



MACRO Voices

with hedge fund manager Erik Townsend

Art Berman: The world is still over-supplied with oil

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Erik: Joining me as this week's featured interview guest is petroleum geologist Art Berman. Now, for newer listeners who may not be familiar with Art's work, I encourage you to listen to Art's prior interviews. You can just go and type Art Berman into the search box at macrovoices.com and you'll find seven or eight prior appearances.

We are going to be making reference to "comparative inventory" which simply described the government inventory numbers that tell you whether the amount of oil in storage went up or down each week. That's not seasonally adjusted, which is what's really important in order to understand the relevance of that data. So Art uses a comparative inventory model which compares the amount of supply added or subtracted from storage to what the five-year moving average is for this week of the year in previous years. If you want a full description of how comparative inventory works, it is described in one of Art's prior interviews.

Art has sent us another fantastic slide deck. He's known for his graphs and charts. So be sure to download the chart deck and you'll find the link in your Research Roundup email. If you're not yet registered, just go to macrovoices.com and look for the [Download](#) link next to Art's picture on our home page.

Art, why don't we go ahead and dive into your slide deck, since everybody loves your charts and graphs. What's going on here, needless to say, since October we had a really big move down in oil prices. And we've retraced, I don't know, about half of that so far, back up in the mid-\$50s. Just today, as we're speaking on Wednesday afternoon, it was another big inventory day and prices are up to, I think, a cycle high 58 spot 35 as we're speaking. What's going on here?

Art: That's a good question, Erik. What's going on here is I think what we're seeing the effect of reduction in Saudi exports to the United States. So today's inventory draw was large, considering that we're in crude oil restocking season. So, ordinarily, at this time of year we ought to have about a 4-million barrel add. Instead we had about a 4-million barrel draw. So that resulted in a big change in comparative inventory. And that's what's going on.

The Saudis are engineering – manipulating, if you will – our inventory level for us. And their expectation, of course, is that this is going to result in an appreciable increase in oil price. I don't see that as being the likely outcome, but I applaud them for trying. I mean, this is what you have to do if you want oil prices to go – you've got to get the biggest consumer in the world to draw down his inventory. So that's what's going on.

But, like I said, the big picture always has to be held firmly in focus. And the big picture is that the world is oversupplied with oil. We have been oversupplied with oil for all of 2018, or most of it, and we remain so. And all of the efforts that are being taken by OPEC-plus – mostly in this case Saudi Arabia, UAE, and Russia – they need to be done. But I don't think, at least for the relatively near term, that they're going to change the fact that the world is oversupplied with oil. So, as a simple executive summary, that's where we're at.

Erik: Art, I want to pick up on that subject of the market being oversupplied and getting more oversupplied. US production has been increasing. But I've been watching both US production, which actually, finally, down-ticked after a whole bunch of increases. It was down just one little tick this week to 12 million barrels – even, still, biggest producer on earth. So we're really producing a lot of oil. A lot of people are expecting that to continue.

And, as I've been watching, I've noticed, on one hand, the rig count is starting to roll over and it's not increasing. And, of course, production tends to lag the rig count. But I remember, in some previous interviews, you've told us that rig count is not really as relevant as it used to be because the number of rigs and the number of wells being drilled isn't always the same.

So should we be concerned about the rig count rolling off and maybe that not adding more production? Or is there more than meets the eye to this picture?

Art: That's a really important question, Erik. And let me be clear, if I've been less than clear in the past. Rig count always matters.

I mean, the most relevant use of rig count is it tells you where capital expenditures are being allocated, if nothing else. So that's relevant. But the obvious connection is, if you reduce the rate of drilling, eventually you're going to reduce the rate of production. Nothing about modern technology is going to change the fundamental physics of that relationship.

Having said that, or those two things, yes, the rig count – and when we talk about rig count, let's face it, we're really talking about the Permian Basin. I mean, I track all the other plays, whether they're conventional or unconventional, but the Permian Basin is the big one.

Indeed, the number of rigs on tight oil plays has been going down and the Permian has flattened out, I guess you could say. But the lag issue that you mentioned in your question is key. And, maybe surprising to some, certainly surprising to me when I first worked this out – the lag between a rig going on a location and oil coming out of the well in the Permian Basin is a shocking seven months.

Now, some of that of course is taken up in the drilling. But a lot of that has got to do with drilling multiple wells on the same pad and not actually getting around to completing those wells until all the various well bores on the pad are done being drilled. So there is a very great lag of, like I said, something on the order of seven months average for the tight oil plays.

So what that says is that, even though the rig count is flattening, or possibly even rolling over, that says you've got at least seven months – or bracket that a little bit if you like – six or eight months or something like that – before we're going to see the effect of that reduction in rigs.

And then the next question you have to ask is, well, is that flattening or reduction enough to really make a difference? And the answer is, no, it's not. I mean, we have to see a substantial decline before the production starts to come off.

So, in summary, yes, rig count matters. No, not everybody understands how to use it. I understand, I think, how to use it, which is you've got to lag it and you've got to lag it appropriately.

And, finally, the rig count will affect the production in the Permian Basin and in general, but not for a while. So that's the point. We can do all these production cuts, you know, by Saudi Arabia, Russia, Canada, Venezuela, whomever, for reasons intended or unintended, and there's always a lag.

And as long as the Permian Basin keeps cranking out the oil, all you're really doing is slowing the rate of rise is what's happening, as opposed to actually reducing the supply of oil to the world.

Erik: Now, speaking of people opining on things which they may or may not be expert on, the *Wall Street Journal* had an article recently which got a lot of attention in the investment community, although I don't think it really said anything that was news to the oil industry. And it was essentially that the trend toward packing more and more wells into less acreage is going to result in dramatically lower production rates for the new wells coming on line.

Is there truth to that? And should investors be concerned about it? How does that affect the whole picture?

Art: There's obviously some truth to almost anything that sticks. That's just a truism, I suppose. The weakness in that argument is the assumption that all of those wells are producing from the exact same reservoir.

So the first point that I'll make is that, if you've got a great well – I don't care if it's a shale well or a convention well, I don't care what it is – if you've got a better than average well, that means that you, for whatever reason, have a larger than average drainage area around that well. So if you drill a second well on a general assumption that all the drainage areas are the same, and this one's bigger, then you drill a second well and you're essentially drilling an unnecessary well. You're drilling a well into a reservoir that might have been fully drained by the one existing well. So, basically, what you're doing by drilling a second well is you're accelerating the rate at which the oil is removed.

What the *Wall Street Journal* article doesn't really get into – two things – the first is, what if one

of those wells is drilled into a bed at level A and the second well is into a bed or a formation that's 200 feet below it. If they're draining different reservoirs, then the argument is null. It doesn't matter. And that is going on right now in a lot of these plays, that operators are drilling stacked reservoirs. So right away there's a qualification.

But the second issue is it depends on the well spacing. If the play is relatively mature, which is to say that you've pretty much drilled it on optimal well spacing, whatever that is – and let's just say for argument's sake that's putting laterals, say, 1,000 feet apart from each other – and you start drilling on reduced spacing, then the argument that they're making is absolutely true. You're interfering. You're draining an area that would have already been drained by the pre-existing wells.

The issue in the Permian Basin is that, surprisingly, most of the plays, certainly in the Western area, the Delaware Basin so-called, they're not anywhere near drilling those on any sort of optimal spacing yet. We've got a long way to go. They're not as mature as the Bakken and the Eagle Ford. So, while the statements and the assumption in the *Wall Street Journal* article are generically true, we're just not there yet. It depends on what the level of maturity is.

Bottom line is it's a good article and investors should be aware. They should have been aware a long time ago that more wells is not necessarily better. But that's not the pitch they were getting. So if all it does is wake them up to the fact that the less money you spend the more money you'll make, then that's good.

But I do think that in the case of the Permian it's probably not an issue yet.

Erik: Returning to Slide 2 in the deck, in your overview slides here – of course with today's action, the WTI price is almost \$2 higher than what you have shown on this chart. Are we on the way to a retrace all the way back to October prices in the mid-\$70s? Or do you think that maybe this bounce is not going to last? What's the eye-level overview, before we move on to the inventory numbers?

Art: Obviously, I'm guessing here. But, since you're asking me to speculate, yeah, I don't think it's going to last. I mean, this is a short-term reaction, as storage numbers always are. This is today. Tomorrow or the day after tomorrow, markets are going to re-think the reality of the situation and probably we're going to go back down.

But the bottom line, Erik, is that, using this comparative inventory approach, WTI has been a couple of dollars undervalued for the last several weeks. So if it goes up a dollar or two and even stays there, that's fine. That's where it ought to be.

What happened is from mid-August to October the markets went berserk on sentiment. Everybody was scared to death that we weren't going to have enough supply. Fair enough, sentiment isn't always misplaced. And that drove prices something like 20% higher than they should have been based on the comparative inventory yield curve approach.

So then everybody realized, well, okay, these sanctions on Iran are not going to be as crushing as we thought. They were granted waivers, etc. So then things overshot in the other direction and we went 15% or 20% below the value that should have been. Since then, things have been working their way back to approximately where they ought to be.

So I can't say what the market will do because I don't know the factors that will drive sentiment. But my sense is, no, we're not going back to the \$70–\$71–\$72 a barrel – at least not on any kind of a sustained basis.

We might get there for a week or two if people freak out. But I think markets right now are extremely conscious of the fact that the global economy isn't looking as good as we thought it might be looking, say, back in September. And that's going to be a continual weight on the ability of oil prices to move consistently higher.

People aren't forgetting about that. Nor are people ignorant of the fact that all of the major forecasting agencies, whatever you think about their forecasts – EIA, IEA, OPEC – they're all saying we're oversupplied. You know, those are factors that are all integrated into the longer term, which is to say more than a week or two estimate of where the market is going to go.

Erik: Let's go ahead and move into the comparative inventory information on Slide 3. Why don't you talk us through these charts and tell us what has developed since the last time we talked to you?

Art: Well, what's developed is, in some ways, more of the same. Certainly on the WTI side of things. And on the Brent side, what's developed is what I believe is a fairly substantial devaluation of the marginal barrel of Brent.

So if we look at Slide 3, the graph on the left is WTI. And, as I just talked you through, you can see there are two fairly large red dots and a black arrow on the left-hand side – those are the high points of oil price.

And you can see – when you get over to that September \$71, you're way above the blue line, which is the yield curve, which is approximately where all this data says we should be. Then we went way down below that in December. And now we've worked our way back up to it.

And I don't have, of course, the charts for today with the latest integrated data, but at \$58 we're right on track. We're right on the yield curve. We're exactly where the yield curve says the price ought to be.

The bad news, if you're an oil bull, is that that yield curve is pretty flat. So if you compare its slope, moving off to the left-hand side of the graph to the red yield curve, which was 2014–17, that one is a lot steeper. And those different slopes reflect the market's sense of urgency about getting more wells drilled.

So the blue slope, the one we're on now, the market is saying, you know what, we care a little bit more than we did before if inventories are going down but we don't feel the pain yet. What that means is that you can move comparative inventory down a lot and you don't raise the price by very much.

I want to emphasize, before I talk about the one on the right, what some of the words in this slide say. And that is the price collapse we saw in October through December was not an adjustment. This was not some super-superfluous event that ended and now it's over and we're back to where things were.

This was a very substantial and significant structural change in the way that the market values oil. And that is not going to go away. We're not resetting to where we were before all that happened. That was an event every bit as significant as the 2014–15 oil price collapse.

And people will say, well, wait a minute, the price of oil went from \$100 to \$50 in that case and we didn't see anything like this. Well, if you actually compare the rates of change, how much price came off every day, if you look at the percent of change, you'll see that, in fact, it was in the same order of magnitude. And, for those who care to look, in the slide deck that I showed up in Vancouver, I've got tables in one of the slides that actually shows that.

So what happened there is that this blue yield curve developed for WTI beginning some time back in actually mid-2017 – Brent stayed kind of on the same higher, steeper, more urgent trajectory until this oil price collapse in '18.

And what you can see looking at the graph on the right, you can see the bright red dot, which says September \$79, and right next to it October – so those were the high oil prices. They were falling just below the red yield curve.

And then all of a sudden, November, the orange dot is way down below. December, the blue dot is even further below. January kind of moves sideways and February moves up a little bit.

What's happened is that Brent has gone through the same devaluation process, just here in the last few months, that WTI did a year and a half ago. And so the light blue dashed line on the right-hand graph, which I say "2019 Yield Curve?" – it's a little early to say with any kind of authority that's where we're going, but that's where I think we're going.

What does that mean? That means that Brent has been adjusted downward, like, 20% since September. And I'm saying I think it's probably going to stay somewhere in that range.

So, again, urgency. That slope is flat. It's as flat as the WTI slope. So you can pull a whole lot of oil out of inventory, drop comparative inventory a bunch, and you're not going to get back to \$70 Brent for a long time. You're going to have to really, really draw down inventory to get there.

Therefore, what these two graphs on this very important slide say is, if any of this is reasonable – and I think it is – when people tell you, oh yeah, Brent is going to be back to \$90 and WTI is going to be at \$80–\$85 – something real fundamentally structurally different is going to have to happen for that to go on. We're going to have to throw all this away; we're going to have to break through these rules like we did the past ones, which did happen.

But, based on this, I'm saying uh-uh. I think that both WTI and Brent are going to slowly increase, but I don't think that we're going to see Brent much above \$70 and WTI much above \$60.

And, by the way, not that it matters, but that's the view of EIA, and see what IEA has to say when they come out with their next report. But those agencies and OPEC are saying, yeah, we're going to have real low oil prices for 2019. And I agree.

Erik: Just for the benefit of anyone listening who may not yet be familiar with the concept of what these yield curves depict conceptually and what all the dots mean, again, Art's prior interviews, if you put in Art Berman at the search box on macrovoices.com, you can find a full description of the comparative inventory system.

Let's move on to Slide 4. Production surplus. Why don't we first define what we mean by a production surplus? And then talk about what this chart is telling us.

Art: Production surplus just says that, when I take the world's production and subtract the world's consumption, what's left is either a production surplus or a production deficit. So if consumption is less than production, I've got a surplus.

And some people might be saying, well, isn't that the same as supply and demand? And the answer is, it's close but it's not quite the same. But, for right now, if you want to think about it that way, fair enough. Just remember it's not quite the same.

And what I've done is said I don't necessarily believe in forecasts, although I'm sure glad somebody does them. I don't criticize forecasts like a lot of people in our business do because they're wrong – of course a forecast is going to be wrong.

But what I've done here is, instead of showing you every quarter production surplus/production deficit, I've chosen some secular trends that I've identified and I've averaged through those.

For instance, the large blue block in the middle of the graph that says Production Surplus, that's the third quarter of 2014 through the fourth quarter of 2016. And the average surplus across all that period of time of, like, two years, is 820,000 barrels per day – a healthy surplus.

Look at the blue curve, which is Brent price. And, guess what? You've got too much oil, the price got real low.

And similarly for the production deficits. It shows up right after that, which is all of 2017 through the middle of 2018. Yeah, the price went up because we actually were consuming a little bit more than we produced.

We've now moved into a period from, beginning in the third quarter of 2018, where, up until now – and the black line is real and everything to the right is forecast – but we're back into a surplus. It's not the same magnitude of surplus as we saw in 2014–16. It's 450,000 barrels a day or so.

Still worth paying attention to. But, more importantly – and this is notional because we don't know the future – but our anticipation, or the IEA/EIA/OPEC data that I've used to develop this, it's saying, yeah, the situation is going to persist probably at about the same level through about 2020.

So that's all pretty significant. If you want to believe the hype about oil prices going up a lot, well you've got to square it with the fact that all the best analysis that we can do about the future suggests that we're going to be oversupplied for the next almost two years.

And if you still think oil prices are going to go up, well, more power to you. I'm not saying you're wrong. I'm just saying that you've got to calibrate your expectations with something real. And that's what this is all about.

Erik: And I think a related subject, although it's very, very early in this story, is finally maybe we're seeing a turning point for Venezuela. It certainly doesn't mean they're going to be producing a lot of oil next month. But if things turn around for the country that is the most oil-rich nation on earth, and three-four-five years from now, if they go back to producing 4 million barrels a day, that really makes a big difference.

Do the forecasts that we see here reflect expectations about situations like Venezuela? Or do they only reflect current production in facilities that are actually working?

Art: No, Erik, it's the former. And, again, it's easy to criticize forecasts, because the guys that make them know they are going to be wrong. But the people that do these forecasts at all of those three agencies, these are smart people. Very sophisticated, knowledgeable people with extremely sophisticated software.

Now, having said all that, I'm not endorsing it and saying believe it. I'm just saying respect it. These guys are thinking through, they're thinking ahead.

The title of this particular graph says EIA Revised Production Surplus 170,000 barrels a day lower. Well, that's based on the short-term energy outlook that was published on Tuesday, yesterday, compared to a month ago.

So, on the one hand, you say, see, they were wrong. Okay, so what they're doing is they're saying, you know what? In the month that's passed, we've seen that OPEC – Saudi Arabia in particular – has been extremely aggressive in their production cuts and their targeted exports. And we now think that's going to have a bigger influence going forward so that production surplus has shrunk from about 600,000 barrels a day to about 450,000 barrels a day.

To me that's evidence that this is a dynamic process and the modelers are trying their best to accommodate.

Now, you mentioned Venezuela. Yeah, of course Venezuela's oil is mostly heavy and we're in short supply on heavy oil. So that's important. But it's also important to understand that, just because Venezuela starts producing 4 million barrels a day again, doesn't mean that there's necessarily going to be a market. Because others have stepped into that breach, like Canada, for instance.

But I think a more immediate factor to consider is Libya. Libya's production is back up over a million barrels a day. Nobody is talking much about Libya right now because we're all focused on Venezuela and the Alberta production caps and all that stuff.

But Libya is a huge oil producer. For most of the last couple of years these refineries and pipelines have been under attack by rebels and all sorts of civil unrest. And now we're hearing that General Haftar appears to have finally gotten the upper hand. Now, if Libya continues to produce a million barrels a day or more, that changes things today, not in four or five years. And I think we're seeing that.

We'll get to a slide here in a few minutes that shows the change in OPEC's spare capacity. And, despite all the cuts, their spare capacity was flat this month. It didn't increase with all the cuts. And I think that's got a lot to do with Libya's production coming back strong – for now. It could all end tomorrow, as we've seen many times in the past several years.

Erik: Let's go ahead and move on to Slide 5. A lot of people are saying that OPEC doesn't matter anymore, that OPEC no longer has the ability to control the oil price the way they used to. Although, certainly, the price responds to their statements. Tell us what you've got on the graph here on Slide 5.

Art: This is an incremental chart. And I do incremental because it makes changes much more obvious. It doesn't in any way corrupt the data. All I've done here is I've just taken the minimum amount, the smallest amount of OPEC's spare capacity, and subtracted it from all the monthly values, added it back in to the number which is called the base.

So what this chart shows is that spare capacity was relatively high in 2017, 2018 – which is to say that those countries were producing less. And that resulted in the Brent price climbing from whatever it was up to – from the spring of 2017, all the way up to \$80 a barrel or so for a brief period in October 2018.

So OPEC's spare capacity goes down and the price changes. They reversed that process in November and they started adding production and the price collapsed.

I think the point of this is that people want to project their disdain and their anger at OPEC and say they don't matter anymore. And I'm not endorsing OPEC, I'm not a supporter or a detractor. All I'm saying is that when OPEC cuts production, price goes up. And when OPEC adds production, the price goes down. And if people don't want to acknowledge that, well that's great. Go ahead. But I say that what OPEC does matters.

Now, what it true is that there was a time when OPEC was a much more substantial supplier in the sense that, before the shale revolution so-called, there wasn't a lot of extra production that could be called on outside of OPEC. That's changed.

So it is true that OPEC can't have its way in terms of making prices move from some, say, relatively low level to \$20 a barrel higher. It used to be, if OPEC said we're cutting production, the price of WTI would jump \$10. Now when they say it, maybe it goes up \$1.

That's the market acknowledging that there is a much broader diversity of supply than there used to be. So in that sense, OPEC isn't as strong as it used to be. It only says, okay, they can't radically change the price of oil, but by changing the supply they can certainly change the percentage up and down quite a bit. So that's the only thing.

If you look at the last two dots on the spare capacity, their cuts have moved spare capacity up to 2.1 million barrels a day in January. And it hadn't moved in February, and that's because of Libya coming on.

If Libya hadn't come back on, then spare capacity would have increased quite a bit more, which is to say production from OPEC might have gone down and the price might have gone up higher than it has rebounded since the first of the year.

Erik: Moving on to Slide 6, Art, we're looking at US output. I'm curious what your overall view is, because this is something I've been pondering a lot. It seems to me like the rig count is starting to level off. We're already at 12 million barrels.

Is there really an incentive for the industry to try to get to 14 million barrels? Or are we going to see a leveling off of this huge increase in production that's occurred in the United States in the last few year?

Art: That's the right question to ask, Erik, and the answer is no one knows. But the chart on the left goes out through the end of 2020. This is EIA's forecast. What EIA is telling us here is that they believe that production will flatten out sometime in the spring, maybe in another couple of months, say May. It will stop growing, flatten out, maybe decline a little bit.

And then well out into – the same thing they see happening again in 2020. It will grow a little bit in early 2020, then flatten out. So I think this chart is reflecting the fact that, no, we can't continue to grow.

And it's an open question: Is it economic incentive that says we're not going to? Or are there actual limits on US production growth? I'm going to vote for the latter. I don't think it's a bottomless pit, by any means.

In Vancouver and elsewhere, I've taking substantial issue with the kind of production forecast that EIA has done for the tight oil plays and the Permian Basin. I just don't understand how they can possibly support those things. But, again, I respect them. So, whatever.

But the answer to your question is: It's going to slow and it probably will decline. And that was the crux of the discussion we had in the beginning about the rig count falling off. It's got to have an effect.

So you could say, well, production in February actually fell a little bit. Is that the beginning of all of this? And the answer is, well, okay, maybe. But the graph on the right is showing year-over-year. And we're seeing a decline in the growth rate. That doesn't mean we're seeing a decline in growth.

February was 1.6 million barrels a day more than in February a year ago. That's huge. That's a tremendous increase. So what these two charts say overall is that we're not going to grow at the rates that we have. But we're going to continue to grow. That's the message that I take out of this.

Erik: This was, of course, a discussion about US production. Let's move on to world production on Slide 7. What are these charts telling us?

Art: World production is telling us a slightly more comforting story, if the goal is less overproduction. So world production has declined 1.75 million barrels a day since October.

Now, an important point: US production was crude oil and condensate; world production is liquids. So they're not exactly likes to likes. And, of course, liquids includes all kinds of stuff like natural gas liquids, like biofuels, and a lot of other stuff. But, still, there is clearly a decline going on in world liquids production.

But look at the year-over-year on the right, the chart with the nice greens and golds. It's a fairly substantial change, more substantial change in the rate of growth. But we still added 1.2 million barrels a day more in February than we did in February a year ago.

So the message to these two slides, 6 and 7, the message is we're slowing down but we're still oversupplied. We're still producing a whole lot more oil this last month than we did a year ago at the same time. So we've got a way to go to reduce the oversupply.

Erik: Moving on to Slide 8, a subject near and dear to my heart, forward curves. What are you looking at here?

Art: What I'm looking at, Erik, is that Brent and WTI seem to be going in really, really different directions. And this is not anything that developed a week ago. The big picture, when you look at both of these – WTI is on the left and Brent is on the right – is that WTI is in pretty darned respectful contango out through the end of 2019 and then it moves off into backwardation. That's not a good signal if you expect to see WTI price rise very much at all.

Looking over at the graph on the right, at Brent, we see pretty much exactly the opposite. The latest curve on the right – and they're both red, March 8 in both cases – March 8's Brent curve is pretty strong to moderate backwardation right out of the gate, front-month. And that persists all the way through to the end of this year and then goes into even stronger backwardation.

So these two sets of forward curves that go from the beginning of January – and not exactly every week but just showing the highlights – they're saying that, apparently, demand for Brent is viewed by the market as more urgent than demand for WTI. And that doesn't surprise me at all. This is a market signal.

And the issue there is that WTI is light oil. And the world doesn't need light oil as much as it does the intermediate grade that represents Brent that you can stick right into a refinery without having to blend and do all kinds of other stuff. So I think that's an important message. Oil quality matters. And I think that's what's being said here.

There is also an issue with supply. The market is telling the US, slow down, you guys. Cool it. We're going to put you in contango until you get the message.

But I think the stronger issue is oil quality with the secondary issue being supply.

Erik: And, of course, sentiment in oil markets can be measured by outstanding long and short positions that exist in the futures market.

Moving on to Slide 9, what are we looking at on these charts here?

Art: The one on the left, the blue and the gold, that is combined Brent + WTI, so we're looking at long and short in blue and gold and then net long in the yellow curve. And the right-hand curve is WTI. And here we're looking at net long in the blue and WTI price in the red.

The point of these is that, for both net long and long/short etc. for Brent and WTI, those positions drop way off as prices slowly declined and then collapsed towards the end of last year and now they're coming back. They're moving back up. Which, if you don't look too carefully at it, is an optimistic signal.

Contrast that with what we're seeing on the chart on the right. These are normalized net long positions, they're normalized by open interest. What we see is that net long positions on WTI have just about collapsed. And they're not coming back.

I emphasized that with the black lines showing the average 2018 net longs and the average 2019 net longs. The net longs in 2019 are 93% lower than they were in 2018. So, again, for the goals on the WTI side, not that managed money rules all, but it's an indicator of how the markets feel. It's an indicator of market sentiment. I'd say that the market isn't feeling too good about WTI right now. In fact, that's very close to zero – really, really low there.

Now, I said if you don't look too carefully at the Brent-WTI. And what I meant by that is, yeah, these are two markets combined so it is always a little bit confusing, but what I take away from this is that we're adding more shorts. The net longs are increasing, but for a couple of weeks there it was all longs and the shorts were coming off and coming off, or at least staying even.

And now what we're seeing is people are starting to increase their short bets on Brent + WTI. Again, that's just reflecting kind of a doubtful caution by the markets that Brent is actually going to go up that much too.

Erik: And of course these are measures of investor sentiment as to where people are positioned in the market.

Moving on to Slide 10, we're looking at the Brent-WTI spread. What are these charts telling us?

Art: This gets back to oil quality to a large extent and, to a somewhat lesser extent, to supply. The chart on the left, what we're looking at here is the Brent premium to WTI, just the difference between the two futures prices on a weekly basis. And what we see is that that premium got up to a maximum in late October, went pretty darned high again in mid-February. It's dropped off a little bit. But, overall, that premium is staying well above the five-year average, which is shown in the red curves.

What that says to me is that markets are recognizing that WTI, because of its light nature, the fact that you can't make a lot of diesel out of it, it's just not as valuable, it's just not as useful. That we need Brent more than – we're willing to pay more for Brent than we're willing to pay for WTI. That's what it says.

And the graph on the right is really just kind of taking the same information, it's taking the positive Brent premium compared to the five-year average, which is the blue, and the negative Brent premium versus the five-year average and putting it in gold. So you can just see it more graphically.

Of course the standout feature of this chart is what it says about tight oil development when the Brent premium got up to almost \$25 per barrel over WTI way back in 2011. I don't think

we're going to see a repeat of that. But the point is that ever since really early in 2018, that preference, that sense of greater demand and therefore higher price for Brent has remained quite strong.

So oil quality, I think, is the message of these two charts.

Erik: Moving on to Slide 11, the Permian Basin has been really the engine of growth for US oil production. But you're saying that the production may decline in coming months. How does that jibe with the EIA forecast for increasing production through 2020 overall?

Art: I'd love to have somebody from EIA on this call with us, Erik, because I don't know how to answer that. But my sense of it is that EIA just takes production and they think of reasons why it shouldn't increase at the rate that it has been – and it has been on a tear for several years now. And they're just assuming for some reason that it can keep on going up. Well, okay, fine. I'm a little bit more objective and live in the real world.

Let's look at the graph on the right first because maybe it's easier. What I've shown here is production in green and, yeah, it's been going to the moon. That rate of increase in 2017–18 is just astonishing.

But I'm going beyond the rig count here a little bit and I'm showing new producing wells. So you drill a well and you've got to bring it on production. I told you about the rig count and how there's a lag and all that. So I'm showing new producing wells, because rigs don't produce oil, wells do. People seem to forget that.

What we're seeing is that the number of new producing wells added each month is actually declining on a quarterly basis. That's what that shows. Okay, that's a real good indication that production is going to have to at least flatten in response to that.

And there's a million arguments – well, you know, the newer wells have higher IPs, higher initial rates, and you're averaging older production with newer. Nonetheless, just as a fundamental benchmark, if you're adding fewer wells, eventually production is going to come down.

Now the graph on the left looks simple enough. It's kind of complicated. What I've done there is I've taken the rig count, which is in blue, and that's absolute. Anybody can reproduce that curve.

And what it's showing is what you noted in the beginning of the conversation which is that the rig count, the blue line, is declining at a very, very slow rate. It may have actually turned over a little bit in the last full month of data that we have here, which is January 2019.

I've lagged production back by seven months so that I can get a match between the two. And what that says is that, if you believe there is a correlation between the two – and I do – that says that we're going to see production mimic the flattening, the slower rate of growth in the

rig count.

And, as I said in the beginning, when should we expect that? Well, it's going to be a while. It's going to be six or seven months. But it all just goes to show that eventually market forces do rule.

And for as enthusiastic as you want to be about the production potential of the Permian Basin, eventually investors are going to put their foot down and say, look guys, we're not going to give you any more money unless you start making some money for us. That's an important message.

That's not something I think that you ordinarily get from the *Wall Street Journal*. And I read the *Wall Street Journal* every day, so I'm not disparaging them at all. This takes it a little bit deeper.

Erik: And in the humor department, will capital discipline finally be imposed on US E&P companies? I got a feeling I know the answer, but go ahead. Tell us what Slide 12 is about.

Art: Slide 12 is an attempt to show that there is a school of thought out there that says that the investment community is abandoning placements of equity and bonds purchases for the shale plays. And, yeah, I agree, that's what the data shows.

But I've been wrong so many times in the past when I've thought, okay, this is finally the day of reckoning and the capital enablers are going to cut them off. And they never do. Something always happens. These guys are smart, they're resourceful.

So, just to kind of make this real simple, every couple of months there is a thread in the industry that, okay, now it's finally going to happen. My point is it never does. And if it does, that would be great, but I'll believe it when it happens.

So I think that the expectation of capital discipline, if the capital discipline comes, it will not be because the companies decide to get good. It's going to be because investors stop giving them money. That's the essence of Slide 12.

Erik: Moving on to Slide 13, let's talk a little bit about growth, not in the shale patch but conventional and offshore development.

Art: This is real important and we don't see a lot of press on this. This is some data from Rystad Energy. What they're showing here is that we have a tremendous amount of crude reserves offshore whose development was put on hold during the period of low oil prices.

Well, that's all starting to change and the big companies are going back in. And if you look at the newly sanctioned projects that are scheduled for 2019, if this comes to pass that's 46 billion barrels of oil equivalent that's already been found – this is not exploratory work – that the big companies in the offshore plan to develop.

So you start to say, well, it's looking hopeful. The shale plays might be cooling it a little bit for a variety of reasons. OPEC is certainly cutting back a lot, reducing exports. So maybe we're going to get back in balance. And then I said, well, yeah, but then there's Libya.

Well, yeah, but maybe even more significantly – you know the deep water is the big supply engine, has been for a long time. Approved reserves out there kind of went on hold for several years. And if we go out and develop, let's say even half of the 46 billion barrels of oil equivalent over the next couple of years, that's just going to add to the oversupply. You've got to keep the big picture in mind.

Erik: And, finally, on Slide 14, it looks like the cost of drilling as well as completing wells is increasing, along with oil prices. What's going on in this final chart?

Art: I think it's called oilfield services. Oilfield services have been in survival mode since the oil price collapsed. They've been giving out their work at a loss just to have cash flow. And many of the bold claims of cutting costs by the E&P companies, as I've said in many interviews with you, Erik, some of it's real but most of it is just a depression in the oilfield service companies.

So people that think that costs are going to continue to go down need to look at this graph. This is Producer Price Index for drilling oil and gas wells. This is an Art Berman here, this is the St. Louis Federal Reserve Bank, who keep track of these costs.

And what they're showing is that those costs dropped 42% from the time that oil prices collapsed until late in 2016. And, since then, they've increased 20%. So the oilfield service companies, the Schlumbergers, the Halliburtons, etc., they're now saying, okay, you guys are getting a higher price, so time for us to get our higher price too.

What's that mean? All it means is don't believe that prices go down forever. They don't. This is a standard business cycle. And, as the costs go up, unless prices go up correspondingly, that means that the companies are going to be making less profits.

So, again, just trying to put the whole picture into perspective. So the big picture that we want to preserve from all of this is that the world is oversupplied with oil, probably will remain oversupplied for much of if not most of 2019, possibly into 2020.

Let's temper our expectations of higher oil prices with that big oversupply issue with the fact that we've got comparative inventory data that says, even if we draw down reserves a lot, that market sense of urgency is relatively low, which means that prices will increase but they probably won't increase as spectacularly as people think.

The big variables in the equation on supply, other than OPEC, it's shale and it's also deep water. Let's not forget this. We haven't talked about it much over the last couple of years, the big source of proved reserves. All you've got to do is go out and develop them. And if wells are costing more to develop by 20%, then that means that it's going to be harder for the E&P

companies to deliver a profit.

So that's the big picture message that I want people to try to understand as they weigh all this daily and weekly information, some of which seems like noise.

Erik: Well, Art, we've run a little bit over time but I didn't want to cut you off because this is such great content.

Before we let you go, though, I want to mention to our listeners you have a blog at artberman.com which is absolutely free. It's probably one of the very best free investment information resources I know of anywhere in the world. So, folks, if you're interested in the oil market and you haven't already subscribed for free at artberman.com, you're crazy not to do so.

In the meantime, Art, I didn't even realize in some of our past interviews you also have a paid service that goes beyond what the blog offers. Tell us a little bit about that, what's on offer, and where people can find out more about it.

Art: Well, the best way to get through to that is on the website artberman.com. There's a button up at the top called [Contact Art](#).

As you know, Erik, I've shied away from advertising even myself on my website. But I've got a whole range of services from a weekly newsletter, a monthly newsletter, all the way up to a premium service which includes this kind of content and more, including phone time and consulting time with me. So you can get the low end of my services for a couple of hundred dollars a month, the high end gets into a couple of thousand dollars a month. Whatever suits you, there is a lot more underneath the hood than just the blogs and the tweets, which are, if you know how to put them together, an awful lot of it is there. But most people don't.

Erik: Well, we look forward to having you back on the program soon. In the meantime, we encourage everyone to follow you on Twitter. Let everyone know your Twitter handle before we say goodbye.

Art: It's [@aeberman12](https://twitter.com/aeberman12).

Erik: Fantastic. Thanks again, Art. Patrick Ceresna and I will be back as MacroVoices continues, right here at macrovoices.com.