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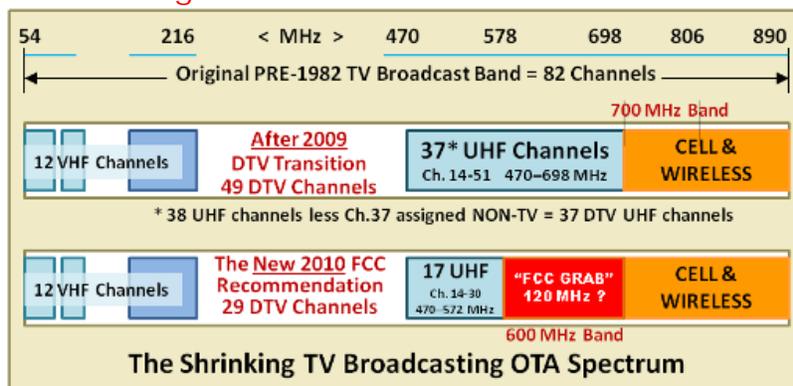
The FCC Spectrum Grab . . . TV Stations to share what proceeds? Will there be an Auction in 2012?

Posted on [February 16, 2012](#) by [Tore Nordahl](#)

What's the current Auction Value of the TV Broadcast 600MHz Band? Comparing recent spectrum transfers with the 2008 FCC 700MHz auction and prior transactions.

Nearly two years ago (March 2010), the FCC released its National Broadband Plan announcing "the 600 MHz DTV Spectrum Grab" proposing that 120 MHz of TV broadcast spectrum be vacated and auctioned off for broadband wireless use, expected to benefit the wireless providers like AT&T, Sprint, T-Mobile and Verizon. We revisit the question whether a future DTV 600 MHz band auction can match the relative financial success of the 2008 FCC 700 MHz auction, by estimating the current auction value of the DTV 600 MHz band, if an auction was held in 2012.

The "FCC Doomed" TV Channels . . . UHF Ch.31 through Ch.51



The FCC's National Broadband Plan specified that 120 MHz of UHF spectrum was to be removed from the TV broadcast band and auctioned off as broadband wireless spectrum to highest bidders in 2012, subject of course to receiving the necessary congressional approvals. The spectrum has been dubbed the 600 MHz band, ranging from 572-698 MHz, and located immediately below the 700MHz band which was removed from the TV

broadcasters and auctioned off in a 2008 auction resulting in the finalization of the DTV transition in 2009. The 600 MHz band is presumed to include Ch.37, for many years assigned to non-broadcast use, thus the Author believes that the 600 MHz band comprises 126 MHz when Ch.37 is included.

The TV Broadcasters may stand to lose 20 UHF channels in this "FCC Spectrum Grab", comprising channels 31 through 36 plus channels 38 through 51, totaling 120 MHz

The remaining TV OTA broadcast band will then total 12 VHF channels plus 17 UHF channels, for a total of 29 DTV channels. Out of the currently active 49 DTV channel assignments, over 40% of the DTV spectrum is proposed removed, requiring the reassignment (or going permanently off air) of some 682 currently operating DTV channels across the U.S. However, this article will not discuss in any detail the substantial problems of such reassignment, but rather look at the likely spectrum value if an auction was held in 2012.

Revisiting the FCC 2008 DTV (700 MHz) Auction

In the wireless telecom industry, the value of spectrum is often quoted in \$/MHz-Pop, to enable a direct comparison of spectrum transaction values of different sizes (bandwidth and population covered).

\$/MHz-Pop is calculated as follows:

Total price paid for license(s)

Divided by (Bandwidth in MHz x Population covered by the license)

= \$/MHz-Pop

Example:

Company X paid \$1 billion for a 6 MHz license covering 100 million population

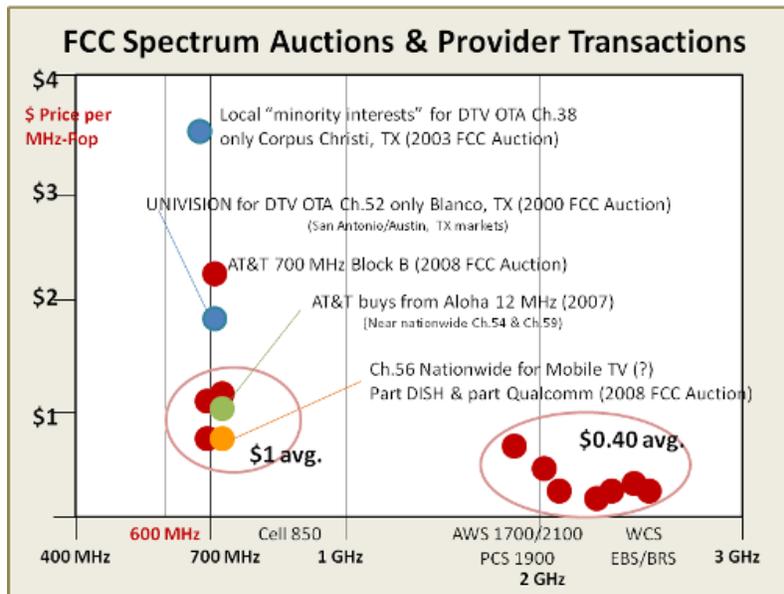
6 x 100 million = 600 million

Divide \$1 billion by 600 million = \$1.67/MHz-Pop

FCC's 2008 700 MHz band auction (Auction #73) covered the part of the TV broadcast spectrum from UHF channels 52 through 69 (18 channels or 108 MHz) which had not been auctioned off earlier or already assigned for public use. 62 MHz was actually offered in the auction, of which a total of 52 MHz of spectrum was actually bought. What about the balance of 46 MHz (108 MHz less 62)? The "missing" 46 MHz had already been spoken for in a 2002 and a 2003 auction (22 MHz sold) and Ch.63/64 and Ch.68/69 (2x12 MHz) was reserved/assigned to public safety. Included in the 62 MHz offered, a 2x 5MHz

pair was offered for “private/public partnership” but the FCC reserve amount was not met, as no private party wanted to take on the associated “public baggage”. This accounted for the 10 MHz not sold in the 2008 auction.

FCC completed the 700 MHz band auction in March 2008, collecting nearly \$19 billion for the U.S. Treasury. The average price paid was about \$1 per MHz-Pop if AT&T’s inflated bid for nationwide Block B (\$2.25 per MHz-Pop) is discounted, as AT&T apparently really wanted spectrum adjacent to the 12 MHz block (2x 6 MHz) purchased from Aloha Partners before the 2008 auction, in October 2007 for \$2.5 billion (\$1.06 per MHz-Pop) covering nearly 200 million U.S. residents. AT&T average price per MHz-Pop for all 24 MHz (equivalent of 4 DTV 6 MHz channels) was \$1.65.



The Chart plots the purchase prices in \$/MHz-Pop vs. frequency band obtained by FCC auctions and in major private buy/sell transactions over the last few years (up to Q3-2010), represented by RED dots. BLUE dots are auction sales for local DTV OTA station licenses. GREEN dot is AT&T Aloha transaction, and the ORANGE dot is the combined value of the nationwide sale of Ch.56 by DISH and Qualcomm (separate winning bids).

At the lower price end for the 700 MHz band is the sale of nationwide Ch.56, where DISH purchased part of the coverage for \$712 million while Qualcomm purchased the balance for \$555 million, both added up to \$1.3 billion or only \$0.72 per MHz-Pop. Ch.56 was not paired, thus at the time not of sufficient priority to the wireless providers to bid it up higher.

Resulting Averages – FCC 2008 Auction #73:
52 MHz of bandwidth for \$19 billion

Overall \$/MHz-Pop = \$1.22
 (\$19 billion / 52MHz x 300 million population)
 Average per MHz for nationwide coverage = \$365 million
 Average per 6 MHz for nationwide coverage = \$2.2 billion
 (But, remember Ch.56 “un-paired” nationwide sold for “only” \$1.3 billion)
 (Wireless Providers prefer “paired and separated” spectrum)
 Total “scaled” value for 120 MHz of nationwide coverage = \$44 billion
 (Based on the overall average of \$1.22/MHz-Pop achieved in the 2008 Auction 73,
 applied to the 120 MHz FCC now wants to grab from broadcasters in the 600 MHz band)

The Most Defining “TV Channel” Spectrum Transaction since the 2008 FCC Auction:

AT&T buying Qualcomm’s FLO-TV Ch.55/56

The largest recent (700 MHz) transaction for pure spectrum licenses (no ongoing business operations or customers/subscribers included) seems to be AT&T’s purchase of Qualcomm’s spectrum holdings after Qualcomm announced in the fall of 2010 that they would end their wireless TV service (FLO TV) on nationwide Ch.55 by early 2011. A deal was made between AT&T and Qualcomm in late 2010 that AT&T would pay \$1.93 billion for Qualcomm’s nationwide Ch.55 and major metro coverage Ch.56. The deal was very recently approved by FCC and closed just a few weeks ago.

Qualcomm’s Ch.56 licenses included the greater metro areas of New York, Los Angeles, San Francisco, Philadelphia and Boston, covering an estimated population of nearly 80 million. When we divide up the \$1.93 billion purchase price proportionally between Ch.55 (nationwide) and Ch.56 (major metro areas), the \$/MHz-Pop ends up at about \$0.83 or more than 30% lower than the Auction #73 average of \$1.22. Again, these are un-paired blocks, although Ch.55 and Ch.56 are adjacent but not “guard band” separated.

This AT&T/Qualcomm transaction may be very important as an indication of declining spectrum valuation in a near future FCC 600 MHz auction, and will reduce AT&T’s appetite for buying expensive 600 MHz spectrum for the following reasons:

- AT&T gets an additional 12 MHz (Ch.55 and Ch.56 – 2x 6 MHz) of “prime beachfront 700 MHz property” in New York City, Los Angeles, San Francisco, Philadelphia and Boston, in the top population centers where broadband wireless capacity is needed in the longer term.
- AT&T has stated that it intends to “deploy this spectrum as supplemental downlink, using carrier aggregation technology. This technology is designed to deliver substantial capacity gains and is expected to be enabled with the completion of 3GPP Release 10. AT&T expects to begin deploying this spectrum once compatible handsets and network equipment are developed.”
- Note that 3GPP Release 10 will be marketed to consumers as 4G-LTE, as it is comparable in speed to the “4G-LTE offerings” by Verizon, T-Mobile and Sprint. In the consumer space, downlink speed (bandwidth demand) needs to be much faster than uplink speed, as more and more (one way) TV-video program streams are delivered to smartphones and tablets in the future.
- AT&T’s total investment in 700 MHz spectrum is now estimated at around \$12 billion: \$6.6 billion from the FCC’s 2008 auction + \$2.5 billion paid to Aloha Partners + \$1.9 billion for the Qualcomm purchase + smaller local deals including Vulcan/Paul Allen’s 700 MHz spectrum in the Northwest.

Spectrum Bargains in the 600 MHz Band?

Did the FCC overestimate the need for Spectrum?

Yes and yes, in the Author’s opinion. AT&T and Verizon combined have so far invested nearly \$24 billion in reclaimed UHF broadcast spectrum (700 MHz band), while Sprint and T-Mobile have largely ignored the 700 MHz band to favor and develop their spectrum holdings in the 1900 MHz and AWS bands (Advanced Wireless Services: 1700/2100 MHz). Some experts believe that AT&T and Verizon now have sufficient reclaimed UHF broadcast spectrum (700 MHz band) to meet their expected 4G-LTE capacity demand for several years, and that they may not come to the auction table in 2012 with the really big

multi-billion dollar checks to buy 600 MHz spectrum, as they did in Auction #73.

Verizon just agreed to acquire AWS spectrum from SpectrumCo (joint venture of Comcast, TWC, Brighthouse) for \$3.6 billion and from Cox for some \$300 million, adding up to a \$4 billion spectrum investment NOT in any reclaimed UHF broadcast spectrum. As a result of the failed merger between AT&T and T-Mobile, AT&T is obligated to transfer AWS spectrum to T-Mobile as part of the break-up fee, which may actually increase AT&T's interest in buying 600 MHz spectrum.

AWS spectrum is suddenly becoming more popular amongst the wireless broadband leaders, partly because of the higher cell density requirement in large urban centers where AWS frequency propagation may be more predictable over shorter distances than the 600 MHz band. But perhaps more importantly: The national 4G-LTE providers are convinced that it will take years to clear the broadcasters from the 600 MHz broadcast spectrum. and AWS seems to be "today's choice supplemental spectrum" to work with the current 700 MHz band for cost effective and soon 4G-LTE expansion.

The Author believes that, based on the AT&T-Qualcomm deal and the above analysis, the 600 MHz TV broadcast band (the "Doomed" TV Channels 31 through 51) has a current 2012 auction valuation in the range of \$0.75/MHz-Pop, perhaps less if a large part of the 120 MHz FCC Spectrum Grab is offered in a 2012 auction.

Yes, the FCC overestimated the demand for wireless broadband spectrum in their March 2010 National Broadband Plan and in their post-report activities, done in an atmosphere of trying to find ways to raise billions of dollars for the U.S. Treasury in a relatively short time. The Author believes that the right time frame for a successful 600 MHz spectrum auction will be after 2013, perhaps as late as 2015, but not in 2012.

So, if 100 MHz (holding back 20 MHz for public use) in the 600 MHz band was all sold at a 2012 auction at an average value of \$0.75/MHz-Pop, the gross take for the U.S. Treasury would total about \$23 billion. Nationwide licenses for 24 MHz paired blocks (2x 12 MHz) would each go for \$5.6 billion which may seem attractive to Verizon and AT&T. Within the 100 MHz spectrum, there are a possible four (4) such 24 MHz blocks (with guard bands), or one 24 MHz block for each of the Big 4 Wireless Broadband Providers (AT&T, Sprint, T-Mobile and Verizon).

Which corporations with sufficient interest in wireless broadband (and wireless/mobile TV) may have the financial muscle to bring big billion dollar+ checks to a 2012 auction? The short-list includes AT&T, Verizon, Sprint and T-Mobile, in addition to Apple, DISH, DirecTV, Google and Microsoft. Which would or could bring five billion dollar+ checks? Only AT&T and Verizon. Don't hold your breath in 2012.

In Auction #73 (700 MHz band), the FCC established reserve pricing for the various blocks of spectrum, which totaled \$8.7 billion for the nationwide 52 MHz actually sold, or about 46% of gross auction revenues of \$19 billion. The average reserve pricing scaled to a 6 MHz nationwide UHF TV channel was nearly exactly \$1 billion, although the specific E-block (6MHz Ch.56) had a specific reserve of \$904 million, which was purchased in part by Qualcomm and in part by DISH for a combined total of about \$1.3 billion.

The reserve pricing was developed by the FCC by looking at the 2006 Auction #66 offering AWS spectrum. Thus it is likely that the FCC will use the 2008 Auction #73 as the

basis for developing the reserve pricing for the 600 MHz spectrum auction. At 80% of actual \$/MHz-Pop for Auction #73, the average reserve pricing will end up at \$1/MHz-Pop or 33% higher than the Author's estimate for his 2012 valuation at \$0.75/MHz-Pop. The 600 MHz band auction is not likely to take place in 2012, in the opinion of the Author.

2012 Auction Value for 600 MHz DTV Channel Spectrum in Top-10 DMAs at \$0.75/MHz-Pop: What it means for TV Broadcasters . . .

The table below shows estimated valuation for each of the Top-10 DMAs in terms of a) total value of local 600 MHz spectrum, and b) value of a 6 MHz UHF channel slice, at an average price of \$0.75/MHz-Pop based on selling 100 MHz nationwide of the 600 MHz band (reserving 20 MHz for public use) for gross auction revenues of \$23 billion in 2012.

Note that the DMAs used by the TV broadcasting industry does not match the geographical areas used by the FCC for wireless industry purposes, but the table below gives a good indication of the value of the spectrum as it is based upon the estimated population of each DMA. 2011-2012 DMA ranking and TV households are courtesy of Nielsen. Population is estimated by multiplying the TV household number by 2.5 (persons per TV household).

DMA	Top 10 Metro	TV Househ. Millions	DMA Pop. Millions	% of U.S. Pop.	Value of 600 MHz Band Millions \$	Value of 6 MHz Ch. Millions \$
1	New York	7.4	18.5	6.0%	\$1,373	\$82
2	Los Angeles	5.6	14	4.5%	\$1,039	\$62
3	Chicago	3.5	8.75	2.8%	\$649	\$39
4	Philadelphia	3	7.5	2.4%	\$556	\$33
5	DFW	2.6	6.5	2.1%	\$482	\$29
6	San Francisco	2.5	6.25	2.0%	\$464	\$28
7	Boston	2.4	6	1.9%	\$445	\$27
8	Wash DC	2.4	6	1.9%	\$445	\$27
9	Atlanta	2.3	5.75	1.9%	\$427	\$26
10	Houston	2.2	5.5	1.8%	\$408	\$24

In the New York DMA, with an estimated population of 18.5 million, the 100 MHz of spectrum (20 MHz reserved for public use) in the 600 MHz DTV broadcast band may be valued at about \$1.4 billion at the current "depressed" estimated 2012 auction valuation of \$0.75/MHz-Pop. A 6 MHz DTV channel slice in the New York DMA is thus auction valued at \$82 million, just the 6 MHz spectrum. Comparatively, if a 2012 auction matched the \$1.22/MHz-Pop obtained in the 2008 Auction #73, the 100 MHz of New York spectrum would be worth well over \$2 billion, and the 6 MHz slice well over \$100 million, to the U.S. Treasury.

Again at the Author's depressed estimated valuation of \$0.75/MHz-Pop in 2012, in Houston (DMA #10) with about 5.5 million population, the local 100 MHz is valued at more than \$400 million, with each 6 MHz DTV channel slice at about \$24 million.

To clear 120 MHz of Spectrum, DMA by DMA . . . FCC says: Voluntary Incentive Auction first

Each and every TV station OTA on any UHF channel in the range 31 through 51 must either relocate to a channel below 31 (through a possible channel sharing arrangement or

agree to relocate to a VHF channel), become just a local cable channel or simply cease to exist. That applies to all 682 TV stations currently transmitting in that spectrum range (572 – 698 MHz) across the U.S. once the Congress gives authority to the FCC. In a FCC power point presentation dated October 5, 2011, basic ground rules for a Voluntary Incentive Auction were outlined on slide 18:

Broadcaster Options – All Voluntary

In an incentive auction, a broadcaster could:

1. Contribute one or more 6 MHz channels, in exchange for a share of auction proceeds;
2. Share spectrum with another broadcaster, in exchange for a share of auction proceeds, *and stay on the air*;
3. Relocate from UHF to VHF, in exchange for a share of auction proceeds, *and stay on the air*; or
4. Choose not to participate!

Broadcaster participation in incentive auction is voluntary

The Top-10 DMAs present a massive problem

There are 197 full power TV stations OTA in the Top-10 DMAs, of which 108 (55%) are operating on a “FCC doomed” UHF channel (Ch.31 through Ch.51). In order to maximize what the bidders are prepared to pay for the 600 MHz spectrum, the time from auction to actual spectrum utilization must be as short as possible. Offering spectrum in 2012 without probability for use until 2015 (and even that year may be uncertain) will surely depress auction bids. A major reason for the financial success of Auction #73 (700 MHz band in 2008) was that successful bidders were reasonably assured by the advanced status of the DTV transition that utilization by 2009 was probable. Here, in the case of a 600 MHz band auction in 2012, utilization is not expected until 2015, perhaps later, by FCC’s own words in the National Broadband Plan, to “make it available within 5 years” (from when?). And remember that the wireless broadband providers are first and foremost interested in the Top-25 DMAs where the growth potential is and where capacity problems may first surface in the future. Rural and small town 4G-LTE potential is so small in comparison, it will not drive any auction interest.

The worst of the Top-10 DMAs: Los Angeles

Without going into details, Los Angeles (DMA#2) has 16 full power TV stations transmitting within the “doomed” spectrum, including some major network stations. With only 10 licensed full power channels below Ch.31, we’re looking at a very difficult task taking perhaps years to sort out. The 26 full power TV stations licensed to the Los Angeles DMA are actually transmitting nearly 100 TV channels OTA including many secondary multicast and a few MDTV channels. Perhaps many of the smaller TV station operations will surrender their licenses and “take the money and run”.

Remember the BAS relocation project?

Remember the recent Sprint-Nextel BAS (Broadcast Auxiliary Services) relocation, which involved some 1000 TV stations across the country which just dealt with the relocation of

the microwave band used by broadcasters primarily for ENG backhaul. Sprint-Nextel spent five years and nearly one billion dollars (some say just \$750 million) completing that project.

What about FCC Option 4: Choose NOT to participate?

What does it mean for a TV station currently OTA on a “FCC doomed” UHF channel? After all is said and done, will the FCC reassign a new channel to the station below Ch.31? Looks like any TV station on a “FCC doomed” channel must really participate, one way or another, to control its destiny, while any TV station currently OTA below Ch.31 may choose NOT to participate without any penalty (like channel sharing) by keeping its current channel assignment? TV station OTA licensing (or renewal) is NOT tied to auction participation, FCC says, but the FCC surely will retain the authority to “repack and move” channel assignments.

Sharing what proceeds? TV Stations to set “Reserve Pricing” . . . FCC to pay for “Repacking Costs”

The FCC says that participation is voluntary and that each participating TV station will share in the proceeds from the 600 MHz band auction. The FCC further states that the auction must take place first, after which the repacking of remaining TV stations OTA will be accomplished, with the outcome that the 600 MHz band (572 – 698 MHz) or major part of it will be available for wireless broadband use (or any other permitted use) by the successful bidders.

If you’re a TV station in Los Angeles OTA above Ch.30, the Author’s estimated 2012 gross auction value for a 6 MHz slice of DMA #2 spectrum is \$62 million based on \$0.75/MHz-Pop. Actually, it does not matter whether your station is in the “FCC doomed” spectrum or below in the “safe” spectrum, because your participation will benefit the evacuation and repacking regardless.

How much of the \$62 million should be your share?

Well, the FCC is trying hard to make the 600 MHz band spectrum evacuation highly competitive (to reduce the sharing of proceeds), by requiring the participating TV stations to choose the level of participation AND to set a reserve price as a condition of participation. The level of participation offers varying (presumed) degrees of proceeds sharing levels:

Most attractive to the FCC: Option 1 = Go off the air (6 MHz evacuated) = Highest share

Least attractive to the FCC: Option 4 = Not participating = NO share

Which of Option 2 (Channel Sharing) and Option 3 (move from UHF to VHF) is most attractive to the FCC depends upon a number of factors. In Los Angeles, there is no VHF low band TV station, thus there are potentially three (3) non-adjacent VHF channels available (Ch.2 & 4 & 6) subject to TV stations in nearby DMAs operating on those channels and thus causing interference. Also (presumed) to be very attractive to the FCC is “moving to VHF” AND “channel share” if that is an option, which should command a high share of proceeds.

Channel sharing is of course subject to two (2) TV stations agreeing to channel share.

Just one TV station within the DMA choosing that option will not make it. The channel sharing option may be most effective when two (2) TV stations agree together to channel share in its FCC submission. Ideal candidates for this would be duopolies, such as KCBS/KCAL and KTTV/KCOP in Los Angeles, but only if the owners have no plans for multicast or MDTV, as we assume that major network stations must transmit HDTV on the main channel leaving little or no bits left for secondary multicast or MDTV.

So, in the “worst DMA” of Los Angeles, a total of 16 full power TV stations are required to vacate the 600 MHz band. This task seems impossible unless the FCC is prepared to share proceeds at a very substantial level.

The Author believes that a 50% share of the 6 MHz local auction value (~\$30 million in LA) is not unreasonable for going off the air, with a 25% share (~\$15 million in LA) for channel sharing or move to VHF.

So, in Los Angeles, if all 26 TV stations participate with an average proceed share of \$20 million, the total shared proceeds cost adds up to \$520 million, or about 50% of the total auction proceeds of about \$1 billion attributable to the 100 MHz of local LA spectrum (in the 600 MHz band) if successfully sold in a 2012 auction at the Author’s estimated auction value of \$0.75/MHz-Pop.

Looking at it nationally, most DMAs are not nearly as difficult as the Los Angeles market, thus if we attach a national average shared proceeds cost of 35% of the national gross of \$23 billion (100 MHz spectrum covering 310 million population at \$0.75/MHz-Pop) in a successful 2012 auction, the net auction proceeds will be \$15 billion BEFORE paying for “repacking costs”. Net proceeds to the U.S. Treasury may be in the \$12 billion range. A measly amount considering trillion dollar+ deficits and the highly complicated proposed “spectrum grab process”.

There are many unanswered questions, one of which is:

What is the chance that the FCC will successfully progress this Spectrum Grab so far articulated, to a successful auction in 2012?

In the opinion of the Author: Very small.

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