

Presentation of

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America's DTV transition has been going on for more than 20 years. What I find most remarkable is that during this period broadcasters and policymakers have made ceaseless efforts to speed it up and been given tens of billions of dollars worth of subsidies to do so. Yet this transition has gone remarkably slowly.

Consider just a few of the subsidies:

- **Loan of a 2nd Channel.** The most famous is the loan of a 2nd channel with no fixed termination date, no interest rate, and no clearly specified collateral. This is the loan that was widely reported in the press as a \$70 billion giveaway to broadcasters.
- **Redefinition of the meaning of a channel from a service to MHz.** Another subsidy is the redefinition of the meaning of a channel from a service to a band of frequencies. Previously, broadcasters had rights to provide 1 standard definition programming stream with their license. As a result of the DTV transition, they won a right to cram as many programming streams or other types of data that they could fit in 19.4 mbps. With 1995 era video compression technology, that meant 4 to 6 channels. With today's video compression technology, it means up to 20 channels. In England, in contrast, broadcasters only got half the new capacity opened up by digital technology; the other half was opened to competitors.
- **Massive expansion of geographic coverage—** Another subsidy is the broadcasters' massive

expansion of coverage both outside and within their grade B contour, which is their protected coverage area. New digital technology has made it possible for broadcasters to greatly extend not only the types of service they provide but also their coverage areas. New America estimates broadcasters have acquired \$6 billion worth of such spectrum rights since 1997 and will probably acquire a lot more at the end of the DTV transition when the analog stations are turned off.

- **Sales tax exemption on new equipment.** Another subsidy is a sales tax exemption on new equipment. In more than a dozen states broadcasters have won a sales tax exemption on the purchase of their digital equipment.
- **Only one required free SDTV channel.** Another subsidy is the increase in the amount of allowed pay services. Broadcasters are now only required to provide one free standard definition programming stream on their DTV channel. This means that they can use more than 90% of their spectrum for pay services.
- **Broadcast flag.** Another subsidy to enhance broadcaster revenue is the broadcast flag. This is a form of indirect encryption technology that would ultimately allow broadcasters to charge for content not viewed in realtime.
- **Tuner mandate;** Another subsidy is the tuner mandate, which requires that all new TV sets include a broadcast DTV tuner. This helps solve the chicken and egg problem of spectrum economics. The more

people that have equipment to access a particular band of spectrum, the more valuable that spectrum is.

- **Digital multicasting must-carry.** Lastly, there is digital multicasting must-carry subsidy, which we will get to in a moment.

Consider that during the last ten years there have also been dozens of digital transitions in other consumer technologies.

- Mobile telephones transitioned from analog to digital technologies.
- Camcorders and digital cameras made the transition.
- Recorded audio and video game players made the transition.
- Satellite TV and Cable TV made the transition.

None of these transitions required massive government subsidies, including favorable government regulations to speed them along. Yet those digital transitions have been both rapid and successful.

Even with HDTV, broadcasting has fallen behind. Satellite and cable are now far ahead in HDTV channels and actual coverage. And now, Sony and Microsoft have announced cheap videogame machines that incorporate HDTV.

So what have we gotten for all these subsidies to the broadcast industry?

A decade ago we were promised the world's most advanced DTV system that would sweep worldwide markets like Microsoft's windows operating system or Intel's computer chips. Instead, we have a DTV standard that practically no one else in the world wants and is rapidly becoming obsolete.

Moreover, no serious telecom analyst that I know of even thinks that low frequency spectrum—the type of beachfront spectrum that broadcasters have—should even be used for broadcasting. Fixed services like broadcasting should be delivered via wires such as cable TV or high frequency line-of-sight spectrum such as satellite TV. Nicolas Negroponte first made this observation in the mid-1980s, and it is even more true today than it was then.

For close to a decade now policymakers have tacitly acknowledged this: that this transition is not about broadcast to broadcast; it's about broadcast to broadband. Policymakers are trying to speed this transition to free up as much spectrum as possible for broadband use.

Using low frequency spectrum for broadcasting is like feeding filet mignon to goldfish. Today, that spectrum is desperately needed for mobile and affordable broadband service. America is now 16th in the world in broadband penetration. Using wires to provide broadband service to rural America is insane. It is like paying a \$1000 for a gold plated hammer when a \$5 wooden one would do the same job just fine. Wireless is the way to deliver broadband to rural America, and broadcasters have the best spectrum for that purpose.

There is also the question of public safety. Why should broadcasters have ten times as much low frequency spectrum as public safety? After 9/11 and reading the 9/11 Commission Report, we all learned about the disastrous consequences of that misallocation of resources. Yes, broadcasting, especially radio, has a role to play in emergency preparedness. But putting so much spectrum in the hands of the broadcast industry is like building a military based on rifle technology and forgetting that tanks and aircraft are also vital to win wars.

How can it be that the broadcast industry has received such vast subsidies to speed along a DTV transition that has been such a dismal failure? It is now widely recognized that it is because the subsidies have gone to producers rather than consumers. If the problem is that consumers don't have broadcast DTV tuners, then the direct and simple way to get them to acquire those tuners is to subsidize their purchase. In contrast, the broadcast flag, digital must-carry, and other producer subsidies are highly indirect ways to encourage consumers to purchase broadcast DTV tuners.

So after decades of providing producer subsidies and getting nowhere, I think Congress has finally gotten the message. Here, the experience of Berlin, Germany has proved pivotal. The entire DTV transition in Berlin—from passage of legislation to analog turnoff—was only 18 months. And the simulcast period—broadcasting in both analog and digital mode—which is already 8 years old in

America, took only 9 months. The key to the Berlin approach: the government subsidized the digital to analog converter set top boxes for consumers.

This has transformed the DTV debate in the U.S. The question now is threefold: 1) what type of additional subsidy do broadcasters need to get them to give back their loaned spectrum, 2) what type of subsidies should consumers get to acquire broadcast DTV tuners, and 3) what should be done with the spectrum freed up as a result of the transition.

- 1) On the producer subsidy issue, the main one the broadcasters are now seeking is digital multicasting must-carry on cable TV. This comes in a 100 different proposed varieties. But the basic idea is to require cable companies to carry more than just a single programming stream; preferably, the entire 19.4 mbps a second a broadcaster can transmit on its DTV channel. As with the other producer subsidies, the broadcasters have framed this subsidy as a way to speed up the DTV transition. For reasons I've briefly mentioned here and explain in detail in an issue brief I've handed out on the entry table, I believe it will do no such thing and may in fact slow the transition. But as a negotiating chit that may make this legislation politically viable, it is something to consider. My suggestion is that if the multicasting, must-carry right is given, it only be **exercisable after**, not before, the DTV transition, for this will give the broadcasters a genuine incentive to speed along the DTV transition

because they will get something valuable at the end. This is arguably the biggest difference between the Berlin and U.S. DTV transition. In the U.S. broadcasters got digital flexibility before the transition and thus had no incentive to speed it up. By contrast, in Berlin, it came only afterwards, so broadcasters were anxious to speed it along and make it a success. I also suggest a **sunset clause** for digital multicasting, must-carry be included. Specifically, if a household has an open access 20 mbps service capable of providing Internet TV, then cable and satellite companies should be freed of their must-carry obligations. 20 mbps may seem like a very high speed, but it is already achieved in large parts of South Korea and Japan, and plans for widespread deployment of such speeds have already been announced in the U.S. Note the “open access” clause. The definition of open access is must-carry for all. In other words, Congress should move to a must-carry-for-all regime rather than a must-carry regime for just one favored industry.

2) Second, there is the consumer subsidy issue. Much of this debate centers on whom should get a subsidy. All the alternatives are messy. From a policy standpoint, there are three ways to frame the debate.

a) **Return on Investment.** The opportunity cost of warehousing and underutilizing the spectrum occupied by channels 2-51 is compared against the cost of the consumer converter box subsidy. The easiest proxy

for the opportunity cost is spectrum auction receipts. So people take the expected \$10 to \$30 billion of anticipated auction receipts, compare it to the several billion a consumer converter box subsidy would cost, and say this is an excellent return on investment.

b) **Need.** The second approach, used in Berlin, is based on need. Only low income consumers reliant on over-the-air TV get the subsidy.

c) **Takings of Consumer Property.** The third approach is based on the idea that a fixed deadline to end the DTV transition will reduce the value of the installed base of analog TV sets, so government should compensate consumers for this takings of their property.

- The ROI argument leads to big consumer set top subsidies.
- The Needs argument leads to small subsidies.
- The takings argument can lead to a large or small subsidy depending on the assumptions made. The CEA and GAO studies on OTA set top penetration, for example, have very different assumptions.

My own preferred solution is a very simple one: send every household in the U.S. a digital to analog converter set rebate form. Ask them if they have at least one OTA set in their house and ask them to write down the model number. Then send them a rebate check, which they can use for a qualified settop box at their local merchant.

Like many other government reporting systems, this one is based on the honor system. Sure, there would be some fraud. But I think it would efficiently get settop boxes to people who really need them, and my guess is that well under 50% of Americans would actually take advantage of such a rebate. With 110 million U.S. households, a \$50 converter box cost, and a 50% response rate, this subsidy would cost approximately \$2.5 billion.

3) On the returned spectrum, I would like to see 20 MHz, less than 20% of the 108 MHz being returned, allocated to unlicensed services. I would also like to see any additional auction revenue, above and beyond the amount necessary to subsidize the consumer converter boxes, allocated to a digital opportunity investment trust. I will let Ben Scott develop these ideas in more detail.

Lastly, I want to notify members of Congress that there will be more than 1 broadcast DTV transition, painful as that thought might be to hear. The 1st DTV transition is the familiar one from analog to digital. The 2nd one is from today's broadcast DTV sets to a later generation of DTV sets. I've already mentioned to you how primitive the current broadcast DTV standard is. Broadcasters recognize that and are working on revisions to improve that standard. But the price of that 2nd transition will be the same type of stranded consumer equipment, albeit euphemistically called "backward compatibility," we are discussing today. Admittedly, the politics of these two transitions are quite different. In the first, broadcasters must give something

back, so they oppose it. In the 2nd, they enhance the value of their assets. But in terms of affecting consumers, the policy issues are almost identical.