Art Berman: Crude Oil Update

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Erik: Joining me now is petroleum geologist Art Berman, who, as always has prepared one of his terrific slide decks to accompany today's interview. Registered users will find the download link in your research roundup email. If you don't have a research roundup email, that means you're not registered yet at macrovoices.com. Just go to the homepage macrovoices.com. Look for the red button that says "Looking for the Downloads" just above Art's picture.

Art, it's great to get you back on the show and to dive into another of your slide decks. But let's start with the big picture. Last time we talked to you, you had been projecting a decline in US production, which was running a little bit late, you said it might run even later than that. But you thought it was still coming at that point. And at that time, when we had you on in January, I think oil was in the 30s. You said it could go to 65 this year, and everybody thought you were crazy, because that number was too high. And of course we got there, not in the remaining 12 months of the year. But within the next 12 weeks we got to that number. So congratulations on getting a couple of calls right. But let's get the update. What do you see from here?

Art: Right? Well, a couple of things Erik. First, I'm gonna apologize for my voice. I have a little surgery. It doesn't sound as bad as it sounds, at least for me. But listeners will have to forgive me. Yeah. So you know, diving into, you know, the end of my slide deck if you like to. On slide seven, I haven't changed this chart since our January discussion, the only thing I've added, which is to say I haven't changed my outlook. Now, I understand that, you know, people are sure I'm wrong, because production is still hanging in there at you know, upper 10 to lower 11 million barrels per day and I may be wrong. And you know, anybody could be wrong.

But the way I look at this is, you know, you've, you got to drill wells to get a certain level of production, whatever you think about, you know, the time shifting and all of that in this chart. You know, we're at 323 oil directed rigs. as of March and we had been between 800 - 900 to support 11 million barrels per day. So, you know, simple math, you don't have to be a petroleum geologist says, you know, you're less than half the number of rigs, you need to support the production that everybody thinks is going to keep on going. And unless there's been some kind of, you know, absolutely magical technological breakthrough that I don't know about, I just don't see how it can happen.

You just don't have enough gas in the tank to get you there. Now, obviously, the part I could be wrong on is when's it gonna happen? Because, I mean, I don't honestly know. I don't think

anybody really knows, you know, how many wells are being completed each month. The best we can do is the EIA drilling productivity report, which I study and analyze pretty carefully. And it tells me that, you know, the rig count is still a darn good proxy for well completions and etc. So, you know, I'm sticking to my story here.

Erik: Art, what you're showing here is an expectation that a deviation from the EIA outlook is going to occur, a downside deviation. And you're saying here that if the base case proves true, that deviation doesn't start till sometime in June. If the low case proves true, it might start in May. And it's not till July if it's the if it's the high case. I guess what I'm struggling with Art is, you know, we first talked about this. Originally, you were expecting this decline to occur, I think, almost a full year ago. So is there room for this to keep slipping? Or what is the factor that's allowed it to keep slipping beyond your initial expectations?

Art: Yeah, well, it hasn't kept slipping Erik. When we originally talked, all I was doing was using title oil rig count to project the whole thing out. And I was following a, you know, a fairly religious rig count correlation with production. And by the time we spoke in January, I'd expanded the study to include all wells in the US conventional, unconventional, offshore, the whole thing. And that's where this particular chart came from, which as I said, hasn't changed. So nothing slipping since January. And as I you know, said in the beginning here my timing can be wrong. But there's just no way that you can have less than half the wells that were producing the level that you think we're going to be at, and continue to produce that level. Unless something, you know, very magical is happening that nobody's told me about.

Erik: I'm just trying to assimilate here, what you're actually projecting because on one hand, it seems like you're very much still committed to the idea that US production should decline fairly steeply later on this year. And I guess what I'm having a hard time reconciling is I would have expected that prediction to come accompanied with a higher price forecast. And I know you're not projecting a higher price, you're saying maybe it's a little bit overdone where it already is. So why would we not expect prices to continue to increase if there is this market surprise, or a deviation from consensus expectations that we end up with lower US production than everybody is expecting us to have?

Art: Well that's a great question and let me just, you know, emphasize that, you know, in the three cases, I mean I'm talking about, let's take the base case, which is, you know, 9 million a day. And the high case, which is almost 10 million a day. So, you know, you keep saying that, you know, productions gonna fall off a cliff. Well, you know, it's 10.7 or so right now, and so, yeah, I mean, it's gonna drop a million barrels a day, maybe a million and a half. I mean, that's a lot. I'm not trying to minimize it. But I mean, it's not like we're, you know, I'm saying that it's going to go to zero. It's a more substantial drop than, you know, than EIA and most other forecasters are talking about.

So your second question is, why am I not more bullish on price? Well, when you introduced me, you said I was, my 65 forecast was more bullish than anybody or not. I know, you agreed you were actually more bullish than I was, but then the mainstream view and so the rest of my slides

support that position. But the, the cliff notes summary is that because US production isn't the world. And because OPEC's got you know, eight and a half million barrels a day sitting in its back pocket, and everybody knows that. And I suppose we can, you know, we can debate how long that eight and a half million barrels of spare capacity, may or may not last, etc, etc. But bottom line is, you know, the markets cheap. And, you know, why would the market pay $80 or $90 a barrel, when it knows that the supply is there.

And so if we go back, and we look at previous periods where price got to 80 or 90 barrels, which by the way has not happened since 2014. So we got six years under our belt where, you know, the highest monthly average price is not anywhere near $80 a barrel which is Goldman's forecast for third quarter. And so again, you know, I can turn it around and sa well tell me what's different. And the only thing that's different is that OPEC is withholding a ton of supply from the market and the market knows it. So what's the panic about?

Erik: Art, let's take a look at your spare capacity chart, which is on slide four of the chart deck. And as you're showing here, OPEC's spare capacity is 11 times as you put it greater than the last time Brent was $80. I want to ask you to explain this chart. I have a few of my own thoughts. But I want to start with your explanation. Give us the background on what this chart is telling us.

Art: Sure Erik. So this chart shows EIA's estimate of the production that OPEC could bring to the market within you know, like two or three months if they wanted to. I think that's how EIA defines it. I've taken this chart all the way back to 1993, which is the beginning of information about spare capacity that's publicly available. And the picture doesn't change a whole lot. And so, as you know, and I think most of our listeners know, until the so called shale revolution, when OPEC spare capacity got below about 4 million barrels a day, markets kind of freaked out and price went way up.

And if you look at this chart and you see on the left hand side, you know, price goes, this is Brent, from about $60, in the beginning of 2010 to $123 in the middle of 2011. That corresponds quite nicely with OPEC spare capacity dropping from over 4 million barrels a day to 2 million barrels a day. That was standard procedure back before there was shale. So what we see then, looking farther toward the present. About 80% to the right, you see just below where the title "OPEC spare capacity" sits. That was the last time that Brent got more than $80-$81 a barrel in November 2018. looked down at spare capacity, that's the lowest spare capacity on record, less than a million barrels a day 0.8, 800,000 barrels a day. Again, that's a guesstimate and I don't really care about the absolute number, but it shows you know, kind of relatively what's going on.

Fast forward to the present and we're sitting at the highest spare capacity in history of, you know, 8.5, to right now in March to 9.2 in the middle of last year. And so I mean, there's just absolutely nothing about the historical correlation between OPEC spare capacity and price that says that price maybe should even be as high as it is right now. As you know, I think price is about right, at $65 right now. But the point is that, you know, we're way way higher, 11 times, as you said, than we were the last time Brent was at 80. So you know, knowing that OPEC's got all this extra production sitting around, why should a market pay $80?

Erik: Here's my reaction to this chart Art. As I look at this, it seems to me like you're trying to draw almost a mathematical relationship between spare capacity and price. And I guess I don't see it that way, from the standpoint that spare capacity, it has everything to do with OPEC's ability to increase production if they wanted to. And so if you're constrained as a lot of people, and of course, this is speculation, and different people have different opinions. But as we go through that period, after 2016-17, going into 2018, a lot of people thought that OPEC was intentionally trying to keep the price down to avoid getting the market price up to a level that would sustain a restart, if you will, of the US shale revolution.

And so these days, it seems pretty darn clear, they want higher prices, and they're ready to welcome higher prices. They're not trying to hold the price down in order to make sure shale doesn't get restarted. So it seems to me like you can't assume there's an inverse mathematical relationship between spare capacity and price. Spare capacity puts constraints on different actors in terms of what they can do at different times. But I don't think it equates to a ratio that should determine or project price. Do we disagree on that?

Art: Well, no we don't disagree at all. And I never intended to say or imply that there's a mathematical relationship here. I'm just saying that, you know, it's a very qualitative relationship. If OPEC's got eight and a half million barrels a day sitting in its back pocket, then we don't have a shortage. And so now the, you know, now the question becomes, you know, what's the market willing to pay to try to get everybody else to assuming that OPEC keeps perfect discipline, which is a whole another conversation.

But what's the market willing to pay to accomplish something, which is to say, to get the rest of the world to find an additional 5, 6, 7, 8 million barrels a day, that simply cannot be done in any kind of short order event. So in other words, you can, you can keep increasing price and it doesn't make it any, it doesn't speed the process of getting more wells drilled. I mean that you get to a price where producers are making a profit, and we're there right now and you can double the price. And they can't drill wells any faster. So why would the market be willing to pay for something that basically can't be accomplished?

Erik: Well, we certainly agree that OPEC has the spare capacity that they could bring prices down if they wanted to. So...

Art: Or if they couldn't keep themselves together. If they couldn't maintain discipline.

Erik: Yes, if they were struggling to maintain the solidarity of the cartel itself, as some people feel that they are, that would be another factor. I personally don't think they're struggling as much as some people think when it comes to maintaining their solidarity and getting what they want out of the oil market.

Art, let's move back to the beginning of the deck and talk about the demand picture and where it's headed. I look at demand on the right hand side of slide number two, and it seems like we're

almost seeing by the end of 21, we're going to be back to above pre-pandemic demand levels. Is that true? And if so, why?

Well, its forecasts, it just was published last week. This is OPEC's updated version, and they've, you know, they've now cranked up the demand number by a couple of million barrels a day. So it's speculative, but it does reflect OPEC's view of, you know, how economies are recovering. And maybe it's optimistic, maybe it's not. I'm not gonna try to vouch for the validity of that number. But I guess the point that I make in this chart is, you know, Citigroup, and Morris just the other day said we're gonna be at record oil demand levels by the third quarter. Well, you know, Ed needs to look at this chart and tell me how that works. Because, you know, even if you believe 99.45, you know, we're not, we're not at the levels we were before the pandemic. You can say, well, we're only a million and a half or, or two below, but we're not at record demand levels, that's assuming that you know this chart is accurate three quarters into the future.

So I guess my view is, look, demand is improving, I'm all in favor of that. I'm not trying to be, you know, a permabear or anything here. I'm just saying, No, demand is not going to hit records, I have a very difficult time imagining for instance that air travel will be anywhere near recovered. By the third quarter of this year, air travel accounts for 8 million barrels a day of consumption and that's a huge number. And so I just don't understand where these, you know, these sort of glib notions or statements that demand is going to be at an all time high. I mean, is the, is this the pent up demand meme? Because, you know, if it is, you got to tell me, you know, how we make up and assume everything else goes back to normal. What do you do with 8 million barrels a day of jet fuel that simply isn't there?

So I look at this and say well, you know, yeah, things are getting better. Supply-demand balance, if you believe this and, by the way, I mean, I, as you know, Erik, I don't really care what the number of demand and supply is, I care, like the market cares in the balance. And so the balance says 1.4 million barrels a day. Okay? You know, that's, that's a nice deficit. It's not a huge deficit. It's certainly not the hugest deficit we've had on this chart, which only goes back to 2018. And on this particular chart, oil was only $80 a barrel for one month. So again, you know, how exactly does a similar supply demand deficit of 1.4 somehow magically get you into the stratosphere of prices? That's really, you know, I'm not saying it couldn't happen. I'm just saying, let's get some perspective on this. And that's what this chart provides.

If we look at the next slide, which is slide number three. This is, you know, kind of the same comparative inventory slide that I some version of which I show every time we talk and, you know, for those who aren't familiar with this, you can explain to people how to find out but, you know, on the macrovoices.com website there, you know, you can you can search for it, lots of explanations. But, the bottom line here is, when I look at this chart, Erik, I see 2020 was a huge anomaly. Biggest anomaly in history and our comparative inventory went way up, price went way down, and all those green dots migrated to the right and to the bottom, bottoming out where it says April $17, just below COVID price discovery excursion kind of steadily climbed back up to 40, which is where I said all along. I thought prices would balance out, stayed more or less than $40 to $50 range until basically November, December of 2020.

And then we move up to the blue, the larger blue circle is February, and the large yellow circle is March. And so basically, we've just come back to, come back to where we were. We've come back to the same blue yield curve that we were on for, you know, since basically 2015, 2016, 17, 18, 19. So I look at this, and I say well unless the market puts a completely different supply urgency on oil, and it moves back up to the red curve, which hasn't ruled the market for six years, then we can move to as big a comparative inventory deficit as there has ever been. And we're still not going to get much above $70 a barrel WTI. Could the market change its mind and say, Oh, my gosh, you know, push the alarm button, you know, we're scared. Sure, it could. And we can argue about whether, you know, if OPEC keeps their solidarity, will that happen or not? I don't think it will, you think it will? FIne. But all I'm saying is, you know, looking at where we are, where we have been for a long, long time. It just doesn't look to me like there's enough supply urgency going on, to get us very far off that blue curve.

Erik: So let's talk about what you see for the rest of this year in terms of price outlook. As we're recording on Monday, a few days before our listeners will hear this. We're looking at about $63.40 or so on WTI as we're recording this. Where are we headed? What do you think the highest price we'll see this year is?

Art: Well, you know, I'm going to say I don't know. But if we're talking WTI, I can see $70. I'm not sure that we stay at $70 very long. But, you know, like I said, I mean, we I don't see any reason based on where we are. I mean, gosh, the you know, the the kind of inventory draw we had last week, you know, wouldn't take very many of those to get us right out near the end of this this blue yield curve, which says $70. I do have a hard time right now, imagining what would have to happen to get us higher. Well, I know exactly what has to happen. I said it. The market would have to fundamentally restructure the price of oil and say we're back to 2011, 12,13 guys. You know, there's a serious oil shortage in the world. That's what would have to happen.

Erik: So you're not sold by Goldman Sachs at Dollar outlook for this year?

Art: I can see where they're coming from Erik. And as you know, I mean, I'm not a defender of Goldman Sachs but I think they're smart. And I think they have a lot of credible people. I think Jeff Curry is, you know, a smart guy. If we go and look at slide number six, this is a slightly different yield curve, this is OECD minus U.S. And this can be a little messy so I'm not gonna apologize for you know, for its messiness. But all I did here was, the colors a little different than the last one. The 2020 data here is in blue. And the blue yield curve corresponds to that. The blue yield curve and the the previous one, which is the 2016 to 19 is now red. Forget about that. The three large dots above where it says 2020 yield curve, the two greens and the light blue. Those are the three data points we have in 2021.

And so what I did was I said, well, let's go out to where EIA, etc forecast, OECD minus U.S. inventories, which is the far upper left hand, yellow circle and let's make that $80 dollars. Let's just say that Curry and company are right. And then I just scaled everything between the present and that and back again using EIA's forecast with a scalar in there, and I said, you

know, could it be? and the answer is Yeah, it can be. Again, this is Brent not WTI but that's fine. It could be. But even now, things don't go back to the previous higher supply urgency kinds of yield curve geometries that we were in, you know, back when oil prices, when Brent was $110 to $125. So, you know, it tells me qualitatively that yeah, Goldman could be right. I don't think they are. But they could be right. And we're still not going back to a situation that we lived through. In, you know, the 10 years ago with oil price.

Erik: Well, Art we've been going out of order here, I think we've covered every slide, except slide number five, which of course is the rig count, let's dive into this one.

Art: Right. So Erik, let me just say, before we talk about slide five, let's talk a little about, about price formation. So, what we look at every day in the market is price discovery. Okay, so I read Bloomberg, or Reuters, or Platts, or whatever and the headline usually tells me, oil price goes up $1.20 because of... You know, there's a causal event in the current event chronology, you know, that MBS had indigestion or that, you know, there was a big draw in the US, there's always some event, and that's fine. I mean, that's what traders trade on. Okay so that's, that's sort of the difference between weather and climate.

So price discovery, you know, traders as well give you this, if you know, if you give me that, and we play with that, and you know, maybe price goes up for a couple of days, maybe even a week comes back down, because nobody's willing to take that price anymore. And so price discovery is part of price formation. Price formation is the way the market looks at things, not just the trading piece of it. And so when the market says if there is a market, anthropomorphic market, which there isn't. But you know, humor me here, market says, I think we need to raise price. why does the market think we need to raise price? Because the market doesn't see adequate supply, given the global drilling activity, and it uses price as a signal to inspire or otherwise motivate producers to get busy and drill.

And so looking back over time, this chart, in slide five, it shows the US oil directed rig count. And again, you know, it's we can argue about whether that reflects the world or not, but it's not a bad proxy in my opinion. And we go to May of 2016, when the rig count dropped to, again, the US oil directed rig count, all offshore shale, everything dropped to 319. And so the market said okay guys, that ain't going to cut it, we need more drilling and so the price start drop started to rise. And WTI price is in blue and the rig count is an orange. So the price started to rise that eventually got to $71 WTI monthly average. I think that was probably in June or July of 2018. And sure enough, it worked, the rig count, it rose and rose and rose and it basically tripled. It went from 319 to, you know, to almost 1000.

But you look and when price increased from say, you know, $60 to $70. The rig count didn't follow suit, the rig count flattened out. And so the point is, is that increasing price, after a certain point doesn't get more rigs drilling because there's a mechanical limit, and a capital limit to how many wells can be drilled at a time. So you look at this thing and what it says is that, you know, during that whole period of shortage from early 16 to the end of 19. You know, the average WTI price was $54. Well, two, three weeks ago, the Dallas Fed took a survey of 120 or so U.S. oil

companies and said what price do you need to make money and they said 52 bucks. I don't know if that's the right number or not but that's They said, so we are now $12-$13 above what they need to make a profit. Does increasing price beyond the point they can make money necessarily get more wells drilled? And I say, the market says, No, it doesn't.

And so, you know, this is sort of like, you get on an elevator and, you know, guy pushes the 10th floor, and the doors haven't closed yet. And he decides to push the 10th floor again, and again, and again, well, you know, the elevator is already got the signal, man. You know, pushing 10, five times, six times, seven times, isn't going to get you there any faster. So the market has pushed the button, it said $65. And it can push the button over and over again, it can say $70, and it doesn't get the elevator moving any faster, the elevator is still gonna get there when it gets there. And that's to my way of thinking that's how price formation works. It's not a capricious thing. It can't be whatever somebody thinks that can be. I mean, they can think it can be whatever they want it to be. But again, markets are cheap. Markets don't want to pay any more than they have to pay. And I think markets know that making it $80 or making it $90 doesn't get more wells drilled.

Erik: Art, let's go back to slide two and take a look at these supply and demand graphs a little bit more detail. So you're saying that this demand projection of 99.45, or whatever the number is that's showing there for the fourth quarter of 21. That is reflective of dramatically reduced aviation. So in other words, what they're saying here is they expect a dramatic, huge first time ever, you know, massive outperformance of demand higher than it's ever been, before adjusting it for the aviation business being slowed down. Is that realistic? I mean, why would that be? Is it because we're expecting so much else that people can't fly? So they're driving instead? I mean, I'm having a hard time reconciling this.

Art: Yeah, I'm with you, Erik. I mean I don't know how much, you know, how much political thinking goes into OPEC's numbers and how much it's just, you know, straight technical work. But I look at, you know, the weekly data that the US publishes, and I mean, last week was, was pretty darn interesting. I mean, aside from the, you know, the big inventory draws and everything like that. That if you just looked at product supplied, how much stuff's coming out of U.S. refineries, we got to, you know, pre-COVID levels, actually got a little bit higher. When you consider everything, including, you know jet, gasoline, residual propane, distillate, other oils, all that stuff. You know, we actually got to like 105, or 106% of the difference between the 2020 minimum and the five year average. So, you know, we're all recovered, everything's back to normal.

Well, not exactly and when I say not, exactly, it's because the proportions of each one of those refined products is not equal. And I mean, as you know, you know, gasoline is the biggie. I mean gasoline is like, you know 45% of U.S. consumption. Something like residual is 1%. So, you know, they're, they're not all equal. But I guess the point is that as I look at this thing, and just look at transport fuels because those are really, you know, what drives the thing. Looking at gasoline and diesel together, that same measure of recovery from the minimum to the five year

average, It's 89%. Okay, that's good. But it sure not 100% and when I look at transport fuels, including jet, so you know, jet gasoline and diesel, were at 84%.

So if this were anything other than recovering from COVID, we would say this is a damn disaster. But we're so used to things being worse than bad, that this looks pretty good. And so the question that you know, that I would ask to OPEC is, how exactly is this gonna work, guys? How do you get from 84% of transport fuels to something approaching 100% in you know, what's left of the year, and I don't know the answer to that, but it seems like a stretch to me, it seems like a big stretch.

Erik: For my final question Art, I want to stretch the timeline out quite a bit here and talk about longer term. How we see this demand and supply balance being resolved over the next decade. Because a lot of people are in agreement that look, we got to do something about changing the world's dependence on fossil fuels and electrifying the economy. There seems to be pretty darn solid consensus around doing something to make the world a less fuel dependent place.

Some people think that that means that the price of oil and finished products is going to go down dramatically, because demand will be decreasing as we electrify. I tend to think this goes in the other direction, where we're going to have an energy crisis as we electrify because those people that are still stuck on gasoline vehicles are going to be buying gasoline at a time when the investment community already moved on from petroleum production and refining. And there's not enough capacity, because everybody thought it was being phased out. How do you see this? Do we end up with the last few years of petroleum being the primary energy source for the economy with expensive petroleum or with cheap petroleum?

Art: I read the, you know, the Wood MacKenzie report that, you know, said that oil is going to be you know, $40 a barrel by I can't remember 2040 or 2050 for the reasons that you just described, Erik. And, you know, my comment on Twitter was, you know, stunningly energy blind. And that's the way I look at it, what you're describing I, you know, just to be clear, I take climate change very seriously. I think it's a big problem. Bigger than a lot of people in certainly in my oil and gas industry do. I'm completely on board with, you know, getting more aggressive with renewables and electrifying things.

But then there's the pragmatic side of me, that says, well, let's make sure that everybody understands what they're signing up for. Because I am absolutely confident they don't. So the perception is, oh, well, this is going to be great. You know, we're just going to get rid of oil and gas and coal and all this nasty stuff. And we're going to somehow figure out, you know, how to electrify everything. And life is going to go on pretty much the way it is right now. You know, very high standards of living, you know, I want to turn on the football game, or the hockey game or the soccer game, you know, the power is there. You know, I want to go someplace, maybe I get in my Tesla, or my Volt or something instead of my gasoline powered car, and everything is just great. And what I'm saying is, no way! I mean, we are talking about...

Erik: We know you drive a Tesla on your trips to the oil tank.

Art: Yeah, right, exactly. I drive a Ford pickup that's powered by a Tesla engine. Yeah, as you know, it's just preposterous. But the point, Erik, is that what people have to understand is that an electric world has a much smaller multiplier effect of productivity. And so if I'm running the world on electricity that is increasingly powered by sun and wind, then my productivity factor is, you know, a 10th, or 20%, or maybe 30% of oil, gas and coa and that's great. But you can't get the same amount of work done. I've talked to you before and others about, you know, there's four and a half years of jewels or calories in a barrel of oil. And there's just, you know, by any arithmetic that you can imagine, there just isn't anything else as dense as oil that we know of right now in the world. And you want to go to a less dense energy source, you can do that. But you better expect lower productivity output. What does that mean in simple terms? It means basically, you're not going to have economic growth. There's just no way that the economy can grow. I mean, the economy, before oil, gas and coal. The world was basically in a subsistence economy and everybody was fine with that. Well, I mean, there's a lot of poverty, but people were generally fine with that because that's all they knew.

And all of a sudden, I mean, the Industrial Revolution was much more of an energy revolution than it was anything else. The technology simply was what it always is. It's a way of getting energy into work. And so what really happened was that with four and a half years of human labor and a barrel of oil, no matter what the price of gasoline is, you can just do a whole bunch more, for a whole lot less than you ever could before. And that's what made the world economy grow the way that it has, particularly since World War II. And if people expect to phase out that, you know, that that super adrenaline boost that you get from fossil energy into something that gives you, you know, not even a very good buzz, then you're wrong. And again, I'm not I'm not arguing whether it's a good thing or a bad thing. It's just physics.

And so what I fear is that people are going to, they're going to commit to this because that's the direction we're going. And then when they find out that, gee, not only isn't the economy growing, it's flat, or it's even declining. Well, you know, where's our Trump or Bolsonaro now to get rid of all these corrupt elites that lied to us? I mean, how many people who support renewable energy would also agree to support zero economic growth? I don't think very many, certainly not in the rank and file. So you know, back to your question, can we somehow retire 350 million gasoline and diesel burning vehicles in the United States in the time frame that people think we can? No way! And, and if you're right, Erik, and that the supply diminishes because there's no investment than gasoline and diesel become very expensive, and people are gonna be pissed for a different reason.

Erik: Well Art, I can't thank you enough for another terrific interview. Before I let you go tell us a little bit more about artberman.com. There's a free blog there, which I strongly recommend that everybody subscribe to. What else can they find there?

Art: Yeah, so aside from the blog, Erik. There are a number of relatively low price subscription options. I publish a weekly oil storage and comparative inventory report that gives you, you know, 10 or 15 charts and my latest insight. There's a similar product for natural gas storage and comparative inventory. And then there's a monthly newsletter, that gives you sort of a high level view of how things that have happened this month affect where oil and energy are taking us and, you know, all of those any of those products, you know, like the newsletter costs you something like 200 bucks a year. It's not a super expensive thing. That's what artberman.com is and most of the raw material is posted on Twitter. If you want to take the cheap seats, be sort of hard to put it all together without my interpretation, but I don't hold back too much in terms of putting my data out there.

Erik:
Well Art, we looking forward to getting you back on the show in a few months for another update. Patrick Ceresna and I will be back as MacroVoices continues right after this message from our sponsor.