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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Broadband Infrastructure Deployment and to Support Service Providers in the State of California.	R. 20-09-001

REPLY COMMENTS OF SONIC TELECOM, LLC (U-7002-C) ON ADDITIONAL "MIDDLE-MILE" ISSUES

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Pursuant to the ALJ's *Ruling Ordering Additional Comments As Part Of Middle-Mile Data Collection* issued via email on September 9, 2021 ("ALJ Ruling"), Sonic Telecom, LLC (U-7002-C) ("Sonic") hereby respectfully submits its reply comments in the above-captioned proceeding. As the ALJ Ruling states, key provisions of SB 156 require the Commission to: 1) identify existing middle-mile infrastructure and areas with no known middle-mile infrastructure that is open access, with sufficient capacity, and at affordable rates; 2) identify priority middle-mile locations; 3) identify last-mile and anchor institution network end users; and 4) take public comment on the design, technical, business, and operational considerations that would increase the attractiveness and usefulness of the statewide open-access middle-mile broadband network for commercial Internet service providers.

I. INTRODUCTION

This proceeding has generated interest across a broad spectrum of parties, as evidenced by the fact that more than 30 parties filed opening comments on the issues raised in the ALJ ruling. And for good reason: broadband-based services have become essential for most if not all Californians, and the SB 156 initiative holds the promise of expanding broadband access to a substantially greater degree than is currently available. $3.25 billion is a significant sum, and the

Commission, the California Department of Technology's Office of Broadband and Digital Literacy, and the Third Party Administrator, all of whom have a role to play, will receive many suggestions concerning how to spend this money in designing and deploying the statewide open-access middle-mile broadband network.

Sonic has been in operation for 27 years. Sonic provides both broadband Internet access and telecommunications services, with a focus on offering such services to all the residential customers that can be reached in each municipality that Sonic serves. Sonic believes that it is the largest CLEC provider of such services in California. Thus, Sonic respectfully submits that it is in an excellent position to advise the Commission on "the design, technical, business, and operational considerations that would increase the attractiveness and usefulness of the statewide open-access middle-mile broadband network for commercial Internet service providers, " as SB 156 requires.

Part of the Commission's role in this undertaking is to assess the current extent of deployed middle mile infrastructure, and then to identify the areas in California that represent middle mile "holes"—that is, areas where there is insufficient middle-mile infrastructure that is open access, with sufficient capacity, and at affordable rates. As Sonic discusses below, this analysis, properly performed, will serve as a key basis for the middle mile infrastructure deployment that is needed to support new and continuing last mile broadband deployment.

II. LAST MILE BROADBAND DEPLOYMENT DECISIONS ARE PRIMARILY A FUNCTION OF THE ECONOMIC JUSTIFICATION FOR THE PROJECT

As the Commission is aware, Sonic has extensive experience in constructing and operating last mile broadband networks in California. Sonic has been deploying such networks for years. The number one lesson learned from these deployments is that *cost and cost recovery*

really matter. Applying this lesson yields at least two corollaries: "field of dreams"/speculative builds do not work, and deployments have the highest chance of success when they are incremental expansions of existing networks.

Sonic began its last mile broadband deployment many years ago, using DSL-based broadband services delivered over unbundled local loops. These loops terminated in ILEC central offices, where Sonic collocated DSLAMs and other equipment. Sonic then used ILEC Interoffice Dark Fiber UNEs to transport this traffic to and from its core network. These Interoffice Dark Fiber UNEs are examples of middle mile facilities.

This initial deployment strategy accomplished two goals. First, it allowed Sonic to generate a revenue stream from its subscribers that contributed to cost recovery. Second, it allowed Sonic to leverage the Interoffice Dark Fiber middle mile assets to also support Sonic's current deployments of its Fiber to the Home networks, because these middle mile assets could carry both DSL-based and fiber-based traffic. The availability of Interoffice Dark Fiber UNEs has thus been a key enabler of Sonic's ability to build its FTTH last mile broadband networks.

This multi-year deployment experience also taught Sonic that successful "field of dreams"/speculative builds are highly unlikely to succeed (as several parties observed in their Opening Comments)[1]. Ubiquitous FTTH last mile broadband networks are very capital intensive and take time to build. Without concurrent and significant revenue support from other services, and stable, cost effective and reliable middle mile infrastructure, speculative last mile builds are doomed to fail for economic reasons.

Another important aspect of the economics of last mile broadband deployment is the payback interval. These expensive last mile networks are expected to have useful lives that

[1] *See, e.g.,* CCTA Opening Comments at pp. 12-16 and Attachment A thereto; CENIC Opening Comments at pp. 6-7; AT&T Opening Comments at 15-17; Comcast Opening Comments at p. 12.

extend for decades, and the payback analysis has to be able to rely on that fact in order to justify the required capital investment. Because of the multi-decade payback interval of a last mile network, providers need a multi-decade assurance that the middle mile network will not only be available, but also that its cost will be known and reasonable. If the middle mile network can't be purchased in a cost-efficient fashion, the provider's last mile broadband network is effectively worthless.

Several commenters have suggested that the SB 156 funds should be directed to building middle mile infrastructure in areas where such infrastructure is not currently present.[2] While this approach might seem efficient and effective at first glance, pursuing this strategy would have serious unintended negative consequences. Building only the segments of middle mile network that do not exist today would give the providers of the "supporting" infrastructure (that is, the existing infrastructure that ends at the point where the new middle mile network starts) an incentive to charge more for that supporting infrastructure, because it now has additional value.

Instead, the SB 156 funds should be used to create complete, continuous routes from the existing major carrier hotels in California all the way to the areas that need middle mile access. The Commission should specifically define routes as starting from a significant regional carrier hotel and going to the area(s) of need. The costs of Internet access for last mile providers outside the range of these core carrier hotels are highly variable due to limited competition and limited demand, which creates negative impacts on the payback model discussed above. Moreover, the latest technologies, such as video conferencing, streaming TV, etc., are often those that use the most bandwidth. To truly enable those technologies in the areas of greatest need, those areas need Internet access costs comparable to those in metropolitan areas. The best way to enable this

[2] *See, e.g.*, CCTA Opening Comments at pp. 4-5.

result is to create a low-cost middle mile network that connects to the carrier hotels in the metropolitan areas.

A number of commenters have suggested that the SB 156 funds be directed toward using existing middle mile infrastructure as part of the middle mile deployment. For example, CENIC proposes a "borrow, buy, build" approach,[3] while Lumen suggests significant use of Indefeasible Rights of Use ("IRUs").[4]

If the state is going to rely on such "supporting" infrastructure, the state should negotiate access to that "supporting" infrastructure to ensure the costs are reasonable and that long-term access is available. But any such negotiated access and use must have several key attributes.

First., as Sonic discussed it its Opening Comments, only dark fiber provides sufficient current and future potential bandwidth on the multi-decade time horizon that must be employed by last mile providers in conducting the required economic justification analysis discussed above. Indeed, dark fiber itself has a multi-decade useful life. Sonic is aware of fiber that was deployed in the 1980s that is still used and useful today.

Second, the form of negotiated access to such "supporting" middle mile infrastructure is equally important. If the state wants to employ IRUs, as suggested by some commenters, the state should not buy IRUs directly. That approach would inevitably result in a "wrong-sizing" of the network: either the state would own unused capacity from spending funds on excessive IRUs, or end up with too little fiber on a segment, perhaps necessitating the deployment of expensive and inflexible Wavelength Division Multiplexing equipment.

Instead, the state should negotiate with the owners of "supporting" middle mile infrastructure for dark fiber IRU templates that individual providers can "opt into" for middle

[3] CENIC Opening Comments at pp. 4-5.

[4] Lumen Opening Comments at p. 4.

mile access. The state itself would not be purchasing the IRUs, but instead would be negotiating the prices, terms and conditions of the template IRUs. This approach is analogous to the current model of Interconnections Agreements, where a provider can 'opt into' another provider's ICA – except that here the state would be doing the negotiation for the template IRU.

This is a zero-operating-expense approach that both enables the state to ensure the middle mile network constructed has long-term value (*i.e.*, its investments are well-placed), and minimizes the actual funds spent on that "supporting" infrastructure. If no providers are willing to enter into an agreement to provide IRUs in the above form on a needed route, the state should consider that the route is presently "unserved," and should add that route to the construction schedule.

Nothing about this approach precludes the creation of local exchange points to optimize latency or throughput in a region. Instead, it serves to give those local exchange points even better access to the Internet at large. Further, the creation of these local exchange points (if needed by the industry) is best left to the industry. These local exchange points will undoubtedly leverage the state middle-mile network if they come into being, but the major exchange points will remain as essential as they are today.

III. THE BEST WAY TO INCENTIVIZE LAST MILE NETWORK CONSTRUCTION WITH A MIDDLE-MILE NETWORK IS TO MAKE THE LAST MILE NETWORK'S MIDDLE MILE COSTS AS LOW AND CONSISTENT AS POSSIBLE

The SB 156 funding level of $3.25 billion seems like a lot of money, and it is. But constructing a middle mile network through California is an expensive proposition, and the state will need to make those dollars stretch as far as possible. Moreover, the costs of the state middle mile network will not end with the costs of the initial construction. There will also be operating costs for decades, and those operating costs will have to be funded as well.

Thus, one goal of making middle mile deployment choices should be to create a middle mile network that will have as little operating expense as possible. This is best accomplished by using only dark fiber, together with necessary regeneration points. State middle mile network planners should focus on having enough dark fiber to service the provider's needs.

In addition, achieving consistently low Internet access costs requires accessing the points of Internet aggregation that are the most competitive in the region, *i.e.*, the largest carrier hotels in California, and not relying on third party network assets to build a continuous path from the last-mile network locations to those carrier hotels.

Adding optronics to a dark fiber network requires network engineering and operational resources that are both expensive and best optimized by the service provider, not the state operator. This is the case even if a middle mile route has enough fiber strands to offer every requesting last mile provider their requested number of dark fiber strands. The state should commit to *not* deploying any active electronics of any kind on the network, and instead to rely on service provider's knowledge of optronics—which they clearly need to have in order to operate a last mile network.

CENIC's Opening Comments suggest consideration of Dense Wavelength Division Multiplexing ("DWDM") equipment in order to expand the effective carrying capacity of existing or planned fiber systems.[5] The use of DWDM equipment services should not be viewed as a primary or preferred solution to fiber strand availability constraints, and should be considered only as a fallback plan for use if the state runs out of fiber strands on a middle mile route, for a number of reasons.

[5] CENIC Opening Comments at pp. 4-5.

DWDM-derived products (*e.g.,* lit transport services, etc.) are widely available in the industry today from nearly every provider of middle-mile infrastructure, including incumbents. Simply providing these same services, perhaps at reduced cost, does not provide sufficient incentive to spur last-mile construction. In contrast, many of these same providers (and especially incumbents) recognize that dark fiber provides nearly limitless bandwidth, and so restrict the sale of that asset to prevent an acquirer from selling DWDM services themselves. It is precisely this access to bandwidth that last-mile providers need to enable ultra-high-speed access for even the most remote communities.

DWDM systems are complex, and would require substantial knowledge by the state to operate. Their use would lead to high operational costs, siphoning dollars away from the capital-intensive fiber construction projects necessary to actually enhance middle-mile availability. DWDM systems are also technologically limiting (*e.g.*, the deployed infrastructure may or may not be able to support the next-generation technologies). They become obsolete fast, necessitating equipment refresh cycles, potentially at a time when the state would not have the funds to do so. This means the DWDM-equipped network could well become obsolete and lose substantial value.

IV. AT&T'S AND USTELECOM'S OPENING COMMENTS MISCHARACTERIZE SONIC'S POSITION ON THE INDUSTRY NEGOTIATIONS THAT RESULTED IN A COMPROMISE BY SOME PARTIES IN THE FCC'S UNE FOREBEARANCE PROCEEDING

Both AT&T[6] and USTelecom[7] mischaracterize by omission Sonic's involvement in and position on the negotiations that occurred between Incompas and USTelecom in the context of the FCC's UNE forbearance proceeding. Reading these comments, one could easily conclude

[6] AT&T Opening Comments at pp. 6-8.

[7] USTelecom Opening Comments at pp. 1-4.

that Incompas *and all its members* agreed on a Compromise Proposal with USTelecom concerning the sunsetting schedule for UNEs, including Interoffice Dark Fiber, which was adopted by the FCC. This is simply untrue.

Sonic is a member of Incompas. Sonic was an active party to the negotiations between Incompas and USTelecom around the Compromise Proposal, and actively participated in those discussions. Sonic did not agree with the Compromise Proposal that was reached and was not a signatory to the Compromise Proposal. In fact, Sonic has filed a Petition for Reconsideration with the FCC related to UNE Forbearance and precisely the issues discussed in the Compromise Proposal. In that Petition, Sonic pointed out the clear legal, analytical and policy errors in the relevant section of the FCC UNE Forbearance Order on which Sonic is seeking reconsideration:

> Unbundled dark fiber is important for expansion of broadband networks and support for networks already deployed. Numerous broadband providers attested to the high probability of exiting markets, and halting expansion of fiber builds into new markets, caused by the loss of unbundled dark fiber. The Commission, nonetheless, concluded that competitors are no longer impaired without access to UNE dark fiber transport provisioned from wire centers within a half a mile of competitive fiber, claiming the "impairment inquiry asks only whether a 'reasonably efficient competitor within a half mile of alternative fiber' could either obtain such transport at competitive rates or by building its own network." The analysis in the Order, however, proves neither the existence of competitive rates nor the ability to build one's own network due to nearby fiber.
>
> As the record shows, alternative nearby fiber is not always commercially available or suitable for the service being provided. The Commission acknowledges this fact, but states that "whether or not such fiber is commercially available has no bearing on the analysis."
>
> The Commission, without showing commercial availability from a competitive provider, has no basis for saying an efficient competitor within a half mile of alternative fiber could obtain such transport at competitive rates. It likewise means there is no assurance of "market pressure to keep rates down" as the Commission alleged to meet two necessary prongs of the forbearance test, in addition to no impairment.
>
> The possibility of "commercial alternatives" provided by the ILECs does not change this outcome. If the alternative fiber provides no viable commercial alternative to ILEC dark fiber, there is nothing to control the pricing of the ILEC commercial offering. The Order provides no price analysis of transport rates within a half a mile of alternative fiber, or a comparison to other transport rates, to prove

> otherwise. As parties addressed in the proceeding, it "would be unreasonable to conclude that Congress created a structure to incent entry into the local exchange market, only to have that structure undermined, and possibly supplanted in its entirety, by services priced by, and largely within the control of, incumbent LECs."
>
> The Commission's other basis for finding no impairment and granting forbearance—that a reasonably efficient competitor within a half mile of alternative fiber could build its own network—likewise lacks a reasoned basis. Courts demand a nuanced approach to the Commission's impairment analysis. The Commission's analysis, however, goes no further than to show the existence of nearby fiber, *i.e.*, some entity, somehow, was able to deploy fiber for some reason. The Order fails to address how the existence of fiber built by the city, through Federal funding, to serve a large enterprise customer or for wireless backhaul demonstrates that a carrier can economically justify building a $580 million transport network to serve even a flourishing residential customer base. Indeed, the Commission recognizes the need for a sufficient customer base and revenue stream to build a fiber transport network. Yet, the standard the Commission adopted – existing fiber within a half a mile--has no relationship to a service provider's ability to amass a sufficient customer base or revenue to self-deploy fiber transport.
>
> In short, the analysis the statute requires is whether lack of access to unbundled dark fiber creates an *economic* barrier to a competitor's ability to "provide the services it seeks to offer." Yet the Commission provides no analysis at all, let alone on a market basis, of whether deployment costs or rates of commercial transport create impairment to the service the competitor is seeking to provide. In particular, the Order contains no analysis of potential revenues to deploy, or purchase commercial, transport to serve residential customers. Because this conclusion lacked a reasoned basis, the Commission should reverse its finding. [footnotes omitted]

Sonic believes that competition in California is irreparably harmed by the UNE Forbearance Order, and that the CPUC has an opportunity to use the instant proceeding to help providers replicate the middle-mile assets that they are losing as a result of that FCC Order.

Respectfully submitted,

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