A Losing Battle for All Sides: The Sad State of Spectrum Management

Spectrum Wars: The Policy and Technology Debate, Jennifer A. Manner, Boston: Artech House, 2003, 186 pages.

Gregory L. Rosston*

I. INTRODUCTION

Not surprisingly, lawyers and economists have different viewpoints about a large variety of regulatory apparatuses. Economists have tended to come up with relatively simple and straightforward ways to reform spectrum policy to combat the inefficiency and tortuous nature of the spectrum allocation and assignment process. *Spectrum Wars* should convince any reader that radical reform of the current system, which is rife with inefficiency and special interest wrangling, would be a substantial improvement.

The book goes a level further than most spectrum analyses do—it tries to integrate the complex relationship between domestic spectrum policy and international spectrum concerns. Given the author's career in the international arena this is not surprising, and the numerous tangible examples of spectrum fights add useful institutional detail to the complex, confusing, and contentious spectrum processes.

Spectrum Wars can be divided into three major parts: a deep background of the institutional detail of the frequency management process, a description of the tensions between different theories on how to

* Deputy Director of the Stanford Institute for Economic Policy Research ("SIEPR") and Lecturer in Economics at Stanford University.

change spectrum management, and finally, a view about how the changes in the telecommunications marketplace may affect future spectrum management proceedings.

II. THE FREQUENCY MANAGEMENT PROCESS

Many parties have argued that the frequency management process is obsolete, inefficient, and anticompetitive. But the author's description of several different "wars" for spectrum illuminates the infirmities in the current system. The examples highlight the need for deft inside-the-beltway counsel and knowledge of the entire domestic and international spectrum management process. However, the examples also highlight the fact that the current system provides little, if any, impetus to using spectrum to provide the most socially valuable services while generating long socially costly delays and large amounts of unnecessary spending. Perhaps the most important lesson from the book is that, by unpacking the spectrum war examples, the inefficiency of the current domestic and global spectrum management systems become clear.

One of the examples in the book is the dispute over the 28 GHz band (otherwise known as the Ka band) that took place in the mid-1990s.[1] A closer examination of the details of that "war" demonstrates why the solutions do not serve the public interest. In that "war," I was one of the "judges" at the Federal Communications Commission ("FCC" or the "Commission") while Ms. Manner represented one of the parties to the dispute. A significant amount of spectrum was available, but it was less than the total sought by the parties involved.

At the top level, there were four general competing interests. The first group was comprised of Geostationary satellite system ("GSO") companies. One of these companies, Hughes Spaceway, proposed a stationary satellite system that would complement its DirecTV DBS service with additional voice, video and high-speed data services. Hughes and other GSO companies wanted much of the band allocated for GSO service.[2] A second group of interested parties in the battle were the non-geostationary ("NGSO") satellite systems, predominantly Teledesic. At the time, Teledesic proposed a system of hundreds of interconnected low earth

1. *See* JENNIFER A. MANNER, SPECTRUM WARS: THE POLICY AND TECHNOLOGY DEBATE 21-25 (2003) [hereinafter SPECTRUM WARS].

2. For a description of the different parties' positions, see Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, *First Report and Order and Fourth Notice of Proposed Rulemaking*, 11 F.C.C.R. 19005, 3 Comm. Reg. (P & F) 857 (1996).

orbiting ("LEO") satellites. The satellite system proposed to provide voice, video, and high-speed data services. Because of international law, NGSO systems not only needed spectrum in the band, but they also needed a change to a footnote in the World Administrative Radio Conference ("WARC") bylaws that gave priority to GSO satellite systems. In addition, because the satellites traveled around the world, Teledesic wanted the spectrum allocated globally so that it would not have to shut off its service in other areas.[3] Because GSO satellites cover only a portion of the world, the international concern, while greater than for terrestrial services, is not as high as for NGSO services.

The third interested party was Motorola, which was promoting its NGSO service, Iridium. In contrast to the other interested parties, Motorola only wanted a modest amount of spectrum in the 28 GHz band, mainly for control of its satellites, as the major data transmissions would be handled by spectrum in other frequency bands.

The final interested parties were terrestrial Local Multipoint Distribution Service ("LMDS") operators and hopefuls, represented mainly by CellularVision, a company that had been awarded a license to use the 28 GHz spectrum to provide service in New York. At the time, the company was providing an analog video service as a competitor to cable television, but it proposed to use service to provide voice, video and high-speed data services.

Consistent with the lessons in the book, the FCC was barraged with thousands of pages of technical documents, which essentially boiled down to studies showing why each particular service needed vast amounts of spectrum in the band and specific frequencies, and why the other parties in the band could do with substantially less spectrum. In addition, each party demonstrated the vast consumer benefits that would come from its voice, video and high-speed data services.

The decision process was not limited to the FCC. Because of the international nature of the satellite systems, they also had to fight spectrum wars at the World Radio Conference ("WRC"). Also, because the satellite companies were at the WRC, the terrestrial interests could not forgo that regulatory arena. Had they not participated, the satellite interests would have presented the FCC with a *fait accompli*.

At the same time, the FCC's decision was further complicated by the incumbency of CellularVision (serving a very small number of customers but with very effective advocacy), and by the fact that Motorola obtained

3. Given the high fixed cost of the satellites and command system, the marginal cost of operating in additional countries would be relatively small.

permission from the Commission to begin construction of the satellites for Iridium at its own risk with equipment designed for specific frequencies in the band. Subsequently, Motorola was able to demonstrate that it would substantially delay and increase expense for Iridium if the Commission did not grant the frequency that Motorola had used for its construction.

The war boiled down to a fight among four different points of view, all with effective counsel, and all with highly detailed business plans projecting significant consumer benefits and profits for the companies. However much the companies spent on lawyers and lobbyists to get spectrum, it was substantially less than the value of the spectrum at issue. But the satellite interests were vehemently opposed to determining the use of the spectrum by auction. Instead, they wanted the Commission to determine that their satellite service was the most valuable use of the spectrum.

In the end, in accordance with the lessons from the book, the Commission adopted a compromise plan, giving each party some spectrum, but not as much as was requested. The process was contentious, wasteful, and ultimately ended up with a decision that may result in an incredibly inefficient use of the spectrum. No satellite service has yet been deployed using the spectrum other than Iridium, and the terrestrial LMDS service, despite fetching over $500 million at auction, has also not been deployed to any meaningful extent.

The author's lengthy explanation of this example highlights what I consider to be the most important lesson contained in the book—the current spectrum process is incredibly cumbersome and prone to "wars." *Spectrum Wars* explains exactly what happened in this case: strategic positioning, participation in every aspect of the process, and a great deal of time, patience, and money are all critical pieces of ammunition necessary to participate successfully in the current spectrum process.

Granted, a move to the economists' vision of a more market-based system will not eliminate all spectrum wars, but such a move would eliminate a lot of the waste (unnecessary lawyers, consultants, and other resources used to persuade the Commission) and more importantly, have a much better chance at spectrum efficiency than the current politically influenced and biased decisions, or at best simply arbitrary decisions. It may take the market a while to unwind the 28 GHz spectrum decisions, but the FCC should at least put into place a mechanism so that if the spectrum is more valuable in satellite use than terrestrial use or vice versa, it can be transitioned to such use without further contentious and lengthy squabbling at the FCC.

III. MOVING TO A BETTER PROCESS

The second purpose of this book is to look at the different arguments for and against a more market-based approach to spectrum management. I have to confess to being one of the advocates for a more market-based approach. The author did a good job of listing the arguments used for and against the use of auctions, and for and against the increase of secondary markets for spectrum.

The author does a good job of listing the possible arguments on both sides of the debate. In that regard, the book is a very good introduction to these issues; lawyers contemplating working in the wireless arena would benefit from exposure to these arguments. However, while it may not be the purpose or tenor of this book, a more in-depth examination of the arguments would provide a better analysis of their validity.

For example, many people have made the argument that auctions increase the price for wireless services, and higher auction prices make it impossible to offer wireless services. Viscerally, these statements have some appeal, and they appear to have substantial influence around the world. In that respect, it is good that they are brought forward in the book—to understand how spectrum policy works around the world, it is important to know what arguments carry the day.

However, it also would have been useful to address some of the criticisms of these arguments. For example, an FCC staff working paper by Evan Kwerel and Walt Strack addresses the issue of auctions raising the cost of wireless services.[4] Theoretically, subsequent to paying for a license, the licensee should ignore the sunk costs (the price paid for the license) and attempt to maximize profits. This does not only work in theory. Kwerel and Strack show that there is no difference in the prices charged by licensees who bought at auction, bought on the secondary market, or got their licenses from the FCC for the price of lawyers and lobbyists.[5] A somewhat deeper analysis of the arguments, or more reference to other papers that undertake such analysis, would make this portion of the book more useful.

A second potentially useful extension of the book would include a discussion of how transitions could be made. The author makes some effort along these lines by addressing some of the concerns about moving toward a more liberal use of secondary markets. In that chapter, the book addresses concerns with enforcement, interference, and public interest obligations, all of which are clearly implicated in the FCC's recent Order and Further

4. EVAN KWEREL & WALT STRACK, FCC, AUCTIONING SPECTRUM RIGHTS 3-4 (2001), *available at* http://wireless.fcc.gov/auctions/data/papersAndStudies/aucspec.pdf.

5. *Id.*

Notice of Proposed Rulemaking on extensions to secondary markets for spectrum.[6]

IV. CHANGES IN THE TELECOMMUNICATIONS MARKETPLACE

The process described in the first two portions of the book is tied together in the last section on how the telecom meltdown has affected and is likely to affect the telecommunications marketplace in general and spectrum wars in particular. While I may not agree with some of the policy arguments outlined in other parts of the book, the fact is that they have real currency in many parts of the world, including the United States, and they have a real impact on the future of the industry.

The book presents some of the more clear reasons for the telecommunications meltdown—primarily an overoptimistic view of the increase in demand for telecommunications-based services. But the last chapter goes further, predicting the impact that the changes occurring in the financial markets will have on the market for services. In particular, the book outlines a vision of consolidation in the industry and a number of low-cost competitors emerging from bankruptcy.

The book then paints a picture of the industry as a phoenix, rising from the ashes of the meltdown. However, this new incarnation is very different than the industry that had virtually free capital in the late 1990s. As a result, the book predicts, the industry will be much more circumspect in its investment in new technologies and the deployment of new networks.

The author then applies these lessons to the wireless sector in particular. The difference in the cost structure of some wireless networks as compared to the cost structure of the traditional wireline networks has some implications for the success of wireless in the future. Manner implicitly argues that the new economics of the telecommunications marketplace will push towards wireless networks that have lower upfront capital costs because of the scarcity of capital in the industry as a whole.

The book also repeats one of the fallacious arguments about the cost of auctions—that auctions might adversely impact the development of the wireless sector because the cost of spectrum under an auction would be too high. The price of spectrum licenses will be determined by market forces—in times when wireless services are valuable and spectrum is scarce, spectrum prices will be high; when wireless services are less in demand, or when technology increases the capacity of spectrum, the price of spectrum will fall. To argue that auctions will increase the cost of spectrum so that no

6. Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Report and Order and Further Notice of Proposed Rulemaking*, 18 F.C.C.R. 20604 (2003).

one can afford it reminds one of Yogi Berra talking about a place that no one goes to because it is too crowded.[7] Someone must think that spectrum is valuable enough to make the high bids that drive up the price of spectrum.

V. CONCLUSION

Spectrum Wars does a very good job at illustrating what it takes to acquire spectrum in the current regulatory environment. Companies and attorneys that have an idea for a spectrum-based service would be advised to read about the tangled web of a process that is required to gain access to spectrum. As a result, they may become devotees of the relatively simple, straightforward and more efficient auction process.

7. *See Things People Said: Yogi Berra Quotes*, *at* http://rinkworks.com/said/yogiberra.shtml (last visited Mar. 27, 2004).