US Power Utilities & IPPs

The Unintended Consequences of the MATS Remand (Includes Call Transcript)

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A litany of unexpected twists from latest remand of EPA's MATS rules

We held our latest conference call with the team at Crowell & Moring to examine the unexpected implications of the latest remand of EPA's Mercury and Air Toxics Standards (MATS) by the Supreme Court. First, the remand eliminates a key legal challenge to the validity of the forthcoming finalization of the Clean Power Plan (CPP), which had been challenged on the concern of simultaneous imposition of rules under both sections 112 (eg- MATS) and 111 (CPP) of the Clean Air Act (CAA). Legal challenges to CPP (which are inevitable) will likely use the uncertainty over MATS as dry powder, given the EPA has no authority to issue a standard for existing sources under Section 111d as long as there is another regulation that controls emissions of hazardous air pollutants from the same-source category already on the books.

Resetting the rules under MATS could trigger yet more stringent targets

Second, eventual re-implementation of the MATS rules including a cost-benefit framework (required in the remand) could result in a re-measurement of 'inputs', including the re-establishment of the coal portfolio peer group used to create the original targets. This ultimately could drive a 'doubling down' on embedded standards, implying a yet more stringent version of MATS-related required retrofits, likely targeting the remainder of unscrubbed units in the US, namely Western PRB plants.

An unusual set of positions could form in the latest remand

This all lends itself to an unexpected twist to the tale – the EPA may in fact push for a MATS vacatur rather than a remand so as to preserve the viability of the CPP; whereas the industry faction challenging CPP could push to settle for a remand rather than a vacatur so that they can continue to use MATS as a tool to push for a CPP stay. Mr. Thomas Lorenzen confirmed on the call that the EPA is allowed to ask for a vacatur of its own rule, and has in fact done so in the past. A further question is how utilities will align – seeing a desire to maintain rules, to hold up power prices via forced supply rationalization, as well as maintain fodder to blocking wider CPP implementation, and lastly, to limit re-establishment of MATS standards.

So, will it be a vacatur or further remand back to EPA at the D.C. Circuit?

If MATS is remanded to EPA, then it will continue to be an effective regulation while EPA reconsiders in parallel the cost question; however, if it is vacated, then it would cease to exist and the EPA would need to re-promulgate MATS after undertaking the cost analysis. According to Mr. Lorenzen, once the docket goes back to the D.C. Circuit, it will go back to the same panel as before, which constituted Judges Garland, Rogers and Kavanaugh. Mr. Lorenzen also opines given their past view on similar issues that Judge Rogers is likely to favor remanding MATS to the EPA, whereas Judge Kavanaugh not being a keen fan of the regulation will likely favor vacating. This leaves Judge Garland, the Chief Judge of the Court, as key for the future of MATS – his views on the topic are more uncertain yet, according to Mr. Lorenzen.

Does cost-benefit matter for implementing the carbon clean power plan?

Not really, as the rules already contain a cost consideration. Rather the real question is whether the courts will continue to take a more active role in interpreting vague language within the EPA's statues. Given the significant impacts from the Clean Power Plan, the group at Crowell & Moring wouldn't doubt it.

A Stronger Version of MATS?

It remains entirely possible that EPA could see fit to allow MATS to be vacated *and abandoned* (implicitly or explicitly?) in order to both protect the Clean Power Plan from legal challenge under the Clean Air Act (as a prohibited simultaneous regulation a pollutant under multiple sections of the law) and to allow the EPA to focus on the CPP going forward. This may in fact be the best course of action given that more than 90% of MATS retirements and retrofitting has already been irreversibly accomplished. Nevertheless, a multi-year MATS re-write would likely force EPA to retrigger its evaluation of the MATS emissions criteria off the existing portfolio (using just a portfolio of existing assets, rather than the wider portfolio prior to recent retirements). Ultimately, we see the EPA as biased to deal with the remand in a manner that has the least impact on existing rules, likely suggesting simply layering in a cost analysis could be sufficient. *Ultimately, we see this latest remand as a clear case to be careful of what the industry wishes for given the potential widespread implications*.

While EPA may well choose to abandon MATS in favor of a CPP focus, a re-write of MATS would likely be much stricter than the current rule

We understand EPA is biased to deal with the remand in the least laborious method

- **Could we be looking at the next wave of MATS retirements?** In the event the rule is completely vacated by the D.C. Circuit Court, EPA could re-enter a two-year cycle for proposing a draft and final rule – with a subsequent three-year compliance period (i.e. – would not be before ~2022 realistically for implementation). In this instance, we foresee a 'second wave' of coal plant retirements related to updated targets.

- **Could PRB be targeted in MATS 'Round 2'?** With the bulk of the remaining country's PRB portfolio the only 'unscrubbed' capacity left, the question is if any revised standards for MATS would actually have a disproportionate impact on Western coals (in contrast to the first round of MATS regulations, which had a predominantly Eastern impact). We suspect those plants that were just 'squeaking by' in meeting the MATS targets on the first round (eg – using TRONA, etc to meet the SO_2 and HCl targets) would be those most impacted by any future iteration of regulations. Namely, we see some of DYN's Illinois portfolio as well as principally the NRG Edison Mission portfolio as potentially disproportionately impacted by any such future regulations.

Namely, we see some of DYN's Illinois portfolio as well as principally the NRG Edison Mission portfolio as potentially disproportionately impacted any re-write of MATS

- **Potential to have further carve-outs to mute impact if pursue new MATS ultimately.** While the Supreme Court nominally claimed that the EPA did not conduct a cost-benefit analysis on the regulations, we see the reality as being more nuanced in which the EPA explicitly attempted to 'carve out' certain exemptions to ease the impact of the MATS regulations. As such, we see a potential avenue in which separate standards for each coal type could be adopted to mitigate the impact.

- **Just waiting for a Republican administration?** The question remains as to whether a future possible Republican administration would leverage the uncertainty of any pending MATS regulations to weaken any implementation. We suspect the latitude afforded under the potential carve-outs in the regulations as well as the newly imposed requirements to demonstrate the cost/benefit of any regulations could allow a future administration sufficient latitude to avoid additional meaningful impact to the coal sector. *To be clear, the rules simply require the costs to be shown, not that the benefits outweigh as well.*

- **Can EPA 'abandon' the rules? A less likely avenue.** EPA could indeed move to abandon the final rule. There could be an argument the rules have largely been completed, with more than 80% of impacted plants having complied. However, this avenue would potentially make CPP more amenable to implicate given the 'one bite' rule under section 112 vs. section 111. *A decision not to abandon would suggest EPA remains convinced they have authority to regulate plants under both statutes without issue.*

- **Including Sunk costs in any cost consideration:** Can you count it towards compliance under the cost consideration? This appears to be a key angle in considering any future assessment.

- **Benefits vs co-benefits debate:** In remanding MATS back to the D.C. Circuit court, the Supreme Court opined it was unreasonable for EPA not to consider costs in making its "appropriate and necessary" determination: specifically, because the Clean Air Act gives EPA room to consider costs as a matter of administrative practice. However, while discussing cost-benefits, the court only considered primary direct benefits of regulating mercury and not any secondary co-benefits. EPA has estimated an annual cost to industry of ~$9.6bn from the rules vs. primary benefits in the $4-6bn range from regulating mercury alone; this balloons to $37-90bn per year when including secondary co-benefits, such as the incidental reduction of emissions of other non-hazardous air pollutants, for example nitrous oxide and sulfur dioxide. According to Mr. Jared Fish, if secondary benefits are included, the "appropriate and necessary" box gets easily checked. Even otherwise, the Supreme Court has not made a ruling on whether benefits or co-benefits should be considered: that has been left open for the future. As things stand currently, the EPA simply has to show that it has considered costs, not that they necessarily outweigh the benefits.

- **Timelines: don't expect swift resolution yet.** The process of the docket going from the Supreme Court to the D.C. Circuit will take about 30 days. Once arrived, the Court will issue an order to involve parties asking them to propose motions to govern future proceedings; and whether supplemental briefings are required. Given the timing coincides with the summer recess; this process may take longer than usual. By the time the Court will be ruling on the issue, it will be September – right around the time the CPP is set to be introduced to the Federal Register. In the event MATS gets vacated, it would take the EPA significant time to recalibrate its cost-benefit analysis using updated data etc.; so under that scenario a MATS V2 would require about a year to verify "appropriate and necessary" by EPA, and another couple of years by the time it is a regulation.

MATS: Taking Another Dive Into Extensions

As a follow-up to our recent note, 6/30/15 The Real Impacts of the Court's MATS Remand, we expand our analysis of units receiving MATS extensions. Below we present a selection of relevant companies' total capacity that has received MATS extensions. Next we dive into NRG and FirstEnergy, two of the companies with largest unregulated exposure listed. We emphasize that the majority of units examined have had investment decisions made to convert or be retrofit. While there could be delays in dedicated capital and savings on operating/testing control equipment, we reiterate that we do not anticipate a material impact on available capacity from the Supreme Court's ruling on MATS.

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Figure 1: Select Units Receiving MATS Extensions

Company	Operating Capacity
Duke Energy Corp.	10,168
NRG Energy Inc.	9,911
FirstEnergy Corp.	9,248
Southern Co.	8,825
Texas Energy Future Holdings LP	6,218
DTE Energy Co.	5,824
PPL Corp.	4,134
American Electric Power Co. Inc.	3,984
Ameren Corp.	3,339
OGE Energy Corp.	2,561
AES Corp.	2,105
CMS Energy Corp.	2,091
SCANA Corp.	1,959
Great Plains Energy Inc.	1,633
NiSource Inc.	1,372
Xcel Energy Inc.	1,170
Westar Energy Inc.	731
Pinnacle West Capital Corp.	647
Integrys Energy Group Inc.	540
Alliant Energy Corp.	465
Wisconsin Energy Corp.	462
Dominion Resources Inc.	327
Vectren Corp.	245
Eversource Energy	97

Source: SNL Energy

Out of NRG's units receiving MATS extensions, management has disclosed that substantially all will be retrofitted. Most units have gas conversions planned although NRG has utilized its carbon capture system on the Parish site and could potentially do the same with the Parish assets. Will County 4 appears to be the primary asset where management has flexibility as management is testing the units for MATS compliance currently. Management could also ultimately decide to bring back some capacity that has recently retired such as Will County 3 (251MW).

Permitting issues for gas laterals appear tricky too

We also note growing concerns around execution of installation of the short gas laterals to connect the plants to gas pipelines; while the economics in assessing which plants would be converted contemplated short laterals, permitting across occasionally suburban areas has seemingly become tricky. Given a dearth of information, we look toward whether NRG will be success in execution by its Summer 2016 for its conversions.

Figure 2: NRG Units Receiving MATS Extensions

Plant	MW	Details	COD
Avon Lake ST 7 & 9	710	Adding gas capabilities	Summer 2016
Joliet 29 ST 6-8	1,358	Planned gas conversion	Summer 2016
Limestone (TX) ST 1 - 2	1,689	Activated Carbon Injection & CEMS	Spring 2015
New Castle ST 3 - 5	320	Adding gas capabilities	Summer 2016
Powerton ST 5 - 6	1,538	Planned DSI & ESP upgrade	Fall 2016
Shawville ST 1	588	Adding gas capabilities	Summer 2016
W.A. Parish ST 5 - 8	2,499	Activated Carbon Injection & CEMS	Spring 2015
Waukegan ST 7 - 8	689	Planned DSI & ESP upgrade	Spring 2015
Will County ST 4	520	Testing for MATS compliance	N/A

Source: SNL Energy and company filings

Turning to FirstEnergy, the company has estimated $370Mn of MATS spending is required and has completed 40% thus far. As with FE above, the majority of these units are scheduled to remain (a final decision on Bruce Mansfield has not been made but that pertains to the dewatering facility rather than MATS).

In 2015E there is $95Mn of capex slated for MATS ($65Mn at regulated/$30Mn at unregulated)

- **Harrison and Fort Martin:** Estimated compliance costs of $192Mn and FE has already spent $87Mn as of 1Q15 results. These plants are fully regulated.
- **Bay Shore, Sammis, Mansfield, Pleasants:** Estimated compliance costs of $178Mn and FE has already spent $58Mn as of 1Q15 results. Costs to date for Bay Shore and Sammis are largely complete.

Figure 3: FE Units Receiving MATS Extensions

Plant	MW	Details
Bay Shore ST 1	136	Baghouse Fabric Filter, Mini ACI, CEMS
Bruce Mansfield ST 1 - 3	2,510	WFGD, SCR, CEMS
Fort Martin ST 1-2	1,098	GORE Mercury Control System, Duct Repairs, CEMS
Harrison ST 1 - 3	1,984	Precip, FGD, SCR Catalyst, Duct Repairs, CEMS
Pleasants ST 1 - 2	1,300	Precip, FGD, SCR Catalyst, Duct Repairs, CEMS
W H Sammis ST 1 - 7	2,220	Precip Controls, CEMS

Source: SNL Energy and company filings

Puerto Rico: Another Big Target of MATS

Amidst the latest talk of restructuring the island's utility, PREPA, the question remains how the island will eventually comply with MATS, for which it has largely received extensions into 2016. Given the largely oil-fired capacity in place today, we see the MATS remand and future capital needs of PREPA under a restructured entity as integrally related. ***NRG and ITC to the rescue – albeit not without (credit) risk of any new counterparty.*** We see both companies as potential participants of contracted development efforts in generation and transmission, respectively.

Conference Call on Supreme Court's MATS ruling

We present below highlights from our call with Crowell & Moring LLP to discuss the latest Supreme Court decision pertaining to the EPA's Mercury and Air Toxics Standards (MATS).

To listen to a replay of the call, use the dial in details below:

Replay Information (available until 7/13):

Toll Free: 800 633 8284
Toll: +1 402 977 9140
Passcode: 21771715

Julien Dumoulin-Smith: Good afternoon, everyone. Thanks for joining us on a timely call pertaining to the latest Supreme Court order and the MATS regulations. Joining us today to speak on this topic is the team over at Crowell & Moring – including Thomas Lorenzen, Jared Fish and Richard Lehfeldt. I'll let them introduce themselves as we get going. They're going to provide a little bit of background on what happened last week; 15-20 minutes and then as usual we'll have some time for some moderated Q&A.

With that I'll turn it over first to Jared Fish, an Associate at Crowell & Moring, to go through some of the background of the rules – so good afternoon, Jared, and thank you for doing this call today.

Jared Fish: Good afternoon, and thank you, Julien, for asking us to participate. So I'm going to give a bit of a background on the Mercury and Air Toxics Standards and what the Supreme Court decided last week.

On June 29 the Supreme Court issued its decision in the matter of Michigan vs EPA. The court held that EPA unreasonably declined to consider costs in deciding whether to regulate power plants for hazardous air pollutants. The case concerned EPA's regulation of Mercury and other so-called air-toxics emitted from fossil fuel-fired – mainly coal and oil-fired power plants.

The regulation is called the Mercury and Air Toxics Standards, or MATS for short, and was finalized in 2012. Notably the court's decision post-dates the MATS compliance deadline, which was April 16, 2015 this

year. Therefore **the vast majority of affected facilities, roughly 600 power plants nation-wide, have already installed the necessary pollution controls or decided to shut down entirely. But about 200 facilities received one-year compliance deadline extensions to April 16 of next year.**

The statutory basis for the MATS rule is Section 112 and 1A of the Clean Air Act. That provision sets forth the procedures EPA must follow in order to regulate power plants for hazardous air pollutants. EPA must conduct a study measuring the hazards to public health that area reasonably anticipated to occur as a result of hazardous air pollutant emissions.

Then EPA must regulate power plants if it finds such regulation is "appropriate and necessary" after considering the results of the health study. If EPA makes an affirmative determination it must regulate according to the maximum achievable control technology or MACT Standard.

EPA conducted the health study in 1998 and made an affirmative, appropriate and necessary finding in the year 2000; which it subsequently reaffirmed with the MATS Rules in 2012. **EPA expressly declined to consider costs in determining whether it was appropriate to regulate noting that costs would be accounted for later in the regulatory process.**

EPA ultimately concluded that costs would be about $9.6 billion annual to industry while health benefits, including co-benefits to anywhere from $37 to $90 billion per year. Co-benefits include the benefits of reducing emissions of other non-hazardous air pollutants, for example nitrous oxide and sulfur dioxide incident to controlling four hazardous air-pollutants, namely Mercury.

As for direct benefits, EPA had difficulty putting a dollar figure on regulating only for Mercury, but estimated quantitative benefits in the range of $4 to $6 billion from regulating Mercury alone. Challengers brought suit in the D.C. Circuit Court of Appeals which upheld the MATS rule in April 2014 on a cost-issue by a 2-to-1 vote.

The Supreme Court granted review and reversed the decision of the D.C. Circuit last week. Importantly the Court **did not vacate the rule, meaning it remains for the moment an enforceable regulation. Instead the court remanded the case back to the D.C. Circuit for further proceedings.**

In the coming months the D.C. Circuit will face the choice of remanding the decision to EPA without vacating the Rule or remanding with vacate and requiring EPA to start the rule-making process anew. **If MATS is ultimately vacated it does not exist and no power plant would be subject to it as a matter of federal law.**

In the Supreme Court's ruling Justice Scalia writing for a five justice majority held that it was unreasonable for EPA not to consider costs in making its appropriate and necessary determination. While the Court deemed the word appropriate to be ambiguous and thus fit for agency interpretation, they found that EPA's construction of the term as not requiring consideration of costs was unreasonable.

The Court held that the word appropriate is "capacious, broad and all-encompassing and plainly subsumes consideration of cost". In short, *because the Clean Air Act gives EPA room to consider costs as a matter of administrative practice is was unreasonable for EPA not to consider costs*. The Court made the point of noting that it was patently unreasonable to "impose billions of dollars in economic costs in return for a few dollars in health or environmental benefit".

And it's worth noting that in making that statement the Court was **only considering direct benefits of regulating Mercury and not co-benefits**. Notably the Court did not prescribe a procedure for conducting the cost analysis on remand and did not foreclose consideration of co-benefits. Nor did it require conducting a formal cost benefit analysis at all. The Court's ruling does however require EPA to find some reasonable way to account for costs in determining whether it is appropriate and necessary to regulate power plants.

Now a brief word on the dissent. Justice Kagan dissented from the majority opinion and her opinion was joined by three other **dissenting Justices**. Justice Kagan argued that the majority erred in failing to defer to EPA's construction of the statute. Specifically she **would have held that Congress delegated to EPA the authority to determine how best to regulate power plants including how to decide whether to regulate them at all**.

While she agreed that it would be unreasonable to ignore costs altogether, Justice Kagan noted that EPA did in fact consider costs and multiple stages of the rule-making process. Justice Kagan found that nothing in the statute required EPA to consider costs at the "opening bell of the regulatory process" and that the majority's requirement that it do so amounted to "micro-management of the EPA" contrary to the authority congress provides the agency.

Justice Kagan would have concluded that EPA exercises authority reasonably and responsibly in setting emission standards and chides the majority for depriving EPA of latitude she determined congress gave it to conduct the rule-making process as the agency saw fit.

Now I'll turn it over to Thomas Lorenzen.

Thomas Lorenzen: Alright. Thank you, Jared. Thomas Lorenzen here. For those of you who don't know me, I'm relatively new to Crowell & Moring. I am an alumnus of the Department of Justice where between 2004 and 2013 I oversaw the Federal Government's defense of all of EPA's rules including this one, at various stages. So what I'm going to try and do today is give you a little bit of perspective on how this is likely to play out from here.

What are EPA and the Department of Justice likely considering right now in terms of remanded vacatur and the future of MATS? How might this effect litigation over depleting power plan and what generally are the next steps in this whole process?

So let's start with where we go from here. Just as a matter of practice the Supreme Court will remand the case, the entire docket back to the D.C. Circuit. That process takes about 30 days. So we won't see any action at the D.C. Circuit right now.

Once it gets back to the D.C. Circuit the court will at some point issue an order to the parties asking them to propose motions to govern future proceedings. Should there be supplemental briefing, what should the briefing include and where should the case go? Is additional argument required? **This might be somewhat delayed because the D.C. Circuit, somewhat like the Supreme Court, takes a summer recess and the judges tend to disappear.**

They'll have to be reconstituted somewhat in order to issue orders. **It will be sent back to the same panel. That panel was Garland, Rogers and Kavanaugh.** And that panel make-up is very important for what we're about to discuss which is what happens once this thing is back in the D.C. Circuit.

And **the critical issue there is remand versus vacatur**. In other words, does MATS continue to be an effective regulation while EPA reconsiders this cost issue? Or does it go away with EPA possibly re-promulgating it after it undertakes this cost analysis.

There are a number of different factors that go into this. And the different judicial philosophies of the panel may bear on that. Judge Judith Rogers who is one of the three panelists is noted for ascribing to the view that where you have an environmentally protective regulation that has been found to be flawed in some respect, the proper course is to leave it in place while the agency attempts to fix the problems on remand.

If **Judge Rogers has her way, then likely MATS would stay in place during the course of agency proceedings to reconsider the costs versus the benefits of the rule**. The other side of that coin is typically espoused by the senior judges on the circuit, **Judges Randolph and Sentelle who are not on this panel. In their view once an agency regulation has been found to be contrary to law it must be set**

aside. That is vacated, while the agency reconsiders it.

It is possible that Judge Kavanaugh, who is not a fan of this regulation at all, will be a proponent of vacating the rule. The big question mark here is Judge Garland, the Chief Judge of the Court. We don't know where he sits on this issue and all eyes will be on him and what he thinks should be done in terms of the future of the rule.

But let's think a little bit about the strategy of this as well because **it's not entirely clear that EPA and the Department of Justice will want MATS in place**. As Jared said earlier about 80% of power plants in the country have already installed the MATS technology and made the necessary upgrades to their facilities. And they are likely to be complying with MATS whether the rule is in place or not; in part because some of these upgrades are simply part of the facility now. If you've upgraded your facility in certain ways to reduce your emissions, your facility just emits less. And you've already sunk that money into it.

Also some of these MATS technologies are required for compliance with other standards such as the sulfur Dioxide NAAQS. So look to utilities to be thinking to themselves whether they need to keep running this technology to satisfy our environmental standards even if MATS is set aside. Now when you get to DOJ and EPA – they may be thinking not only about the Mercury and Air Toxics Standards but about the future of the Clean Power Plan.

One of the existential challenges to EPA's Clean Power Plan; that is the carbon dioxide regulations for existing fossil fuel-fired power plants. It's an argument that was advanced earlier this year in Murray Energy versus EPA. That **argument is that EPA has no authority to issue a standard for existing sources under Section 111d – and the Clean Power Plan is an existing source standard under Section 111d – so long as the agency already has on the books a regulation that controls emissions of hazardous air pollutants from the same-source category**.

The intricacies of that argument are almost unbelievable – because they rest on a failure of congress to agree on statutory language back in 1990. There are two versions of Section 111d, one of which supports this idea that there is a statutory bar; the other of which does not. The courts will have to resolve that issue at some point.

But fundamentally the viability of that legal argument depends on the existence of MATS because MATS is that Section 112 Hazardous Air Pollutants Standard. **If the court vacates MATS that argument becomes moot and the existential threat to the Section 111d rule goes away.** It evaporates. Because the D.C. Circuit is not generally a fan of issuing what they call advisory opinions; that is what happens if EPA re-promulgates MATS sometime in the future.

They will not issue those sorts of opinions. So I expect that at the highest levels of EPA and the Department of Justice right now there is debate over whether the agency will want to seek a remand of MATS while they consider the cost issues or whether they will instead say, "Your Honors, we get it. There was a flaw at a threshold issue. Did we appropriately consider whether it was appropriate and necessary to regulate power plants? And we cannot promulgate a new MATS. And no MATS should be in place unless or until we can conclude that it was appropriate and necessary after consideration of costs. So please vacate the rule."

That would **lose MATS but it would gain the Clean Power Plan potentially**. And **I think if you put this choice to Gina McCarthy or to President Obama they would likely choose the Clean Power Plan over MATS**. That's just my personal view, but I'm sure that debate is going on.

So those are the implications right now of this. There are some very, very interesting questions that arise in terms of if EPA re-conducts the costs analysis how it is to do so. The court did not give instructions while Justice Scalia as Jared said earlier did note that the costs are approximately $9 billion a year while the benefits are $4 million. He was referring there only to the direct benefits; the benefits of reducing Mercury and other hazardous air pollutant emissions, not to the co-benefits from reducing other pollutant emissions.

And the court later in the opinion said that EPA is free to come up with how it wishes to evaluate cost. There is no set formula here in this decision, though certainly whatever EPA chooses will be challenged. But if EPA is to go about considering costs now there are questions that arise. For instance 80% of power plants have already installed their MATS technology at costs of billions and billions of dollars.

Are those costs to be taken into account now as part of the cost of the regulation, or are they already sunk costs? And therefore you only consider the incremental costs of complying for the other 20%. Tricky question.

Will EPA conduct a formal cost benefit analysis as Cass Sunstein would have had them do? Or will they do something that's a little bit less rigorous than that? Does their regulatory impact analysis qualify as the necessary cost benefit analysis and also do they have to update their figures? And must they use 2015 data or can they instead rely on the data that they compiled back when MATS was first promulgated? My guess is they'll be required to update their data and they will want to do so to avoid challenges to the reliability and validity of that data.

I think that's really it for the overview of the implications of this ruling. There's lots more about this ruling that's very important. I think that there are some significant signals here about what the Court might or might not do in terms of Chevron deference. Those come less from this opinion though it is certainly surprising that a term like "appropriate" which seems the quintessentially ambiguous term would be found to be clear.

But I think if you look at the Court's opinions this term from this mass opinion to Chief Justice Roberts' opinion in King v. Burwell to the UR decision last year. There are lots to indicate that the Court is going to be much more skeptical in terms of deference to EPA's interpretations of the statutes that it implements.

That's it. So I think that we're going to turn this over at this point to Julien for Q&A.

Julien Dumoulin-Smith: Yes. Well, thank you, Thomas. I appreciate it. That was fantastic, great background. Let me kick off the conversation here with focus first on this cost-benefit analysis. When you're thinking about whether they come back with cost-benefit analysis or not, if I were to take your line of thinking – if they update these standards because of the validity of the data, then ultimately you're likely to come back to a place in which this is a much more stringent rule down the line – is that right? Also, how do you think about cost-benefit analysis versus what they already put out there previously?

Thomas Lorenzen: Well they do have to – **if they're going to update their data on cost they need to update all the data. Not just on the cost but on the benefits.** And they'll need to assess again, what are the true costs of this regulation in comparison to the true benefits.

They will look again at what the benefits are from reducing hazardous air pollution emissions. And they may revise those. They may revise them upward; they may revise them downward because there's less residual risk. They will look again as well at the benefits, presumably the co-benefits of reducing emissions of all these other pollutants. That's the many billions of dollars of benefit that EPA sees in this rule. I would expect them to hammer that home if they determine that they want to go ahead with MATS.

Julien Dumoulin-Smith: Giving the agency the benefit of the doubt here – and saying go ahead and determine cost benefit and justify it. They already did that in the case of MATS arguably; albeit outside of the formal process of setting the standards through the Executive Order process. To what extent do you think that this really matters in terms of actually having impact on the rules? EPA will find a way to justify the rules depending on what they want to execute on.

Does it have a real tangible impact having the cost-benefit analysis element introduced?

Jared Fish: Well, I think the question ultimately just turns on whether the appropriate and necessary finding can be justified with say the current cost-benefit analysis. So **if EPA is able to maintain its co-benefits which are up to 10 times as high as its estimated costs, then I don't think it's a huge leap to say it's appropriate and necessary based on those figures. If they decide not to and they only look at direct impacts, then it looks a little less justifiable.**

Thomas Lorenzen: Yes. That **ultimately becomes the key question is will EPA be permitted, down the road, to consider co-benefits**. This is a question the Supreme Court left open for a future panel to resolve. Expect this to be part of the next round. But even if EPA were to disregard co-benefits, because they're not expressly required to do a cost-benefit analysis they could decide even considering only the direct benefits. And even if those benefits still remain a few million dollars that it is worth it to go ahead with a final regulation despite costs of $90 billion.

That would not necessarily be arbitrary and capricious though I can't imagine with this Supreme Court that they would approve of that. But theoretically the agency could do that. It's much like a net benefit analysis; **you just have to show that you've considered the costs. Not that the costs necessarily outweigh the benefits.**

Julien Dumoulin-Smith: Right. And actually just be clear about that – is it that you just need to show that you considered the cost or that the costs outweigh the benefits? Just to be clear about what that standard is.

Jared Fish: Well, that's what the Supreme Court has said but I think it's important to remember that **this isn't the last stage in the litigation process before it goes back to EPA**. So the Supreme Court remanded the case back to D.C. Circuit for further proceedings consistent with its ruling.

So, true, the Supreme Court did not prescribe exactly how EPA must go forward from here. But there are going to be blanks that the D.C. Circuit is going to fill in

after they hear arguments. And that could be several months from now.

Thomas Lorenzen: Yes, although I will say that **it's very unlikely that the D.C. Circuit will specify in advance what types of costs and benefits EPA may or may not consider**. **They generally only judge these things after the fact.** They will remand this to the agency at some point to consider costs but they likely won't give the EPA any direction about how it does so, just as the Supreme Court gave them no direction about what should happen.

It is only after EPA chooses its manner of considering the costs and weighing them against the benefits that that will be tested in the courts. The D.C. Circuit prefers to have a full record with the agencies thinking an explanation before them. And there is no thinking on that at this point because the agency has not done the analysis that the Supreme Court commanded.

Jared Fish: Just to give some **timing perspective. This isn't something that's going to be decided in the immediate future. We don't know when the D.C. Circuit will ultimately remand this back to the agency to do that cost analysis. But we're not looking, in the next couple of months for sure.**

Thomas Lorenzen: This timing question becomes very interesting. Because **it probably will be three or four months before the D.C. Circuit resolves what happens with MATS**. Is it simply remanded or is it vacated and remanded.

Well before that, probably **early this September we will have a final Clean Power Plan that is published in the Federal Register. And there will be motions to stay the Clean Power Plan for the duration of the litigation over it. Those motions to stay are going to front, among other things, this Section 111/112 argument. And they will be asking the court to stay the rule based on the validity of a MATS rule that isn't yet known.**

So it's going to be a very, very interesting posture for everybody to be in come September when these stay motions get filed.

Julien Dumoulin-Smith: And let's just think out loud here. So if the MATS rules still stand at the time that the CPP is finalized, does it matter then in turn that it is ultimately is vacated? And then perhaps the second element is whether the EPA is even allowed to ask for vacatur of its own rule?

Thomas Lorenzen: Yes. **The EPA is allowed to ask for vacatur of its own rule. They have done so in the past.** What the agency is not allowed to do is vacate its own rule without going through notice and comment. So they typically would ask the court if they thought the rule was flawed, for a vacatur.

So, yes, you could find a very topsy-turvy world here where EPA is asking for vacatur of its own rule and the proponents of the Section 111/112 argument, in other words utilities, might be arguing to keep it in place on remand so that they can preserve the viability of their Clean Power Plan challenge.

Thomas Lorenzen: The viability of MATS remains a live issue throughout the litigation. **If MATS is vacated at any point during the litigation over the Clean Power Plan, that argument will become moot.**

Julien Dumoulin-Smith: Got it. And in turn if it comes back into effect during the implementation period, does that all of a sudden put it back on the table conversely?

Thomas Lorenzen: Potentially. But it will get very, very difficult to see how that works its way through the courts because the Clean Power Plan theoretically will have been on the book for a couple of years at that point.

Jared Fish: You could get a situation as occurred with MATS where the rule is challenged once it's finalized. But by the time it gets to the Supreme Court the compliance deadline has already come and gone; unless the Clean Power Plan gets stayed.

Julien Dumoulin-Smith: In terms of the utilities positioning on the MATS rules, ultimately a lot of them seem to be very keen to keep these plans out in the market. **There's a bias that if I've already put in the money I don't want anyone else allowed to continue operating.** We want to see some rationalization of supply. They're probably going to vehemently argue to keep the rules in place at this point. Is that what you're initially understanding from the industry's response?

Jared Fish: I don't know that I had a firm understanding of the industry's responses because there's a lot of different moving parts within the industry; a lot of people who are disparately impacted by this rule. Some who might find it advantageous to keep the rule in place, to force their competitors to comply with the same requirements.

Others who may be looking at their own costs of operation and be thinking to themselves, if we don't need to operate a scrubber to comply with MATS and we don't need that scrubber to comply with other regulatory requirements, why do it.

So I think a lot of people are thinking long and hard right now about whether or no they want MATS in place. I will note it's a little bit incongruous for entities that challenged MATS based on the failure of EPA to consider costs before promulgating the regulation to then say leave it in place while EPA re-considers that.

It sort of assumes a conclusion that EPA will basically conclude that the rule was justifiable in the first place. So it yet again puts a lot of companies, I think, in a very unusual and potentially awkward situation.

Julien Dumoulin-Smith: Yes, and let me follow up on this. Even if the rule is remanded and they maybe go back and introduce cost-benefit does that mean they need to rewrite the rule irrespective of whether it's vacated or remanded or just remanded?

Jared Fish: Possibly, though not likely; depends on the outcome of their cost-benefit analysis. If they conclude based on their cost-benefit analysis or their cost analysis let me call it that the rule as promulgated was justified, they don't need you to do anything with MATS. And they can just leave it on the books.

This is what Judge Rogers is all about when she's talking about remanding without vacatur. I will note that **the most recent case in which the D.C. Circuit did a remand without vacatur was CAIR, the Clean Air Interstate Rule**, the precursor to the Cross-State Air Pollution Rule. And there **although the rule was invalidated, the court kept it in place**.

But there was never a question in the CAIR situation that there would be another version of CAIR. The only question was how would you develop it and what tweaks would you have to make to satisfy the court's holdings in the CAIR decision?

This is a very different situation. **Here you have the fundamental question of whether it is even appropriate or necessary to regulate these power plants at all.** And depending on how that analysis comes out, you might have no Mercury and Air Toxics Standards because the agency could conclude for instance that the costs are simply too high in relation to the benefits and there is no basis therefore to conclude that it's appropriate and necessary to regulate their emissions.

In that case you would have no Mercury and Air Toxics Standards re-promulgated and so it's a slightly different situation than we've seen before in this remand versus vacatur context.

Julien Dumoulin-Smith: What's the bias? If you look statistically in terms of the historical or empirical evidence in terms of remand and vacatur versus just remand. Do you have a bias one way or another?

Jared Fish: I think, in the past **a lot of the cases where standards have been remanded rather than vacated it's because the standards were insufficiently protective**. These were usually challenges that were brought by environmental groups or NGOs. And the

court reasoned that it would be somewhat a pyrrhic victory for them to have invalidated the standard as insufficiently stringent and then just set it aside and leave no regulation in place.

In industry challenges I think the record is much more mixed. And, usually industry asks the court to vacate standards that don't have an adequate basis in the record or in the law. So it's somewhat context specific. And again this is an unusual circumstance here.

Julien Dumoulin-Smith: Got it. Let me turn the conversation in a little bit of a different direction. If EPA is required to consider cost benefit how does that impact the Clean Power Plan and carbon compliance?

Thomas Lorenzen: Well, I believe **the EPA did consider costs in developing the Clean Power Plan. So the same issue is not presented there.**

Julien Dumoulin-Smith: Okay.

Thomas Lorenzen: But this was an unusual circumstance because as EPA read the statute, Section 112 and 1A of the Clean Air Act it was really directed to look exclusively at the health effects of these hazardous air pollutants emissions. It thought it might have the discretion to consider costs if it wished to but the statute directed it to look at health effects.

The Clean Power Plan under Section 111d is different because standards of performance require consideration of costs.

Julien Dumoulin-Smith: Okay, great. So 111d is intact from this perspective. Any other rub when you're thinking about the matched ruling in terms of 111d? Does having one in place negate the ability to have the other in place?

Jared Fish: Potentially I think beyond the 111/112 dichotomy that Thomas was speaking to there is the **broader implication for discretion to agency rule-making**. So we've seen now in two Supreme Court terms and as many cases, the Supreme Court striking down EPA's

interpretation of an ambiguous statutory provision. Traditionally if the court determines that statutory language is ambiguous and congress did its intent is not plain, then it will traditionally defer to the agency's construction of the statute.

In the UR decision that Thomas mentioned, dealing with another provision of the Clean Air Act and now this decision, **the court has declined to defer to EPA's interpretation** and I think the bigger canvas that the court is painting on is saying EPA when you claim what we determine to be broad expressions of agency power, we are going to be very skeptical that congress intended to delegate to you such power.

So if you're looking more broadly at the Clean Power Plan, there's an argument that EPA is leveraging what was intended to be a stop-gap provision, Section 111d, to enact an expansive regulation over much of the electric grid. And that that, if you look at the UR decision and this decision it's a fair bet that you have at least five justices who are going to be very skeptical of that assuming it makes it to the Supreme Court.

Thomas Lorenzen: Yes, and I think as well you need to look at King v. Burwell. It's not an environmental case at all but again what the chief said in that opinion is quite striking; that **there are certain questions that are of such deep economic and political significance that the court will not defer to an agency's interpretation of that provision, absent express congressional intent to delegate**.

So, expect to see a big legal battle in the litigation over the Clean Power Plan over whether congress intended to delegate to EPA the sort of breadth of authority it has asserted to for instance define the best system of emission reduction for reducing carbon from power plants in such a way that it really requires a rejiggering of the entire scheme under which we regulate electric markets. That seems to be quite a broad assertion of EPA authority.

And I suspect, even as one who defended these decisions for EPA for many years, that EPA is going to have a tough job with this.

Richard Lehfeldt: Say also that the embattlement of Chevron deference is not limited to Clean Air Act. It's certainly leached over into the Affordable Care Act as we've mentioned but also the Federal Power Act which completes the scrutiny that this court will bring to bear on the breadth of the Clean Power Plan once that issue reaches its intensions.

But there's almost a critical mass of justices on the court now who seem to believe that Chevron deference might appropriately be tossed completely.

Jared Fish: In fact Justice Thomas wrote a concurrence to this opinion where he took on Chevron deference head on. And said it implicates constitutional separation of power, concerns in the court as too lenient and delegating to agency's authority to interpret statutes.

Julien Dumoulin-Smith: Great, excellent. How does EPA continue implementing during this period in which there's uncertainty with the D.C. court. I suppose everything remains on – or status quo. And for the most part you should expect them to continue acting as such?

Thomas Lorenzen: Yes. I **fully expect EPA to continue insisting on compliance with MATS while this is worked out through the D.C. Circuit**. **The regulation remains at the moment valid and enforceable**. And parties that are contemplating not complying with MATS because they think it might be vacated should be talking with counsel and probably with EPA or they need to be considering that.

Certainly there is the ability for EPA to exercise enforcement discretion, but there's not indication here yet from EPA that they're not going to fully enforce MATS, until it's vacated.

Richard Lehfeldt: There are already a couple of companies, in the wake of last week's decision that have announced their intention to follow through with their MATS controls even if the rule is ultimately vacated. Dominion being one of them, as I recall.

Julien Dumoulin-Smith: But just in terms of the standards themselves – your expectations explicitly. Assuming a vacatur you're saying

that EPA's likely not to come back and try to seek re-implementation? Can they actually avoid it if there's some way to actually make that happen, at least for a period of time? Or what does vacatur mean if the EPA wants to advocate for that.

Jared Fish: I don't think that vacatur means the EPA won't promulgate a new match. They likely will. They view MATS as important. I think for just purposes of keeping the playing field level. They've got 80% of the industry complying. They will want to get the other 20% in compliance. And they will want to ensure that there's no back-sliding by those that have already implemented MATS.

But **if MATS is vacated in its entirety it will take time to re-promulgate. EPA will have to go through the costs analysis, of determining whether it's appropriate and necessary. That in itself is probably likely to take at least a year.**

But then you have to re-promulgate MATS. That means a whole new proposal based on updated data and technology. EPA could not develop MATS again based on the older information it had. It would have to reassess what sources are doing and therefore what is likely to be the maximum achievable control technology. That will take time.

Julien Dumoulin-Smith: They may push for vacatur just to legally get this CPP going, as you said earlier. And ultimately still come back with the rule, put something new forward that has likely more stringent standards attached with it right. Because if you're going to redo MATS you've got to reset it to the top eighth or what have you of the portfolio. And then again run a cost-benefit to justify effectively doing so – right?

Jared Fish: That is certainly a conceivable outcome here.

Julien Dumoulin-Smith: But what would the timeline of that look like – when could you see "MATS round two" come to bear one way or another?

Jared Fish: Probably a year for the appropriate and necessary determination, another two years for the regulation beyond that. So you're really **talking about a three-year period minimum**. This is before finalized rule.

Julien Dumoulin-Smith: So 2018, 2019 with something that would take effect plus three years thereafter likely or something?

Jared Fish: That's right.

Julien Dumoulin-Smith: Got it. It would seem as if MATS is more likely targeting those that don't have scrubbers at this point in time – more of the Western PRB folks. Perhaps relevant for if you were going to come back with a more stringent interpretation?

Jared Fish: That's probably true. It would target those that don't have scrubbers. It might be that EPA would determine that MATS is the scrubber technology that now everybody has installed. MATS becomes somewhat self-fulfilling because MATS required everybody to install these scrubbers, now everybody's got them. The top-performing facilities are going to have precisely the technology that MATS required and it will sort of be self-fulfilling, as I said.

But again this is a lot of speculation about what might happen many years down the road. We have to remember that we've got an election coming up next year. **That we may have a very different administration and EPA in 2017 and we don't know what their priorities will be.** So there are a lot of moving parts right now.

Julien Dumoulin-Smith: But there's no avenue in which they would actually just drop the rule entirely and not bother to pick it back up.

Jared Fish: **The way they could drop it entirely and not take it back up is by concluding that, based on the costs; it's not appropriate and necessary to regulate power plant emissions of Mercury.** And I think it's important to remember, if EPA were to drop the rule, the environmental groups would be up in arms. This

rule has really been 25 years in the making now since this provision was added to the Clean Air Act in 1990. So, this isn't a rule that came out of nowhere. It's a couple decades at least in the making.

Thomas Lorenzen: But I think it's also worth remembering that MATS was not the original solution here. During the Bush administration we had the Clean Air Mercury. The Clean Air Mercury rule was based on the fundamental idea that it actually was not appropriate to regulate power plant emissions pursuant to Section 112 and instead the Bush administration wished to regulate them under a performance standard. Very much like the Clean Power plan with some sort of a trading in emissions allowance trading program under Section 111b and d.

The D.C. Circuit prohibited them from doing that because it said you couldn't set aside your listing decision; in other words the appropriate and necessary finding without going through the entire delisting process. But it is conceivable with a shift in administration that you could have a new administration determine that they only want to measure the direct benefits of MATS and not the co-benefits from emission reductions of other pollutants.

At that point it would be a relatively easy matter for them to conclude that it's not appropriate and necessary to regulate power plants under Section 112. And they might not do anything to replace it.

Julien Dumoulin-Smith: Great. Alright. So there is some debate here ultimately. The politics of this – **if they advocate for vacatur doesn't that leave it to the next administration to decide what to do here**? And is that too much uncertainty? To get rid of these rules ultimately and then advocate we'll come back with something new?

Jared Fish: It certainly does leave it to the next administration. But this is **likely to drag into the next administration one way or the other, remand or vacatur**. It's going to be very hard for EPA to conclude a new appropriate and necessary finding before President Obama and Gina McCarthy leave town. That is simply the reality here.

And there is some strategic thinking no doubt going on over **which is the highest priority: reviving MATS or knocking out one of these existential threats to the Clean Power Plan**. And, the practical implications for MATS in 2012 were enormous; I believe it was the single greatest regulatory driver of coal plant retirements. But now much, much less so just because so many plants - roughly 80% of the industry – has made a decision whether to upgrade or to shut down.

Julien Dumoulin-Smith: Now is there a quick fix here, just to be clear? Could EPA simply come back and say we already did this to the Executive Order, so isn't this good enough? Tweak the rules – we take the Executive Order and the regulatory impact assessment, shift that around and quickly present a cost benefit. Is there some way to do that?

Jared Fish: Not really. Because they do need to update the cost information they were considering.

Julien Dumoulin-Smith: Okay, they have to at this point.

Jared Fish: They will have to use present day information. They will need to write a new justification as a proposed appropriate and necessary finding. They will put that out for public comment. They will need to respond to all those comments and then publish a final rule.

Now they can do that either separately from a revised MATS standard as they did back in 2000 when they first issued the appropriate and necessary finding. Or they can do it in conjunction with a new rule as they did in MATS. Certainly doing it separately will take less time. But it's still going to be a rule-making with all the complications that that entails. And that is really at a minimum about a year-long process.

Julien Dumoulin-Smith: When you're thinking around the sub-cost of the cumulative investment already made, is there any way to already use that to inform this cost-benefit analysis to say that it's not worth doubling down again or anything like that?

Richard Lehfeldt: It's the sub-cost assessment as Thomas was saying cuts in the opposite direction. EPA could take the position that you do your court-ordered cost assessment based on the going forward costs, ignoring the cost they already sunk because you can't un-sink them as it were. I don't think you can play that game the other way.

External Questioner #1: I was wondering, whether or not this this whole thing has been really focused on the cost of the regulation. And I was wondering how time might play into that especially with regard to the Clean Power Plan? And a lot of states currently saying they don't have enough time to comply in a reasonable fashion. So I was wondering if you guys have any insights into how that might play into the CPP based on this ruling.

Jared Fish: I don't think that this ruling has much effect on the amount of time that EPA is giving the states to come up with their plans under the Clean Power Plan. That's a somewhat separate issue; it has nothing really to do with costs but more with the feasibility of getting legislatures to change laws, getting new regulations written. A very difficult issue and a very important issue for the Clean Power Plan.

And I wouldn't be surprised to see EPA making some accommodations for states that have legislatures that only meet say every other year [*for instance Texas]*. But really this case shouldn't bear on that issue.

Julien Dumoulin-Smith: In general what are you hearing from industry around the 2016 extensions and intensions to move forward? Or is there anyone who's indicated that they intend not to do so? Is there any bifurcation that you're hearing from folks that you deal with?

And then secondly – specifically I'd be curious if you have any thoughts around Puerto Rico given how dire their situation is in developments there of late? It seems that they would have a particularly interesting angle if MATS timeline was necessarily held to.

Thomas Lorenzen: I guess the first question is the easier one – I'm not personally aware of any company that is of the view that it can comfortably of blithely take the view that the rule no longer exists and no longer has to be heeded or complied with. There is a tortuous path to an end game here and that there are many branches to the decision tree. But to sit back and take the view that it's safe to come out now and not move forward, I don't know. I don't personally know of any companies that are taking that view.

Jared Fish: I've not spoken with any but I would be surprised as well. As this time the rule is still on the books. We won't have a decision from the D.C. Circuit probably until sometime in the, sort of September/October timeframe at the earliest about whether MATS will remain in place of not. So I think companies operate at their peril if they just sit back and assume that April is not going to come. At least right now.

Julien Dumoulin-Smith: Right. When you're speaking with folks obviously your knowledge of state level NOX rules, SO2 rules, etc., in how many plants are going to have a requirement to operate assuming the rule is actually vacated? How many plants will actually have that latitude not to? I may have indeed made the investment. And I may indeed continue to finish the investment. But actually in terms of operating these investments, frankly we may not opt to do so given the incremental costs. We've clearly seen this before with certain rule implementations. Why not this time?

Jared Fish: Well, for one thing, I think it's important to remember that the control technology that's applied to reduce emissions of hazardous air pollutants is oftentimes the same control technology that's used to reduce other emissions such as SO_2 and NO_x which is required in the Cross-State Air Pollution Rule (CSAPR) which is in effect.

Thomas Lorenzen: Another component of the answer I think is that it doesn't help a whole lot having sunk the investment in the capital for the retro-fit to then not utilize it. You will save on your variable and operating costs, but those units which operate – at least in 20 states that were more in competitive frameworks – the sub-cost figures prominently into their capital structure and the amounts that they're able to bid into the capacity markets. And the energy markets. So I don't think just not using the equipment solves those entities problems; that's close to half the generation of the United States.

Julien Dumoulin-Smith: Right. Well, I'll leave it there. We're at the top of the hour. Any closing remarks? Any other wider-implications we didn't talk about, from the Supreme Court order here which we want to keep on the radar screen for either regional haze and implementation or anything else? Cost benefit seems to have pretty wide-spread ramifications across EPA whether water, air, etc.

Jared Fish: It does. But as Justice Scalia said, "I'm not changing the fundamental rules regarding costs-benefit analysis. There are sections of the statute that do not limit themselves to cost-benefit considerations such as in establishing a national ambient air quality center. That's clearly in our faces." And Justice Scalia even distinguished other places in the statute where the word "appropriate" might be used.

He uses a contextual analysis. He said, "In the context of this particular provision the majority things it's unreasonable not to have considered costs." There is plenty of precedent out there for instance, Justice Scalia himself in Entergy versus Riverkeeper back in 2009 held that under the Clean Water Act where the statute is silent on cost considerations, it's up to the agency.

Interestingly Justice Scalia didn't grapple with his own opinion in Entergy versus Riverkeeper. He didn't even acknowledge that he's written that opinion. He did cite Justice Breyer's concurring opinion there but, never tried to reconcile his own. So I think that for the most part the law probably remains the same. Where the statute's silent in general the agency is going give deference.

But the court's going to look at the context and decide whether that's reasonable.

Julien Dumoulin-Smith: Great, excellent. Well I suppose with that, being the top of the hour, let's close it out for the day. So thank you all very much for taking the time, thank you all for listening.

Group: Thank you all very much.

END

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