Exhibit 1

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

Application of	)	
	)	
EchoStar Communications Corporation,	)	
General Motors Corporation,	)	
Hughes Electronics Corporation,	)	
	)	
Transferors	)	**CS Docket No. 01-348**
	)	
and	)	
	)	
EchoStar Communications Corporation	)	
	)	
Transferee	)	
	)	
For Authority to Transfer Control	)	

REPLY DECLARATION OF PAUL W. MACAVOY ON BEHALF OF THE NATIONAL RURAL TELECOMMUNICATIONS COOPERATIVE

In Response to the Declaration of Dr. Robert D. Willig on behalf of EchoStar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation

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I. INTRODUCTION

1. This Declaration replies to that of Dr. Robert D. Willig (Willig Declaration) in support of the Opposition to Petitions To Deny And Reply Comments filed by EchoStar, et al., in the above captioned proceeding on February 25, 2002. Dr. Willig challenges certain findings in my earlier Declaration, entitled *The Effects of the Proposed EchoStar – DirecTV Merger on Competition in DBS Rural Markets Where Cable is not Available* ("MacAvoy Declaration"*)*. He also takes issue with certain findings by Dr. Daniel L. Rubinfeld on behalf of Pegasus Communications Corporation ("Rubinfeld Declaration") and by Mr. J. Gregory Sidak on behalf of the National Association of Broadcasters ("Sidak Declaration"). In essence, Dr. Willig claims without proof that benefits forthcoming from the merger would be greater than the adverse effects from the creation of a DBS monopoly as documented in the Rubinfeld, Sidak, and MacAvoy declarations.

2. Relying on little or no economic analysis, Dr. Willig understates the adverse impacts of the merger. As demonstrated in my previous Declaration, the merger would create a monopoly in important rural markets which would increase monthly usage charges by 50 percent from Direct Broadcast Satellite (DBS) subscribers. To rebut these findings would have required Dr. Willig to analyze current rural market prices and quantities of the two DBS providers and then to make projections of post-merger prices and quantities of the single surviving DBS provider. He undertook no such analytical procedure and presented no projections whatsoever of post-merger prices and quantities from the monopoly provider. Since he no more than "claims" benefits, without showing the extent of any such gains, and fails to rebut my finding of losses in excess of $700 million, he does not respond to a self-evident case for rejecting a merger to monopoly.

3. After consideration of Dr. Willig's reply, I remain convinced the proposed merger creates a monopoly with extensive power to increase prices in the fourteen major clusters of rural homes on which I focused my analysis. Price increases in the range of $20 per month would increase costs of service to current DBS subscribers in those fourteen clusters by more than $700 million per year. Dr. Willig has searched in my datasets for what he terms "flawed data" and "overly simplistic statistical techniques," to rebut these findings. For the most part, as I indicate below, his conclusions are incorrect or misleading. He does not disprove my findings, which go to the central test for denying the merger – that there are important, readily identifiable markets in which the merger would create a monopoly.

4. Dr. Willig provides a strong statement of approval for his client's "commitment" to set a single national price level to all subscribers of the "New EchoStar" after the merger. The "commitment," however, is misleading because it is practically impossible to validate while it is critical to make his case. There is no regulatory process by which to implement and then enforce such a single price following the merger. Elaborate and complex regulatory mechanisms would need to be established in order to keep New EchoStar in compliance with the national pricing commitment, a dubious prospect given past experience with such mechanisms in FCC regulation of cable and long distance telephone monopolies. But even more fundamentally, this so-called "national price" commitment is absolutely necessary where a merger results in a *monopoly*. Such a merger has to be regulated to protect the consumer from the harms inherent in reduced service and increased prices.

5. In this Declaration, I point out that Dr. Willig's approach does not contribute to the analysis of the economic effects of the merger, as it is centered on vague generalities as to new services "on the horizon." I focus primarily on two issues he raises: the present state of

competition between the two DBS service providers, and price increases following from the merger. I also comment on Dr. Willig's remarks alleging "flaws" in my analysis of price increases following the merger. Finally, I respond to his claimed benefits associated with the merger. As will be shown, the conclusions I reached in my earlier Declaration rely on credible data and economic realities, and remain sound. These are as follows:

- The relevant product market in rural areas without digital and analog cable consists of DBS services alone.[1] Other video distribution systems, such as C-band, MMDS, SMATV and MVDDS, are not "close substitutes" for DBS and thus should be excluded from the product market definition.

- The sections of the country I analyze are the numerous local areas where consumers of DBS-only services face similar options and the two sellers of DBS compete to provide these options.

- There are at least fourteen large clusters of markets in the country, in rural America, where the merger of EchoStar and DirecTV would result in a monopoly, in light of the unavailability of any wireline cable service in this defined product market.

- Entry by a potential competitor in the fourteen clusters of markets would not, to quote from the *Merger Guidelines*, be "timely, likely, and sufficient in its magnitude, character and scope to deter or counteract the competitive effects of concern."

- EchoStar and DirecTV compete against one another for new subscribers, and each other's subscribers, as well as for retail distributors, in the rural markets. Estimates of current price-cost margins for one of these DBS providers are at levels indicating that the intensity of competition between them is now significant and non-collusive.

- If consummated, the merger would result in prices for DBS services that would be as much as 50 percent higher than the current competitive levels in the fourteen rural clusters of markets.

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[1] Dr. Willig erroneously states that "Dr. MacAvoy and Dr. Rubinfeld attempt to argue that the relevant product market includes digital but not analog cable." Willig Declaration at p. 44. In fact, I expressly stated that "I consider digital and analog systems to be the same in determining the extent of markets." My analysis of competition in the fourteen regional clusters is confined to locations where there is neither digital nor analog cable.

- If consummated, the merger would result in a consumer welfare loss from these higher prices of as much as $700 million among current EchoStar and DirecTV subscribers residing in these markets.
- The uniform price under a "national pricing" scheme proposed by EchoStar would be subject to strong incentives for price discrimination because of the profitability of the higher rural price where there would be monopoly after the merger.
- In order to have any chance at being effective, every component of the offering – equipment, installation, premium service, pay-per-view, etc. – would have to be controlled, at both the retail and subscriber level, in a framework of public utility regulation control of company profits.

II. ECHOSTAR AND DIRECTV ARE EFFECTIVE COMPETITORS

6. In his Declaration, Dr. Willig questions the extent to which EchoStar and DirecTV, two sources of nearly identical DBS products seeking to acquire the same potential subscribers in the same markets, compete with one another.[2] He suggests that direct competition between EchoStar and DirecTV is low, relative to competition between them and wireline cable in major urban markets for these services. In support of his proposition, Dr. Willig relies on a random sample of some 350 subscribers which shows, apparently, that only 9 percent of DirecTV's new subscribers were previously subscribers to EchoStar and 61 percent were either new or current cable subscribers.[3] But it is my understanding that a large, unspecified percentage of subscribers who switch do so because they have been rejected for continued service for not paying their monthly bills. If the large majority of subscribers are cable subscribers in a mature urban market, then most of the nonpayers from cable will show up as switching to DBS in Dr. Willig's survey. It is hardly competitive to contest for other companies'

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[2] *Id.* at p. 41.

[3] *Id.* at p. 42. The sole basis for this argument appears to be a telephone survey that the Applicants conducted. I have not seen the survey, the methodology or the results, and therefore cannot comment. The sample appears to be small and therefore could be misleading.

default customers. This provides no insight into the extent of price competition between the DBS service providers, since it does not define the level or change in prices, just the change of service provider. The focus of interactive behavior on prices is not on this "churn" but on acquiring *new* subscribers. This is especially the case in rural areas, where there is no cable service.

7. Dr. Willig's discussion departs from the central issue, which is the *intensity* of competition between the two DBS providers in rural areas where they are the only sources of service. In my earlier Declaration, I measure the *intensity* of competition in the profit margin (p-mc/p = HHI (1+v)/e) by calculating the values of v, the coefficient of conjectural variation. This coefficient measures competition as most intense when the value is "minus one," and as absent entirely when the value is "plus one." As shown in this earlier Declaration at Table Five, the estimated pre-merger coefficients across the fourteen rural market clusters range from .210 to .473, which leads me to conclude that competition is currently extensive between the two DBS providers in areas where there is no cable. Even though the coefficient is closer to "plus one" than "minus one," it does not tend to show more collusion than competition because zero is the complete absence of collusive interaction between the two providers. That competition, by itself, results in prices lower than collusive levels for hundreds of thousands of subscribers.

8. Missing from Dr. Willig's survey is a key element of competition, that of head-to-head competition between EchoStar and DirecTV for *new* subscribers drawn from *old* subscribers to cable. This is the focus of competitive efforts. Where two sellers of the same product seek to acquire the same subscribers in the same geographic market, and the costs to subscribers to switch are extensive, then it would be a missed profit opportunity for them not to compete on signing up those without either system. If they do not compete for new customers,

the only conclusion that can be drawn is that the two companies must have agreed, tacitly or otherwise, to share the DBS markets at fixed percentages for each. The analysis set forth in my previous Declaration, however, demonstrates that current pricing by these two companies supports a conclusion that they have not reached any such anticompetitive agreement. They compete vigorously for share, as shown by widely varying penetration rates across the fourteen clusters, from 11 percent in the Chesapeake (where prices were highest) to 22 percent in the Upper Midwest (where prices were 15 percent lower; see Table Three).

9. Dr. Willig states that "purported evidence of head to head competition is more likely a coincidence than a competitive response."[4] In fact the opposite is true. The observable evidence is that these two sellers of a nearly identical product have contested the acquisition of new subscribers by undertaking what EchoStar calls "subscriber acquisition cost" (SAC). To obtain a larger percentage of new subscribers, EchoStar offers discounts on equipment and installation that increase SAC. When DirecTV responds, competition breaks out and SAC increases further. The EchoStar "price" is the monthly charge to consumers for programs plus equipment, net of SAC, and are lower where DBS penetration in rural areas has been greater.

III. THE PRICE OF DBS SERVICES IN RURAL MARKETS WOULD INCREASE FOLLOWING THE MERGER

10. Dr. Willig's approach to post-merger competitive behavior is based on a vague definition of "price." His definition for analytical purposes is the national price for programming,[5] which is comparable to defining the price of an automobile as the monthly charge for gasoline. More relevant is a definition of product as the package of services from equipment, installation, service, and repair and/or replacement plus various combinations of basic and

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[4] *Id.* at p. 40.

premium programming packages. These elements of an entertainment and information service package involve charges which together comprise "the price." In a recent telephone conference call with Wall Street analysts, Mr. Ergen of EchoStar estimated that price as defined this way, *i.e.*, the average revenue per unit ("ARPU") was $49.69 per month for the last quarter of 2001, after accounting for SAC of $371 per new subscriber.[6] This price for EchoStar is in the mid-range of prices for DirecTV service packages, which have recently varied from $44.13 to $57.06 in the fourteen clusters, as indicated in Tables Five and Six of my earlier Declaration.[7]

11. Dr. Willig contends that the merged firm would not have the *ability* to discriminate between urban and rural markets in setting "the price" after the merger. He gives two reasons: (a) the monthly charge for programming tends to be set nationally; and (b) it would be difficult to determine which rural subscribers have access to cable and which do not.[8] These two contentions are incorrect. With respect to the first, Dr. Willig concedes that "local variations exist with respect to promotions, and that they occur with respect to equipment, installation, and value-added gifts."[9] Given that current monthly charges for programming have been slightly less than $40, and total monthly charges in the rural clusters have been in the range of $46 to $65 for DirecTV (see Table Six of my earlier Declaration), then 13 to 27 percent of price is in excess of the programming charge. As special discount plans are offered and withdrawn, at various locations, price will vary by up to 25 percent or more. With respect to determining which rural subscribers have access to cable and which do not, only Dr. Willig seems to have any difficulty. Certainly EchoStar has never had any problems along these lines in the past – its aggressive

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[5] *Id.* at p. 26.
[6] *See* transcript of conference call on fourth quarter and end year earnings, March 4, 2002 at p. 4 ("EchoStar Conference Call").
[7] EchoStar reported ARPU of $49.32 for calendar year 2001.
[8] *Id.* at p. 58.

pursuit of subscribers of distressed cable operators at specific locations conclusively demonstrates that the company has the means of distinguishing between homes that are passed by cable where services are ending and those where services are continuing. The retail distributors of DBS equipment and services know whether there is a cable company present and are willing to transmit that information to their DBS wholesalers, since it affects their ability to offer discounts.

12. This does not explain why Dr. Willig does not understand the demarcation between cabled and non-cabled areas in my maps of fourteen regional clusters.[10] These large geographic areas consist of locations where analog and digital cable are not available, so that multichannel video programming services are available only from the satellites of DBS providers. As stated at the base of each of my maps, they consist of fourteen sets of numerous *contiguous census blocks* where consumers do not have access to cable. They do not, as Dr. Willig seems to believe, be sets of contiguous *zip codes* where cable is not available. Census blocks are the smallest unit of measure that can feasibly be used to determine cable availability – *there are eight million census blocks and 42,193 zip codes, a ratio of 190:1.* Mistaking one for the other, Dr. Willig had a consulting firm contact residents in particular *zip codes* where he believed my maps showed no access to cable. They discovered, apparently, that some respondents were in that portion of the *zip code* where cable was available – *but obviously outside the census blocks that I showed as not being passed by cable*.[11] Manifestly, Dr. Willig has not come close to properly analyzing the local geographic markets in rural locations where

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[9] *Id.* at p. 60.
[10] *See* MacAvoy Declaration at pp. 12-25.
[11] Aside from this obvious error, Dr. Willig does not reveal the answers to several key questions about his consultants' inquiry. For instance, how many persons were contacted? How many indicated that their

there is no cable service. As a result, he is unable to appreciate the differences that exist between these rural markets and the urban markets passed by cable.

IV. NATIONAL PRICING WILL NOT REMEDY THE HARMS CAUSED BY THE MONOPOLY

13. The single national price that Dr. Willig proposes to be established by the merged entity would be a compromise between prices that would maximize profits in urban markets served by both cable and the new entity, and prices that would maximize profits in rural markets where only the merged entity's satellite services were available. Dr. Willig argues that this single price would be better for consumers than would lower urban prices and higher rural prices. His position follows from a model in which "New EchoStar would choose a single nationwide price for DBS to maximize the following profit function."[12] The left hand side of his function, the price-cost margin, is the Lerner Index and the right hand side is the *monopoly pricing condition* equal to the inverse of the weighted average of the elasticities of demand in all markets to be served. The only difference between this equation and the classic monopoly equation is that Dr. Willig has added the constraint that the merged DBS firm charges only one price across all markets. From this, he concludes that "the choice of New EchoStar's national price will put greater weight on the competitive conditions in those markets in which it sells more of its product."[13] But he does not specify the level of the one price, relative to current urban and rural market prices, nor how it would compare to post-merger separate urban and rural prices without the constraint. He states only that additional weight should be attached to urban market demand elasticities in setting one price in both urban and rural regions.

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residence was *not* passed by cable? In which portion of the zip code does the respondent live? What attempts were made to verify the accuracy of the information?

[12] Willig Declaration at p. 27.

14. The change in price that would take place according to his scheme after the proposed merger in fact depends not only on (1) demand elasticities, but also (2) the level of post-merger marginal costs and (3) the intensity of competition between one DBS provider and one cable provider in urban markets. The larger the estimate of the first determinant, the DBS price elasticities, and the larger the urban markets relative to rural markets, the lower the single national price. The larger the estimate of the second determinant, post-merger marginal costs as compared to pre-merger marginal costs, the higher the single national price. The less the intensity of cable/DBS competition, the third determinant, the higher the single national price. Dr. Willig, taking into account only demand elasticity, cannot predict that both rural and urban prices would be lower after the proposed merger. To propose the single price as a solution to eliminate adverse effects from a DBS monopoly, Dr. Willig would need to generate concrete estimates of demand elasticities, coefficients of conjectural variation and marginal costs for post-merger conditions. He cannot credibly assume, without any analysis whatsoever, that the single national price most profitable for New EchoStar is in the range of current prices in either rural or urban sets of markets.[14]

15. Whether the "single national price" would be higher or lower, it lacks any validity as a concept until there is an effective implementation plan. In order to be effective, a single national price would have to apply to every component of "price," including basic and premium packages, installation and equipment promotions to ensure that the same charges for the same

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[13] *Id.* at p. 32.

[14] My earlier Declaration explains the Lerner Index for pre-merger conditions as (p-mc/p = HHI (1 + v)/e) with p = price, mc = marginal cost, HHI the Hirfendahl Index, v the coefficient of conjectural variation, and e the elasticity of demand. We have to know the post-merger values of HHI and v for urban markets post-merger, as well as the weight to be given for demand elasticity in each market, before we can estimate to the level of (p-mc)/p in rural or urban markets after as compared to before the merger.

service were made throughout the country at all times. It is pure folly to think that this can occur as a voluntary program at New EchoStar.

16. At the root of this pricing commitment is the implicit promise that New EchoStar *would not discriminate* between urban and rural areas. Dr. Willig's equation,[15] states that a firm *assumed to be* following a single national price strategy would set that single price based on the weighted average of demand elasticities in urban and rural markets. If the monopoly adhered to a single price, then the equation projects that price most profitable from doing so. But in fact conformity to his equation constraint would reduce profit *by the least amount* compared to that from setting different urban and rural prices. This "second best" strategy would reduce profits by more the greater the difference between elasticities of demand for New EchoStar services between urban and rural markets. If losses of profit tied to one price turned out to be extensive, New EchoStar would not adhere to such a pricing policy, but would deviate by stages so as not to forsake available opportunities in setting both lower (more competitive) prices in urban areas and higher (less competitive) prices in rural areas.

17. Charles Ergen has already stated that deviations resulting in lower prices are required in more competitive markets, *i.e.*, that New EchoStar would need to retain the flexibility to match urban cable promotions. [16] Mr. Ergen also has implied that competing against cable systems for subscribers was the primary, if not sole, reason for his company to offer equipment discounts, rebates, and other subscriber promotional incentives. This will not change as a result of the DBS merger. When asked whether or not EchoStar had any plans to extend its "I Like Nine" subscriber promotion, which offered new subscribers approximately 115 channels for $9

[15] *Id.* at p. 27.
[16] *Id.* .

per month with free installation if they agreed to purchase rather than lease the DBS equipment, Mr. Ergen responded that "[i]t depends on what the cable guys are doing out there in terms of what we react to, and watching to see from time to time what makes sense."[17] He would offer these discounts after the merger, but not in rural areas without cable, so that these promotions would reduce price only in urban areas. Rural consumers would receive no benefit from these promotions while they paid the higher national price.[18]

18. The "commitment problem" dominates this proposal for a single national price. A variety of strategies would allow New EchoStar to price discriminate even while appearing on the surface to abide by a national price. It is generally understood that a firm can evade price caps or ceilings by reducing the quality of the product for which price is controlled. In response the implementation of a uniform price ceiling would require regulatory control of the dimensions and quality of service offerings in urban and rural markets. As economist Alfred Kahn has noted, "[p]rice really has no meaning except in terms of an assumed quality of service; price is a ratio, with money in the numerator and some physical unit of given or assumed quality in the denominator. Price regulation alone is meaningless."[19]

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[17] EchoStar Conference Call Transcript. The "I Like Nine" program ran from August 2001 to January 2002 and offered approximately 115 channels of digital video and music for $9.00 per month ($13.99 with select local programming) for one year when the new customer purchased a Dish Network satellite system, which was priced at about $200. The "$9.00 per month" fee took the form of twelve monthly credits of $21.99 each off of the regular monthly price of $30.99 for EchoStar's "America's Top 100" programming package. *See*, *e.g.*, *DISH Network Continues to Offer Satellite TV for $9 Despite Legal Threats From Charter Cable*, BUSINESS WIRE, Oct. 5, 2001.

[18] Dr. Willig's proposed national price formula simply averages elasticities over urban and rural areas. The result could be, but need not be, rural prices that are lower than they would be otherwise. Dr. Willig's rejoinder is that savings in fixed costs by the merged firm will allow it to compete more effectively in urban areas, which does not follow from his pricing equation. Dr. Willig offers no reason why cost savings (if any) will be used for that purpose.

[19] Alfred E. Kahn (1988), *The Economics of Regulation*, MIT Press, p. 21.

19. There have been two important cases in this industry in which evasion has overwhelmed the purported intention to establish, by regulation, a single price. Rate regulation in wireline cable television in the early 1990's resulted in retiering of services (*i.e.*, the offering of new channels only in premium a la carte packages), moving less popular channels to the basic package, raising prices of upgrades, service calls and VCR hook-ups which were unregulated.[20] The observed response to a single price was consistent with cable service providers having both the incentive and ability to undertake actions to evade single price rules when it was profitable to do so.

20. In a second case, the commitment problem was sufficient to destroy the intended results from franchise bidding for cable.[21] Those bidding for a cable franchise in Oakland, CA were required to specify the bidder's annual payment to the city, the basic service package, the price of that service, and the date construction of facilities would be complete and services initiated, among other terms. After the franchise was awarded on the lowest bid, the winning bidder demonstrated an inability to commit to the terms of the basic offering, because of "unanticipated" increases in costs and lower than predicted subscribership to the basic service. In the end, more customers elected to receive an alternative unregulated premium service offered by the winning bidder at a considerably higher price not specified in the franchise bidding process. This case demonstrates that with even a large number of complicated conditions, there are opportunities for the monopolist to evade the constraints.

[20] Thomas. W. Hazlett and Mathew Spitzer (1997), *Public Policy Toward Cable Television: The Economics of Rate Controls*, The MIT Press and The AIE Press, Chapter Six.

[21] Oliver Williamson (1976), "Franchise Bidding for Natural Monopolies – in General and With Respect to CATV," *Bell Journal of Economics*, No. 7. Vol. 1, pp. 73-104.

21. Currently, EchoStar states that it would be willing to accept a national pricing condition in exchange for approval of the merger. For EchoStar to make this commitment requires it to accept utility regulation that would require revenues for all services limited to the cost of providing service inclusive of a fair return on invested capital. There have to be two constraints, the cost of service constraint and the single price constraint, in order to remove the incentive to discount in selected locations. While I am not proposing utility regulation, since its problems are legion, I am stating that an imperative of the national pricing rule is that it be accompanied by profit regulation. But I am not proposing this unified plan as a means to solve the commitment problem. However, a national pricing rule would be ineffective without profit regulation.

V. DR. WILLIG'S CRITICISMS OF MY ANALYSIS

22. Dr. Willig states that my analysis assumes the merger will generate no cost savings.[22] This is incorrect. In fact, I assumed that New EchoStar would benefit from substantial cost reductions when I estimated post-merger price changes from the merger. To estimate the effect the proposed merger would have on price in rural markets, I generated estimates of the price-cost margin of the merged firm (*i.e.*, (p-mc)/p where "p" is the price index and "mc" is marginal cost) based on estimates of marginal costs for both EchoStar and DirecTV. As shown in Table Two of my earlier Declaration, marginal costs equaled $26.80 per month for DirecTV and $30.39 per month for EchoStar; I assumed that New EchoStar as the surviving firm would find a way to operate with the *lower of the two marginal costs*. The assumed lower marginal costs represented *a 12 percent reduction from EchoStar's current costs*. Thus, New EchoStar received the benefit of substantial assumed cost reductions when I estimated post-

merger price increases. Nonetheless, as noted at ¶38 of my Declaration, the proposed merger would result in price increases in the range of 50 percent – for example, in the Carolinas cluster, I predicted an increase of 48 percent (from $51 per month to $75 per month).

23. In his criticism of my cost estimates, Dr. Willig makes no attempt to quantify his assumed cost savings from the proposed merger. Instead, he discusses in general terms the reductions in *fixed costs* he claims are specific to the merger. But only reductions in *marginal costs* are relevant here because only marginal costs lead to lower prices. The profit maximizing price is established for subscriber levels where marginal revenue equals marginal cost; since fixed costs are independent of marginal costs, they have no effect on this price.[23] To get around this basic principle of price theory, Dr. Willig claims that the reduction in fixed costs will be used by the merged firm to provide capital in order to develop new, advanced products and services valued by consumers. His claim, however, is completely unsupported, since he provides no concrete business and marketing plan for research and development in new DBS products. Nor does he substantiate in any way his forecast that new services will be forthcoming in large DMAs and then "exported" to rural areas. Indeed, he provides no proof whatsoever for either of these contentions.

24. Dr. Willig points out that in my analysis I estimated "rural DBS demand elasticity using a regression in which the dependent variable is the number of subscribers in 83 DMAs and in which the price . . . of DirecTV is one of the independent variables,"[24] concluding that the demand elasticity for DBS services was approximately –1.55. Dr. Willig contends that my estimate of demand elasticity is too low for two reasons. He first argues that my regression

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[22] *Id.* at pp. 50-51.
[23] Cf. X. Vives, *Oligopoly Pricing*, 1999 (MIT Press, Cambridge), pp. 217 – 218.

formulation "fail[s] to account for the endogeneity of price [which] tends to reduce the estimated demand elasticity."[25] That argument is possibly incorrect because price may be exogenous given that in these markets it is set by service providers, and not determined by the volume of service (supply) which requires endogeneity. Second, even if price were endogenous, it is not established that the estimated demand elasticity, from my regression formulation is biased downwards when endogeneity is not taken into account. To illustrate this point, consider the simple demand model,

$$q = a + bp + cX + u$$

where q is the number of subscribers, p is the price, X are other control variables, u is the random statistical error, and a, b, c are the parameter values to be estimated. Dr. Willig states that the price, p, is endogenous in the log linear regression where b is the estimate of demand elasticity, and that the endogeneity of price leads to an underestimate of b when the equation is fitted by ordinary least square (OLS). In fact, an endogenous price does not necessarily lead to an underestimate (in magnitude) of the parameter b. Statistically, endogenous p means that the covariance of p with the random error is either positive or negative, $Cov(p, u) > 0$ or $Cov(p, u) < 0$. Let $b < 0$, i.e., the slope of the demand curve is negative and $|b|$ be the absolute value of b. If $Cov(p, u) > 0$, an OLS estimate of b tends to underestimate $|b|$; if, in contrast, $Cov(p, u) < 0$, an OLS estimate of b tends to overestimate $|b|$. The direction of the bias of the estimate of $|b|$ from OLS, if at all, remains an open question.

25. Dr. Willig's position, however, appears to be based on a recent working paper of Goolsbee and Petrin (2001), who argue that $Cov(p, u)$ is likely to be positive so $|b|$ from OLS is

[24] Willig Declaration at p. 51.
[25] *Id.*

an underestimate of the demand elasticity in cable and DBS services. They provide a hypothetical story on why Cov(p,u) > 0: an unobserved factor, such as the quality of service, may affect both the demand for the service and the price of the service. That is, a better-serviced local market would yield a higher subscriber penetration rate and would potentially have a higher price, so that Cov(p, u) > 0. There is an equally plausible explanation, however, in the other direction: in some regional markets, better management at the retail level results in lower marginal cost and potentially lower price with higher penetration rates so that Cov(p, u) < 0 and the elasticity estimate from |b| is too high. Dr. Willig's contention that I have underestimated demand elasticity is unsupported in theory.[26]

26. Dr. Willig's second assertion, to the effect that my conclusion underestimates demand elasticity, is that "the price variable used will introduce some measurement error that tends to reduce the elasticity estimate."[27] This is probably true of *any* data series for price variable; "some measurement error" is omnipresent so that Dr. Willig is not being specific enough to determine whether there is a systemic problem in using my elasticity estimate to assess the effects of monopoly from the merger. Indeed, it would have been preferable to use price estimates for both EchoStar and DirecTV, for a number of reasons, but EchoStar data were not available. Even so, the measurement "error" is limited by the extent to which the prices of the two DBS providers are the same and move together over time. Recall that EchoStar's recent

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[26] Dr. Willig cites Goolsbee and Petrin's study as evidence that endogeneity may be a serious problem in estimating DBS demand elasticity. In fact, the Goolsbee and Petrin paper does not justify his finding. *See* Willig Declaration at p. 52. First, Goolsbee and Petrin claim there is no DBS price variation across markets, which is clearly not correct. Second, their estimates of demand equations for cable systems, using two stage least squares (2SLS) to avoid the endogeneity problem, none of the estimates including that for the elasticity, b, were statistically significant. *See* Table 7, page 24 of Goolsbee and Petrin. The large standard errors from 2SLS indicate that the estimated demand equations with instruments do not add accuracy to estimates after accounting for the effects of endogeneity.

[27] *Id.* at p. 52.

price, as indicated by Mr. Ergen, resides near the midpoint of DirecTV prices in each of the fourteen rural clusters. Moreover, there are examples in both my Declaration and the Sidak Declaration that show price initiatives of one provider are matched or countered by the other provider.[28] As both prices move together the bias is less, and when more than one independent variable is measured with error, "nothing can be said about the nature of the bias."[29]

27. Nevertheless, in response to Dr. Willig's concerns, I undertook an experiment to determine the extent of bias. As noted, I estimate that demand elasticity is approximately –1.55. Dr. Willig has argued that this elasticity is too low because price contains an "error in variable," but if this alleged measurement error is uncorrelated with the price itself, the estimated elasticity is biased downward. In this case, the error would be due to excluding the price of EchoStar, and using only the price of DirecTV, when they sell in the same markets. To illustrate the possible bias, denote DirecTV as firm 1, EchoStar as firm 2. Suppose $p_2 = p_1 + v$, where v is a normal random error with zero mean and a standard deviation of 0.044 (approximately the standard deviation of p_1). Let the "true" price p in the market be the average of p_1 and p_2: $p = 0.5 (p_1 + p_2)$ generating the random error v in a simulation run 1000 times. For each random draw of v, I generate first price p_2 and then p according to these two equations. The coefficient b in the OLS regression is then estimated for each random draw, and the average of the estimated b over the 1000 draws is –1.25, an alternative estimated elasticity of demand lower than the –1.55, the

[28] There are indications of Dr. Willig struggling further to redefine the data set as problematic. *See* Willig Declaration at pp. 52-53. Obviously, the observations of subscriber levels and prices are for the DMAs entirely within the 14 regional clusters not passed by cable. The price estimates are average revenue per subscriber (as Willig describes himself in ¶78) and include payments for basic and premium packages, which represents real price variation, in my judgment.

[29] M.D. Levi, "Errors in Variables Bias in the Presence of Incorrectly Measured Variables," *Econometrica,* Vol. 41, No. 5 (1973), p. 985.

estimate in my previous Declaration. If at all, the illustrative "error in variable" for price causes my elasticity estimate to be too high by in excess of 20 percent on reasonable assumptions.

28. In his last attempt at "proof" that my estimate of the elasticity of demand is too low, Dr. Willig combines Mr. Sidak's posited estimate of elasticity of -2.5 with prices from my Lerner Index equation to discover that they are roughly consistent. He concludes that the monopoly price set after the merger in the fourteen rural clusters compares to actual prices in these clusters. He infers that there would be no price increase from the merger in the DBS monopoly markets at rural locations where there is no cable. Such an inference only shows that Mr. Sidak's elasticity assumption is too high. The estimates of price-cost margins from my declaration are from current data on DirecTV prices and marginal costs while Mr. Sidak's elasticity is, according to Dr. Willig, "assumed."[30] In an analysis in which estimated values of x are paired with "assumed" values of y and are not consistent, it is reasonable to reject the "assumed" values.

29. In addition, by comparing current DBS prices in rural markets with his monopoly price in these markets after merger Dr. Willig fails to take account of the fact that the proposed merger would have an effect on the number of DBS service providers. That is, by undertaking a comparison implicitly in reducing the number of DBS competitors from two to one, without affecting the price-cost margin when assuming an elasticity of -2.5, Dr. Willig wrongly implies that the monopoly price currently is being charged.[31] This can be indicated by referring to my

[30] Willig Declaration at p. 55.

[31] As indicated in my previous Declaration, the Lerner Index (p-mc)/p = -HHI (1+v)/e where p = price, mc = margin cost, HHI is the Hirfendahl concentration index, v is the coefficient of conjectural variation among firms in that market, and e is the elasticity of demand. Assume that the Lerner Index is closer to 40 percent. With two DBS providers in rural markets, HHI approximates .5, and with an elasticity of – 1.55 then v is in the range of 0.2 which is close to competitive. But if elasticity were the hypothetical –

Lerner Index model for analyzing current competitiveness (i.e. (p-mc)/p = HHI(1+v)/e). Finding that current price-cost margins are consistent with his elasticity e = -2.5, rather than my estimate of e = -1.5, implies that in current rural markets with two DBS providers the coefficient of conjectural variation v would have to be equal to 1.5. This level of v is uniquely associated with collusive behavior, with two firms currently setting the monopoly price in the market. Dr. Willig bypasses the competitive interaction terms [HHI (1+v)], reducing the two DBS providers to conspirators, in order to force the hypothetical elasticity of –2.5 onto the level of the price-cost margins I estimate currently for the fourteen rural market clusters. He creates the appearance that his clients are conspirators in current price formation in markets without cable.

VI. DR. WILLIG'S CLAIMED EFFICIENCIES ARE ILLUSORY AND NOT MERGER-SPECIFIC

30. Dr. Willig states that post-merger, New EchoStar will provide local-into-local service for all 210 DMAs, rather than the 100 that the parties proposed four months ago. He also argues that the two DBS providers separately would fail in their efforts, or perhaps simply would not try, to serve those same 210 DMAs. Dr. Willig's unsupported negative conclusion as to the future effect of DBS competition disregards the very large amounts of capital that historically have been made available to these two companies, as well as the recognized competitive benefits of providing local-into-local service. At a minimum, Dr. Willig's speculative claims are outside the fields of expertise associated with an antitrust economist. Rather, they fall within the realm of satellite engineers and others qualified to speak to spectrum efficiencies. Furthermore, much of Dr. Willig's opinion regarding the claimed spectrum efficiencies allegedly flowing from the proposed merger amounts to nothing more than mere speculation:

2.5, then the derived estimate of conjectural variation is 1.0, that for a perfect collusive pricing process or

- "Absent the merger, expanding local service to all 210 DMAs should not be profitable."[32] But Dr. Willig provides no economic analysis to support this conclusion.

- "The combined current and potential subscriber base raises the returns on the investment in providing local service."[33] This conjecture is founded on unsubstantiated assumptions as to anticipated economics of scale.

- "The availability of additional spectrum will allow New EchoStar to enhance its "near video-on-demand" programming... "[34] This is an argument without factual support. There is no documentation of a business plan showing the extent to which subscribers would increase their demands for pay-per-view as a result of more start times

- "Without the merger, new advanced services may be delayed, rolled out on a smaller scale or not rolled out at all."[35] Once again, Dr. Willig develops in unsubstantiated conclusion in a context in which the economic theory of monopoly does not support the argument. In actuality, there are three considerations: (a) the extent of the monopoly price increase; (b) the extent to which advanced services can be provided by wireline or land-based wireless entrants; and (c) the technical problems with implementing these advanced services.

- The entirety of Dr. Willig's argument that a DBS monopoly will lead to lower prices and greater availability for broadband service appears to be nothing more than unrestrained optimism. He acknowledges that his clients have separately invested in expanding their broadband services, and that this product is characterized by high fixed costs and low marginal costs. If they have indeed already incurred substantial fixed costs, the likelihood that they will not now separately compete to gain the volume to spread those sunk costs into an ultimately profitable enterprise is remote.

31. At page 12 of his Declaration, Dr. Willig acknowledges that when EchoStar launched local-into-local service in 36 markets, subscriber growth rate increased by an average of 30 percent, and when DirecTV rolled out its local service of 41 markets, its subscriber growth rate in those markets rose by an average of 17 percent. Both DBS companies recognized the

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for a monopoly.

[32] Willig Declaration at p. 10.

[33] *Id.* at p. 11.

[34] *Id.* at p.17.

importance of local-into-local service, and competition between the two required them to make the investment necessary to rapidly serve the first group of DMAs. In essence, when either of them serves a DMA with local to local, the other has to date had no choice but to follow. The likelihood that either of these companies would forego the opportunity to serve local markets, particularly given their recognition of the very substantial subscriber growth which is accomplished thereby is remote. Dr. Willig points out that all 210 DMAs can be served by two spotbeam satellites, at a cost of no more than $300 million. These are not financial commitments which these parties would be unable to undertake. In fact, *if the merger is not consummated and the breakup fee is paid, DirecTV will receive enough cash from EchoStar to pay for two spotbeam satellites, capable of serving all 210 DMAs by itself.* EchoStar would then need to find a way to respond, as in any competitive situation it faces with DirecTV.

32. At various points, Dr. Willig contends that consumers will benefit from New EchoStar's ability to negotiate volume discounts on programming, increase the charge to advertisers, and reduce the cost of subscriber acquisition. However, the projected discounts on programming expenditures should not be characterized as gains from economic efficiencies, but are preliminary transfers between one set of companies to another without effect on consumers. The ability of New EchoStar to increase prices to advertisers, notwithstanding that the subscriber base is not immediately any larger than the combined subscriber base of the two existing companies, suggests only an intention to exercise market power at the expense of purchasers of advertising time. Rather than improving consumer welfare, this actually would constitute a reduction in welfare. Any elimination of subscriber acquisition cost (SAC) suggests an intention to eliminate those discounts currently offered to new subscribers as the two DBS companies

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[35] *Id.* at p.19.

compete, which would be an immediate loss of welfare to consumers. The contention that the DBS companies will save money while avoiding competition in attracting, retaining and generally satisfying their subscribers is one of the more conspicuous losses of consumer welfare.

VII. CONCLUSION

33. Dr. Willig's Declaration does not rebut my conclusion that the proposed merger would substantially lessen competition and would create a monopoly in rural markets not passed by cable. To the contrary, EchoStar and DirecTV would have the ability and the incentive to price discriminate, even under a national pricing regime. As demonstrated in this Declaration, each of the points made in my initial Declaration stands.

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In The Matter Of	)	
Application Of	)	
	)	
EchoStar Communications Corporation, General Motors Corporation, And Hughes Electronics Corporation	)	**CS Docket No. 01-348**
	)	
For Consent For A Proposed Transfer Of Control	)	
	)	
To: The Commission	)	

DECLARATION OF PAUL W. MACAVOY

I, Paul W. MacAvoy, do hereby declare under penalty of perjury that I have prepared the foregoing Declaration, and that the statements contained therein true and correct to the best of my knowledge, information and belief.

Paul W MacAvoy

Paul W. MacAvoy

3/26/2002

Date