; Consol. Gold Fields PLC v. Minorco, S.A., 871 F.2d 252, 260 (2d Cir. 1989). Alternatively, a court may measure market concentration using the Herfindahl-Hirschman Index ("HHI"), which the DOJ and FTC routinely use to assess mergers and which is calculated by adding the squares of

[11] The Court is not persuaded by Defendants' arguments that CMAs would be uninformative local markets because there is no statistically significant relationship between CMA-level concentration and network quality. Tr. 1793:10-1797:20. Even if concentration per se has not caused local differences in quality, Section 7 analysis must somehow capture those differences because they matter to consumers. CMAs have proven a practical means of doing so. Market share analysis focuses on the possibility that increases in concentration could negatively impact competition in the future, even if there is no evidence that high concentration has actually done so to date. But because market share analysis establishes only a presumption regarding competitive effect, evidence demonstrating that differences in concentration do not and likely will not affect local competition remains relevant to the broader analysis of competitive effect.

the individual firms' market shares. See Merger Guidelines § 5.3. The Merger Guidelines provide that a merger will be presumptively anticompetitive if HHI increases by over 200 points and results in a "highly concentrated market" with a total HHI exceeding 2,500. See id.

By either measure, Plaintiff States have satisfied their prima facie burden. Shapiro calculated that New T-Mobile would have a national market share of either 37.8 percent if measured by subscribers or 34.4 percent if measured by revenues, and the national HHI would increase by 679 points for a total HHI of 3186. Tr. 647:4-23. The shares are higher in certain local markets. For example, the total HHIs for the local CMAs corresponding to Los Angeles and New York would be as high as 4158 and 4284 respectively, and market share in Los Angeles would be as high as 57 percent. Tr. 654:7-15, 656:1-4. These figures are more than enough to establish a presumption that the Proposed Merger would be anticompetitive.

It bears repeating, however, that market shares and HHIs establish only a presumption, rather than conclusive proof of a transaction's likely competitive impact. As the Court elaborates in Section II.D. below, presumptions are not self-executing; for the circumstances presumed to transform into actual effects would require real-world conduct and decisions by the actors involved. Accordingly, depending on the affirmative practices and actions taken by market participants, highly concentrated markets can nevertheless be quite competitive, as Shapiro noted. Tr. 728:15-729:6. And, as Defendants' economic expert Michael Katz ("Katz") observed, the HHI thresholds prescribed by the Merger Guidelines are generic as to the markets being evaluated. Tr. 1797:4-18. This fact is particularly relevant because "[a]ntitrust analysis must always be attuned to the particular structure and circumstances of the industry at issue." Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 411, (2004). HHI measures may not be as informative as they might first appear in light of complexities particular to the RMWTS Markets and the already extensive scrutiny of the Proposed Merger by the FCC and DOJ -- a point also highlighted in Section II.D.

B. DEFENDANTS' REBUTTAL CASE

Plaintiff States have established an initial presumption that, by reason of higher concentration in fewer firms in the relevant market, and New T-Mobile's much larger market share, the effect of the Proposed Merger would be likely anticompetitive. But that prospect is not the end of the Section 7 analysis. "The Supreme Court has adopted a totality-of-the-circumstances approach to the statute, weighing a variety of factors to determine the effects of particular transactions on competition. . . . Evidence of market concentration simply provides a convenient starting point for a broader inquiry into future competitiveness." United States v. Baker Hughes Inc., 908 F.2d 981, 984 (D.C. Cir. 1990); see also United States v. Waste Mgmt., Inc., 743 F.2d 976, 981 (2d Cir. 1984) (noting that "large market shares are a convenient proxy" for assessing horizontal mergers, rather than definitive). Defendants may thus rebut evidence of high market concentration by producing evidence that "show[s] that the market-share statistics [give] an inaccurate account of the acquisition['s] probable effects on competition." United States v. Citizens & S. Nat'l Bank, 422 U.S. 86, 120 (1975); see also R.C. Bigelow, Inc. v. Unilever N.V., 867 F.2d 102, 108 (2d Cir. 1989). Relevant evidence may include unique economic circumstances and nonstatistical evidence that undermines the predictive value of market share statistics, such as ease of entry into the market, the trend of the market toward or away from concentration, and the continuation of active price competition. See FTC v. Univ. Health, Inc., 938 F.2d 1206, 1218 (11th Cir. 1991). "The more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully, but because the burden of persuasion ultimately lies with the plaintiff, the burden to rebut must not be unduly onerous." United States v. Anthem, Inc., 855 F.3d 345, 349-50 (D.C. Cir. 2017) (internal quotation marks omitted). As context and overarching framework for that analysis, the Court points to another consideration noted in the case law and reflected by the evidence in the trial record: the particularities of the telecommunications industry and how essential features of the RMWTS Market are likely to shape and guide competitive behavior, corporate and individual, in the post-merger wireless market.

Defendants' rebuttal evidence may be broadly divided into three categories: (1) evidence that the efficiencies arising from the Proposed Merger will cause New T-Mobile to compete more vigorously with its rivals in the RMWTS Markets; (2) evidence that Sprint is a weakened competitor that is not likely to continue competing vigorously in the RMWTS Markets; and (3) evidence that the DOJ and FCC review of and remedies to the Proposed Merger, and particularly their collective efforts to establish DISH as a new vigorous competitor in the RMWTS Markets, ameliorate any remaining concerns of anticompetitive effect. The Court addresses each category of evidence in turn and concludes that while no one category serves as the sole basis to rebut Plaintiff States' prima facie case, Defendants have satisfied their burden of rebuttal under the totality of the circumstances.

1. Efficiencies of the Proposed Merger

It remains unclear whether and how a court may consider evidence of a merger's efficiencies. While the Supreme Court has previously stated that "[p]ossible economies cannot be used as a defense to illegality," FTC v. Procter & Gamble Co., 386 U.S. 568, 580 (1967), lower courts have since considered whether possible economies might serve not as justification for an illegal merger but as evidence that a merger would not actually be illegal. The trend among lower courts has thus been to recognize or at least assume that evidence of efficiencies may rebut the presumption that a merger's effects will be anticompetitive, even if such evidence could not be used as a defense to an actually anticompetitive merger. See, e.g., Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd., 778 F.3d 775, 790 (9th Cir. 2015) (assuming that "a defendant can rebut a prima facie case with evidence that the proposed merger will create a more efficient combined entity and thus increase competition"); FTC v. Tenet Health Care Corp., 186 F.3d 1045, 1054-55 (8th

Cir. 1999) (stating that even where an efficiencies defense is properly rejected, a court should "nonetheless [consider] evidence of enhanced efficiency in the context of the competitive effects of the merger . . . [as] the merged entity may well enhance competition"); Univ. Health, 938 F.2d at 1222 (concluding that "a defendant may rebut the government's prima facie case with evidence showing that the intended merger would create significant efficiencies in the relevant market" if such evidence bears on the intended merger's competitive effect).

Additionally, the DOJ and FTC have indicated that they will not challenge a merger if its efficiencies indicate that the merger will not be anticompetitive in any relevant market. See Merger Guidelines § 10 (noting as an example that "merger-generated efficiencies may enhance competition by permitting two ineffective competitors to form a more effective competitor, e.g., by combining complementary assets"). Courts and the Merger Guidelines generally require that claimed efficiencies be both merger-specific and verifiable. See FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327, 348-49 (3d Cir. 2016).

Despite the skepticism that some courts have expressed and the lack of Second Circuit precedent on point, this Court will consider evidence of efficiencies, given courts' and federal regulators' increasingly consistent practice of doing so, and because Section 7 requires evaluation of a merger's competitive effects under the totality of the circumstances. See Baker Hughes, 908 F.2d at 984.

Defendants project that the Proposed Merger would result in a variety of efficiencies that would be passed on to consumers through more aggressive service offers, leading to annual consumer welfare gains that will range from $540 million in 2020 to $18.17 billion by 2024. Def. Ex. 8181 at 69. Defendants' claimed efficiencies include: (1) more than doubling the standalone firms' network capacity, which is projected to result in 15 times the speeds now offered by the four major MNOs to consumers; (2) saving $26 billion in network costs and another $17 billion in other operating costs; (3) increasing network coverage to strengthen competition in underserved markets; and (4) accelerating the provision of 5G service. Def. Ex. 5197 at 6, 12-13, 15; Def. Ex. 5241 at 2-4, 12, 24; Tr. 248:17-249:21, 1025:9-1026:6, 1198:12-17, 1785:23-1786:6. Defendants' bottom-line conclusion is that they will use these advantages to lower prices and thus compete more effectively against AT&T and Verizon. Even if the Court assumed that the efficiencies cited by Defendants would not, absent other circumstances, rebut Plaintiff States' prima facie case, the Court concludes that the efficiencies are sufficiently verifiable and merger-specific to merit consideration as evidence that decreases the persuasiveness of the prima facie case.

The primary efficiency Defendants claim is the increased capacity that New T-Mobile would gain from adding Sprint's mid-band spectrum and 11,000 cell sites to T-Mobile's network. T-Mobile argues that these cell sites and spectrum would provide it with enough additional capacity to meet the market's projected growth in data consumption and thus avoid the erosion in quality of service that would result from saturating its existing capacity. See, e.g., Def. Ex. 5219 at 13; Tr. 919:6-920:22. The undisputed evidence at trial reflects that combining Sprint and T-Mobile's low-band and mid-band spectrum on one network will not merely result in the sum of Sprint and T-Mobile's standalone capacities, but will instead multiply the combined network's capacity because of a technological innovation referred to as "carrier aggregation" and certain physical properties governing the interaction of radios. Tr. 1027:8-1028:7. Because mobile networks are the basis for mobile wireless telecommunications services, this increase in network capacity would translate to what T-Mobile's President of Technology, Neville Ray ("Ray"), described as an "inordinate amount" of new supply in the market. Tr. 1145:14-1146:13. Not only would this excess capacity allow New T-Mobile to support additional subscribers at reduced marginal costs, it would improve the speeds at which current subscribers could use data services. Defendants argue that this is particularly important in a world where data-intensive streaming video now accounts for over 50 percent of the traffic on T-Mobile's network. Tr. 1164:22-1165:6. Defendants project that the Proposed Merger would result in speeds averaging between 400 to 500 mbps, or at least 15 times current speeds. Tr. 1191:9-18.

Defendants next note that the Proposed Merger would allow New T-Mobile to operate at reduced cost, projecting that roughly $26 billion in efficiencies will result from network cost synergies alone. Def. Ex. 5241; Tr. 248:17-249:21. They project that the retirement of Sprint's network would save $4.2 billion in operating costs per year. Tr. 249:14-21. In addition to reduced operating costs and the benefits of combining spectrum on one network, that New T-Mobile will take over 11,000 of Sprint's existing towers would reduce the cost and delay that T-Mobile would otherwise incur from building new towers for future network development. Def. Ex. 5277; Tr. 1044:17-1046:24. By reducing these network costs while combining the standalone firms' customers onto one network, New T-Mobile would achieve economies of scale on par with those of market leaders AT&T and Verizon. Tr. 1147:23-1149:4. Defendants also project savings from streamlined advertising, the closing of 3,000 redundant retail stores, and reducing the costs of billing and other professional "back office" services, which combine with the network cost savings for total net cost savings of $43 billion. Tr. 1043:13-1044:9, 1047:14-1050:9.

Apart from capacity and cost benefits, Defendants claim that New T-Mobile will provide better coverage than Sprint customers currently receive because T-Mobile's low-band spectrum covers a broader range and penetrates through buildings more effectively than Sprint's mid-band holdings can. Tr. 513:3-15. Having a broad range of spectrum would allow New T-Mobile to dedicate each band of spectrum to its best use; it could prioritize the use of low-band in areas that mid-band and mmWave could not reach, while instead prioritizing the other two bands in areas correspondingly closer to the cell sites. Tr. 1172:18-1173:7.

Defendants further claim that the Proposed Merger would accelerate mobile wireless carriers' provision of 5G service in the United States. They argue that in fact, the mere announcement of the Proposed Merger has already procompetitively improved the rollout of 5G services. Defendants state that though AT&T and Verizon originally planned to deploy 5G service primarily on mmWave spectrum, they have since, in response to the prospect that New T-Mobile would deploy 5G services across its broader-reaching low-band and mid-band holdings, broadened the spectrum that they will use. Tr. 1192:3-1193:8. Because spectrum must generally be dedicated to either 4G or 5G and carriers must continue to serve customers without 5G-capable handsets, acquiring Sprint's currently underused mid-band assets would allow New T-Mobile to dedicate spectrum to 5G more quickly than either standalone firm could. Tr. 1181:4-1183:3. Apart from the greater spectral efficiency associated with 5G, Defendants state that faster adoption of 5G will also catalyze the earlier creation of new applications and services not currently possible in the 4G/LTE environment. Tr. 1146:14-1147:5.[12]

[12] Ray noted that faster nationwide adoption of 5G could catalyze job growth and innovation in connection with the development of new services, and that this would help the United States to maintain its position as a technological innovator even as other countries such as China and South Korea seek to establish themselves as leaders in a 5G world. Tr. 1147:6-22, 1196:2-1197:13. While these considerations likely go beyond the scope of the nationwide and local RMWTS Markets, they might nevertheless bear on whether enjoining the Proposed Merger would be in the public interest more broadly.

Defendants conclude that New T-Mobile would use these advantages to decrease consumer prices because doing so would actually be profitable. Def. Ex. 5241; Tr. 1028:20-1030:7. As New T-Mobile would have relatively low network marginal costs and more excess capacity to fill than AT&T and Verizon, it could rationally lower its prices and advertise the higher quality of its network to attract customers away from AT&T and Verizon, thus increasing competition in the RMWTS Markets. Tr. 1040:13-1041:20.

Other courts have similarly noted that the incentive to use excess capacity given lower marginal costs, as well as the reduction of required capital and operational expenditures, increases the likelihood of competition rather than coordination. See United States v. Archer-Daniels-Midland Co., 781 F. Supp. 1400, 1420, 1423 (S.D. Iowa 1991) (noting that the "economic incentive to maintain full production, combined with [] excess capacity, works against the likelihood of any collusive price raising scheme"); United States v. Country Lake Foods, Inc., 754 F. Supp. 669, 674, 680 (D. Minn. 1990) (finding that increases in capacity would increase competition by enabling the acquiring company to compete with the market leader at similar scale); see also FTC v. Butterworth Health Corp., 946 F. Supp. 1285, 1301 (W.D. Mich. 1996) (concluding that "the proposed merger would result in significant efficiencies, in the form of capital expenditure avoidance and operating efficiencies" that would be passed onto consumers in light of commitments made by the defendants).

These cases and the record evidence confirm that there is substantial merit to Defendants' claims that the efficiencies arising from the Proposed Merger will lead T-Mobile to compete more aggressively to the ultimate benefit of all consumers, and in particular the subscribers of each of the four major competitors.[13] Sprint customers would benefit from greater coverage, T-Mobile customers would benefit from greater speeds and 5G service sooner. And even AT&T and Verizon customers would benefit insofar as New T-Mobile continued T-Mobile's past practice of pushing AT&T and Verizon to adopt pro-consumer offerings.

While Plaintiff States do not deny that generally the Proposed Merger could generate efficiencies, they respond that these efficiencies are not cognizable because they are neither merger-specific nor verifiable. The Court now considers both grounds pressed by Plaintiff States,

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[13] T-Mobile emphasized at trial that not only is competition likely to increase because of the claimed efficiencies, but that competition might decrease without them because T-Mobile could not deliver the same or better quality of service when it exhausts its current capacity. T-Mobile would thus need to choose between either providing lower quality services or raising prices to improve service quality, effectively ending the Un-carrier strategy. Tr. 1271:9-14, 1228:11-25, 1842:25-1843:23.

concluding that these arguments lack sufficient merit to warrant disregard of Defendants' claimed efficiencies.

a. Merger Specificity

Efficiencies are merger-specific if they "cannot be achieved by either company alone," as otherwise those benefits could be achieved "without the concomitant loss of a competitor." Penn State, 838 F.3d at 348 (internal quotation marks omitted); see also Merger Guidelines § 10 (stating that the DOJ and FTC credit "only those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects"). In this regard, the DOJ and FTC consider "[o]nly alternatives that are practical in the business situation faced by the merging firms" and "do not insist upon a less restrictive alternative that is merely theoretical." Id.

Plaintiff States argue that Defendants' claimed efficiencies are not merger specific because Defendants have alternate means of increasing capacity and coverage, and because both Sprint and T-Mobile will inevitably provide 5G services on a nationwide basis. In particular, Plaintiff States emphasize that Defendants can alternatively increase capacity by acquiring spectrum through auctions and private transactions. Tr. 227:15-18, 229:15-21.

Auctions present multiple issues for T-Mobile and Sprint. They are infrequent, their timing is uncertain, and it can take years for a contemplated auction to occur. There is no guarantee that Sprint or T-Mobile could win a substantial amount of spectrum at these auctions because AT&T and Verizon can leverage their higher market capitalization to dominate the auctions with high bids. Tr. 227:15-228:14. Moreover, the spectrum that the FCC chooses to auction may not practically address the merging parties' needs. For example, while Sprint needs low-band spectrum, there have been no such auctions since 2015 and there are no future low-band auctions anticipated at this time. Def. Ex. 6003; Tr. 513:16-516:2.

Similarly, while the mid-band "C-Band" spectrum that the FCC will eventually auction might address some of T-Mobile's needs, no date for the auction has been set, it could take years for the spectrum to actually become available for use after the auction, and T-Mobile would also need to deploy radios and handsets that can use this newly available spectrum. Tr. 1219:2-1222:18. The mid-band CBRS spectrum that the FCC will auction is similarly impractical to address T-Mobile's requirements because the

Department of Defense will always have priority over its use; as T-Mobile's rights are necessarily subordinate, its ability to use such spectrum for RMWTS purposes is inherently subject to uncertainty. Tr. 1223:8-1225:2.

Private transactions are certainly possible, as T-Mobile has consistently acquired spectrum through either this method or auctions in every year since 2013. Tr. 959:24-961:1. But private transactions usually entail small amounts of spectrum and depend upon counterparties' willingness to part with their spectrum. Opportunities to acquire the desired bands of spectrum in any significant measure are thus infrequent. Tr. 1225:3-1226:11. While T-Mobile or Sprint could theoretically spend another decade negotiating and acquiring the required spectrum bit-by-bit, doing so would clearly not allow for anywhere near the efficiencies of the Proposed Merger in anywhere near the same timeframe.

Finally, even assuming that the standalone firms could acquire some additional capacity through auctions or private transactions, that capacity would not nearly approach the capacity that would result from combining the standalone firms' broad spectrum assets on one network. The combination of each firm's spectrum creates unused capacity without the need for, and without excluding the possibility of, New T-Mobile acquiring additional spectrum in the future. Tr. 1137:15-1138:18. And because of the multiplicative effect associated with combining spectrum on one set of infrastructure, New T-Mobile's acquisition of additional spectrum would inherently create more capacity than if either standalone firm acquired the exact same amount of spectrum. Tr. 1176:19-1177:19.[14] While Plaintiff States' claims are not entirely without merit, the alternatives they cite all present significant practical difficulties and do not promise nearly the same capacity benefits that the combination of T-Mobile and Sprint's spectrum assets onto one network would achieve.[15]

With respect to coverage, Plaintiff States proposed at various points during trial that gaps in coverage could be filled by small cells through so-called "densification" projects. This is an interesting and potentially useful

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[14] The Court recognizes that this factor cannot be dispositive, as a merger to monopoly would clearly contravene Section 7 even though hosting the entire range of mobile wireless spectrum on one network would yield the greatest increase in capacity. The difference here is that the significant capacity benefits enabled by the merger can and likely will galvanize competition with AT&T and Verizon. That DISH may combine Sprint's remaining cell sites with its own to bring an even greater amount of currently unused spectrum into the market makes clear that the rationale pressed by Defendants is not merely advocacy for consolidation in general. Tr. 1175:24-1176:15.

[15] The FCC, which auctions spectrum and approves spectrum license transfers, reached a substantially similar conclusion. While the FCC observed that it is unlikely that the standalone companies would not acquire any spectrum within the next six years, it agreed that the spectrum acquired would not yield a sufficiently comparable benefit over a sufficiently rapid timeframe. Def. Ex. 5385 ¶¶ 254-55.

solution in more limited contexts, but its benefits are not comparable to those possible under the Proposed Merger. As Ray noted at trial, such small cells would need to be deployed by the millions to match the network coverage that would result from the Proposed Merger. As deployment costs for small cells could thus run well into the billions, densification is simply not a practical alternative at the nationwide scale suggested by Plaintiff States. Tr. 1217:19-1218:12.

Plaintiff States are correct that both Sprint and T-Mobile will provide 5G service without the Proposed Merger. But they fail to adequately acknowledge that the standalone firms' 5G networks will be materially more limited in their scope and require a longer timeframe to establish. Legere testified that while T-Mobile will deploy 5G across its low-band spectrum, that could not compare to the ability to provide 5G service to more consumers nationwide at faster speeds across the mid-band spectrum as well. Tr. 930:23-931:14. Sprint's deployment of 5G has been limited to discrete and distant markets, and its prospects for deploying 5G more broadly are uncertain given mid-band spectrum's limited reach and Sprint's financial challenges, discussed further below in Section II.B.2. And though Plaintiff States make much of the possibility that a technology called Dynamic Spectrum Sharing ("DSS") can allow spectrum to be used for either 4G or 5G, the evidence at trial reflected that the technology is still experimental, will not be deployed for at least a year, and currently results in a 20 to 30 percent loss of usable spectrum wherever it is deployed. Tr. 1216:5-1217:18. Considering the significant uncertainty surrounding this technology, the Court is not persuaded that it promises nearly the same efficiencies as the Proposed Merger.

Finally, Plaintiff States argue that rather than merging with each other, T-Mobile or Sprint could realize similar efficiencies through a merger with DISH. Tr. 226:9-227:14. However, this argument seems speculative because both companies have previously attempted to negotiate with DISH and failed. The Court simply cannot presume that DISH would inevitably agree to a merger with T-Mobile or Sprint, particularly considering the record evidence that DISH plans to enter the RMWTS Market with a materially different 5G network and its own competitive strategy, as detailed further below in Section II.B.3. See also Tr. 1225:13-19. In sum, it may be that Defendants are not entirely incapable of improving their networks and services through means other the Proposed Merger. But none of those alternatives appear reasonably practical, especially in the short term, and neither company as a standalone can achieve the level of efficiencies promised by the Proposed Merger. Tr. 225:11-22. Accordingly, the Court concludes that Defendants' claimed efficiencies satisfy the merger-specific test.

b. Verifiability

Courts consider efficiencies verifiable if they are not speculative and "shown in what economists label 'real' terms." Penn State, 838 F.3d at 348-49 (quoting Univ. Health, 938 F.2d at 1223). The DOJ and FTC similarly state that "[e]fficiency claims will not be considered if they are vague, speculative, or otherwise cannot be verified by reasonable means. Projections of efficiencies may be viewed with skepticism, particularly when generated outside of the usual business planning process. By contrast, efficiency claims substantiated by analogous past experience are those most likely to be credited." Merger Guidelines § 10. The Merger Guidelines also note that "efficiencies resulting from shifting production among facilities formerly owned separately, which enable the merging firms to reduce the incremental cost of production, are more likely to be susceptible to verification and are less likely to result from anticompetitive reductions in output." Id.

Most of Plaintiff States' criticisms regarding the verifiability of Defendants' claimed efficiencies center on the "Montana Model," which Defendants prepared to quantify the benefits of increased capacity for the purposes of this action. The Montana Model is an adaptation of a Network Engineering Model ("NEM") that T-Mobile uses in its ordinary course of business to predict which of its cell sites will become "congested," or reach a threshold capacity at which T-Mobile deems its customers would not receive the quality of service they expect. This "congestion threshold" is defined in terms of speed, as the NEM forecasts the speeds that consumers would require for their anticipated future uses. Tr. 1437:20-1438:23. T-Mobile typically uses the NEM to plan solutions aimed at avoiding congestion, such as the deployment of small cells or the creation of new macro cell towers. Def. Ex. 5400; Tr. 1457:25-1459:16. The NEM is updated every year and forecasts network traffic over a five-year period, predicting consumer demand by incorporating information from T-Mobile's marketing teams and studies on likely future consumer applications and data demands. Tr. 1432:20-1433:24, 1438:24-1439:2, 1441:6-22, 1442:9-1443:3. T-Mobile employees expressed satisfaction with the NEM at trial, noting that it predicts capacity needs at over 99 percent accuracy in the ordinary course of business. Tr. 1161:11-22.

T-Mobile's Vice President of Network Technology, Ankur Kapoor ("Kapoor"), oversaw the creation of the Montana Model by adapting the NEM (which he regularly oversees) to account for both the advent of 5G and Sprint's future standalone performance. Tr. 1434:9-17. The adaptation for 5G required updating likely consumer uses to include 4K video streaming and AR and VR applications. Tr. 1471:22-1472:11. The 5G adaptation also required a methodological change to calculate 5G speeds, as there was no actual data on 5G speeds at the time; Kapoor prepared this measure by using the most advanced LTE handset technology and cell site capabilities to project speeds and then factoring in the predicted spectral efficiency gains from 5G. Tr. 1482:4-1483:20. The model also required that 4G sectors be upgraded to 5G if customers with 5G-capable handsets were present and experienced speeds lower than those normally provided in a 5G sector, because "leakage," or customers' transitioning from a higher quality sector to a lower quality sector, is actually the highest driver of T-Mobile customers' churn. Tr. 1474:5-1478:7. Kapoor then adapted the NEM to model Sprint's future congestion by meeting with his counterparts at Sprint and incorporating the assumptions that then controlled under Sprint's April 2018 plan of record. Tr. 1479:19-1480:13. Defendants' economic expert, Katz, then quantified the value of the resulting efficiencies by measuring the marginal costs required to solve network congestion and comparing New T-Mobile's marginal costs with those for standalone T-Mobile and Sprint. Tr. 1867:4-1869:3. Katz also quantified the value of increased speeds by extrapolating from a 2012 study regarding the fixed in-home broadband services market, which he considered sufficiently analogous based on the increasing convergence between the mobile wireless (also called mobile broadband) and fixed in-home broadband markets. Tr. 1881:3-1885:19. Based on these assumptions, Katz calculated that New T-Mobile's network marginal costs would be 1/10 of standalone T-Mobile's, and the value of its increased speeds would be over $15 per month per subscriber. Tr. 1885:20-1886:7.

Plaintiff States claim that Defendants' claimed efficiencies are unverifiable because the Montana Model was prepared for the purposes of litigation rather than in the ordinary course of business. They note as an example that the Montana Model predicts Sprint's future congestion even though Sprint does not do any similar modeling in the ordinary course of its business, and even though Sprint would not actually follow the April 2018 plan of record used to supply the Montana Model's inputs if the Proposed Merger did not occur. Tr. 500:16-501:5. Plaintiff States add that the NEM is updated every year, whereas the Montana Model has not been updated since its completion in roughly September of 2018. Tr. 1523:7-1525:9, 1527:11-23. They finally cite a letter from T-Mobile's counsel stating that "any model created in the ordinary course would not have attempted to model as far into the future" as the Montana Model does. Pl. Ex. 1319 at 25.

The Court is not persuaded that these criticisms render the Montana Model so unreliable that it should not be credited to any degree. Although T-Mobile's NEM had not yet been adapted to account for 5G and naturally would not normally account for Sprint, it is unsurprising that Defendants would want to account for these salient factors when trying to demonstrate the extent of their claimed efficiencies in this action. Kapoor testified that the Montana Model follows the same core logic as the NEM, which suggests that though the Montana Model was initially created for litigation, it was nevertheless closely based on a model that has proven highly successful in the ordinary course of business. Tr. 1471:4-14. That T-Mobile now uses the Montana Model in the ordinary course of its business also confirms that it essentially tracks the logic of the undisputedly reliable NEM. Tr. 1435:1-6. The Montana Model used the inputs regarding Sprint that were available at the time of its creation, and it would be unreasonable to require constant updates every time Sprint considers a change of strategy. Katz testified that he and his team of economists did not change the Montana Model, further indicating that it hewed as closely to ordinary business principles as could be reasonably expected under the circumstances. Tr. 1870:25-1871:18. Finally, Kapoor noted that given the NEM's overall accuracy, its annual updating process does not result in significantly different predictions in practice. Tr. 1524:6-12, 1526:23-1527:10. Plaintiff States' criticisms are relevant and noted, but that does not mean that the Montana Model is without value.

Plaintiffs next claim that the Montana Model is unreliable because it artificially restricts the standalone firms' ability to acquire spectrum or adopt new technology like DSS. Tr. 2191:2-2192:13. They provided an example of a "sensitivity analysis" in which they changed the inputs of the Montana Model to see how significantly its output would change. By altering the model's inputs to give the standalone firms 30 MHz of spectrum and/or new technologies including DSS, the sensitivity analysis suggested that the difference in future network marginal costs between New T-Mobile and the standalone firms could dramatically decrease from as high as $6.21 to as low as 40 cents. Tr. 2192:14-2194:3; 2196:21-2198:16. While this methodological limitation does decrease the probative value of the Montana Model in absolute terms, the decrease is again not great enough to render the model altogether untrustworthy. As noted above, these spectrum acquisition and technological alternatives do not appear to be practicable business solutions for the standalone firms given their costs and the uncertainty surrounding them. As Plaintiff States' economic expert Fiona Scott-Morton ("Scott-Morton") testified at trial, acquiring 30 MHz of spectrum can cost up to $10 billion, which a company like Sprint could not readily afford. Tr. 2242:16-24. Although it is certainly possible that the standalone firms would acquire some new spectrum and deploy some new technologies, the Court is not persuaded that the actual decrease in the value of efficiencies would be so dramatic.

Scott-Morton also questioned the degree to which Katz extrapolated from the 2012 article that he used as the basis for his speed valuations. In particular, she stated that Katz assigned value to speeds that are far higher than customers can practically use at present; 4K video streaming requires 25 mbps, but Katz's model already predicts that standalone T-Mobile and Sprint will be able to maintain average speeds of 127 mbps and 210 mbps respectively by 2021. Tr. 2206:8-2207:17, 2210:10-2211:15.[16] New T-Mobile is projected to offer even higher speeds of 380 mbps in 2021 and 660 mbps in 2024. 2211:16-23. Scott-Morton stated that because these speeds are far beyond the levels that consumers now require, and because the value of speed to consumers diminishes the more that speeds exceed the level that consumers can practically use, there is no reliable way to determine how consumers would value speeds higher than roughly 250 mbps. Tr. 2212:4-2213:17.

This argument is too limiting. The same may have been said about airplane speeds and pilotless flying machines in 1920. It unduly discounts the rate at which technological innovation, new products, and consumer applications develop to take advantage of enhanced capabilities, and the extent to which this merger might specifically help accelerate that process. In the past ten years alone, the types and range of RMWTS uses have developed in a remarkable variety

[16] Additionally, Plaintiffs challenged the validity of the 4K streaming video use case, noting that few phones can support 4K resolution at this time. Tr. 1538:8-1542:1. The Court doubts that this use case is unrealistic, though, given the rapid rate at which mobile handsets may be updated to enable such uses. Current technological limitations should not bar consideration of reasonably likely future applications.

of ways. Even if speeds above 250 mbps seem entirely luxurious at present, it is not inconceivable that in relatively short order innovators will develop or improve applications that can make use of these high speeds. Though this proposition is necessarily predictive and can reasonably be challenged, the Court does not agree that what necessarily follows is to wholly disregard efforts at valuing such potential future benefits.[17]

As the Merger Guidelines explicitly note, efficiencies are generally more susceptible to verification where they result from combining separate facilities and thus reducing the incremental cost of production. No party in this action has disputed that combining Sprint and T-Mobile's network facilities will result in reduced network marginal costs and a large increase in capacity, which in the RMWTS Market effectively equates to supply or output. None of Plaintiff States' arguments challenge this basic reality. Their arguments instead go primarily to the weight that the Court accords to the model's output, rather than barring

[17] Plaintiff States also levelled the additional speed-related criticism that T-Mobile's 5G congestion threshold is too high and consequently overestimates future congestion. The Court is not so persuaded. Trial testimony reflected that the 5G threshold is already lower than the industry-estimated speeds required to stream 4K video, which Defendants treated as the most likely use of 5G services at present. Tr. 1450:13-1454:6. Moreover, bearing in mind that congestion is one of the primary drivers of churn, the Court declines to conclude that the 5G congestion threshold has been set too high for the Montana Model to be unreliable on that count. Def. Ex. 5078; Tr. 1455:25-1457:12.

altogether any recognition of the model's results. As a practical matter, the model almost certainly cannot exactly quantify the extent to which each specific aspect of the Proposed Merger would benefit consumers, even if it is 99 percent accurate.

As the Supreme Court noted almost sixty years ago, the predictive exercises demanded by Section 7 are not "susceptible of a ready and precise answer in most cases." Phila. Nat'l Bank, 374 U.S. at 362. To expect otherwise in the dynamic and rapidly changing RMWTS Market is to invite almost certain disappointment. Section 7 calls for "[a] predictive judgment, necessarily probabilistic and judgmental rather than demonstrable." Hospital Corp. of Am. v. FTC, 807 F.2d 1381, 1389 (7th Cir. 1986); see also United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 88 (D.D.C. 2011) (noting that modeling, while "an imprecise tool," may nonetheless have probative value where its results "tend to confirm the Court's conclusions based upon the documents, testimony, and other evidence" in the record). Accordingly, the Court concludes that the Montana Model is sufficiently reliable to indicate that Defendants' claimed efficiencies will be substantial, even if not quite as large as the model's precise prediction.

Of course, the Court need not, and does not, rest its conclusion of verifiability on the Montana Model alone. Indeed, despite the considerable trial time dedicated to the trustworthiness of the Montana Model, the Court is not persuaded that the model's results are particularly integral to a finding of verifiability or lack of it. As noted above, the Merger Guidelines state that efficiency claims may be verifiable if substantiated by analogous past experience. See Merger Guidelines § 10. Defendants' claimed efficiencies are verifiable in significant part because of T-Mobile's successful acquisition of MetroPCS in 2013. T-Mobile actually underpredicted the efficiencies that would result from the MetroPCS merger: the merger resulted in network synergies of $9-10 billion rather than the $6-7 billion predicted. Those economies were realized in two years rather than the three predicted. Moreover, Metro's customers have more than doubled since the merger, and Metro's unlimited plans have decreased in price from $60 to $50. Def. Ex. 5010; Tr. 1062:17-1065:18, 1200:15-1203:17, 1502:24-1503:22.

As multiple witnesses noted at trial, the integration of Sprint and T-Mobile would be very similar to the integration of T-Mobile and MetroPCS and could follow the same basic organizational structure and strategy. Tr.

1062:1-16. Although the Proposed Merger would take place on a larger geographic scale, T-Mobile witnesses noted that integration might actually be easier in the sense that over 80 percent of Sprint customers already use handsets compatible with T-Mobile's network, whereas T-Mobile had to provide MetroPCS customers with new handsets due to differences in voice technology protocols at the time of the MetroPCS merger. Tr. 1204:5-1206:20. Considering T-Mobile has already overdelivered on its projected efficiencies in an analogous past merger, the Court is persuaded that the Proposed Merger's efficiencies are ultimately verifiable rather than speculative.

In sum, the Court concludes that Defendants' proposed efficiencies are cognizable and increase the likelihood that the Proposed Merger would enhance competition in the relevant markets to the benefit of all consumers. However, mindful of the uncertainty in the state of the law regarding efficiencies and Plaintiff States' pertinent criticisms, the Court stresses that the Proposed Merger efficiencies it has recognized constitute just one of many factors that it considers and do not alone possess dispositive weight in this inquiry.

2. Sprint's Status as a Weakened Competitor

Another consideration that weakens the strength of Plaintiff States' prima facie case is Sprint's decreasing competitive relevance, which owes to demonstrably poor network quality and numerous financial constraints. Evidence that a merging party is a "weakened competitor" that cannot compete effectively in the future may serve to rebut a presumption that the merger would have anticompetitive effects. See Gen. Dynamics, 415 U.S. at 508; Waste Mgmt., 743 F.2d at 982 (noting that "a substantial existing market share is insufficient to void a merger where that share is misleading as to actual future competitive effect"); Baker Hughes, 908 F.2d at 985 (listing cases in which evidence of a merging party's weakness rebutted prima facie case).

Courts have identified a variety of conditions that may render statistical market share evidence misleading, including a firm's lack of resources required to compete long-term, financial difficulties that constrain the firm from improving its competitive position, and poor brand image and sales performance. See, e.g., Gen. Dynamics, 415 U.S. at 501-04 (noting that while coal company had been and remained "'highly profitable' and efficient," its lack of and inability to acquire scarce uncommitted coal reserves limited its future ability to compete); FTC v. Nat'l Tea Co., 603 F.2d 694, 699-700 (8th Cir. 1979) (describing company that had "an extremely poor image among consumers" and "lost substantial amounts of money" for five straight years, despite attempts to revitalize through structural and operational changes and new, low-priced promotional offers); United States v. Int'l Harvester Co., 564 F.2d 769, 774-76 (7th Cir. 1977) (discussing "precarious" financial situation of company that struggled to secure financing and had insufficient cash or other assets to balance its liabilities); FTC v. Arch Coal, Inc., 329 F. Supp. 2d 109, 155-57 (D.D.C. 2004) (stating that coal company with currently viable mines would become "less and less of an active competitor" where financing difficulties prevented it from securing long-term coal resources).

Some lower courts have stated that "weakened competitor" evidence is among the weakest grounds for rebuttal and thus require that the defendant show the acquired firm's weakness "cannot be resolved by any competitive means [and] would cause that firm's market share to reduce to a level that would undermine the government's prima facie case." See, e.g., ProMedica Health Sys., Inc. v. FTC, 749 F.3d 559, 572 (6th Cir. 2014). Accordingly, in this body of case law, courts credit this defense only in rare cases. See id.; Univ. Health, 938 F.2d at 1221.

Assuming that the weakened competitor defense is applicable only in narrow circumstances, the Court concludes that the Proposed Merger nonetheless presents a rare case. The mobile wireless network is the foundation of mobile wireless telecommunications services, and Sprint's network and product offerings have been distinguished for years for poor operational quality and negative customer perception. As described below, Sprint's financial difficulties hamper its ability to invest in its network, which in turn prolongs its poor network quality and hurts its ability to generate the revenues necessary to improve its financial condition. The Court addresses Sprint's network quality and financial difficulties in turn, with some inevitable overlap due to both factors' interactive impact on Sprint's competitive condition. Finally, the Court considers whether competitive means other than the Proposed Merger could reasonably resolve these interconnecting difficulties, ultimately concluding that they could not.

a. Sprint's Network Quality and Customer Perception

For roughly the past 15 years, Sprint has made multiple ill-advised technological and business decisions which resulted in a chronically underdeveloped network that is inconvenient for consumers to use. For example, Sprint's choice to use a technology standard called CDMA instead of the GSM standard widely adopted by the rest of the industry meant that many consumers would have to change their mobile handsets if they switched to Sprint's network, and, because of this decision, Sprint's customers remain among the exceptions who cannot use voice and data services simultaneously. Sprint also did not realize anticipated technological and financial benefits from its merger with market competitor Nextel, which further set back its attempts to build a strong network. Tr. 57:15-21, 1278:4-20, 1380:4-11. Poor technological decisions such as these were exacerbated by a historical trend of low capital expenditures on Sprint's network. Tr. 511:8-19.

The effects of Sprint's low network investments and poor financial position have expanded over time, making meaningful network investment seem a less and less viable prospect. Thus, when Claure joined Sprint as CEO in 2014 and observed that the company had $33 billion in debt and over $5 billion of yearly cash flow losses, he determined that Sprint could not afford the $25 to $30 billion required for Sprint to reach parity with its competitors on a traditional network basis. Tr. 1280:23-1281:16. These difficulties led Claure to propose a less-expensive, non-traditional plan to increase Sprint's network coverage at minimal cost by deploying numerous small cells hung on utility poles and low-rent alternatives to cell towers called monopoles. Tr. 1281:17-1283:15. This plan failed massively; Sprint installed only 2,000 of its projected 75,000 small cells and only one of its projected 35,000 monopoles, which was also removed in short order. Tr. 1283:15-1284:22, 1292:22-1293:1.

Sprint's failure in this project hurt the company doubly because Sprint neglected traditional network investment in the interim, expending only $1.3 billion during a period when its major competitors each expended at least $6 billion on their respective networks. Tr. 1284:23-1285:11. Sprint's underinvestment and dearth of low-band spectrum have ultimately resulted in poor network coverage and decreased quality of service, even in areas that Sprint covers through roaming agreements with its competitors. Tr. 510:18-511:7, 511:20-512:22.

Sprint's poor network quality has drastically affected its consumer perception. Sprint's Net Promoter Score ("NPS"), which measures the likelihood that a consumer would recommend using a RMWTS carrier's network, is less than a third of Verizon's and similarly far behind the NPS for the other two MNOs. Tr. 107:10-108:3. This in turn contributes to Sprint's churn, which is approximately twice as high as that for each of the other three MNOs. Tr. 93:6-94:4. According to the testimony at trial, this churn rate translates to Sprint losing roughly six million customers per year, which is highly concerning considering that Sprint's network supports roughly 40 million customers at present. Tr. 1383:22-1384:5.

Poor consumer perception of Sprint's network has even hurt Sprint employees' perceptions of the company, causing Sprint to lose sales employees. Tr. 1295:10-24. The net effect of this negative perception is that Sprint struggles to generate revenues, which hinders its ability to improve its network while also meeting its numerous preexisting financial obligations.

As Plaintiff States emphasized at trial, Sprint made several attempts to improve its network perception and demonstrate that it could be a disruptive competitor in the RMWTS Market. For instance, Sprint made several aggressive offers between 2015 to 2017: it began offering low-priced unlimited data plans, and it also advertised that customers who switched to Sprint would have to pay only half of the prices they paid to their previous carriers. Tr. 23:10-28:12, 33:16-34:1. While these aggressive offerings certainly pressured Sprint's competitors and benefited consumers, their effectiveness was limited in both duration and quality. Sprint's low-priced unlimited plans came at the cost of reducing the speeds at which customers could stream video, audio, and games. Tr. 34:7-18. Moreover, Sprint's half-off offer was designed to increase in price after one or two years, and many customers initially attracted by the offer switched carriers shortly after realizing they would ultimately have to pay higher prices for a lower-quality network. Tr. 27:10-16, 54:5-7, 92:3-7, 1285:12-1287:19, 1397:4-18.

To be sure, Sprint's offers deserve some consideration for their pro-consumer posture. But in retrospect, they reflect a desperate and ultimately unsuccessful effort to stay relevant rather than a sustainable long-term business strategy. Sprint's projections that it could return to competitive relevance by leading in the rollout of 5G are also proving to have been overly optimistic: Sprint's lack of low-band spectrum limits the geographic reach of its 5G network, its financial troubles make it difficult to acquire 5G handsets, and consumers have not joined the Sprint network in anywhere near the numbers expected (and on the contrary, Sprint's churn remains comparatively high). Tr. 84:22-85:25, 474:16-475:8. Indeed, Sprint's own internal documents reflect the belief that without the Proposed Merger, Sprint's "lack of deployment in 51 markets will lead to Sprint losing the 5G nationwide race" and that "in the long run, Sprint 5G offerings will not be on par with competition in the 51 de-prioritized markets." Pl. Ex. 733 at 2; Tr. 522:20-523:23.

b. Sprint's Financial Difficulties

Improving and maintaining network quality in the long run inevitably requires large amounts of investment and ongoing operational expenses. Sprint's financial situation, however, remains poor and hamstrings any meaningful investment efforts. For example, Sprint's most effective way of reducing its financial difficulties to date has been through cost cutting efforts; unfortunately, these efforts required the layoffs of many network engineers and resulted in increased customer complaints regarding network quality. Tr. 1280:10-22.

Sprint's significant underperformance with respect to its April 2018 five-year plan of record further demonstrates that the company cannot afford to adequately invest in its network and meet its ambitious targets to remain competitive in the future. Tr. 464:2-13, 1404:1-25. One brief example of this point is Sprint's deployment of only 14,000 of its projected 24,000 small cells and only

200,000 of its projected 776,517 coverage-enhancing "Magic Boxes." Tr. 521:3-522:12.

Raising even greater concern than these device numbers, though, is that Sprint's projections of its future profitability are widely viewed as unrealistic and unattainable. Plaintiff States' accounting expert Saul Solomon ("Solomon") noted that Sprint's revenues have historically grown at a rate of approximately one percent per year, but Sprint's plan of record requires that Sprint grow revenues at five times that rate over the next four years. Tr. 2049:24-2050:12. And while Sprint's April 2018 plan of record projects that Sprint's free cash flows would grow from a loss of $373 million in 2020 to a gain of over $4.5 billion by 2023, the consensus view of industry analysts by May 2019 was that Sprint would continue to have negative cash flows in every year through 2023 and fall short of its total projected free cash flows by $12 billion; even the most optimistic analyst reports projected a shortfall of $6 billion on this metric. Def. Ex. 8171 at 2; Tr. 2046:2-2047:6.

Sprint's expected performance on another accounting metric, adjusted earnings before interest, taxes, depreciation, and amortization ("EBITDA"), is similarly dismal, with the industry consensus projecting that Sprint will underperform its expectations by at least $1.5 billion in each year until 2023 and by over $4 billion in 2023. Def. Ex. 8171 at 1; Tr. 2044:23-2045:17. Putting aside that Sprint is already failing to execute on its plans, the industry's manifest lack of faith in Sprint's ability to meet its goals is extensive.

Sprint also has limited ability to secure further debt financing to fund network investments. It is already $37 billion in debt, and its credit rating is generally non-investment grade. Tr. 2063:12-20. Moody's has apparently noted that it would consider downgrading Sprint's credit rating if it took on additional debt, which would in turn increase Sprint's interest expenses and other debt servicing costs. Tr. 2066:17-2067:4. This prospect is particularly troubling because Sprint already typically spends between $2.1 to $2.5 billion in interest expenses per year. Tr. 2067:5-7. And as Sprint cannot spend all of the $4 billion in cash that it has on hand because of liquidity requirements, Sprint has very few options to develop its network. Tr. 2065:11-2066:6.[18]

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[18] Plaintiff States have noted that Sprint has $2.6 billion in existing credit facilities and $8.3 billion in existing or expanded spectrum-backed facilities. Tr. 2031:7-20. Even if true, it is highly doubtful that all of this capital could be directed to network investment alone given the other parts of Sprint's business and its pre-existing financial obligations. While relevant, the Court concludes that on

That Sprint finally achieved profitability in fiscal year 2017, after eleven straight years of losses, is little comfort when balanced against Sprint's heavy debt and financing restrictions. Tr. 1332:14-23. If Sprint's ability to briefly achieve profitability deserves some recognition, the company is at best struggling to even tread water while its competitors continue to grow the revenues that will allow them to keep pace in the race to next generation wireless networks. Tr. 1385:1-18.[19] As the costly shift to 5G approaches, Sprint's limited financial success seems too little, too late.

c. Other Competitive Means Available to Sprint

Finally, Plaintiff States argue that Sprint's issues could be solved through competitive means other than the Proposed Merger. As an initial matter, they note that Sprint has started investing comparatively more in its network and that network perception usually lags behind

balance these facilities do little to offset Sprint's bleak financial prospects.

[19] Even assuming that Sprint's financial results and market share have been relatively stable in recent years, as Solomon claimed, the Court sees small comfort in that fact. See Gen. Dynamics, 415 U.S. at 503 (deeming a company that "had been and remained [] 'highly profitable'" a weakened competitor). The weight of the evidence described in the rest of this section indicates that such a stable market share would be misleading as to Sprint's future competitive position. See Waste Mgmt., 743 F.2d at 982. Without quantifying exactly how much Sprint's market share will drop in the future, the Court concludes that such loss would very likely be great enough to undermine the value of Plaintiff States' statistics.

actual network performance by up to two years. Pl. Ex. 437; Tr. 441:7-443:9, 445:16-446:9. Plaintiff States add that Sprint is making technological changes that have resulted in improved speeds, suggesting that its network perception may improve within the next two years and possibly spur a reversal of fortune. Pl. Ex. 437; Tr. 456:20-457:4, 467:19-469:10.

The Court cannot place much confidence in these suggestions. Sprint's network perception has remained low for the past three years and only continues to worsen, even after Sprint began to increase its network investments and aggressively compete to attract customers. Pl. Ex. 1202; Tr. 509:5-510:9. The evidence at trial also casts doubt on the notion that Sprint is adequately investing in its network now, such that consumer perceptions might soon justifiably improve. Sprint's actual network investments were only $1.95 billion in 2017 and $3.319 billion in 2018, and the company underspent its plan of record's projected $6.416 billion in network investments for 2019 by roughly $1.5 billion. Tr. 2055:8-2056:14. In short, Sprint's network investments still fall far short of the levels needed to match Sprint's competitors.[20]

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[20] This underperformance on capital expenditures is doubly worrisome because Sprint's Vice President for Radio Access Network Engineering and Development, Jay Bluhm, testified that Sprint's recurring

The other competitive means of improvement highlighted by Plaintiff States appear insufficient for Sprint to catch up or keep up with the other MNOs. For example, the notion that Sprint can acquire enough low-band spectrum to ameliorate its poor coverage seems speculative. Sprint did not participate in the last FCC auction of low-band spectrum because it determined that it could not afford the billions of dollars required to purchase the spectrum and then upgrade its network to enable the spectrum's use. Tr. 516:3-18. Even if Sprint could afford to participate in an auction today, the FCC has not indicated when it will be auctioning low-band spectrum again. And while Sprint has valuable mid-band holdings that it can use for its 5G strategy, Sprint's credit issues limit the company's ability to borrow the money needed to fully deploy that spectrum. Tr. 1300:13-1301:6. Sprint's efforts to fill coverage gaps through densification partnerships with cable MVNOs like Altice similarly seem unlikely to comprehensively address Sprint's coverage issues because they depend on both the availability of cable MVNOs' largely regional infrastructure and their willingness to partner with Sprint. Tr. 562:22-564:25. Such inclination

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operational expenditures pose an even greater problem from a financial perspective. Tr. 458:8-11.

cannot be taken for granted, as evidenced at trial by Comcast's assessment that Sprint's "lack of a balanced spectrum position [] coupled with declining cash due to the loss of [subscribers] and an expensive, inefficient network weakened by years of underinvestment and poor planning has had significant negative impacts to the company's ability to return to competitiveness." Def. Ex. 7246; Tr. 838:6-841:3.

Plaintiff States also raise the prospect that Sprint could improve its position by merging with competitors other than T-Mobile, such as DISH or the cable MVNOs. As an initial matter, the notion is highly speculative. Moreover, it is not entirely clear to the Court that a different merger, especially one not grounded on any real or practical support, would really qualify as one of the alternative means contemplated by courts when assessing a weakened competitor claim. Even assuming that the Court could weigh such a transaction in its analysis, Sprint's efforts to this point indicate that neither the cable MVNOs nor DISH seriously considered such a prospect. Comcast and Charter apparently asserted that they would not consider a merger unless Sprint first improved its network to a level that rivals Verizon's, which essentially rules out any contention that a merger with those companies is a realistic solution to Sprint's network problems. Tr. 1301:15-1306:3. And as noted above in Section II.B.1 and below in Section II.B.3, DISH did not express significant interest in a merger with Sprint and may instead prefer to enter the market on its own terms (especially if it could do so given the generous remedies arranged by the DOJ). Indeed, Sprint's mid-band holdings may be of significantly less interest to DISH than T-Mobile because DISH already has vast unused spectrum holdings that it can use without combining with a company as heavily indebted as Sprint. Tr. 1306:4-1307:7.

Plaintiff States have also suggested that the roaming agreement between Sprint and T-Mobile could function as the sort of break fee that helped T-Mobile to remedy its competitive struggles beginning in 2012. But this roaming agreement does not approach the value of the cash and spectrum that T-Mobile received in addition to its roaming agreement with AT&T, and Sprint must pay T-Mobile an escalating price each year that the roaming agreement applies even though Sprint subscribers would continue to have lower network priority than T-Mobile or Metro customers. Tr. 1307:22-1308:18.

Numerous other considerations indicate that Sprint cannot realistically improve in the same fashion that T-

Mobile did in 2012; for example, T-Mobile benefitted from obtaining the right to sell the iPhone at the time of the break fee and also acquired low-band spectrum from Verizon as part of a forced divestiture, whereas Sprint already has the right to sell iPhones and no clear path to obtaining low-band spectrum. Tr. 916:4-917:4. The value of Sprint's roaming agreement and its potential to accelerate a competitive turnaround clearly do not approach the levels provided by T-Mobile's earlier break fee.

Finally, Plaintiff States suggest that Softbank, Sprint's controlling shareholder, might pay off Sprint's hefty financial obligations, citing an email from Softbank Chief Executive Officer Masayoshi Son to that effect. Pl. Ex. 469; Tr. 1318:15-1319:12. However, bank covenants limit how much Softbank can lend to Sprint, and Softbank may struggle to justify to its shareholders what is essentially a bail-out of Sprint, ultimately rendering this possibility speculative. Tr. 1309:14-1310:3. Softbank's interest-bearing debt is also roughly three times as large as its cash and cash equivalents, further drawing into question how readily it could pay off Sprint's debts as well. Pl. Ex. 1274 at 84-85; Tr. 1360:2-1361:9. Unlike T-Mobile, which convinced DT to invest in its network after instituting an innovative and successful business strategy and receiving significant cash and spectrum from AT&T and Verizon, Sprint does not appear to have much that would inspire similar confidence among Softbank shareholders beyond its mid-band holdings. As Sprint's CFO Combes concluded after considering these options and more, none appear to offer the viable path forward presented by the Proposed Merger. Def. Ex. 6028; Tr. 1372:19-1375:4.

The Court is thus substantially persuaded that Sprint does not have a sustainable long-term competitive strategy and will in fact cease to be a truly national MNO. Tr. 532:12-533:2 (testimony of Jay Bluhm concluding that Sprint could not continue to be viable in its current form beyond two years); 1310:10-24, 1312:18-1313:3 (testimony of Claure concluding that Sprint cannot sustainably continue to compete on a national scale and would likely reduce its holdings and operations and remain in the industry as a regional carrier). Sprint's current "Plan B" to the Proposed Merger contemplates that Sprint would deprioritize 51 of the 99 local markets in which it operates, causing it to neglect spending in regions covering 30 percent of the United States population. Tr. 484:10-486:13. While Sprint would not completely abandon these markets, its plan to deemphasize its already insufficient investment in them indicates that network quality would deteriorate even further and cause Sprint's churn to grow even higher. Considering that Plaintiff States have emphasized the need for four nationwide MNOs in the RMWTS Market, Sprint's probable transformation into a regional player would by default result in a 4-to-3 market consolidation, significantly undermining the strength of their prima facie case.

Sprint's downgrade to a regional carrier would also hurt its ability to compete even in the 48 local markets that it would prioritize, because its customers would experience serious drops in service quality any time they left those markets. It is highly improbable that consumers of Sprint's "mobile" wireless services would be satisfied with a network that works in some places but not others. Pl. Ex. 733; Tr. 522:20-523:23, 1363:1-1364:10. Sprint will likely fail to compete in a manner that benefits consumers even in its priority markets because, as Claure stated, Sprint will ultimately need to raise prices to reduce its $37 billion debt. Tr. 1312:18-1313:3, 1365:12-1368:18, 1398:8-20.

The weight of the evidence at trial establishes that Sprint is caught in a vicious cycle caused by its inability to finance meaningful network investment, which perpetuates a low-quality network that drives away customers and limits

Sprint's ability to generate the cash necessary to reduce its financial constraints. Def. Ex. 6066 at 52; Tr. 1386:12-1388:12, 1395:11-23. The service enabled by Sprint's mobile wireless network is Sprint's long-term product, and Sprint's ability to improve that product is hindered by substantial hurdles in financing network development. Consequently, Sprint "may become less and less of an active competitor in the [RMWTS Markets]" and is "plainly a relatively weak competitor . . . with no convincing prospects for improvement" outside of the Proposed Merger. Arch Coal, 329 F. Supp. 2d at 155-57. In the Court's assessment of the evidence at trial, Sprint falls squarely within the framework for a weakened competitor established by General Dynamics, "facing the future with relatively depleted resources at its disposal." See 415 U.S. at 501-04. This conclusion, like the conclusion regarding efficiencies above, strengthens Defendants' case that Plaintiff States' market share statistics do not accurately reflect the Proposed Merger's likely effects on competition.

3. Federal Agency Review and DISH as a New Entrant

a. FCC and DOJ Review and Remedies

Prior to and during the pendency of this action, the FCC and DOJ each heavily scrutinized the Proposed Merger and considered its likely effect on competition. Those agencies' conditional approval of the Proposed Merger does not immunize it from Plaintiff States' antitrust challenge or this Court's judicial scrutiny. See S. Austin Coalition Cmty. Council v. SBC Commc'ns, Inc., 274 F.3d 1168, 1170 (7th Cir. 2001). Nevertheless, the reality remains that the Court must now assess the Proposed Merger as conditioned by both regulators after lengthy review. See FTC v. Libbey, Inc., 211 F. Supp. 2d 34, 46 (D.D.C. 2002).

Not only have the FCC and DOJ conditioned the transaction before the Court, the Court will accord their views some deference. Where federal regulators have carefully scrutinized the challenged merger, imposed various restrictions on it, and "stand ready to provide further consideration, supervision, and perhaps invalidation of asserted anticompetitive practices. . . . we have a unique indicator that the challenged practice may have redeeming competitive virtues and that the search for those values is not almost sure to be in vain." Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 13 (1979). Indeed, the Supreme Court has looked to the views of federal regulators on multiple occasions for assistance in conducting its Section 7 analysis. See Phila. Nat'l Bank, 374 U.S. at 361; Phillipsburg Nat'l Bank, 399 U.S. at

364-65. As Plaintiff States note, however, the views of the FCC and DOJ cannot simply be adopted entirely at face value, as their assessment of a merger's legality may be guided by considerations that are outside the scope of Section 7. (See Pls.' Response to Statement of Interest by the United States, Dkt. No. 356, at 9.) Ultimately, the Court will treat the views of the FCC and DOJ as "informative but not conclusive." S. Austin Coalition Cmty. Council v. SBC Commc'ns, Inc., 191 F.3d 842, 844 (7th Cir. 1999).

As set forth above in the Court's Findings of Fact, although the FCC recognized the potential for the Proposed Merger to increase mobile wireless speeds, accelerate the provision of 5G service, and expand mobile wireless telecommunications services to underserved rural areas, the FCC nevertheless acknowledged that an unconditioned Proposed Merger could have potentially harmful effects in densely populated areas with price-conscious consumers. See Def. Ex. 5385 ¶¶ 8-11, 20. To mitigate these concerns, the FCC required that T-Mobile commit to providing its promised speed, 5G, and coverage benefits by setting clear targets with associated penalties. And the FCC sought to address the potential harm to price-conscious consumers by requiring the divestiture of the most successful part of

Sprint's business, its prepaid subsidiary Boost, to an independent buyer on terms that would enable that buyer to compete aggressively for the benefit of such price-conscious customers. Def. Ex. 5385 ¶¶ 25, 32.

After extensive review, the DOJ concluded that the Proposed Merger, if unconditioned, could substantially lessen competition in the RMWTS Market. In order to achieve the benefits that the Proposed Merger could provide, the DOJ supplemented the FCC commitments by proposing that Sprint divest Boost to the well-resourced potential entrant DISH, that an independent monitor appointed by DOJ ensure DISH would take advantage of the low wholesale rates provided by an MVNO agreement, and that DISH build out its own 5G network within three years to become a nationwide MNO capable of replacing Sprint. Def. Ex. 5363 at 6-28; Def. Ex. 5385 ¶¶ 33-36; Tr. 1590:9-1602:19.

Plaintiff States point out that some of the conditions contemplated by the FCC and DOJ, such as the MVNO agreement and transfer of spectrum licenses, have yet to receive formal approval. Tr. 1709:2-1712:8, 1714:16-1715:5. The Court declines to assume at present that the FCC and DOJ will, either through their regulatory review processes or lax enforcement, frustrate the conditions that they negotiated themselves over a period of 15 months.

Having been tasked with independently reviewing the legality of the Proposed Merger, the Court is not bound by the conclusions of these regulatory agencies. Similarly, the Court does not simply adopt their conclusions wholesale. Nonetheless, mindful that the agencies are "intimately familiar with this technical subject matter, as well as the competitive realities involved," the Court treats their views and actions "as persuasive and helpful evidence in [analyzing] the competitive effect of this merger" as conditioned by the factors described below. United States v. Mfr.'s Hanover Tr. Co., 240 F. Supp. 867, 881, 886 (S.D.N.Y. 1965).[21]

b. Market Entry by DISH

The DOJ's efforts to establish DISH as a fourth nationwide MNO and replacement for Sprint comprise the most prominent remedies that contribute substantially to rebutting Plaintiff States' prima facie case. The Court

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[21] The deference that the Court accords to the DOJ and FCC turns on their familiarity with the telecommunications industry and their extensive conditioning of this particular transaction, rather than on any notion that they represent the national public interest more so than any state. As Plaintiff States and amicus curiae State of Washington note, allowing states to bring Section 7 actions is clearly "an integral part of the congressional plan for protecting competition." Cal. v. Am. Stores, 495 U.S. 271, 284 (1990); see also Pls.' Resp. to Statement of Interest of the United States, Dkt. No. 356, at 3-5; Brief of State of Washington as amicus curiae, Dkt. No. 369-1. What deference the Court accords to the federal regulators should not be taken as a denigration of Plaintiff States' familiarity with the industry or their relative ability to vindicate the public interest they represent more generally.

accordingly devotes the following discussion primarily to these remedies. As one court has noted, "aside from the Supreme Court's guidance that '[t]he relief in an antitrust case must be effective to redress the violations and to restore competition,' . . . there is a lack of clear precedent providing an analytical framework for addressing the effectiveness of a divestiture that has been proposed to remedy an otherwise anticompetitive merger." FTC v. Sysco Corp., 113 F. Supp. 3d 1, 72 (D.D.C. 2015) (citation omitted). The Court's review of case law suggests this observation largely holds true as well in connection with assessing the effectiveness of other less common antitrust remedies proposed by a federal agency. On this point, the Supreme Court has helpfully observed that "[t]he existence of an aggressive, well equipped and well financed corporation engaged in the same or related lines of commerce waiting anxiously to enter an oligopolistic market would be a substantial incentive to competition which cannot be underestimated." United States v. Penn-Olin Chem. Co., 378 U.S. 158, 174 (1964); see also Waste Mgmt., 743 F.2d at 982-83. Additionally, the Merger Guidelines provide that new market entry may counteract concerns about anticompetitive effects if entry would be "timely, likely, and sufficient in its magnitude, character, and scope" to address those concerns. Merger Guidelines § 9; see also United States v. Visa U.S.A., Inc., 163 F. Supp. 2d 322, 342 (S.D.N.Y. 2001). At trial, the parties similarly used the Merger Guidelines' provisions on entry to frame their arguments regarding DISH and the sufficiency of the proposed regulatory remedies.

Based on the judicial precedent cited above, the Court is persuaded that the presence of DISH as a new entrant will constitute a substantial incentive to competition in the RMWTS Markets. DISH is undeniably well equipped to enter the market by virtue of its large spectrum portfolio, which is worth roughly $22 billion dollars and rivals Verizon's in size. Tr. 938:14-939:3, 1575:7-1576:16, 1588:21-1589:5. This large spectrum position combines significant quantities of both low- and mid-band spectrum capable of supporting highly data-intensive consumer uses. Tr. 1753:15-1754:6. DISH has clearly been financially sound over the past decade. Tr. 1571:4-10. Furthermore, DISH Chairman Ergen has expressed a desire for DISH to enter the RMWTS Market since at least 2012, and he reiterated at trial his intention to "compete with the largest wireless operators in the United States . . . from day one." Tr. 1561:17-1562:2, 1728:14-1729:10. DISH's track record and numerous awards for innovation and customer experience, as well as evidence of the currently confidential and creative strategic partnerships that DISH is planning, suggest that DISH would compete as a disruptive "maverick" in the RMWTS Markets, offering low prices for innovative and high-quality services. Tr. 1572:7-1573:3.[22]

The Court structures its discussion of DISH's entry to roughly track the Merger Guidelines' three criteria for entry: (1) the sufficiency of DISH's entry, which the Court assesses with respect to both DISH's MVNO phase and its plans to become an MNO with a 5G network; (2) the likelihood of DISH's entry, focusing on evidence Plaintiff States cite in support of their contention that DISH does not intend to meaningfully compete in the market; and (3) the timeliness of DISH's entry.

i. Sufficiency of DISH's Entry

Though the Court titles this section the "Sufficiency of DISH's Entry," the following discussion covers aspects

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[22] The Merger Guidelines use the term "maverick" to refer to a firm "that plays a disruptive role in the market to the benefit of consumers." Merger Guidelines § 2.1.5. At various points throughout trial, Plaintiff States characterized T-Mobile and Sprint as mavericks based on their history of low-priced and creative offerings, such as unlimited data plans, the elimination of two-year service contracts, and elimination of international roaming charges. Defendants agree that T-Mobile is a maverick firm, but they challenge that Sprint is one given its aggressive offers' ultimate lack of success. The Court agrees that T-Mobile is a maverick; it need not resolve whether Sprint was a maverick in the past, as it concludes that it is highly improbable that Sprint will be in a position to continue playing the maverick role in the future, for the reasons set forth in Section II.B.2.

of DISH's entry that the Merger Guidelines would consider evidence of both sufficiency and likelihood. The Merger Guidelines define likelihood with respect to the profitability of entry, accounting for "the assets, capabilities, and capital needed and the risks involved." Merger Guidelines § 9.2. Sufficiency under the Merger Guidelines appears to be a less definite standard that considers whether the entrant would have the scale or type of product needed to compete effectively with market incumbents. See id. at § 9.3.

When DISH enters the market, it will start as an MVNO utilizing New T-Mobile's network to provide services to Boost customers. The divestiture of Boost would be a strong starting point for DISH to compete because of Boost's considerable success in the prepaid segment of the RMWTS Market and the subscribers and assets that DISH would receive: 9.4 million existing Boost customers, Boost's strong brand awareness and high customer satisfaction, 500 Boost employees with experience in the RMWTS Market, and 7,500 retail storefronts. Tr. 116:2-7, 116:16-20, 122:5-123:1, 1590:9-1591:8. As one court has observed, "[d]ivestiture of an existing business entity might be [relatively] likely to effectively preserv[e] the competition that would have been lost through the merger, because it would have the personnel, customer lists, information systems, intangible assets, and management infrastructure necessary to competition." United States v. Aetna Inc., 240 F. Supp. 3d 1, 60 (D.D.C. 2017) (internal quotation marks omitted).

The Boost divestiture would position DISH well with respect to these numerous factors. Angela Rittgers, a senior vice president at Boost, and DISH Executive Vice President for Corporate Development Thomas Cullen both testified that Boost will continue to operate smoothly under DISH and that Boost's distribution model is already quite similar to that of DISH, which will help accelerate DISH's plans to expand its distribution to areas not currently well covered by Sprint. Tr. 146:4-20, 150:3-15, 1751:19-1753:14. Boost customers will also use the New T-Mobile network rather than the decidedly poorer-quality Sprint network. Bearing in mind that Sprint's poor network quality drove over 44 percent of Boost's churn, this network improvement will further strengthen Boost's viability under DISH. Pl. Ex. 1205; Tr. 130:5-131:1, 147:19-25.

In connection with the Boost divestiture, New T-Mobile must provide DISH with access to its network for seven years at wholesale rates significantly lower than those provided under typical MVNO agreements. Tr. 253:10-23, 1086:24-1088:17. Ergen projected that Boost customers would actually pay a lower price under DISH than they currently do as a result of this low wholesale rate, which will also help DISH to focus on building its own network rather than paying the higher costs that an MVNO usually would to access the New T-Mobile network. Tr. 1563:19-1564:22. Ergen added that DISH will also lower prices in anticipation of its transition to an MNO; DISH could recoup any short-term losses from lower prices by attracting subscribers to its own network and thus avoiding the costs associated with use of the New T-Mobile network. Tr. 1610:20-1612:21.

Plaintiff States correctly note that DISH's reliance on New T-Mobile's network during its MVNO phase presents the risk that New T-Mobile may try to hinder DISH's ability to compete effectively. Tr. 2221:15-2222:16. "Courts are skeptical of a divestiture that relies on a continuing relationship[] between the seller and buyer of divested assets because that leaves the buyer susceptible to the seller's actions -- which are not aligned with ensuring that the buyer is an effective competitor." Aetna, 240 F. Supp. 3d at 60 (internal quotation marks omitted). But here, the DOJ has already prepared multiple means to mitigate this potential conflict. It has appointed a monitor to ensure that New T-Mobile does not limit DISH's ability to use the New T-Mobile network, and it has established a formula that provides the wholesale price to DISH will never increase. On the contrary, DISH's price is designed to decrease as New T-Mobile experiences increases in capacity. Tr. 1592:7-1593:19. Moreover, DOJ remedies provide that New T-Mobile cannot cap the extent to which DISH uses its network over the first three years -- theoretically, there is nothing to stop DISH from filling more than half of New T-Mobile's network capacity. New T-Mobile cannot charge DISH if New T-Mobile customers choose to switch to DISH, either. Tr. 1599:14-1600:21. These arrangements all ensure that DISH could compete with New T-Mobile and other market incumbents on highly advantageous terms upon entry, and that the MVNO agreement will inure far more to DISH's benefit than New T-Mobile's. Tr. 1719:19-1722:25.

Plaintiff States next state that Boost's 9.4 million subscribers are significantly fewer than Sprint's current 40 million, and they argue that DISH is unlikely to reach Sprint's scale as an MNO because of the heavy costs and long time required to build a mobile wireless network. They cited at trial numerous internal documents from the Defendants expressing this same concern. See, e.g., Pl.

Exs. 403, 405; Tr. 319:17-20, 334:21-335:19, 338:1-9, 1346:4-8. Mobile wireless networks do require significant expenditures and time to build, and barriers to entry in the RMWTS industry are generally high. The documents cited by Plaintiff States, however, pre-date the DOJ's remedies, and the evidence at trial indicated that those remedies and DISH's preparations to date will greatly reduce the time normally required to build a mobile wireless network. For example, DISH may utilize any and all cell sites that New T-Mobile would otherwise decommission, gaining access to tens of thousands of cell towers ready for almost immediate use. Tr. 930:18-22, 1212:16-1216:4, 1597:15-1598:10. DISH will also have access to retail stores that New T-Mobile would otherwise close, accelerating its efforts to expand the reach of its distribution network. Tr. 1358:1-1359:13.

DISH's innovative network plans also demonstrate that construction of its mobile wireless network will be less costly and time-intensive than might normally be expected. While the mobile cores of traditional networks require large amounts of hardware that are costly to install and maintain, DISH plans to construct a "virtualized network" that relies more heavily on software and cloud-hosting services provided by potential partners like Amazon. This measure promises to cut installation and maintenance costs, such that DISH currently projects network constructions costs of roughly $8-10 billion. Tr. 1621:19-1624:18. To finance that construction, DISH has recently obtained $2 billion via stock sales and has secured several highly confident letters from banks indicating that they can raise the requisite $10 billion. Def. Ex. 8141 (Morgan Stanley), Def. Ex. 8142 (Deutsche Bank), Def. Ex. 8143 (J.P. Morgan); Tr. 1624:19-1625:11. DISH also has $3 billion in cash available on its balance sheet, though $1.4 billion will be used to acquire Boost. Tr. 1630:3-8. Eleven vendors have already indicated they could deliver this virtualized core in the first quarter of 2020. Tr. 1759:8-17. Relatedly, DISH plans to operate an Open Radio Access Network ("ORAN"), which refers to a RAN that does not require one vendor's proprietary hardware and software throughout the network. As this arrangement would enable DISH to solicit bids from competing vendors for various aspects of the network, construction costs could also decrease correspondingly. Even traditional RAN vendors have indicated to DISH that they could support an ORAN within the next eighteen months. Tr. 1759:18-1761:19.

In addition to at least 20,000 towers that New T-Mobile will make available to DISH, DISH has also identified and signed master service agreements for 32,300 towers that do not need structural reinforcement and could thus become operational in relatively short order. Tr. 1754:13-1756:21. DISH's costs to build a 5G network will also be comparatively low because DISH need not upgrade legacy equipment dedicated to prior mobile wireless standards, as current market participants must. Tr. 254:10-23, 1086:24-1088:17, 1620:21-1623:5. Finally, DISH's recent experience building an IoT network may help it to plan a more efficient buildout of its 5G network. Tr. 1579:16-1584:13.

This detailed list of considerations reflects that DISH would not face the industry's usual high barriers to entry. In fact, DISH has already engaged in extensive planning to reduce the time required to construct a new mobile wireless network. Considering the reduced cost to build a network enabled by new technology, DISH's lack of legacy infrastructure, DISH's ability to use towers and storefronts that New T-Mobile will not need, and the DOJ's commitment to ensure DISH can make significant profits as an MVNO, DISH's required capital expenditures also do not pose a threat to the sufficiency of its entry.

The Merger Guidelines specifically state that "[e]ntry by one or more firms operating at a smaller scale may be sufficient if such firms are not at a significant competitive disadvantage." Merger Guidelines § 9.3. Granting that initially DISH's customer base will be smaller than Sprint's current base, the numerous considerations detailed above demonstrate that DISH is hardly at any competitive disadvantage at all, let alone a significant one. DISH is well poised to become a fourth MNO in the market, and its extensive preparations and regulatory remedies indicate that it can sufficiently replace Sprint's competitive impact in the RMWTS Markets.

ii. Likelihood of DISH's Entry

Although the Merger Guidelines use the term "likelihood" to refer to the profitability of entry, as noted above, the Court uses the term here to address the evidence at trial regarding DISH's past behavior and intentions to enter the RMWTS Market. Throughout trial, Plaintiff States cast doubt on DISH's intent to seriously compete in the RMWTS Market or comply in good faith with its commitments to the DOJ and FCC. They cited several statements made over time by executives of Defendants for the broad point that building a mobile wireless network would be one of many "stupid bluffs" by Ergen, and that he would merely build a "meaningless thin network so that he doesn't get in trouble with the FCC." See, e.g., Pl. Ex. 375; Tr. 219:25-220:4, 1346:12-1347:23. Plaintiff States supplemented these statements with evidence suggesting that DISH has not complied in good faith with prior FCC commitments and has a history of "broken promises," as well as statements from the FCC taking issues with DISH's behavior in other contexts. Pl. Exs. 376, 1303, 1306, 1308, 1309; Tr. 341:11-342:15, 1681:18-1682:22, 1686:8-1687:7, 1689:17-1692:4. Combining these statements regarding DISH's behavior and history with the fact that developing a mobile wireless network is generally a time- and capital-intensive effort, Plaintiff States suggested that DISH's network would be, in the words of one DT official, "something the lawyers can use, but not something customers can use." Pl. Ex. 347; Tr. 332:5-333:16.

The Court is not persuaded that this evidence carries the weight that Plaintiff States ascribe to it. On the contrary, the DOJ and FCC have strongly supported DISH's entry into the market despite being fully aware of these concerns. Tr. 986:14-987:10, 1616:25-1617:19. Indeed, the same FCC commissioners who criticized DISH in other contexts collectively described the company in this specific context as a "serious and credible third-party buyer" with "access to the financial resources to acquire, maintain, and expand the Divested Business [Boost]" as well as "considerable experience providing communications services to end-user customers." DX 5385 ¶¶ 207-208; Tr. 1737:14-1738:7. The FCC concluded in the context now before the Court that DISH "would be an entity well positioned to take up and expand upon Boost's competitive role in the mobile wireless marketplace." Tr. 1738:8-24.

Under the commitments made to the FCC, DISH would stand to lose $2 billion in fines and $12 billion of spectrum if it fails to deploy a nationwide 5G network covering at least 70 percent of the United States population by June 2023. Def. Ex. 7202; Tr. 1613:4-1615:15. These potential penalties constitute strong disincentives for DISH to skirt compliance. Moreover, DISH has committed to provide speeds of at least 35 mbps on its network, at least 15,000 5G cell sites, and an average of at least 30 MHz of downlink 5G spectrum across its 5G cell sites in the same timeframe. These undertakings further increase the likelihood that DISH's network will be more than a mere façade. Def. Ex. 5385 ¶ 369.

DISH must also dedicate its 600 MHz spectrum to 5G services by 2023, which is four years earlier than required under its prior FCC interim deadline. This condition suggests that the FCC takes seriously the need to avoid delays and missed deadlines. See id. Considering also the DOJ's extensive review and numerous carefully crafted remedies, which include independent monitoring of compliance by New T-Mobile and DISH, the Court is persuaded that the DOJ will similarly be committed to ensuring that DISH takes its obligations seriously.[23]

Moreover, DISH has a great incentive to enter the RMWTS Market given its increasing importance to consumers and its potential profitability. Tr. 1564:24-1565:13. The DOJ appears to have favored DISH as a new entrant at least in part because DISH could substantiate its alleged interest through proof of its extensive research and detailed preparations for market entry, exemplified by the depth of DISH's Request for Proposals for a virtualized 5G network. Tr. 1605:10-22.

DISH has already hired several senior personnel to help manage its network buildout, including a former chief

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[23] Plaintiff States pressed on multiple occasions that "conduct remedies" such as monitoring or fines are less effective than structural remedies, implying that the monitor and various other commitments exacted here would not be reliable enough to ensure effective competition. This argument largely presents a false dichotomy, as the DOJ's and FCC's conduct remedies supplement structural remedies including the divestiture of Boost, Sprint's 800 MHz spectrum holdings, and potentially Sprint cell sites and retail locations. Indeed, divestiture of an existing business entity such as Boost is the typical structural remedy in horizontal merger cases. See United States Department of Justice, Antitrust Division Policy Guide to Merger Remedies at 4-5, 8-9 (June 2011). While Plaintiff States may insist on stronger structural remedies, "[a]bsent some measure of confidence that there has been an actual loss to competition that needs to be restored, wisdom counsels against adopting radical structural relief." United States v. Microsoft Corp., 253 F.3d 34, 80 (D.C. Cir. 2001). Bearing in mind that DISH's entry and Sprint's declining competitive relevance decrease the extent of actual lost competition, the DOJ's hybrid structural and conduct remedies do not appear inadequate under the circumstances presented.

technology officer at Sprint and a network architect with experience at Nokia, Alcatel, and Bell Labs, an organization credited with numerous significant technological innovations. Tr. 1576:17-1578:16. DISH has already dedicated 850 of its employees fully to its mobile wireless services business, 500 of whom are engineers, and it will supplement these employees with the roughly 500 current employees of Boost. Though of course its now seven-year-long hiring process is not yet complete, DISH anticipates starting its mobile wireless services business with roughly 2,000 employees. Tr. 1750:22-1751:18. Between 2012 and 2016, DISH also worked with the primary standard setting organization that determines which frequencies a mobile handset may use to ensure that DISH's spectrum bands would be included. DISH has since then secured commitments from handset manufacturers to ensure that their devices will also be configured to use DISH's spectrum, with only one band left to incorporate. Tr. 1578:17-1579:13.

And though DISH's amassing of unused spectrum over the past seven years has been criticized as a form of speculative hoarding, the evidence at trial suggested that DISH's storage of spectrum is better understood as careful preparation to ensure DISH possessed the most critical resource required to compete in an industry with high barriers to entry. Tr. 1575:7-1576:16, 1615:11-15. DISH's business plan, while preliminary, further substantiates that DISH has given considerable thought to market entry and has a clear sense of how to do so. Its plan to build its network on a city-by-city basis, jointly marketing with various strategic partners to emphasize how it will provide better service than Sprint, and transitioning from serving purely prepaid customers to postpaid customers as well seems both achievable and probable. Tr. 1633:15-1637:10.

The Court is also persuaded that DISH intends to transition from an MVNO to an MNO as soon as practically possible, as doing so would allow it to receive subscriber revenues without making wholesale payments to New T-Mobile. Tr. 1611:10-1612:21. DISH now has all of the incentives and necessary resources to compete in the RMWTS Markets. And it has received favorable remedies that strengthen its ability to do so, and is subject to severe potential penalties, at a time when the industry is transitioning to a new technological standard. Accordingly, the Court is persuaded that DISH will likely take advantage of its opportunity to enter the RMWTS Markets, first building out its 5G network in dense cities and leveraging Boost's positive brand image to cater to price-conscious customers, and shortly thereafter expanding nationwide to challenge the dominance of the incumbent MNOs more broadly. Tr. 1761:20-1762:20.

iii. Timeliness of DISH's Entry

Plaintiff States also contend that, to establish that the Proposed Merger would not likely lessen competition, DISH must replace Sprint's competitive viability within two to three years. In support of that proposition, Plaintiff States rely on multiple district court cases that in turn rely either on the standard expressed in a prior iteration of the Merger Guidelines or previous expert testimony by Shapiro. (See Pls.' Proposed Findings of Fact and Conclusions of Law, Dkt. No. 358, ¶ 103.) The Court recognizes that the Merger Guidelines are undoubtedly helpful in analyzing the competitive impact of mergers, and therefore has endeavored to give them due consideration throughout this analysis. The Merger guidelines, however, are not ultimately binding upon the courts. See Natsource LLC v. GFI Grp., Inc., 332 F. Supp. 2d 626, 636 n.3 (S.D.N.Y. 2004) (noting that Merger Guidelines and their two-year test do not carry the force of law); Anthem, 855 F.3d at 349 (noting that courts are "not bound by, and owe[] no particular deference to" the Merger Guidelines).

Considering that DISH has committed to build out an MNO network covering 70 percent of the United States population by 2023, its entry would fit into the three-year timeframe expressed by some courts. But if Plaintiff States insist that entry must be assessed under an even stricter timeline, the Court would disagree that the two-year standard once specified by the Merger Guidelines should carry any talismanic force here. As courts have noted on countless occasions, each merger must be evaluated in the context of its particular industry and unique circumstances. See, e.g., United States v. Standard Oil Co. (N.J.), 253 F. Supp. 196, 227 (D.N.J. 1966) ("A short term evaluation of anticompetitive effect on [the market at issue] is not consistent with the objectives of Section 7 . . . . What is 'imminent' in a practical sense depends upon the particular industry." (internal citation omitted)). As the Court explains in Section II.D. below, because of the particularities that characterize different industries, what may be practical and realistically achievable in one product market may not be so in another. This observation is no less true for remedies, which "necessarily must fit the exigencies of the particular case." See Ford Motor Co. v. United States, 405 U.S. 562, 575 (1972) (approving of 5-year remedies "designed to give the divested [company] an opportunity to establish its competitive position [where t]he divested company needs time so it can obtain a foothold in the industry") (internal quotation marks omitted).

It seems questionable to emphasize the timeframe set forth in a previous version of DOJ guidelines when the DOJ itself has specifically designed this remedy and the timeline for its implementation extending well beyond two years and has insisted to this Court that such arrangements would be in the public interest. (See Statement of Interest of the United States of America, Dkt. No. 348.) Although competition within the two years after the Proposed Merger is undoubtedly relevant, the Court sees no reason why its assessment of the probable future effects of the Proposed Merger must be so artificially constrained, particularly when all of the parties involved have already taken great pains to discuss the potential impact of this transaction beyond two years.

In any case, the current iteration of the Merger Guidelines sets no such hard limit on the timeliness of entry. Rather, the Merger Guidelines now specify that entry must be "rapid enough to make unprofitable overall" any potential anticompetitive actions. Merger Guidelines § 9.1. The Court concludes that that test would be satisfied here, particularly because the Court also concludes that New T-Mobile would be especially unlikely to act anticompetitively in the short term, as explained further below in Sections II.C-D. Even if DISH alone did not completely replace Sprint's competitive impact in DISH's first two years of competition, the effect of its failure to do so may not be significantly consequential because of the increased likelihood that New T-Mobile, reinforced with additional resources and greater market share, would continue to behave procompetitively during that same time period and encourage AT&T and Verizon to act more competitively than they have to date.

Looking beyond the short term, DISH's entry would likely be timely enough to replace the competitive impact of Sprint in the long term. It is clear that the commercial significance of DISH is trending upwards while Sprint is trending downwards. Unlike Sprint, DISH is acquiring spectrum at auction, hiring employees, and significantly investing in its network. Tr. 1607:9-22. And whereas Sprint would likely diminish from a national competitor to a regional one, DISH is obligated to expand from a regional competitor to a national one. As DISH's chairman aptly stated at trial, "Sprint doesn't want to be in the business. We do." Tr. 1608:6-1609:8.

The Court consequently concludes that the FCC and DOJ remedies, and particularly those designed to ensure that

DISH becomes an aggressive fourth national MNO, significantly reduce the concerns and persuasive force of Plaintiff States' market share statistics. Taking this evidence together with the evidence that the Proposed Merger's efficiencies will cause T-Mobile to continue competing vigorously, and that Sprint's ability to compete in the RMWTS Markets will continue to decrease without the Proposed Merger, the Court concludes that Defendants have carried their burden to rebut Plaintiff States' prima facie case. Though Plaintiff States' post-merger market share figures are undeniably high, the combined weight of the three different forms of rebuttal evidence Defendants presented nevertheless demonstrates that the concentration and market share statistics associated with the Proposed Merger do not accurately reflect the variety of ways in which the Proposed Merger is not likely to substantially lessen competition. Accordingly, the Court turns to consider whether Plaintiff States have satisfied their ultimate burden of proof through evidence beyond concentration and relevant market share data.

C. ADDITIONAL EVIDENCE OF ANTICOMPETITIVE EFFECTS

Defendants' rebuttal of Plaintiff States' prima facie case now leaves Plaintiff States with the ultimate burden of proof. Plaintiff States attempt to carry this burden by showing that: (1) the Proposed Merger would increase the likelihood that the three remaining MNOs would effectively agree, whether explicitly or merely through mutual awareness, that competing less strenuously and thus delivering fewer consumer benefits would be in their collective interests ("coordinated effects" of the merger); and (2) the lost competition between Sprint and T-Mobile would cause New T-Mobile to charge higher prices than T-Mobile ordinarily would have without the merger, regardless of its remaining competitors' actions ("unilateral effects" of the merger). As evidence that these two effects are likely, Plaintiff States relied primarily on the testimony of Shapiro as supplemented by various emails and internal presentations suggesting that during the course of merger discussions, T-Mobile and Sprint considered the possibility that the Proposed Merger might create opportunities to charge higher prices or otherwise decrease competition.

The Court addresses each type of effect in turn and concludes that neither is reasonably likely, particularly in the short term. As further detailed in Section II.D. below, each type of effect would require that T-Mobile reverse course and effectively disestablish the business strategy and reputation it has developed over the past decade, even though the Proposed Merger gives it the ability to simply continue that business strategy on a greater scale and thus compete more effectively with the current market leaders AT&T and Verizon. The likelihood of coordinated or unilateral effects is further diminished by Sprint's decline and DISH's entry into the RMWTS Markets.

1. Coordinated Effects

Coordinated effects analysis reflects the theory that "where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels." FTC v. PPG Indus., Inc., 798 F.2d 1500, 1503 (D.C. Cir. 1986). The Merger Guidelines set forth the framework by which the DOJ and FTC assess whether a given merger will cause coordinated effects. Beyond the market share analysis used to establish a prima facie case described above, the DOJ and FTC's coordinated effects analysis considers whether the relevant market "shows signs of vulnerability to coordinated conduct" and whether there is "a credible basis on which to conclude that the merger may enhance that vulnerability." Merger Guidelines § 7.1.

Plaintiff States' economic expert Shapiro calculated that the coordinated effects of the Proposed Merger would result in annual consumer harm of $8.7 billion. Under

Shapiro's theory, this harm would result from New T-Mobile, AT&T, and Verizon "pulling their punches," or competing less strenuously and allowing market prices to stabilize or decline at a lower rate than the 6.3 percent decline in average revenue per user ("ARPU") observed from 2014 to 2017. Tr. 616:11-20, 670:24-671:17, 684:3-25. Shapiro stated that this behavior would in turn result from several industry characteristics that he claims make the RMWTS Market vulnerable to anticompetitive coordination: that there are only a few large firms in the market, that the firms are very similar, that consumer demand is both predictable and inelastic (that is, not greatly affected by price changes), that there are high barriers to entry, and that prices are transparent and rapidly monitored. Tr. 672:1-675:5.

Defendants challenge both that the RMWTS Market is vulnerable to coordination and that without the merger prices would continue to decline at the rate claimed by Shapiro. They note that technically ARPU is not the price that consumers pay, and that instead the Bureau of Labor Statistics' producer price index indicates that the prices for cellular and wireless communications have not declined from 2018 to 2019 despite declining in earlier years. Tr. 773:8-12. Their economic expert, Katz, adds that if the producer price index is followed instead, the $8.7 billion harm calculated by Shapiro disappears completely. Tr. 1860:1-1862:11, 1863:25-1864:11. Katz also questions how similar the major competitors are, considering the various degrees to which they differentiate their mobile wireless services beyond price, such as particular handset deals, various family or data plans, and bundling with content or other communications services beyond the RMWTS Market itself. Tr. 1816:13-1817:12. Katz claims that these various non-price differentials also complicate Plaintiff States' picture of a market with transparent prices, given firms' incentives to continue innovating and distinguishing themselves from their competitors. Tr. 1818:20-1821:8.

The Court agrees, for reasons it further elaborates in Section II.D. below, that the RMWTS industry is not particularly vulnerable to coordination. As both sides acknowledge, price is not the only dimension on which competition occurs. The non-price factors listed above demonstrate the various strategies that competitors in the market might pursue, drawing also into question whether the firms' pricing is truly so transparent. For example, while T-Mobile might try to compete primarily on the basis of its capacity advantages, AT&T might try to leverage the entertainment content provided by its merger with Time

Warner, and a cable MVNO like Comcast might advertise the convenience of bundling mobile wireless services with fixed in-home broadband and cable services. Tr. 1825:17-1826:21. Considering also the rapidly changing nature of mobile wireless technological offerings, opportunities for innovation and differentiation may abound and materially alter the terms of competition. Indeed, that Plaintiff States characterize two of the largest four firms in the RMWTS Market as "mavericks" reflects that the market is not so vulnerable as they otherwise suggest. The DOJ's efforts to surmount the industry's admittedly high barriers to entry and position DISH as a new maverick also contradict the claim that the RMWTS Market is vulnerable to coordination. Tr. 2314:18-21. Finally, Shapiro conceded that asymmetric capacity utilization decreases the likelihood of coordination, which is particularly relevant because of the evidence indicating that New T-Mobile would have significantly more unused capacity than AT&T and Verizon. Def. Ex. 7057 at 18; Tr. 758:7-11.

As evidence that the Proposed Merger presents a credible threat in a vulnerable market, Plaintiff States also cite a number of documents in which employees of Defendants appear to have considered the prospect of anticompetitive coordination. While Defendants do not contest that evidence of intent may be relevant in a Section 7 case, the Court notes an apparent tension with the Second Circuit's guidance that "it is elementary that [one merging party's] intentions in acquiring [the other merging party] are not to be considered in determining whether a Section 7 Clayton Act violation occurred." FTC v. PepsiCo, Inc., 477 F.2d 24, 30 (2d Cir. 1973). But even if this Court could not consider Defendants' intentions in this exact manner, it will nevertheless weigh the evidence cited by Plaintiff States because it might shed light on whether the RMWTS Market is vulnerable to coordination, and whether the Proposed Merger presents a credible threat of coordination in the market.

The main evidence that Plaintiff States cite for the potential of coordination are statements from DT executives suggesting that they supported a "4-to-3" merger of MNOs in the United States because they believed a consolidated market would be more profitable. See, e.g., Pl. Ex. 1034 (DT slide deck highlighting a "Rule of three – potential to reduce price competition"); Pl. Ex. 370 (Legere text message dated August 1, 2017 to DT CEO Timotheus Hottges and DT board member Thorsten Langheim ("Langheim") stating that the "[r]egulatory environment will never be better than now [for] 4 to 3"); Pl. Ex. 796 (T-Mobile email dated

December 3, 2015 stating that Langheim believed DT should limit its exposure in the United States unless 4-to-3 consolidation occurred). Plaintiff States also cite some documentary evidence from Sprint suggesting this potential; for example, Sprint's Chief Marketing Officer Roger Sole-Rafols ("Sole-Rafols") suggested to Claure that the Proposed Merger could "end up accommodating plus $5 ARPU in a three-player scenario [including AT&T and Verizon]" and that this demonstrated "the benefit of a consolidated market." Pl. Ex. 566; Tr. 79:5-80:20. Plaintiff States additionally cite multiple T-Mobile and Sprint communications for the proposition that anticompetitive price signaling is already occurring in the RMWTS Market. See, e.g., Pl. Ex. 410 at 13 (notes of Langheim stating that "[T-Mobile] signaling price increases"); Pl. Ex. 647 at 1, 2 (Sprint employees stating that a T-Mobile price increase was a "good example of industry 'signaling'"); Pl. Ex. 777; Pl. Ex. 856.

The Court is not persuaded that the evidence Plaintiff States point to forms a sufficiently credible or plausible basis to conclude that the Proposed Merger will substantially lessen competition. First, the Court disagrees that the DT statements merit the weight that Plaintiff States ascribe to them. Though DT is T-Mobile's controlling shareholder, the Court places less weight on DT executives' theories regarding the effects of consolidation in a foreign market than T-Mobile's actual history of aggressive competition and the incentives for the company to continue competing that the Proposed Merger would provide. Sole-Rafol's statements lack significant probative value for similar reasons, including that Sole-Rafols lacks any input on T-Mobile pricing or regulatory strategy and stressed at trial that he expressed this hypothetical without any underlying basis. Tr. 76:24-77:20, 89:2-90:17. In any event, that DISH will become a fourth MNO in the RMWTS Market effectively nullifies the value of any speculation regarding the potential coordinated effects of a 4-to-3 merger.

Finally, the signalling emails also do not merit the weight they might warrant at first glance. For example, Langheim's notes clearly indicate that any attempts by T-Mobile at signalling failed and that the market was in fact "now at war." Pl. Ex. 410 at 13. Similarly, the correspondence between the two Sprint employees described above appears to have been speculation, in fact largely contradicted by the employees' own observations in the same discussion that "[Legere's] antagonistic approach to competition destroys profitability for the whole industry" and that "[Claure] may take a while [to start anticompetitively colluding] because of strong ego and competitiveness." Pl. Ex. 647 at 2. The other two documents cited by Plaintiff States do little to indicate that the market is actually vulnerable to coordination, either. Since they are hardly probative of the market's vulnerability to coordination, the Court is also not persuaded that they indicate the Proposed Merger would likely present a credible threat of coordination.

Even putting aside the infirmities that undermine the value of the preceding evidence, the Court has spent two full weeks assessing the credibility of each witness and their claims regarding whether coordination would be more or less likely in the RMWTS Market. "Antitrust theory and speculation cannot trump facts, and . . . cases must be resolved on the basis of the record evidence relating to the market and its probable future." Arch Coal, 329 F. Supp. 2d at 116-17. The Court finds that the fact of aggressive competition over the past decade is not so easily reversed, a point the Court elaborates on in Section II.D below. T-Mobile has built its identity and business strategy on insulting, antagonizing, and otherwise challenging AT&T and Verizon to offer pro-consumer packages and lower pricing, and the Court finds it highly unlikely that New T-Mobile will simply rest satisfied with its increased market share after the intense regulatory and public scrutiny of this transaction. As Legere and other T-Mobile executives noted at trial, doing so would essentially repudiate T-Mobile's entire public image. Tr. 1019:18-1020:1. The evidence indicated that the same executive team that has brought T-Mobile success will continue to lead New T-Mobile, and the merger will provide T-Mobile with the increased capacity that enabled it to pursue the Un-carrier strategy in the first place. Having heard Defendants emphasize the asymmetric capacity advantage that New T-Mobile would have over AT&T and Verizon, the Court concludes that New T-Mobile would likely make use of that advantage by cutting prices to take market share from its biggest competitors. Tr. 757:19-758:19, 767:12-19; see also Merger Guidelines § 2.1.5 ("A firm that may discipline prices based on its ability and incentive to expand production rapidly using available capacity also can be a maverick, as can a firm that has often resisted otherwise prevailing industry norms to cooperate on price setting or other terms of competition.").

Finally, the Court reiterates that the entry of DISH undermines the notion that there will be fewer firms in the market and that coordination will thus be more likely. Even if DISH will initially enter the market at a relatively small scale, the tendency toward anticompetitive coordination "may well be thwarted by the presence of small but significant competitors" such as DISH would be. See Stanley Works v. FTC, 469 F.2d 498, 507 (2d Cir. 1972) (internal quotation marks omitted). Trial witnesses were virtually unanimous that DISH chairman Ergen is a tough businessman not known to be particularly accommodating of his rivals. Indeed, their numerous references to Ergen as a "poker player" suggest that anticompetitive signaling with DISH would be a difficult endeavor. Having assessed the credibility of DISH's witnesses at trial, the Court is persuaded that, given its extensive preparations and the favorable remedies arranged by the DOJ, DISH fully intends to enter the RMWTS Markets vigorously and assume the mantle of a new maverick. This fact, combined with the high likelihood that New T-Mobile will compete aggressively, renders improbable any potential coordinated effects of the Proposed Merger.

2. Unilateral Effects

Unilateral effects refer to "[t]he elimination of competition between two firms that results from their merger[, which] may alone constitute a substantial lessening of competition," and like coordinated effects are analyzed primarily under the Merger Guidelines. See Merger Guidelines § 6. Other courts have noted that unilateral anticompetitive effects are more likely if "the acquiring firm will have the incentive to raise prices or reduce quality after the acquisition, independent of competitive responses from other firms" or if "the merger would result in the elimination of a particularly aggressive competitor in a highly concentrated market." Aetna, 240 F. Supp. 3d at 43 (internal quotation marks and citations omitted).

Shapiro calculates that the unilateral effects of the Proposed Merger would result in annual consumer harms of $4.6 billion. Tr. 616:21-617:4. As is the case regarding coordinated effects, Shapiro's rationale is that New T-Mobile would either raise prices or at least, as the opportunity arises, not lower prices or offer high quality services at the same rate that T-Mobile has pursued in the past, effectively delaying or denying consumers the benefits of more aggressive offers. Tr. 685:1-686:11. Shapiro calculated this harm by using a "diversion ratio," which measures how many customers would switch between T-Mobile and Sprint (or their prepaid subsidiaries Metro and Boost) in response to price increases by the carrier they are using at the time. Tr. 687:21-688:13. Shapiro gathered this switching data from a combination of sources, including the FCC and Facebook. Tr. 694:12-25, 696:7-13. Using the diversion ratios, as well as the competitors' prices and profit margins, Shapiro calculated "upward pricing pressure," which roughly reflects the incentive for the companies to increase prices after the merger. To translate this upward pricing pressure into consumer harm, Shapiro assumed that half of the upward pricing pressure would be passed on to consumers in the form of higher prices. Tr. 699:14-702:11.

Defendants claim numerous deficiencies in Shapiro's data and upward pricing pressure analysis. They first challenge the reliability of the underlying switching data, arguing that because Facebook users are apparently younger than the average wireless subscriber, Shapiro's use of Facebook data may overstate the importance of T-Mobile as a direct competitor of Sprint. Tr. 746:3-747:9, 1894:3-1896:11. Defendants also challenge upward pricing pressure analysis more generally, noting that it does not account for the repositioning of products, new entry, reputation, or changes in business strategy. Tr. 739:16-22, 740:18-23, 1890:14-24, 1891:12-15.

The Court does not doubt that Sprint and T-Mobile are now direct competitors, as the evidence at trial reflected. See, e.g., Pl. Ex. 795; Pl. Ex. 898. The Court hesitates, however, to place too much stock in Shapiro's upward pricing pressure analysis given the numerous aspects of the market that it does not capture, as well as the potential that the underlying data may not be sufficiently reliable. Reliance on Shapiro's methodology is further complicated by the theory of consumer harm that Shapiro advances. It essentially asks the Court to assess how slowly or quickly T-Mobile would lower its prices or offer non-price benefits such as high-definition Netflix with or without the merger, regardless of what other competitors do. It is already difficult to assess the competitive effects of a merger in such a rapidly changing industry; asking the Court to assess whether consumers would receive high-definition Netflix in 2020 or 2021 only compounds the necessarily speculative quality of this inquiry.

Without discounting the possibility that upward pricing pressure analysis is a valid form of quantifying the potential unilateral anticompetitive effects of a merger, the Court nevertheless finds that more traditional judicial methods of assessing a merged company's likely future behavior are more reliable and useful in this particular context. As T-Mobile's future CEO Sievert noted at trial, New T-Mobile would be taking a very significant risk by raising prices or slowing its competitive pace, because consumers in the market still generally believe that AT&T and Verizon have superior quality networks; if T-Mobile does not continue to differentiate itself through lower prices and innovative offerings, many consumers might very well choose to pay AT&T and Verizon slightly higher prices for what they believe are better networks and improved service quality. Tr. 1090:3-7. The Court concludes that rather than New T-Mobile assuming the risk entailed by changing a successful business strategy, the merged company would instead more likely prefer to leverage the capacity benefits provided by the Proposed Merger to continue its successful business strategy on a greater scale. Tr. 1094:2-8.

The Court's conclusion in this regard is also bolstered by Sprint's poor condition and DISH's likely entry. While unilateral effects analysis appears particularly concerned with the potential loss of an aggressive maverick firm, there is very little evidence to support a reliable finding that Sprint can be an aggressive and disruptive maverick in the future. On the contrary, the evidence suggests that Sprint will instead be forced to raise its prices. Tr. 1312:18-1313:3, 1365:12-1368:18, 1398:8-20. Moreover, DISH is poised to enter the RMWTS Markets as a new maverick and may compete more sustainably in the long term. Considering also that DISH will acquire Boost, there will be no loss of competition between New T-Mobile and the most successful segment of Sprint's business. The Court thus concludes that the loss of direct competition between T-Mobile and Sprint is insufficient to make reasonable the probability that the Proposed Merger would substantially lessen competition through unilateral effects.

D. PARTICULARITIES OF THE WIRELESS TELECOMMUNICATIONS INDUSTRY

In rejecting Plaintiff States' theory forecasting decreased competition and potential harm to consumers resulting from coordinated and unilateral effects of the Proposed Merger, the Court also took into account another consideration that would render it unlikely that the Proposed Merger would produce such anticompetitive consequences: the particularities of the wireless telecommunications industry and its exceptional impact both on the entire population of the country and on the national economy. As elaborated below, these circumstances create unusual procompetitive pressures and incentives while constraining anticompetitive forces.

1. The RMWTS Market is Exceptional

Commercial markets vary widely according to multiple business criteria, including, for example, product origin, the range of manufacturers and consumers, the function and performance standards of the goods and services and their quality and price. Of the basic features in which product and service markets fundamentally differ, the Court here examines two considerations that provide essential context for resolution of this litigation, and that thus warrant detailed review: the complexity and dynamism that characterize the RMWTS Markets.

a. Complexity of the Relevant Market

Regarding complexity, some product markets may be classified as relatively simple. The goods and services these markets encompass are unitary or homogeneous, in that they are easily identifiable and undifferentiated by technological or commercial integration with other products or services on which their operation and delivery necessarily depend. By virtue of the relatively simple structure, product pricing in such markets tends to be more transparent, rendering coordinated and unilateral effects on prices and quality more likely to result from a merger.[24]

[24] The Merger Guidelines reflect these principles. They recognize that distinctions in markets exist according to the complexity of the product's composition, and that such differences can give rise to

Other markets consist not of a single item, but of a more intricate product encompassing multiple components which can be packaged, marketed, and bought and sold together with other interrelated goods and services with which they are inseparably bound. In such markets product pricing tends to be relatively non-transparent, insofar as retail price is fixed not on the basis of one item or feature, but concordant with multiple variables that may change according to product or service characteristics such as speed, quality, efficiency, and reliability. For this reason, unilateral and coordinated pricing strategies are likely more difficult to achieve in complex markets.

To give simplified examples of the preceding distinctions, milk is milk, and the structure of its product market may be considered relatively simple. As available for the retail trade, milk can be made, marketed, bought and sold as a single commodity independent of any functional connection to or reliance upon another product

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varying competitive strategies and effects. The Guidelines make reference, for instance, to markets in "differentiated" and "homogeneous" or "undifferentiated" products. Merger Guidelines §§ 6.1, 6.3 ("In markets involving relatively undifferentiated products, the Agencies may evaluate whether the merged firm will find it profitable unilaterally to suppress output and elevate the market price."). See also id. at § 7.2 (noting that "[p]rice transparency can be greater for relatively homogeneous products" and that "[a competitive] firm is more likely to anticipate strong [anticompetitive] responses . . . if products in the relevant market are relatively homogenous.").

or service. Hence, to buy a container of milk, the retail consumer need not purchase a cow, and so also pay for the cattle's full value and content of beef.

Retail mobile wireless telecommunications services, by contrast, illustrate a prototypical complex market. As furnished to and acquired by consumers, wireless service does not stand alone, but comes integrally connected with several goods and services furnished by other interrelated industries. Specifically, the product comes inextricably tied to the electronic hardware devices supplied by the cellular phone and computer industries that consumers use for voice and non-voice communication, as well as for imaging, messaging, data transmission and storage, and internet access. Moreover, the cellular hardware carries the operational material created by providers of software content such as video and audio programing and data accessed by phones and similar devices. Plainly stated, the modern wireless telecommunications market would not exist without its complex interdependence on the mobile devices and software programs produced by other distinct industries. On that basis, cell phone service can be transmitted for voice or non-voice communication by itself through the wireless company networks, or it could be bundled with various products and services that some telecommunications companies deliver by means of other technologies, such as cable or satellite.

b. Dynamics of the Relevant Market

Turning to dynamics, in some industries the composition of goods and services tends to be static over time, and the markets' competitive structure and environment generally change little. In these markets, how business is transacted, how the relevant product is made, financed, and advertised, and the prices at which it is bought and sold, as well as who comprises its producers and consumers - in other words, the demographics and elasticity of the trade - all remain relatively stable from one business cycle to the next. Markets for items such as beer, paper clips, and tuxedos, to cite a few clear examples, would fall into this category.

At the opposite band of the dynamics spectrum are markets in which the essential qualities of the goods and services can shift quickly from year to year. Such change may be propelled by: rapid and constant innovations in technology and product lines; substantial variations in consumer demand for the product; the makeup of the item's buyers and sellers; design and production costs; and ultimately by the competitive features and strategies industry participants adopt concerning pricing, quality, and marketing. By virtue of such variability, in complex and dynamic markets current product lines and prevailing business models could be rendered obsolete within a relatively brief time frame.

c. Market Dynamics in the Courts

Several federal courts have recognized that certain markets should be characterized as dynamic by reason of constant innovation and other rapid changes, and that analysis of antitrust effects of specific transactions in such markets warrants more particularized consideration than courts accord under traditional economic analysis, to that extent counseling greater caution in judicial intervention. In FTC v. Tenet Health Care Corp., for example, the Eighth Circuit, reversing the district court's injunction of a hospital merger, noted that the lower court "did not properly evaluate evolving market forces in the rapidly-changing healthcare market," and had relied instead on an "outdated assumption." See 186 F.3d at 1055. Urging the exercise of "extreme caution" because of the effect of judicial intervention on the balance of market forces, the circuit court added that "[t]his appears to have even more force in an industry . . . experiencing significant and profound changes." Id.

To a similar effect, the Seventh Circuit, in Hospital Corp. of Am. v. FTC, affirmed FTC rejection of a hospital merger. Despite its holding, the court remarked that courts must "consider the significance of the facts . . . that hospital services are complex and heterogeneous, that the sellers in this market are themselves heterogeneous because of differences in the services provided by the different hospitals and differences in the corporate character of the hospitals . . . [and] that the hospital industry is undergoing rapid technological and economic change." See 807 F.2d at 1389-91. The D.C. Circuit echoed that point in United States v. AT&T, Inc., 916 F.3d 1029 (D.C. Cir. 2019). There, the court rejected the government's objections and affirmed the district court's judgment approving the merger of AT&T and Time Warner. In doing so, the D.C. Circuit noted that the evidence indicated that the industry had become "remarkably dynamic" in recent years, and that "in the context of a dynamic market," the district court properly rejected as inaccurate the projection of content costs forecasted by the government's traditional economic theory. See id. at 1039-40.

At the district level, the court in AT&T was even more explicit in recognizing the significance and effects of dynamic markets in antitrust analysis and the particularized review that mergers in those markets call for. On this point the district court remarked that "to ignore [industry trends] that are transforming how consumers view video content and blurring the lines between programming, distribution, and web-based competitors [] would be to ignore the Supreme Court's direction to examine this case with an eye toward the 'structure, history, and probable future' of this fast-changing industry." United States v. AT&T, Inc., 310 F. Supp. 3d 161, 176 n.6 (D.D.C. 2018) (quoting Gen. Dynamics, 415 U.S. at 498). See also United States v. Microsoft Corp., 253 F.3d 34, 49-50 (D.C. Cir. 2001) (noting, in the context of a Sherman Act Section 2 monopolization case, the existence of a significant debate among practitioners and academics concerning the extent to which "old economy" doctrines should apply to firms competing in "dynamic technological markets characterized by network effects" — the consequence of which is a tendency of a product towards dominance and entrenchment because of the number of users consuming the goods — the D.C. Circuit remarked that "[i]n technologically dynamic markets . . . such entrenchment may be temporary, because innovation may alter the field altogether . . . Rapid technological change leads to markets in which 'firms compete through innovation for temporary market dominance, from which they may be displaced by the next wave of product advancements'.") (quoting Howard A. Shelanski & J. Gregory Sidak, Antitrust Divestiture in Network Industries, 68 U. CHI. L. REV. 1, 8 (2001)).

d. Dynamics of the Wireless Telecommunications Industry

The modern telecommunications industry aptly illustrates the fluctuations characterizing dynamic markets. Wireless mobile phone service -- the capacity, speed, quality, and efficiency achieved by telecommunications networks in transmission through the operation of mobile devices -- all have changed dramatically in a relatively short time span, reaching performance measures unimaginable just a few years ago. In turn, these advances dramatically expanded the technological capabilities of the cellular phone devices and uses by which the industry functions, correspondingly multiplying the capacity, variety, and quality of the content that wireless carriers transmit. By virtue of these developments mobile services have grown exponentially in the number and composition of subscribers as well as in the range of product and service plan choices and pricing available to consumers. This phenomenon has generated even more complexity and dynamism in the ways business is done in the wireless services industry, and in how firms there compete.

Yet, it commands no stretch of imagination to predict that many of the defining features and standards that characterize the wireless telecommunications industry today may be considered outmoded and unmarketable in the not too distant future, much like the brick phones of not long ago, and the flip phones that replaced them in a later generation of handsets. To dramatize the mutability of products wrought by that revolution, the modern devices which operate through wireless networks function not just as telephones transmitting voice communication, but also, among the more prominent non-voice operations and applications, as photo and video cameras, internet browsers, and social media outlets. They can be deployed as remote controls, traffic maps, and direction finders, and include other features, such as alarms, calculators, and clocks.[25] They are adaptable to read books, watch films, do research, charge purchases, and pay bills.

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[25] Though not dependent on wireless service to operate, the availability of some of these functions enhances the consumer attraction of the devices, increases their purchases, and thus indirectly benefits the wireless network carriers that provide services to the markets for the hardware.

For businesses to succeed under constantly fluctuating market conditions entailing such extraordinary complexity and dynamic forces, as ordinary common sense would confirm, would call for commensurate market strategies and ongoing investment of sufficient resources. In particular, it would demand ready access to large capital, exceptional technological innovation, and aggressive marketing. Also crucial to that end are commercial acumen, speed, and agility in responding and adapting to the fast-paced and steadily shifting ground underpinning the industry. See e.g., AT&T, 310 F. Supp. 3d at 173-77 (noting how changes in the industry for video content caused a "rush from television ads to digital ones" that favored innovative technology companies over traditional television programmers). Starkly stated, in these contests, the race is indeed to the swift. Firms able to move speedily and nimbly enough in such challenging market conditions -- those that commit the level of investment called for to create new business channels, upgrade plants, improve product quality and access to operating systems; that adjust pricing plans flexibly to reflect expressed consumer preferences and emerging market trends; and that grasp competitive opportunities manifest in the industry's dynamics -- are more likely to survive. Those that cannot or refrain from doing so are prone to lag behind more and more, or even fail.

e. Market-Specific Behavior in Complex and Dynamic Industries

Most significant about the preceding contrast between relatively simple versus complex product markets, and the static as opposed to the dynamic, is how the distinction bears upon individual and corporate behavior in a business context. The differences raise a basic question: whether or not commercial practices and decision-making norms generally prevailing in one type of market may be transferable, and thereby likely to inform and guide the kinds of practices and decisions that govern another type, thus aiding predictions about the business choices company executives are likely to make under particular market conditions.

From this Court's review, the record of this litigation informs a response to the preceding question. Projections of likely conduct in one type of market and analysis and predictions of competitive effects should take account of the unique features of the particular market and not be gauged by economic standards and practices that characterize another. Effects on competition in the market for cinder blocks, for instance, should not be assessed by the rules and practices prevalent in the market for computers. On this view, the extreme complexity and dynamism characterizing the wireless telecommunications markets would justify treating the industry as unusual for the purposes of antitrust analysis, and hence not be examined solely according to traditional economic models or based narrowly on the simpler business calculus that may be more fitting in evaluating competitive effects in relatively simpler and stable product markets.

In this Court's view, in the intensely competitive and rapidly changing environment in which complex and dynamic markets operate, the anticompetitive business strategies and market effects Plaintiff States predict are unlikely. It is not likely, perhaps improbable or even not rational, that a major new or reinforced market participant, rather than vying aggressively to entice additional customers from competitors by introducing innovations, and investing more to protect and expand market share, would do the exact opposite, thereby risking harm to its customer base, weakening commercial reputation, and jeopardizing longer-term revenues. To borrow a sports metaphor, a boxer who has strived and sweated for years to reach the title prize fight is not likely to pull punches and take a dive the moment he steps into the ring against the reigning champ.

By the same token, it would defy reasonable expectation of likely future conduct by reasonable corporate executives of companies in complex and dynamic markets for a business that has staked out a role and gained consumer recognition as an aggressive competitor, as T-Mobile has done, suddenly to embrace a passive outlook. In other words, as this Court reads market dynamics, it is unlikely that such a firm would sit back and follow the pack, forego innovations that would enable it to remain lockstep with advances in the industry, or to pursue stale or outdated measures as competitive policies, unmindful of the damage to its business reputation and customer loyalty, and hence foregoing opportunities to lead and surpass rivals.

On this analysis, in complex and dynamic markets, pricing strategies tend to be less transparent and more dependent on a multitude of pushes and pulls, internal and external. In particular, prices are more likely grounded on combinations of different product and service features varying by capacity, speed, quality, and content. For this reason, in complex and dynamic markets, anticompetitive behaviors -- pricing strategies creating coordinated or unilateral effects -- are likely more risky, impractical, or unrealistic for reasonable corporate executives to implement.

In consequence, the post-merger pricing structure in such markets is less likely to be a function of the calculations that the experts' traditional economic analysis and engineering models devise, and impelled more by the measures of conduct that reasonable business managers are likely to adopt when making real-world pricing decisions. This observation recalls the discussion in the Introduction above outlining the Court's prophetic role in antitrust cases and suggesting considerations and guideposts it regards as particularly compelling in projecting whether a merger may produce coordinated or unilateral effects such as increases in price or lowering of quality.

In that connection, during the trial the Court heard and read testimony of several corporate executives from various telecommunications companies. The Court focused attention on that evidence and assessed the credibility of the witnesses. From this evaluation the Court culled a number of telltale patterns of conduct business managers manifest that could serve as persuasive predictors of whether or not commercial firms are likely to engage in anticompetitive actions potentially yielding higher prices or lower quality under particular market conditions.

Specifically, the list of the behavioral clues the Court gleaned and examined includes: manifested personal and commercial ambition and aggressiveness by company executives in pursuit of business goals; concerns over the individual's and the business's reputation in the industry; responsiveness to professional and corporate peer pressure; strength of character brought to bear upon company policies and operations; level of commitment to business objectives and resourcefulness and creativity in securing and managing the means to carry them out; impulse to prevail in competitive settings and to exercise will power directed to that end; motivation to achieve marketing targets surpassing competitors; inducement to strive harder impelled by the prospect of promotion and rise of standing within a corporation or industry; resort to disruptive or contrarian ways to gain competitive ends and demonstrable success in doing so; and patterns of past conduct and duration and consistency of openly known identification with and adherence to a recognized professional or business culture.

f. New T-Mobile's Likely Post-Merger Behavior

To drive these points home from the abstract to the merger dispute now before the Court, this discussion relates in two fundamental ways to the arguments the parties have advanced, and so informs the predictive function the Court must perform. As summarized in Section II.C. above, Plaintiff States contend that the T-Mobile/Sprint merger is likely anticompetitive because it will lead to higher prices in the RMWTS Market, even in the short term. That prospect will likely come to pass, they argue, because New T-Mobile will engage in business strategies that would create coordinated or unilateral effects, such as by failing to lower prices when the opportune occasion to do so arises, and pulling punches by not engaging aggressively enough in competing with Verizon and AT&T. In Plaintiff States' analysis, New T-Mobile would thus enable its head-to-head competitors to increase wireless service prices or lower service quality and then simply follow their lead.

The Court is not persuaded that post-merger New T-Mobile is likely to adopt such a course. First, it is essential to consider a basic flaw in the antitrust theory and economic analysis Plaintiff States advance. Anticompetitive results such as higher prices and lower quality produced by coordinated or unilateral effects of a merger do not just "happen"; they are not self-executing outcomes spontaneously set in motion upon the creation of a presumed level of market concentration of fewer competitors, or the large market shares amassed by particular participants. Rather, if such consequences do occur after a merger, they necessarily embody the actions taken, directly or indirectly, by decisionmakers in the relevant market. In other words, behind the assumptions and figures and models produced by the economic analysis and engineering models and business experts forecasting post-merger price increases or declining product quality induced by New T-Mobile's competitive conduct deriving from its greater market share, there would have to be purposeful business choices made by the corporation's management calculated, affirmatively or by effect, to achieve those ends. But, in this Court's view, whatever anticompetitive course traditional antitrust economic theory and analysis would foretell may come to pass by a merger in a simple, static market, in a complex and dynamic industry such as the RMWTS Market, it is highly unlikely that New T-Mobile executives, upon the company being reinforced as a competitor nearer in size and resources to AT&T and

Verizon, would do a commercial about-face, and instead pursue anticompetitive strategies.

Having observed the presentations of the T-Mobile executives at the trial, watched their demeanor, assessed their credibility, and weighed their testimony in its totality in the light of the behavioral guides the Court articulated above, the Court finds that the portrayal of the likely post-merger competitive posture New T-Mobile would adopt warrants credit as believable and consistent with the realities of competition in the RMWTS market. To this extent, that forecast of course runs diametrically counter to the results of the predictive economic and engineering models Plaintiff States' experts devised. That analysis would depict a picture of the ambitious and aggressive small-time wannabe who cannot wait to join the lofty club of the two industry giants, only to passively fold and follow or collude with them in raising prices and hurting consumers. Instead, what the Court observed at trial in the testimony and documentary evidence credibly presented by T-Mobile executives revealed a different image: a company reinforced with a massive infusion of spectrum, capacity, capital, and other resources, and chomping to take on its new market peers and rivals in head-on competition.

In the Court's view, the contrary New T-Mobile strategy Plaintiff States envision would not be rational in the near or long term. It would be at odds with predictions of what objectively reasonable individual and corporate behavior would embrace in a complex and dynamic market under the factual circumstances presented here. As the Court discussed above, against a backdrop of T-Mobile's longstanding business strategy as the self-styled maverick and disruptive Un-carrier, it would be counter-productive, even self-defeating, for New T-Mobile soon after the merger to fail to invest, innovate, and improve network speed, capacity, and quality, or to refrain from offering products incorporating the most advanced technologies, enhanced content, and improved service plans, and ultimately to lower prices, as market dynamism would demand and more reliably predict. By embarking on the polar course Plaintiff States foresee, New T-Mobile would effectively imperil its own future.

The Court cannot accept the premise that under the competitive circumstances presented here, responsible business executives of major publicly-traded corporations will likely act irrationally in directing the affairs of the company they manage. To the contrary, the Court assumes that in responding to major business challenges and opportunities, and making momentous decisions at a critical juncture determining the business's future, corporate managers are more apt to behave responsibly, in accord with applicable legal and business norms and fiduciary duties.[26]

g. The Posture of Sprint

Given the extensive commercial demands imposed on businesses in complex and dynamic industries -- for constant investment, innovation, marketing, and technology -- the Court is not persuaded, for the reasons articulated above, that Sprint possesses the financial and operational means to survive in the near term as a national wireless carrier. This prognosis is especially likely in the context of the vast resources that will be needed to fulfill the telecommunications industry's and the nation's growing demand for 5G service, taking sufficiently into account the transformative changes that development implicates for the wireless market. In trial testimony that the Court found credible, Sprint management itself acknowledged that bleak prospect. See supra Section II.B.2.

[26] Of course, exceptions are bound to arise. At the fringes of the law, some individuals will always be found who are ready to bend or break the rules and choose to step over the line into the ground of unethical or illegal conduct in order to maximize profit for themselves or shareholders. But the law also provides means to punish and generally deter such outliers without impairing the value added to the larger society by the contributions of the much greater majority who elect to remain well within the bounds of permissible behavior.

h. Impact of the Telecommunications Industry

There is another overarching dimension which bears contextually on the likelihood that New T-Mobile executives will engage in the post-merger anticompetitive conduct causing the coordinated and unilateral effects that Plaintiff States predict. That consideration embodies the integral role that the telecommunications industry and RMWTS Market play in the lives of the entire population of the country as sources of a vital prop for modern living and well-being. To this extent, the wireless market also serves as an essential component of the national economy.

Undeniably, mobile phones and other electronic devices whose operation depends on wireless service networks are ubiquitous in our society -- indeed, all over the globe. Hundreds of millions of Americans, well over the majority of the total population residing in every state and territory in the Union, own mobile devices and are beholden to wireless services for their operation. The strong reliance of such a vast number of users on cell phones and other wireless devices to engage in various forms of communication permeates every corner of American social, economic, and public life. And that dependence encompasses all types of individuals, businesses, government, and institutions. The reach of the RMWTS markets extends equally broadly to every essential purpose -- work, education, recreation, business, health, and social functions. Quantified, the impact of the wireless services industry in this country is staggering. It represents total assets amounting to hundreds of billions of dollars, generates revenues also reaching into hundreds of billions, and employs hundreds of thousands of workers, not counting the corresponding figures relating to the hardware and content industries that function through wireless networks.[27]

These considerations carry profound implications for the issues before the Court. In particular, they underscore the large magnitude of the interest that an overwhelming segment of the American population and economy have in ensuring the availability of a nationwide wireless service system possessing the largest capacity, maximum speed, best quality, and highest efficiency at the lowest possible marginal cost and product price.

The expansive breadth and depth of the interests of consumers and the national economy alike in optimal operation of the RMWTS Market are manifest in several ways.

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[27] As the record does not readily reflect more exact industry figures, the Court offers these broad quantifications based on the Court's reasonable extrapolations of trial evidence to provide a sense of the orders of magnitude that the wireless industry entails.

Rapid increases in the market's base of customers in turn enlarge consumer demands for more and better wireless service, thus necessarily further expanding the complexity and dynamism, as well as the product interconnection and consumer dependence that already characterize the wireless telecommunications industry. By the same token, higher product demand places greater business and individual pressures on market participants to invest and innovate so as to compete actively, operate efficiently, and protect and enlarge market shares, at the risk of being left behind by the quick pace of market developments. The industry's profound impact and importance also serve as a big spotlight to focus more intense attention of public regulators and other law enforcement officials to be more vigilant and aggressive in promoting the public interest and protecting consumers and the national economy from harm. That oversight helps ensure lawful business conduct and enforcement of compliance with remedial commitments the government imposes to enhance competition, as witnessed in this case by the intervention of both federal and various state agencies.

As applied to the disputed issues raised in this action, the Court considers the far-reaching impact and importance of the wireless services market to such a large portion of the population and to the national economy as raising a constraint on anticompetitive behavior and as a powerful incentive for vigorous competition. This observation lends support to two predictions central to this proceeding. First, given the size and national significance of the wireless services market, and the heightened public interest and governmental scrutiny it engenders, New T-Mobile is not likely, especially in the near term, to pursue raising prices or lowering quality of wireless service by means of either coordinated or unilateral effects. Hence, Plaintiff States' concerns and projections of such outcomes of the Proposed Merger are not well-founded. Second, the expanse and importance of the wireless industry that generate ever greater competitive pressures and demands of consumers and other industrial forces also give persuasive weight to evidence forecasting that Sprint is not likely to survive as a major competitive carrier of national scope and market impact.

CONCLUSION

Having been tasked with predicting the future state of the national and local RMWTS Markets both with and without the merger, and relying on both the evidence at trial and the various judicial tools available, the Court concludes that the Proposed Merger is not reasonably likely to substantially lessen competition in the RMWTS Markets. Despite the strength of Plaintiff States' prima facie case, which might well suffice to warrant injunction of mergers in more traditional industries, a variety of considerations raised at trial have persuaded the Court that a presumption of anticompetitive effects would be misleading in this particularly dynamic and rapidly changing industry. T-Mobile has redefined itself over the past decade as a maverick that has spurred the two largest players in its industry to make numerous pro-consumer changes. The Proposed Merger would allow the merged company to continue T-Mobile's undeniably successful business strategy for the foreseeable future.

While Sprint has made valiant attempts to stay competitive in a rapidly developing and capital-intensive market, the overwhelming view both within Sprint and in the wider industry is that Sprint is falling farther and farther short of the targets it must hit to remain relevant as a significant competitor.

Finally, the FCC and DOJ have closely scrutinized this transaction and expended considerable energy and resources to arrange the entry of DISH as a fourth nationwide competitor, based on its successful history in other consumer industries and its vast holdings of spectrum, the most critical resource needed to compete in the RMWTS Markets. DISH's statements at trial persuade the Court that the new firm will take advantage of its opportunity, aggressively competing in the RMWTS Markets to the benefit of price-conscious consumers and opening for consumer use a broad range of spectrum that had heretofore remained fallow.

The Court remains fully mindful that among its various likely prospects, one possibility a merger of this magnitude raises is that of a less competitive future in the RMWTS Markets. However remote, that concern must be taken seriously. The Court, however, does not believe that such a possibility is reasonably likely in light of the numerous considerations discussed above. Accordingly, the Court concludes that Plaintiff States have failed to prove a violation of Section 7 and thus declines to enjoin the acquisition of Sprint by T-Mobile.[28]

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[28] Because the Court concludes that Plaintiff States have not proven Defendants violated Section 7, it need not evaluate whether enjoining the Proposed Merger would be in the public interest. See Chiste v. Hotels.com L.P., 756 F. Supp. 2d 382, 407-08 (S.D.N.Y. 2010)("Injunction is not a separate cause of action; it is a remedy.").

III. ORDER

For the reasons stated above, it is hereby

ORDERED that the request of plaintiffs, the States of New York, California, Connecticut, Hawaii, Illinois, Maryland, Michigan, Minnesota, Oregon, and Wisconsin, the Commonwealths of Massachusetts, Pennsylvania, and Virginia, and the District of Columbia, for an injunction pursuant to Section 7 of the Clayton Act, 15 U.S.C. Section 18, to restrain the proposed acquisition of Sprint Corporation by T-Mobile US, Inc. is **DENIED**, and the Clerk of Court is directed to enter judgment in favor of defendants Deutsche Telekom AG, T-Mobile US, Inc., Softbank Group Corp., and Sprint Corporation.

The Clerk of Court is directed to terminate any pending motions and to close this case.

SO ORDERED.

Dated: New York, New York
10 February 2020

VICTOR MARRERO
U.S.D.J.