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March 18, 2019  
*VIA HAND DELIVERY*

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, DC 20554

**REDACTED – FOR PUBLIC INSPECTION**

**Re: Notification of Oral *Ex Parte* Presentation  
Applications of T-Mobile US, Inc. and Sprint Corporation for Consent to Transfer  
Control of Licenses and Authorizations; WT Docket No. 18-197**

Dear Ms. Dortch:

Pursuant to Section 1.1206(b) of the Commission's Rules, 47 C.F.R. § 1.1206(b), notice is hereby provided of an oral *ex parte* communication in the above-captioned docket. On March 14, 2019, economists Mark Israel, Michael Katz and Bryan Keating ("IKK") and representatives of T-Mobile US, Inc. ("T-Mobile") and Sprint Corporation ("Sprint" and, collectively with T-Mobile, "Applicants")<sup>1</sup> met with members of the FCC Transaction Team (a list of FCC participants is provided in Attachment A) to discuss the extension of IKK's economic analysis to 2019 and 2020.<sup>2</sup> IKK presented the attached deck (submitted herewith as Attachment B).

**The IKK analysis shows that consumers benefit from the merger in each and every year from 2019 through the foreseeable future, with a net present value for consumers of \$359 billion, which corresponds to gains of \$1,036 per subscriber. During the meeting, IKK**

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<sup>1</sup> In addition to IKK, those representatives included Kathleen O'Brien Ham, Melissa Scanlan, Ankur Kapoor, Mark McDiarmid, and Steve Sharkey of T-Mobile, Reinhard Wieck of Deutsche Telecom, Inc., Michael Senkowski and Nancy Victory of DLA Piper LLP, Mark Nelson and George Cary of Cleary Gottlieb Steen & Hamilton, LLP, Joshua Soven of Wilson Sonsini, Richard Metzger of Lawler, Metzger, Keeney & Logan, LLC, Joe Rancour and Tim Grayson of Skadden, Arps, Slate, Meagher & Flom LLP, David Meyer and Brad Lui of Morrison & Foerster LLP, Kostis Hatzitaskos of Cornerstone Research, and David Fenichel of Compass Lexecon.

<sup>2</sup> See Letter from Nancy J. Victory, Counsel to T-Mobile US, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 18-197 (Feb. 21, 2019).



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reviewed how they adjusted their economic model to account for the different characteristics of 2019 and 2020 relative to 2021-2024. The resulting model demonstrates that the merger will strengthen competition in each year for the foreseeable future and will generate billions of dollars in consumer benefits. IKK find the merger to be welfare enhancing in the baseline case and all sensitivity cases in each year reviewed. Further, IKK explained how the proposed merger will generate additional benefits not captured by this analysis.

**The New T-Mobile customers will not pay extra for 5G under the price commitment.**

Representatives of the Applicants also discussed the pricing commitment previously submitted in the record. Those representatives emphasized that: (1) the price commitment has been documented on the record as including the flow-through of network improvements and 5G with no price increase (*unlike the recent Verizon announcement that it will charge more for 5G, New T-Mobile subscribers will get 5G at no extra charge*); (2) the price commitment is a ceiling, but the business plan for the merged company provides for lowering prices; and (3) the assumption that past is prologue and that prices will continue to fall without the merger is not correct—the standalone companies show [REDACTED] in the future and New T-Mobile shows a 6 percent decline in ARPU.

At the meeting, members of the Transaction Team requested a version of Tables 10 and 11 in the IKK Declaration<sup>3</sup> (dealing with non-network efficiencies) applicable to 2019 and 2020. These calculations were provided as part of the backup to the Applicants' February 21, 2019 *ex parte* filing (backup to Attachment B). The relevant file is at the following path in the backup, where "... " should be replaced by the location to which the backup folder was extracted: ".../Analyses/Margins/Non-Network Savings-2019-2020.xlsx".

This filing contains information that is "Highly Confidential" pursuant to the Protective Order filed in WT Docket No. 18-197. Accordingly, pursuant to the procedures set forth in the Protective Order, a copy of the filing is being provided to the Secretary's Office. In addition, two copies of the Highly Confidential Filing are being delivered to Kathy Harris, Wireless Telecommunications Bureau. A copy of the Redacted Highly Confidential Filing is being filed electronically through the Commission's Electronic Comment Filing System.

Please direct any questions regarding the foregoing to the undersigned.

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<sup>3</sup> *Applications of T-Mobile US, Inc. and Sprint Corporation for Consent to Transfer Control of Licenses and Authorizations*, WT Docket No. 18-197, Joint Opposition of T-Mobile US, Inc. and Sprint Corporation (filed Sept. 17, 2018), Declaration of Mark Israel, Michael Katz and Bryan Keating, Appendix F, at 76.



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Respectfully submitted,

**DLA Piper LLP (US)**

*/s/ Nancy J. Victory*

Nancy J. Victory  
Partner

NV

cc: Kathy Harris

**ATTACHMENT A**

**LIST OF FCC PARTICIPANTS**

David Lawrence  
Catherine Matraves  
Charles Mathias  
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Monica DeLong  
David Sibley  
Katherine LoPiccalo  
Aleks Yankelvich  
Babette Boliek  
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Donald Stockdale  
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Max Staloff  
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**ATTACHMENT B**  
**PRESENTATION**

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# Extension of the Economic Analysis of the T-Mobile/Sprint Merger to 2019-2020

Mark Israel, Michael Katz, and Bryan Keating

March 14, 2019

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# Overview

## Summary of Our Analysis

- Our prior simulation analysis demonstrated that the proposed merger will strengthen competition and benefit consumers from 2021 through the foreseeable future.
- That analysis began with December 31, 2021, the date on which customer migration and the integration of the Applicants' networks are expected to be largely complete.
- We now extend our analysis to incorporate the integration period.
- **Central Finding: The proposed merger will strengthen competition in each year for the foreseeable future and will generate billions of dollars in consumer benefits.**
- The proposed merger will also generate additional benefits not captured by this analysis.



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# Extension to 2019 and 2020

## Differentiating Characteristics of 2019-2020 Relative to 2021-2024

- Much of New T-Mobile's network investment will be driven by integration considerations.
  - Must recognize that the Network Build Model does not fully account for these.
- Limited ability to modify certain network investments (e.g., cell splits) due to long lead times and contractual commitments.
  - Must account for limitations on ability to implement new solutions.
  - Must account for sunk nature of costs for committed solutions.
- LTE more commercially significant.
  - Must account for the marginal costs of serving LTE subscribers.
  - Requires more accurate measure of LTE throughput than did 2021-2024 analysis.
- New T-Mobile will face near-term price constraints.
  - Should account for inability to raise retail prices in near term.
  - Should account for inability to raise wholesale prices during contract term.

## Model Adjustments to Handle 2019 and 2020

- Integration Considerations.
  - Use planned New T-Mobile baseline network.
  - Use lower 5G congestion thresholds.
- Limited Ability to Modify Network.
  - Assess marginal costs over range of 100% to 110% of traffic (rather than 90% to 100%).
  - Assess network quality before incremental solutions—baseline reflects expected level.
- LTE More Commercially Significant.
  - Incorporate LTE network into marginal cost calculations (LTE-based costs in 2019, weighted average in 2020).
  - Use empirical loading curve to assess LTE network throughput.
- MVNO Contracts.
  - Account for existing TracFone contract by freezing Tracfone wholesale price through [REDACTED].
  - Account for other existing MVNO contracts by freezing wholesale prices through [REDACTED].

## Model Adjustments to Handle 2019 and 2020: Near-Term Retail Price Constraints

- Consistent with New T-Mobile's business plan, T-Mobile executives have stated that the firm will not raise prices in the near term because doing so would violate its "brand promise" to consumers and be unprofitable.
  - Not captured by our earlier modeling.
- T-Mobile has also made the following commitment:

*New T-Mobile will make available the same or better rate plans as those offered by T-Mobile or Sprint as of today's date for three years following the merger.*
- Commitment is not subject to a key criticism of behavioral remedies: relevant only during two-year transitional period.
- We model New T-Mobile under the assumption that it offers the same rate plans as would the standalone companies in 2019.

## Model Improvements Reflected in February 21, 2019, Submission

- Use updated and more disaggregated unit costs for incremental solutions.
- Use Sprint's ordinary course "18.2" demand forecasts for subscriber count and LTE/5G handset mix.
- Diversion ratios derived from the Asker, Bresnahan, Hatzitaskos (ABH) demand model as baseline case.
- Allow for endogenous deployment of 5G solutions in all spectrum bands.
- 2.5 GHz overlays for 5G also deploy 2.5 GHz spectrum for LTE (if available) and allow for 2.5 GHz overlays as endogenous solutions to address LTE-specific congestion.

## Intuitive Explanation of the Merger-Driven Cost Savings Captured by the Modeling

- More Efficient Use of Existing Network Assets and Spectrum
  - Greater effective capacity from a given Radio Access Network due to queuing benefits.
  - Call Center Analogy
- Site-specific Complementarities
  - Reflected in solution sets and unit costs.
  - Example: Using Sprint spectrum for an overlay on an existing T-Mobile site is cheaper than deploying that spectrum through a cell split.
  - Example: Cell splits subject to economies of scale—a cell split with twice as much spectrum deployed costs less than twice as much.
- Refarming
  - T-Mobile management has concluded that, due to lumpiness in LTE spectrum deployment, the merged firm will be able to refarm spectrum more quickly than would the standalone companies, thus accelerating realization of the efficiency gains associated with 5G.

## Unmodeled Consumer Benefits of the Proposed Merger

- Network Build Model doesn't incorporate benefits from multi-operator core network (MOCN) and other network management tools that will provide enhanced coverage for legacy Sprint customers prior to migration.
- Network Build Model assumes uniform customer migration from legacy Sprint networks to the New T-Mobile network even though migration will be locally optimized, which yields superior overall network quality.
- Economic modeling does not capture post-migration improvements in coverage, particularly for Sprint customers.
- Economic modeling does not capture the proposed merger's consumer benefits from more consistent user-experience throughput, particularly for Sprint customers.
- Economic modeling does not fully account for the benefits (e.g., lower latency) that will arise because a higher percentage of traffic will be on 5G.

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# Results



## Marginal Cost Savings (\$/Subscriber/Month)

			2019	2020	2021	2022	2023	2024
Postpaid	Sprint	Network						
		Roaming						
		Non-Network						
		<b>Total</b>						
	T-Mobile	Network						
		Roaming						
		Non-Network						
		<b>Total</b>						
Prepaid	Sprint	Network						
		Roaming						
		Non-Network						
		<b>Total</b>						
	T-Mobile	Network						
		Roaming						
		Non-Network						
		<b>Total</b>						

There will be substantial marginal cost efficiencies in 2019-2024.

**Source:** See Section IV of *IKK Declaration* for the derivation of Non-Network Efficiencies. See backup materials for derivation of Network Efficiencies.

**Note:** Results are for the Maintain Case.

## Consumer Benefits of Merger Throughput Improvements (\$/Subscriber/Month)

LTE Throughput Projection Approach	Consumer WTP for Increased Throughput Due to Merger					
	2019	2020	2021	2022	2023	2024
<b><u>Sprint</u></b>						
Site-Specific Scaling						
Mean Scaling						
<b><u>T-Mobile</u></b>						
Site-Specific Scaling						
Mean Scaling						

**Source:** Calculations based on *Nevo et al.* (2016) and Network Model in backup materials.

**Note:** Results are for the Adjusted Nevo model in the Maintain Case.

T-Mobile customers will experience improved network throughput as a result of the merger.

Sprint customers will experience network throughput similar to that of the standalone Sprint network (will also receive unmodeled coverage benefits).

## Flow Welfare Effects 2019-2024 (\$/Subscriber/Month): Site-Specific Scaling

	2019	2020	2021	2022	2023	2024
<b>IKK Merger Simulation Model with ABH Diversion Ratios</b>						
<i>ABH Diversion Ratios, -0.3 Industry Elasticity, 75% Wholesale Pass-Through Rate, vGUPPI without Input Substitution, TracFone and Sprint Resellers Wholesale Price Constraints</i>						
[1.A]						
<b>Sensitivities</b>						
<u>T-Mobile/Sprint Diversion Ratio Data Sources</u>						
[1.B]						
[2]						
[3]						
[4]						
<u>Alternative Industry Elasticity Assumptions</u>						
[5]						
[6]						
<u>Alternative Vertical Upward Pricing Pressure Pass-Through Rates</u>						
[7]						
[8]						
[9]						
[10]						

**Notes:** Results are for the Adjusted Nevo Model in the Maintain Case.

Flow welfare effects are positive in all years in all sensitivities and the merger is procompetitive.

## Flow Welfare Effects 2019-2024 (\$/Subscriber/Month): Mean Scaling

	2019	2020	2021	2022	2023	2024
<b>IKK Merger Simulation Model with ABH Diversion Ratios</b>						
<i>ABH Diversion Ratios, -0.3 Industry Elasticity, 75% Wholesale Pass-Through Rate, vGUPPI without Input Substitution, TracFone and Sprint Resellers Wholesale Price Constraints</i>						
[1.A]						
<b>Sensitivities</b>						
<u>T-Mobile/Sprint Diversion Ratio Data Sources</u>						
[1.B]						
[2]						
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[4]						
<u>Alternative Industry Elasticity Assumptions</u>						
[5]						
[6]						
<u>Alternative Vertical Upward Pricing Pressure Pass-Through Rates</u>						
[7]						
[8]						
[9]						
[10]						

**Notes:** Results are for the Adjusted Nevo Model in the Maintain Case.

Flow welfare effects are positive in all years in all sensitivities and the merger is procompetitive.

## Net Present Value of Consumer Benefits

- We estimate consumer-welfare effects of the merger in each year and then apply a discount factor to obtain the NPV.
- We consider three cases:
  - **Baseline Case:**
    - 2% discount rate (upper bound of CEA recommendation for discounting consumption)
    - Assume net consumer benefits in each year after 2024 remain at the 2024 level
  - **Intermediate Sensitivity Case:**
    - 2% discount rate
    - Assume annual consumer welfare effects from 2025 through 2029 equal to 2024 level, then no net effects afterward
  - **Conservative Sensitivity Case:**
    - 10% discount rate (unreasonably high)
    - Assume consumer welfare effects equal to zero after 2024

## Net Present Value of Consumer Welfare Effects (\$ billions): Site-Specific Scaling

	Baseline (2% DR; Ongoing CS at 2024 Level)	Intermediate Sensitivity (2% DR; 2025-2029 CS at 2024 Level)	Conservative Sensitivity (10% DR; No CS Beyond 2024)
<b>IKK Merger Simulation Model with ABH Diversion Ratios</b>			
<i>ABH Diversion Ratios, -0.3 Industry Elasticity, 75% Wholesale Pass-Through Rate, vGUPPI without Input Substitution, TracFone and Sprint Resellers Wholesale Price Constraints</i>			
[1.A]			
<b>Sensitivities</b>			
<u>T-Mobile/Sprint Diversion Ratio Data Sources</u>			
[1.B]			
[2]			
[3]			
[4]			
<u>Alternative Industry Elasticity Assumptions</u>			
[5]			
[6]			
<u>Alternative Vertical Upward Pricing Pressure Pass-Through Rates</u>			
[7]			
[8]			
[9]			
[10]			

The merger is welfare enhancing in our baseline case and all sensitivity cases.

**Notes:** Results are for the adjusted Nevo model in the Maintain Case using the site-specific scaling approach to calculating LTE throughput. A positive number indicates that the merger is procompetitive.

## Net Present Value of Consumer Welfare Effects (\$ billions): Mean Scaling

	Baseline (2% DR; Ongoing CS at 2024 Level)	Intermediate Sensitivity (2% DR; 2025-2029 CS at 2024 Level)	Conservative Sensitivity (10% DR; No CS Beyond 2024)
<b>IKK Merger Simulation Model with ABH Diversion Ratios</b>			
<i>ABH Diversion Ratios, -0.3 Industry Elasticity, 75% Wholesale Pass-Through Rate, vGUPPI without Input Substitution, TracFone and Sprint Resellers Wholesale Price Constraints</i>			
[1.A]			
<b>Sensitivities</b>			
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[5]			
[6]			
<u>Alternative Vertical Upward Pricing Pressure Pass-Through Rates</u>			
[7]			
[8]			
[9]			
[10]			

The merger is welfare enhancing in our baseline case and all sensitivity cases.

Notes: Results are for the adjusted Nevo model in the Maintain Case using the mean scaling approach to calculating LTE throughput. A positive number indicates that the merger is procompetitive.

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# Conclusion



## Summary: Findings of Our Analysis

- The proposed merger will strengthen competition in each year for the foreseeable future and will generate billions of dollars in consumer benefits.
- The proposed merger will also generate additional benefits not captured by this analysis.

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# Appendix

## Treatment of Network Marginal Cost

- Calculate network marginal costs based solely on LTE in 2019 and based on a traffic-weighted average of LTE and 5G costs in 2020.
- Exclude legacy Sprint LTE network from calculation of network marginal costs (because new customers expected to be on New T-Mobile network).
- Calculate marginal costs over the increment from 100 to 110 percent of traffic.
  - Although network plans are largely fixed in the very near term, the relevant marginal cost is the one underlying the profit-maximizing price that was (at least implicitly) used in determining the baseline forecasted traffic.
  - That marginal cost incorporates the additional solutions that would have been required in the baseline network to meet congestion targets had a lower price been set.

## Treatment of User Experience Throughput

- For 2019 and 2020, estimate throughput based on the planned baseline networks' serving 100 percent of baseline forecasted traffic level.
  - Reflects each company's limited ability to implement additional solutions beyond the planned baseline levels in those years.
- Include legacy Sprint LTE network in evaluation of New T-Mobile's network performance.
  - Weight Sprint customer experience across legacy Sprint and New T-Mobile network based on traffic distribution.

## LTE Throughput/Loading Curve

- The ordinary-course LTE throughput calculations provide a good approximation of user throughputs around the congestion threshold levels (based on users per 5 MHz).
- However, they do not provide a good approximation of user throughputs in the tails of the sector loading distribution.
- This issue is especially pronounced in the context of analyzing the integration of the Sprint and T-Mobile networks in 2019 and 2020.
- We worked with the T-Mobile engineers to estimate an empirical loading curve that maps sector loading (measured as by busy-hour users per 5 MHz) to all-day user experience throughputs.
- Approach is similar to the loading curve approach used in the Network Build Model to determine 5G user experience throughput.

## LTE Throughput/Loading Curve, continued

- **Site-Specific Scaling**

- Project LTE throughput in each sector by multiplying the LTE loading curve throughput times a *sector-specific* “error term,” which captures the deviation of realized speed at that sector from the predicted speed in 2017.

- **Mean Scaling**

- Project LTE throughput in each sector by multiplying the LTE loading curve throughput by a common scaling factor (reflecting the average deviation of realized speed from predicted speed in 2017) for every sector in a given network.

## Congestion Criteria

- **Standalone Sprint**

- [REDACTED] for LTE sectors and [REDACTED] for 5G sectors and LTE sectors that serve 5G handset traffic (“leakage sectors”) in 2019 and 2020.
- Increase threshold to [REDACTED] on 5G sectors and leakage sectors in 2021 onward.
- Conducted a sensitivity analysis in which Sprint adopts a [REDACTED] criterion for leakage sectors not just in 2019-2020, but also in 2021-2024.

- **Standalone T-Mobile**

- [REDACTED] on all 5G sectors and [REDACTED] on all LTE sectors in 2019 and 2020.
- Increase this threshold to [REDACTED] on 5G sectors and leakage sectors as 5G matures in 2021 and subsequent years.

- **New T-Mobile**

- Baseline case [REDACTED] to that of standalone T-Mobile.
- Conducted a sensitivity analysis in which New T-Mobile uses an [REDACTED] threshold on 5G sectors and leakage sectors in 2021 and subsequent years.