benefits of foreclosure continue to accrue after the foreclosure ends.[29] In particular, suppose that, in each period following foreclosure, a fraction c of those consumers who switched to Comcast "churn" back to the rival MVPD(s), while the remaining fraction, $1 - c$, stay with Comcast.[30] Then, given temporary foreclosure today, the present value of benefits t periods from now is equal to the to the discounted profits that Comcast will earn on the fraction $(1 - c)^t$ of switchers who have not churned away from Comcast by that period. Algebraically, the long-term benefits to Comcast from foreclosure are equal to:

$$\alpha \times d \times s \times \sum_{t=0}^{\infty} \frac{(1-c)^t}{(1+r)^t} \text{MVPDProfit} \times \mathit{RivalMVPDSubs} \quad ,$$

where r is the discount rate, which is used to compute the net present values of cost and benefit streams that occur over time. Using this notation, temporary foreclosure is unprofitable whenever the departure rate is less than or equal to:

$$\frac{(1-a) \times Ad\,\text{Re}venue}{Ad\,\text{Re}venue + \alpha \times s \times \sum_{t=0}^{\infty} \frac{(1-c)^t}{(1+r)^t} \text{MVPDProfit}} \quad .$$

IV. CALIBRATION AND MODIFICATION OF COMMISSION STAFF MODEL TO REFLECT TRANSACTION CHARACTERISTICS AND CURRENT MARKET CONDITIONS

32. In this section, we apply the general modeling framework developed by the Commission staff to the proposed Comcast/NBCU/GE transaction. In Part A of this section, we calibrate the

[29] The asymmetry inherent in this model—that people who quickly switch to another MVPD in response to the "event" of losing access to a broadcast network will switch back only slowly in response to the "event" of restoration of that access (making it seem that switching costs only work in one direction)—is discussed at length below.

[30] In the News Corp./DirecTV matter, the Commission staff model assumed that all consumers who switched to DirecTV did so under twelve-month contracts (standard at DirecTV at the time), which the consumers would not breach. Consequently, it assumed that there would be no churn until one-year after foreclosure. (*News Corp.-Hughes Order*, Appendix D, ¶ 13.)

parameters of the Commission staff model to fit the proposed transaction. As noted above, it is also necessary to modify the Commission staff model to account for: (1) certain features of the proposed Comcast/NBCU/GE transaction, and (2) changes in the competitive landscape that have occurred since 2004.[31] These issues are addressed in Parts B and C of this section, respectively.

A. Calibration of the Key Parameters to the Proposed Transaction

33. The Commission staff model requires estimates of the following parameters in order to derive a critical departure rate for permanent or temporary foreclosure: *BroadcastAdProfit, MVPDProfit, a, r, c* and *s*. This section discusses the appropriate values of each parameter to use in evaluating the likelihood of foreclosure by the proposed joint venture. In many cases, it is not possible to pin down a single parameter value to use. In these cases, we provide a range of reasonable parameter values, using both ends of the range to generate a range of critical departure rates in Section V below.

1. BroadcastAdProfit

34. *BroadcastAdProfit* is defined as NBC's monthly advertising revenue per available viewer, including both advertising revenue earned by the NBC broadcast network and advertising revenue earned by the O&O stations. It is determined on a DMA-by-DMA basis by summing the NBC broadcast network's net advertising revenues per national television household per month and the O&O station's net advertising revenues per local television

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[31] The specific formulas used to extend the Commission staff model to account for the factors addressed in this section are contained in our backup materials. (Backup Attachment 2.)

household per month.[32] Note that 2009 was a particularly poor year for NBC's advertising revenue, for reasons which include the lower political advertising revenue that is typical in odd-numbered years and the recession. Consequently, although we use 2009 advertising revenue per viewer as a lower-end estimate of *BroadcastAdProfit*, we also use projected 2010 advertising revenue per viewer as an alternative.[33]

2. *MVPDProfit*

35. *MVPDProfit* is computed as monthly revenue per Comcast video subscriber minus average variable cost per video subscriber, as determined for each of 41 Comcast "regions" from Comcast's internal 2009 P&L statements.[34] Our calculation of Comcast's profits accounts for two important factors. First, the timing of revenues and expenses varies over the life of each subscriber. Comcast incurs fixed costs to connect each new subscriber.[35] These costs are incurred "up-front" before the subscriber starts generating any revenue. In addition, most subscribers enroll under introductory offers that include lower rates for the first year.[36] For these reasons, we compute separate Comcast profits in each subscriber's first month (accounting for upfront costs and promotional rates), months two through twelve (accounting for promotional

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[32] We exclude net Internet advertising revenues because it is our understanding that Internet advertising revenues will not necessarily change with the number of viewers who have access to a station's broadcast signal. (Frank Comerford, President, Platform Development & Commercial Operations, NBC Universal, February 22, 2010, interview.)

[33] The 2010 national network revenues include projected revenues from broadcasting the Vancouver Olympics.

[34] Details of our classification of costs as fixed or variable, as well as our mapping of Comcast regions into DMAs, are provided in the backup materials. *See* Comcast Attachments 1 and 12 and Backup Attachment 2.

[35] {{ }}

[36] {{ }}

rates), and all months after the first year (based on long-run revenues and expenses).

36. We also account for the fact that some video subscribers also receive high-speed data and voice services from Comcast. In particular, we compute the weighted average profit margin across the different packages of products (video-only; video and high-speed data; and video, high-speed data, and voice).[37] We consider two possibilities for the weights applied to the different mixes of products in order to compute the weighted average profit margin. As one possibility, we use the distribution of new Comcast "connects" over the past six months across the one-, two-, and three-service packages. It should be noted, however, that {{

}} of these new connects are subscribers who have recently moved and therefore need to obtain new video, high-speed data, and voice service, in which case acquiring multiple services from a single provider may reduce transaction costs.[38] In contrast, those consumers who switch to Comcast in order to obtain access to the NBC broadcast signal due to foreclosure of another MVPD would presumably already have data and voice services from another provider, and a decision to switch multiple products would potentially increase transaction costs. Hence, the historical mix of products selected by new subscribers may substantially overstate the percentage of new video subscribers who would take high-speed data or voice services from Comcast in response to the loss of NBC carriage by another MVPD. To allow for this possibility, we consider an alternative case in which the percentage of new subscribers taking two or three

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[37] {{

}} (Dan Goodwin, Vice President, Financial Planning & Analysis, Comcast Cable, February 22, 2010, interview.)

[38] Paul Hockenbury, Executive Director of Research and Analysis, Comcast Corporation, February 22, 2010, interview. Other possibilities include consumers who, for whatever reason, have been generally dissatisfied with their previous provider and thus have chosen to switch all their services, or consumers who have switched to Comcast (perhaps from a DBS provider) for the express purpose of obtaining a package containing video, high speed data, and possibly voice.

products due to foreclosure is half that observed among recent connects (with the percentage taking only video higher by a corresponding amount).

3. Alternative Means of Viewing (a)

37. In the *News Corp.-Hughes Order,* the Commission set the value of *a* equal to 0.33.[39] A value of 0.33 means that, if access to an NBC O&O station's signal were withheld from a rival MVPD, then 1/3 of that MVPD's subscribers would continue to obtain NBC programming through alternative means without switching their MVPD. The Commission justified a value of 0.33 as "twice the fraction of television households that currently receive video programming only via broadcast reception."[40] Applying the same methodology today would yield a value of *a* equal to 0.22.[41] However, as discussed more fully below, in the current environment, online alternatives, such as Hulu.com and NBC.com, may have (at least partially) replaced over-the-air viewing as alternatives for those not watching on an MVPD. The combination of online and over-the-air viewing might suggest a higher value for *a* than 0.22. Hence, we consider values for *a* equal to both 0.22 and 0.33 in our analysis. However, it is important to recognize that the use of over-the-air broadcast signals and the use of online sites have very different revenue consequences for NBC. As discussed further below, the model accounts for the revenues from each alternative separately.

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39 *News Corp.-Hughes Order,* Appendix D, ¶ 6.

40 *Id.*

41 Media Business Corporation, Media Census: All Video by DMA, 3rd Quarter 2009 (3rd Party Attachment 1). This source lists [[ ]] million total U.S. television households and [[ ]] million households (*i.e.*, 11% of the total) that receive their signal over the air.

4. *Discount Rate (r)*

38. The annual discount rate is taken to be 10%, as in the Commission staff model.[42] {{

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The annual discount rate of 10% implies that the monthly discount rate, r, is equal to 0.797%.[44]

5. *Churn Rate (c)*

39. The value of c is estimated in the Commission staff model for the News Corp./DirecTV transaction based on DirecTV's historical churn data as well as a regression analysis of the impact on DirecTV customer disconnects of a discrete programming change in a specific market.[45] Similarly, the values of c used here are derived from Comcast's actual churn data.[46] {{

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40. The appropriate use of churn data raises difficult issues and requires careful consideration to avoid understating the churn likely to be experienced by the specific set of consumers who quickly switch to Comcast in response to a temporary loss of the NBC broadcast signal on a rival MVPD. In particular, one would expect the consumers switching to Comcast in response to the loss of NBC's signal on a rival MVPD to be systematically different from those consumers who chose Comcast when rival MVPDs were not differentiated by the availability of the NBC

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42 *News Corp.-Hughes Order*, Appendix D, ¶ 4.

43 {{ }}

44 This value is derived by solving $(1+r)^{12} = 1.1$, which implies that $r = 0.00797$.

45 *News Corp.-Hughes Order*, Appendix D, ¶ 13.

46 {{ }}

47 {{ }}

broadcast signal. Specifically, consumers obtained due to a rival MVPD's loss of an NBC broadcast station's signal will have demonstrated: (a) a willingness to switch MVPDs, suggesting that they face low switching costs (and the cost of switching back to the MVPD to which they previously subscribed may be especially low), and (b) a preference for a non-Comcast MVPD. Hence, one would expect that, once an MVPD regains access to an NBC station's broadcast signal, those subscribers who chose Comcast as a result of foreclosure would switch back to their original MVPD at a rate considerably higher than indicated by historical churn rates.[48]

41. As one approach to adjusting observed churn rates to account for these factors, we implement a very simple model that accounts for the heterogeneity in consumers' willingness to switch MVPDs. In this model, heterogeneity is captured by defining two types of subscribers: the *m*% of subscribers who are more likely to switch ("movers," with churn rate c_m) and the (100-*m*)% of subscribers who are less likely to switch ("stayers," with churn rate c_s).[49] To incorporate the fact that those who switch due to foreclosure have demonstrated that they are likely to be "movers," we use the estimated churn rate for movers, c_m = {{ }}% per month, as the value of c.

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48 Stated differently, these subscribers have revealed that: (i) when NBC broadcast station's signal was available on both Comcast and their original MVPD, these subscribers preferred the original MVPD; and (ii) these subscribers are willing to switch MVPDs. Putting these factors together suggests these subscribers are likely to return to their original MVPD post-foreclosure, particularly if that MVPD offers promotions to encourage switching back and takes steps to lower any switching costs.

49 To be more precise, the model contains three parameters: the percentage of new subscribers who are movers (M); the constant monthly churn rate for movers (c_m); and the constant monthly churn rate for stayers (c_s). Any given set of values for these three parameters generates implied monthly churn rates, which decline over a subscribers' tenure with the firm, {{ }}. The model is calibrated by using non-linear least squares to select the three parameter values that provide {{ }}. These data along with our calculations are included in our backup materials.

42. However, even this adjustment to historical churn rates maintains the strong assumption that the consumers who choose to switch to Comcast as a result of a temporary loss of NBC will then "churn away" from Comcast only slowly after the foreclosure ends. Because this assumption builds in the idea that the costs of foreclosure need only be borne for a single month, while the benefits accrue for many months or years, it suggests that critical departure rates for temporary foreclosure will be low *for any* transaction. As characterized by former Commission chief economist, Michael Riordan, assuming the existence of such asymmetry is "odd" as a matter of economics:

> [t]he [temporary foreclosure] theory seems odd because it appears to assume that inertia only works in one direction, suggesting consumer irrationality. Inertia that discourages consumers from switching back to a preferred MVPD might be expected also to give the same consumers pause before switching MVPD providers to avoid an only temporary loss in their favorite programming. If switching costs are large, then a rational consumer would not switch if they expected only a short-lived withdrawal of programming from their otherwise preferred MVPD.[50]

43. Put simply, the switching costs that support the idea that consumers may be slow to *switch back* to their MVPD following foreclosure also imply that consumers would be unlikely to switch in the first place, particularly due to the temporary loss of a single network. Yet, the temporary foreclosure model focuses primarily on the switch-back implications. The asymmetry can also be seen in the fact that the temporary foreclosure model assumes that consumers will react to the "event" of temporary foreclosure of NBC from a given MVPD in a notably different way from how they will react to the mirror-image event, the restoration of retransmission consent to the MVPD in question. We see little basis for such a distinction, particularly because the consumer may already have the equipment required to receive multichannel video service

50 Michael Riordan (2008), "Competitive Effects of Vertical Integration," in *Handbook of Antitrust Economics*, Pablo Buccirossi, ed., Cambridge: The MIT Press, 163-164.

from her previous DBS or telco MVPD, and the previous provider has an incentive to offer the consumer promotional pricing or other inducements to switch back after foreclosure ends. Hence, to account for the fact that at least some of those consumers who switched MVPDs due to the temporary loss of a network broadcast station's signal would quickly switch back when access was restored, we also implement a model in which {{ }}% (roughly twice the estimated churn rate from our mover/stayer model) of subscribers switch back as soon as access restored, with the remainder churning out at a rate of {{ }}% per month (c_m from our mover/stayer model).[51]

6. *Weight put on MVPD Profits (s)*

44. The value of s is set equal to 1. The fact that Comcast owns 100% of its MVPD business and will initially own only 51% of the joint venture might make it appear that Comcast would value MVPD profits more than NBC's advertising revenues and, consequently, that s should be greater than one (or, equivalently, that a weight less than one should be applied to *BroadcastAdProfit*). However, a closer examination of the structure of the proposed transaction makes it clear that the appropriate value of s is either 0 or 1.

45. First, as long as GE retains an equity interest in the joint venture, the provisions of the joint venture agreement would frustrate attempts by Comcast to foreclose rival MVPDs from obtaining NBC O&Os' retransmission rights at the expense of joint venture profits.[52] Specifically, the joint venture agreement provides that Comcast executives serving as directors or officers of the joint venture owe fiduciary duties to the joint venture and its members,

[51] Even {{ }}% may be conservative, depending on how many of those consumers who switched react to the second event (restoral of access) by switching back.

[52] The following description of the proposed transaction is based on our understanding as the result of discussion with Comcast outside counsel.

including GE.[53] These duties would be violated if the directors or officers of the joint venture made business decisions that knowingly sacrificed joint venture profits in order to increase Comcast's MVPD profits. Moreover, GE has a strong incentive to enforce these provisions. As noted above, one could argue that this makes foreclosure impossible, effectively rendering s equal to 0 because the directors and officers should put no weight on Comcast profits, in which case foreclosure would never occur. At a minimum, these contractual terms imply that values for s above 1 are inconsistent with the terms of the joint venture as long as GE is part of it.

46. Second, if GE is no longer part of the joint venture—through one of the many mechanisms contained in the joint venture agreement by which Comcast can become sole owner of the joint venture within seven years of the date on which the transaction closes, and under some circumstances even sooner[54]—then Comcast will necessarily bear 100% of the costs of denying rival MVPDs retransmission rights to NBC's O&O broadcast stations.

47. In summary, the mechanics of the proposed transaction imply that the appropriate value of s is either 0 or 1. In the long run, Comcast will bear 100% of the costs of a foreclosure strategy if it becomes the sole owner of the joint venture, at which point s will be 1. In the short term, while GE retains an equity interest, Comcast will be obligated to run the joint venture to maximize the profits of the joint venture. In other words, as long as GE retains an equity interest, s is equal to 0. Although we conservatively use a value of s equal to 1 in all our

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53 *See Newco LLC Agreement*, § 6.01(a). One might worry that, in theory, Comcast could somehow pay GE to allow NBCU to be used to engage in foreclosure. But the two parties would have gains from trade only if the costs of NBCU were less than the benefits to Comcast Cable. This would be equivalent to taking s = 1 because the full profit flow to all owners would be taken into account.

54 *See, e.g., Newco LLC Agreement*, § 9.02 (providing that GE has various redemption rights which, if fully exercised, would result in Comcast's owning 100% of the joint venture); *id.*, § 9.03 (providing that Comcast has certain purchase rights which, if fully exercised, would also result in Comcast's owning 100% of the joint venture).

calculations, it should be recognized that this value applies only to a situation in which GE no longer has an ownership interest, as otherwise s is equal to 0 and foreclosure will not occur.

B. Transaction Characteristics

48. There are several distinct features of the proposed Comcast/NBCU/GE transaction that must be taken into account through appropriate modifications of, or extensions to, the Commission staff model.

1. Limited Diversion to Comcast

49. The first two modifications are related to one another. In the News Corp./DirecTV transaction, the Commission staff model assumed that News Corp. would simultaneously deny retransmission rights for a Fox broadcast station to all MVPDs competing with DirecTV in the relevant DMA.[55] Moreover, the staff model assumed that DirecTV was an option available to all consumers in the DMA.[56] These two assumptions had strong implications for calculation of the costs and benefits of foreclosure. Specifically, these assumptions ruled out the possibility that consumers might be induced to leave their current MVPD and switch to another MVPD that was not DirecTV (that is, in the language used in Section III, above, the diversion ratio to DirecTV, α, was assumed to be 1). As we will now discuss, if Comcast were to withhold the retransmission rights for an NBC O&O's signal from one rival MVPD, it is likely that a large share of any subscribers who would depart from that MVPD would subscribe to another rival MVPD rather than to Comcast (that is, the diversion ratio, α, will be substantially below 1).

50. The first reason is that, in contrast to DirecTV, Comcast has a limited geographic

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[55] *News Corp.-Hughes Order*, Appendix D, ¶ 8.

[56] *News Corp.-Hughes Order*, Appendix D, ¶ 2.

footprint, both in terms of the DMAs in which it has a presence and the fraction of homes passed within a given DMA. In many of the relevant geographic areas, Comcast lacks even the potential to capture all of the subscribers who would choose to switch away from a rival MVPD following foreclosure. As one clear example, suppose hypothetically that the joint venture were to deny DirecTV the right to retransmit programming from the NBC O&O station in the New York City DMA. Following this action, DirecTV subscribers throughout the New York DMA would lose access to the O&O's programming on DirecTV and, thus, would potentially switch to another MVPD to obtain this access.[57] However, Comcast Cable would not be an option for most consumers in the New York DMA. Comcast has only a limited geographic footprint within the New York DMA and is simply not available to the majority of consumers. Hence, for the majority of consumers, the joint venture would suffer the costs of foreclosure (the lost advertising revenue and retransmission consent fees) without having even the possibility of enjoying the benefits of foreclosure for the majority of consumers in the DMA. In other words, Comcast could at best capture a small subset of the rival MVPD subscribers induced to switch, so that the primary effect of the sacrifice of NBC profits would be to benefit other MVPDs, including other cable providers.[58]

51. The extent of Comcast Cable's geographic footprint within each DMA is one of the factors determining Comcast's share of all MVPD subscribers within a DMA. For each of

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57 DBS providers retransmit signals from local broadcast stations to provide "local-into-local" service to their subscribers. The geographic area for local-into-local is statutorily defined as the "local market," which in turn is defined for commercial television stations as the DMA plus the county in which the station's official community of license is located even if that county is not assigned by Nielsen to the DMA. *See* FCC, "Service Options for Satellite Television Subscribers," *available at* http://www.fcc.gov/cgb/consumerfacts/shvera.html, *site visited* February 22, 2010.

58 Note that Comcast would not have any incentive to deny access to another cable provider having a minimal overlap with Comcast's system: Comcast would capture none or almost none of the subscribers who would be induced to switch MVPDs.

NBC's O&O stations, Table 1 identifies the station, the DMA in which the station is located, the total number of MVPD subscribers in that DMA, Comcast's share of those MVPD subscribers, and the share of total television households ("TVHH") passed by Comcast. As can be seen from the table, Comcast's share of all MVPD subscribers within a given DMA is always well below 100%, in some cases very much below, a fact which is driven both by Comcast's limited geographic footprint and by the presence of multiple MVPD competitors in the DMA.

Table 1

Call Letters	DMA	MVPD Subscribers	Comcast Share of MVPD Subscribers	Comcast Homes Passed / TVHH
WNBC	New York	[[	{{	{{
KNBC	Los Angeles			
WMAQ	Chicago			
WCAU	Philadelphia			
KXAS	Dallas-Ft. Worth			
KNTV	San Francisco			
WRC	Washington, DC			
WTVJ	Miami - Ft. Lauderdale			
KNSD	San Diego			
WVIT	Hartford - New Haven	]]	}}	}}

Notes:

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Sources:

Media Business Corp., MediaCensus: All Video By DMA, 3Q2009
Comcast Cable, Video Homes by DMA, September 2009
NBC Universal, http://www.nbcuni.com/About_NBC_Universal/Company_Overview/overview02.shtml

52. The presence of multiple competitors in a DMA raises a second need for modification. Since the time of the News Corp./Direct TV case, additional MVPD competitors have entered the marketplace, most notably the telco MVPDs, AT&T and Verizon. {{

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53. {{

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54. These two points can be dealt with by utilizing the same logic the Commission staff used in analyzing the potential decision to deny rival MVPDs access to RSNs as part of its analysis of the News Corp./DirecTV transaction.[60] In particular, in that transaction, the Commission staff assumed (for redacted reasons) that DirecTV would not withhold access to RSNs from EchoStar's DISH Network. Staff dealt with that by assuming that the diversion ratio (among subscribers switching from another MVPD) to both DISH Network and DirecTV would be proportional to their national market shares.

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59 Henry Ahn, Executive Vice President TV Networks Distribution (NBC Universal Networks Distribution), February, 19, 2010, interview.

60 *News Corp.-Hughes Order*, Appendix D, ¶ 29.

55. Similarly, here, we assume that, if the joint venture chose to foreclose any MVPD (after its contract had expired), then the diversion ratio to each of the remaining, non-foreclosed MVPDs in the DMA would be proportional to the MVPD's share all of MVPD subscribers in that DMA. As with other parameters, we define a range of reasonable diversion ratios to use. At one end, we compute the diversion ratios based on third-quarter 2009 MVPD shares in each DMA. However, as illustrated in Figure 1, industry analysts project that telco MVPDs will continue to gain share rapidly, which means that, by the time NBC's retransmission contracts come up for negotiation, the diversion ratio to the telco MVPDs will likely be higher than reflected in current numbers. To allow for this development—in the light of the fact that we do not know which *additional* DMAs telco MVPDs may enter—we compute an alternative set of diversion ratios for just those DMAs that already have a telco MVPD (continuing to base diversion ratios in DMAs that do not currently have a telco MVPD on current market shares) by assuming that, in each such DMA, the telco MVPD reaches the maximum share that any telco MVPD has achieved in a DMA to date, which is [[ ]] percent.[61]

61 To compute this set of alternative diversion ratios, we scale cable and DBS shares down while maintaining the relative shares among non-telco MVPDs. Similarly, in DMAs in which both AT&T and Verizon offer service, we allocate the aggregate telco MVPD share between them in proportion to their current shares.

Figure 1

Share of Video Subscribers by MVPD Type

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Source: SNL Kagan "Magnitude of Potential Broadcast Retransmission Fees"

2. *Long-term Subscriber Contracts*

56. In the News Corp./DirecTV matter, the Commission took note of the fact that DirecTV's customers generally sign long-term service contracts.[62] In that case, the presence of such contracts made temporary foreclosure more profitable because a consumer who switched to DirecTV and entered into a long-term contract with DirecTV was assumed to be unable to switch back to her original MVPD, even if foreclosure ended after one month.[63] [[

62 *News Corp.-Hughes Order,* Appendix D, ¶ 13.

63 *News Corp.-Hughes Order,* Appendix D, ¶¶ 13 and 35.

}}[64] {{ }} in the current case, the use of long-term contracts by other MVPDs creates an important effect {{ }}. Following the Commission staff's assumption that subscribers will not break long-term contracts by terminating them prematurely, subscribers under contract with other MVPDs can switch to Comcast only after their contract terms end. This fact substantially limits the rate of switching to Comcast following foreclosure, because, based on Comcast estimates, [[ ]]% of DBS subscribers and [[ ]]% of Verizon subscribers are under long-term contracts.[65, 66]

57. The Commission staff model can be extended to address the issue of long-term subscriber contracts at non-Comcast MVPDs as follows. Suppose that fraction d of subscribers *wish to* switch away from their MVPD following foreclosure, but only those not under contract *are able to* switch away. In particular, of those subscribers who wish to switch, all those not under contract will, in fact, switch in the first month following foreclosure. However, many of the

64 {{ }} (Tom White, Vice President of Marketing, Comcast Corporation, February 12, 2010, interview.) {{ }} (Tom White, Vice President of Marketing, Comcast Corporation, February 12, 2010, interview.)

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consumers who wish to switch and are under long-term contracts cannot, in fact, switch. Specifically, only 1/12 of those consumers under contract who wish to switch can actually switch in the first month. Another 1/12 of those consumers under contract who wish to switch can do so in the second month, and so on.[67]

58. Again, we implement a range of values to account for the potential effect of contracts. On the low end, we assume that, at the time the NBC retransmission contract comes up for renewal, the percentage of subscribers under contract at each rival MVPD remains at its current (estimated) level: [[ ]]% for DBS subscribers, [[ ]]% for Verizon subscribes, and [[ ]]% for AT&T subscribers.

59. However, reliance on the *current* percentage of DBS and telco MVPD subscribers who are under contract very likely understates the ability of these MVPDs to use long-term subscriber contracts to limit any subscriber losses that might result from loss of the NBC broadcast signal. Rival MVPDs know the expiration dates for their retransmission consent contracts with NBC. Consequently, to the extent that an MVPD considers foreclosure a possibility, it has the ability to offer consumers attractive promotions to induce consumers to enter long-term contracts that ensure they are locked-in to the MVPD at the time the broadcast signal is withdrawn.[68] The MVPD would find such a strategy attractive both because it might deter the Comcast/NBCU/GE joint venture from attempting foreclosure and because it would protect the MVPD if it were to

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[67] This approach assumes the time-to-expiration for open subscriber contracts is uniformly distributed between 1 month and 12 months.

[68] Michael Riordan notes this possibility, saying "…it is not clear why rival MVPDs do not solve the problem of consumers leaving for temporary reasons by requiring a one-year contract." (Michael Riordan (2008), "Competitive Effects of Vertical Integration," in *Handbook of Antitrust Economics*, Pablo Buccirossi, ed., Cambridge: The MIT Press, 164.)

lose the retransmission rights.[69] Consequently, to allow for the possibility that rival MVPDs can increase their use of long-term subscriber contracts, we also consider a case in which all rival MVPDs reach the Verizon rate of [[ ]]% long-term subscriber contracts.[70]

C. Changes in the Market Environment

60. There are also several changes in the market environment that must be taken into account through appropriate modifications of, or extensions to, the Commission staff model.

1. The Rise of Online Video

61. The rise of online video has been one of the major developments since the time the Commission staff model was first developed. If Comcast were to pursue a foreclosure strategy following consummation of the proposed transaction, some consumers who remained with their current MVPD could be expected to switch to watching at least some NBC programs online. This online viewing could be of either licensed versions (*e.g.*, on legitimate sites, such as Hulu or NBC.com) or, perhaps, illegal pirated copies. This bifurcation of the NBC audience between television and online could raise the cost of implementing a foreclosure strategy in two ways that are not captured by the Commission staff model as developed for analyzing the News Corp./DirecTV transaction.

62. Consider the effects of diversion to licensed versions of NBC programming. NBCU's revenues would be reduced because advertising revenue per viewer is lower from legitimate online sources than it is from television viewing for several reasons. First, network television has a larger advertising inventory for a given amount of programming because network

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69 In addition, consumers would benefit because the MVPD would have to offer consumers attractive terms to induce them to enter into the contracts.

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television has more advertisements per hour than do online sources.[71] Second, network television generally has a higher inventory sell-out rate than does online video.[72] Together, these effects outweigh the higher "CPM" (cost per thousand impressions) received for online advertising; according to an NBCU executive, {{

}}[73] In addition to reducing the national advertising revenue earned by the NBC network, online viewing eliminates all local advertising revenue that would otherwise be earned by the local NBC station in each DMA, including NBC's O&O stations.[74] Finally, as discussed later in this subsection, the remaining NBC television viewers will be worth less to national advertisers on a CPM basis because there is now a smaller total reach for the NBC broadcast audience.[75] For all of these reasons, if a consumer switched from watching an NBC program on television to watching it on Hulu or nbc.com, NBCU could lose a substantial amount of advertising revenue associated with that viewer.

63. The consequences of consumers' viewing pirated copies of NBC programming are even less favorable for NBCU: NBC would lose all advertising revenues associated with those

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71 Ronald Lamprecht, Senior Vice President, Business Development & Sales (Digital & Affiliate Distribution), NBC Universal, February 19, 2010, interview.

72 *Id.*

73 *Id.*

74 Frank Comerford, President, Platform Development & Commercial Operations, NBC Universal, February 1, 2010, interview.

75 Edward Swindler, Executive Vice President, Chief Operating Officer Ad Sales, NBC Universal, January 31, 2010, interview. Note that advertisers would not simply sum broadcast viewers and online viewers because the two types of viewers would be viewing the advertising at different times, as well as under different conditions. Indeed, online advertisements often have a different format than broadcast advertisements. *Adweek* explains, "Hulu is caught in between an Internet model and a broadcast model, one that media buyers have yet to fully understand or accept." ("Searching for life on hulu: the video site is more popular than ever with consumers. Why does it seem like another world to media buyers?" *Adweek*, May 25, 2009.)

consumers.[76] The audience size for pirated copies is not easily measured and verified. Consequently, advertisers would not give NBC credit for those viewers. Moreover, even if the number of pirated copies viewed could be measured, advertisements are often stripped out of pirated copies and legitimate advertisers generally do not want to be associated with pirated content.

64. In terms of mechanics, these new alternative viewing methods are easily incorporated into the Commission staff model. In particular, as noted above, we use values for *a*—the fraction of viewers obtaining programming through alternative means—of either 0.22 or 0.33. To account for the expanded set of alternative access methods, we divide the aggregate use of alternative viewing methods into over-the-air, legitimate online options, and piracy. Lacking data on the relative usage of the three alternatives, we use an equal split between over-the-air and legitimate online options, and we assume that piracy is non-existent. This approach is conservative in that it excludes the alternative that would impose the greatest cost on NBC.

65. The profits received from NBC from the over-the-air or legitimate online access methods are assumed to be as follows:

- For those consumers viewing the content over-the-air, NBC advertising revenues are assumed to match those from viewers who obtain the content via an MVPD, but retransmission fees paid by the MVPD are lost;
- For those consumers viewing the content on legitimate online sites, all advertising revenue for the local station is assumed to be lost, as are the retransmission fees paid by the MVPD. For national advertising revenue, online viewers are assumed to generate

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[76] Statements in this paragraph rely on Ronald Lamprecht, Senior Vice President, Business Development & Sales (Digital & Affiliate Distribution), NBC Universal, February 19, 2010, interview.

either {{ }} percent as much revenue as television viewers (at the low-end) or {{ }} percent as much as television viewers (at the high end), based on the NBCU estimates discussed above.

2. *Increased Cash Compensation for Retransmission Rights*

66. The Commission staff model needs to be updated to reflect the current economic environment surrounding retransmission consent. As shown in Figure 2, there is a trend toward increased cash payments for retransmission rights. Hence, on a forward-looking basis—which is the appropriate perspective for a public-interest assessment of this type of transaction—{{

}}[77] Consequently, the calculation of the cost of foreclosure in the Commission staff model needs to be extended to include the per-subscriber retransmission consent fee (*Retrans*) that is lost when an NBC O&O station refuses to license its signal to an MVPD.[78] These lost retransmission consent fees are in addition to the forgone advertising revenues measured by *BroadcastAdProfit*. It is important to note that, unlike advertising revenues, the forgone retransmission consent fees are not recovered if some subscribers obtain the station's programming through alternative means such as over-the-air reception.

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77 Henry Ahn, Executive Vice President TV Networks Distribution (NBC Universal Networks Distribution), February, 19, 2010, interview. According to Mr. Ahn, {{

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78 This is analogous to the Commission staff's inclusion of "affiliate fees" paid by MVPDs in its analysis of potential foreclosure of RSNs in the *News Corp.-Hughes Order*, Appendix D, ¶ 26.

Figure 2

Historical and Projected Retransmission Fee Estimates

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Source: SNL Kagan, "Magnitude of Potential Broadcast Retransmission Fees" (June 25, 2009)

67. Based on news reports of recent retransmission consent transactions involving network-affiliated stations, NBC executives believe that ${{ }} to ${{ }} per subscriber constitutes a reasonable range of possible values for future retransmission consent fees.[79] Hence, we use ${{ }} and ${{ }} as two reasonable estimates of the value of the *Retrans* parameter.

3. *Lower Advertising Rates*

68. Lastly, in dealing with the loss of advertising revenue from reduced network viewership, the Commission staff model was "linear" in the sense that an *X%* reduction in viewership in a particular DMA simply led to an *X%* reduction in advertising revenue received in that DMA. Implicit in this formulation is an assumption that a decline in viewership does not change the

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[79] Henry Ahn, Executive Vice President TV Networks Distribution (NBC Universal Networks Distribution), February, 19, 2010, interview. {{

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advertising price received *per viewer* but instead only reduces the number of impressions. However, this assumption runs counter to the experience and expectations of NBC advertising executives, as well as accepted economic literature, which indicate that reductions in viewership reduce the advertising price received *per viewer.* Hence, assuming that the decline in NBC's advertising revenue due to a foreclosure strategy would be proportional to the loss of viewers is a lower bound – in fact, there would be additional loss due to the reduction in the price received per viewer who continues to watch NBC.

69. NBC advertising executives are definitive in their view that lower ratings—particularly, substantial declines such as those likely to follow from a foreclosure strategy—would lead to reductions in advertising prices per viewer.[80] This conclusion applies both to prices for national advertising (based on national ratings) and prices for local advertisements (based on local ratings).[81] As evidence for this proposition, NBC executives note that, historically, when NBC was at or near the top of the broadcast network primetime ratings, it had a CPM premium over other networks, but now—due to the loss of ratings relative to other networks—NBC's advertising sells at a CPM discount relative to other networks.[82] NBC executives have identified at least two mechanisms—in addition to the fact that negotiated CPMs are lower for shows with lower ratings—through which reduced distribution leads to lower expected per-viewer

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80 Statements in this paragraph drawn from interviews with Edward Swindler, Executive Vice President and Chief Operating Officer, Advertising Sales, NBC Universal, January 31, 2010, and Frank Comerford, President, Platform Development & Commercial Operations, NBC Universal, February 1, 2010.

81 Note that lower local advertising prices due to reduced local ratings may be particularly important to the analysis of vertical foreclosure of individual NBC O&O stations.

82 *See also, Advertising Age,* which observes that, while "most networks agreed to rollbacks in the price of reaching 1,000 viewers, or CPMs, in the 1% to 3% range, according to media buyers. NBC, owing to greater ratings shortfalls, has been offering CPM rollbacks in the negative mid-to-high-single-digit range." (Bryan Steinberg, "TV upfront tally slips to $8 billion as networks take their chances on scatter; As prices fall 1% to 3%, the Big Five hold back up to 15% of inventory," *Advertising Age,* August 10, 2009.)

advertising prices. First, advertisers pay premiums for the top- and perhaps second-rated primetime shows. As distribution falls, it is possible that certain highly rated NBC programs would fall out of their top positions, leading to sharp declines in CPM. Second, some national and local advertisers use broadcast networks precisely because doing so allows them to cover either the entire nation or an entire DMA with one ad buy. To the extent that the NBC network, or its individual stations, could no longer deliver this broad reach, it would be more difficult to compete for such buyers, which would also have the effect of reducing advertising revenues by an amount more than proportional to the decline in viewership.

70. Economic literature also supports the conclusion that, as television shows deliver a smaller number (or share) of viewers, the advertising price they receive per viewer falls. In particular, a paper by Roberto Cavazos and Commission economist Keith Brown finds that a 1% decrease in the share of a broadcast network program is associated with a 0.39% reduction in the advertising price per viewer.[83]

71. To estimate the extra reduction in NBC's advertising revenue—above and beyond that from simply losing all ad revenue on viewers who no longer watch NBC—that would result if retransmission rights for one or more NBC stations were withheld from rival MVPDs, we start by computing the percentage reduction in the number of viewers receiving NBC due to foreclosure. This percentage is equal to the initial percentage of households served by the

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83 *See* Keith Brown and Roberto Cavazos (2005), "Why is This Show so Dumb? Advertising Revenue and Program Content of Network Television," *Review of Industrial Organization*, 27: 17-34. The authors estimate the relationship between the logarithm of the price of a 30-second advertising spot and several variables, including the logarithm of the show's share, which has an estimated coefficient of 1.39. This implies that the coefficient on the logarithm of share in an equation to describe the logarithm of advertising price *per viewer* would be 0.39, meaning that a 1% decrease in share leads (locally) to a 0.39% reduction in advertising price per viewer.