

An Interview with
CLAIR MOELLER

Conducted by Marta Monti
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Midcontinent Independent System Operator, Eagan, Dakota County, Minnesota

Humphrey School of Public Affairs
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Marta: Today is July 9, 2015. I'm speaking today with Clair Moeller who works at MISO, the Midcontinent Independent System Operator. I was hoping we could start by you telling me about how MISO first encountered the CapX lines?

Clair: My personal background is that I'm a dumb old utility guy. I spent 25 years at Xcel before I came to MISO, so I don't exactly remember where I was. I came to MISO in January of 2004; CapX had already started talking prior to that.

Transmission is a hard thing, because you're doing violence to people's backyards.

Marta: Violence. That is strong language.

Clair: Well, so I did routing and siting for NSP back in the day, and when you go to court to take someone's land for your power line, which inevitably you have to do, you're hurting people. So you have to be VERY confident that what you're doing is in the public interest. You always have the conflict between an individual's interest and the public interest. You gotta be pretty confident that what you're doing is in the public interest because you're doing hard things.

The thing about transmission is that it lasts 100 years. You need to think about it in those kind of timeframes. Most of the economy and the culture doesn't like to think about things in that timeframe. So what was important about CapX is it sought to break the "just in time" paradigm that we have fallen into as a nation and an industry...and try to look into that longer future, the same way the folks in 1964 did when the initial high-voltage system was built. They were looking into the longer future. CapX tried to recapture that looking into the longer future notion.

And as soon as you try to look into the longer future it gets very complicated. It's easy to justify a line that if a facility breaks and the lights go out. "Oh that's easy, build another one" right? But when what you're looking at is "how does the energy production and policy shift going to affect?" it's a harder question. It's a hard question to put because people's view of the future varies so much, and that was the task that they took on.

As MISO formed, it was kind of the...CapX started and MISO started kind of at the same time, and because I was on both sides of that fence that's why I can't figure out when I did any of that. Where one ends and the other begins.

Marta: I'm very curious about that--how much their vision for Minnesota helped MISO form its vision for the region? MISO now has the MTEP (MISO Transmission Expansion Planning) planning process. Were they being innovative? Or was it that MISO was already going down this road with the help of FERC (Federal Energy Regulatory Commission) orders?

Clair: Well it's a "back to the future" play. But it was an important play, too. The thing that MISO has done to extend it, was in the CapX planning they were dominantly worried about raw reliability, not consumer economics. We took the notion of scenarios and moved beyond "simple" reliability, and extrapolated that to "how do you make sure customers' bills are as low as you can make them?" The industry in general had backed into a philosophy that assumed minimized investment in transmission minimized cost. That's not true. It minimizes cost of transmission; it doesn't necessarily minimize cost of delivered energy to consumers.

Marta: When did that come about?

Clair: 2006. If you read MTEP 2006, you'll see the white paper in there that talks about moving from...actually, it talks about moving to...we don't spend much time indicating the status quo....moving to what we call "value based planning", which changes the objective from minimizing investment to minimizing customer bills.

So the follow-on from CapX called the Multi-Value Projects (MVP) is about both meeting public policy and minimizing the cost to consumers to do that. So the real thing that we did in transition is pick up that economic work.

Marta: And that seemed to be key, because investment was stagnant up to that point.

Clair: Very much so.

Marta: Do you think that was a tipping point?

Clair: Yeah. Prior to that work, no one sought to quantify the economic impacts net. Prior to that, you'd only look at: this incremental investment has this incremental cost, and we never looked at how a more competitive generator can now get to a consumer, and the bill actually goes down.

So that was a really big shift that kind of was the next step, and so the CapX projects were in the middle of that zone. The first tranche is started, driven by economics, and then by the time you get to Brookings-Twin Cities, it was in the second transition to the more holistic look at it.

Marta: I sounds like that was important to further reinforce what they were doing for the members of the CapX group.

Clair: That's right. Infrastructure, because it's hard, you need some momentum, and you need to keep it, and this helped. Because it's a lot easier to stop than it is to go.

Marta: During the planning stages for CapX, I'm wondering what the communication with MISO was like?

Clair: MISO went live with tariff administration and planning in 2002, and we were trying to find who we were, trying to find our way. It was very unclear what FERC's requirements on us were. Our utilities were not terribly interested in relinquishing any of their...anything! haha...to us. We were this creature of regulatory fiat that was driven mostly by the federal worry about abusive monopoly power. We are technically about mitigating market power, which of course freaked out every utility that had to join us in order to get FERC to say yes to something they wanted. It was that kind of...people were coerced into being our members, which made that kind of.....

Marta: Yeah, you are already starting at a point of tension then.

Clair: Yes, there was a lot of tension around that.

Marta: That's interesting, because I haven't heard that from any of the utilities yet, but that's probably also because I haven't spoken with the right people.

Clair: Yeah, you know most of them probably weren't....who'd you talk to?

Marta: Will Kaul, Gordy Pietsch, and Terry Grove at GRE, Mark Nisbet—those are a few of who I've spoken to so far.

Clair: Yeah, those guys weren't in that part of the game.

Marta: Yes. It's just not a common feeling that I'm finding.

Clair: Yeah, they were just trying to do their job, and we were just trying to find our way.

MISO very deliberately, strategically sought to construct a collaborative relationship in spite of the fact that the FERC guidance seemed to be "take it". Because we thought that's crazy. There's no way that this new start-up thing with a few scraggly engineers from downtown could actually replace the utilities and what they do. But the early guidance from FERC sounded like that. Which is what made everybody defensive.

We consciously sought to augment rather than replace all those processes. It's crazy to not use what Gordy Pietsch knows, right? That's ridiculous. Who would do that? Only someone from Washington. Because what they were worried about was market power. And it was a legitimate

worry, it was a real problem, and there were big utilities that were in fact....I could tell you stories but I won't because I'm on record, but it was an actual problem. And FERC's concern was that if you left utilities in charge of their transmission, they would make assumptions and give you ratings that were more conservative than they needed to be in order to reduce wholesale commerce rather than increase wholesale commerce. So that was the tension that was in the air at the time.

We were created under the FERC rules, and essentially what FERC said to any two utilities that wanted to merge, "you can only merge if you put your facilities under the functional control of an independent system operator. So we were figuring out, "what does functional control mean?" So we chose to define functional control as "augmenting what was already going on and not try to replace what was going on." Because if you're going to take it to the next level, that's more not the same different, right?

Marta: Yeah, you need a good base to start working from.

Clair: Well yeah. There was too much work to think that you can centralize it all in some start-up-regulatory-mandated....I mean, you're going to efficiency hell if you do that! You just stop all progress.

So I think that our conscious choice to build a collaborative relationship is maybe why you didn't hear bad things. We are also 15 years on, and it's worked well, frankly, so it's easy to forget some of the friction.

Marta: One thing I find interesting is the different cultures between the ISOs (Independent System Operators). I cannot speak to the other ones because I haven't been doing research on them, but I think it's interesting how there has been this culture of collaboration that has been built within this ISO. It has allowed you to go further. Maybe from here you could tell me about the inception of the MTEP process?

Clair: Well, FERC Orders and angry letters from Governors [the Midwestern Governors Association].

Marta: How much did those letters influence what you did?

Clair: Yeah, so if you look at FERC's order 1000, and look at what our process was before FERC order 1000, you'll see that FERC 1000 essentially wrote down our process and hoisted it up on all of my neighbors, which didn't exactly endear me to them.

But the way we got there, in the very beginning the MISO agreement, appendix B to that agreement delineates what our responsibilities are to planning. From there, you start to interpret...just like the constitution says a lot of stuff, but doesn't actually tell you what you're supposed to do. So that's where it began.

The first several MTEPs were...it was kind of a “*manana*...when we're done we'll publish it.” It was back when we were struggling to figure out what we were supposed to do. I think the first MTEP was 2003, and then the next one was 2005, now it's been annual since then, and it goes back to that collaboration. If the utilities are going to rely on our process, it needs to meet their budget needs, which is an annual plan. So why would we talk to them every other year if they need information every year? So, thing 1, instead of it coming out whenever it gets done, because people are relying on it, we need to get a cadence going. So that was the first thing we did, and that began in 2005 when we decided we've got to do this every year.

In 2006 we made the case for moving the objective of transmission planning from minimizing investment to minimizing cost to consumers. That was kind of the big change. From there, it's evolved to essentially 4 thematic elements: One is the traditional-Gordy-Pietsch-does-every-day kinda planning, which essentially we take the work from the utilities and do peer review on them. So we peer review their work and make sure it's transparent, and that's kinda how that works. There's a series of investments that are premised on generation interconnections and transmission service requests, kind of traditional stuff. That's in there. Episodically there are things like MVPs which are the top down kind of planning, so in addition to this stuff, there are some things that look valuable. And then a large amount of the work imbedded is what we call policy investigations. What happens if...? What would the world look like if...?if these divergent policy choices face us? So, thematically, that's how we've been working.

In 2006, we made the philosophic shift. In the fall of 2007 when the Minnesota Renewable Portfolio Standard was passed, our planning was challenged by a ridiculous number of generation interconnection requests. 40,000 MW of generation interconnection requests. The protocol in the pro forma FERC tariff was “first-in-first-out”. I had 286 requests. At 2 years per request, I had a 500 year backlog!

Marta: Did you know it was coming, or was this a total surprise?

Clair: Well, you could just watch it spike. The generation interconnection work never was very good. I mean, it's always been hard, but then you had all of this hit the fan, and how do you deal with that?

Marta: Did you policy analysts do a “what if” for the law? Did they see it coming?

Clair: No. We were still trying to figure out where the office was! The utilities were saying, “thank god that’s somebody else’s problem now!” So there were a lot of well-meaning requests that simply didn’t have the financial wherewithal or the technical wherewithal to actually make it. In the Buffalo Ridge area, we had 28,000 MW of request, and the imbedded infrastructure was for about 40 MW of load.

Marta: Who were the people putting in the requests?

Clair: Everybody. Marta Wind LLC. Who’s Marta wind? Well, she’s got a farm out there... to some, it looked like a good deal. But, none of...no...that’s too strong. Very few of the entrepreneurs that wanted to get into the space understood how complicated it was, or how just plain hard.

So, we had all this going on, and we were trying to figure out what to do with it. In the fall of 2008, I got a letter signed by 6 Governors telling me that whatever it was I was doing wasn’t working, and they wanted me to do something different.

Marta: Yeah, they’re proud of that letter.

Clair: Yeah, I know they are. At the time, in terms of just the renewable space...I don’t know how to talk about this..

It seems like we had two types of studies: too small and too big. Because the renewable advocates wanted to rewire the world...today! Well, you can’t do that. The embedded utilities were thinking “how about never?” because until you prove to me that this is a real thing that we have to do, why would I spend my customers money on your idea? Because I get pounded at the Commission for every dollar I spend. So I’m not making speculative investments.”

CapX was trying to figure it out too, same time. So we’re all in the same mess. The states of Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, with a little facilitation, coalesced around a question that said “ok, we are either exporters or we have requirements. How should we think about how to meet these requirements?” And we were able to take that question and say, “okay, here are the requirements, what’s the cheapest way to meet these requirements across these 5 states?” And that was extraordinarily important in that it was bipartisan, it was the Governor's offices as well as the Commission offices. That was really important. At the time Minnesota and the Dakota’s were R’s...Wisconsin and Iowa were D’s....So, that’s how we got started.

There was a club called the Upper Midwest Transmission Development Initiative (UMTDI), and so we started to work on the question that said “given this question, what’s the cheapest way to

proceed?” About a year in, the rest of the MISO states all also had emerging RPS’s. Missouri was a referendum....so then we essentially had to start over and say “okay, given everybody’s on board with this, let’s figure out the least expensive way to meet these requirements.”

It was political because in the most of the RPS, there was an assumption of local economic development. We had this competing problem of low cost and local development. How do you figure that out? That’s why the Governors officers were important because when we finally made the deal, everybody’s got to be on board. So we created renewable energy zones, you’ve probably heard all the studies.

So we kept working our way through that, kept pushing that process--what’s in it for the customer? That was our compass--what’s best for the customer, which makes the whole thing easier. In August of 2011 at the St. Paul hotel...I had forgotten my glasses so I was wearing my sunglasses, which was uncomfortable....I presented the business case to our board of directors for \$5.5 billion dollars of investment, and the chair of my committee stopped at the end of my presentation and asked for public comments. Several times. We’re about to approve over \$5 billion dollars’ worth of investment, does anybody have anything they want to say? And it was crickets. We had done the work that got us to the “yes”. Open, transparent, “y’all come” kinda work, and there was no voiced opposition, which I found to be remarkable. Having lived the transmission dream my whole life...hah.

Marta: That hasn’t been your experience in the past?

Clair: No, so that was kind of a “pinch me” moment. We managed to circle up all the interest in all the parties, and got close enough to what people needed that it was fairly uncontroversial.

Marta: That is definitely a testament to all the leg-work that was put in beforehand.

Clair: Yeah, you get the A by doing the homework. That’s true everywhere. You want the A, you do the homework.

Marta: I think this is a good segue to talking about the MVP lines and getting everyone to agree to the cost-allocation process?

Clair: We had a lot of help from two things. One is the leadership of Lauren Azar, who was then Commissioner in Wisconsin. The other thing was, there was a credible threat of federal preemption of states authorities to route and site lines. There was a lot of rhetoric and assumption that said there is no way states will look at other states benefits as they think about whether or not to allow siting of lines. There was active proposed legislation in Washington that was essentially going to take the routing and siting and give it to FERC, who does routing and siting

for gas pipelines. So it essentially was photocopy the gas pipeline rules, but for electric transmission and give it to FERC. So the states were more motivated rather than less to actually work on this.

The deal...I wouldn't put it as a deal....but the way I would respond when asked about federal preemption is I would say "so far no one has brought the business case to the states and asked them. Until we do that, I can't say that it will work." My colleagues in the state commission went "well, that's ok, we can work with that," so in the last 18 months of that 5 year process, Lauren [Azar] convened working groups with OMS (Organization of MISO States); we had convened our stakeholders in a parallel effort, and they really worked hard...I mean, extraordinarily, to have senior Commission staff and Commissioners every other week, working our way through this process. It was an extraordinary level of effort, which is part of how you get there.

Then at the 11th hour, the transmission owners woke up and decided it was going to happen anyway, and they coalesced around an idea too, and we had a bunch of ideas out there. In fact, inside MISO if you happen to wander around, you'll see some stuffed platypuses, because they are pretty disparate ideas that we went into a room with, and I came out with this third idea that turned into the tariff, and people asked what happened. And I said, "well, we went in there with a beaver and a duck, and we came out with a platypus." So my boss bought me a stuffed platypus.

At the end of the day, people were motivated to get to this outcome. They were willing to get what they need. They didn't have to have everything they wanted. Compromises were made, direction was picket, and away we went!

It was not without controversy. We had a political change in Michigan, and the new Governor thought whatever the last Governor thought had to be the worst thing that was ever thought up. So I spent, personally, 20% of my time for that year holding that assault to MVP's back. They were trying to get legislation and federal support behind them.

Marta: So if one state decided to pull out, that would topple the whole structure?

Clair: Yeah, that's the deal.

Marta: That also means that it's never really a done deal, it's an ongoing challenge?

Clair: Oh yes. We had a membership transition... The deal that we wrote was "if you were in MISO when we make this decision, you're on the hook for the costs. Because you were in the plan when we did that." FirstEnergy in Ohio was in when we approved, then exited. We spent 24 months in litigation making sure they paid their bill on the way out the door.

Marta: Yes, I imagine Ohio is another tricky state to deal with.

Clair: Yeah. So Duke Ohio and FirstEnergy both challenges whether or not that was just and reasonable. FERC said it was, they challenged it in court, the court agreed with FERC. I think they will have one last try to appeal it at the Supreme Court, which everybody does, but...I'll be gone before that gets figured out.

So, that worked really well because everybody was motivated to look at the joint benefits and the joint costs. As transitions happened, political change happened, people have a knee-jerked parochialism. That's always something we have to battle against. States tend to compete with each other rather than collaborate. I keep telling them, "you know, the competition is China, not Iowa." ha

Marta: Yeah, working through this project has really shown me how hard states dig into their state federalism. At one point during an interview I found myself thinking, "this sounds a lot like getting the EU together." It's not just states, they act like sovereign countries at times!

Clair: Yeah, they squabble about "does the new little factory go in Hudson or Lake Elmo?" and I argue that it's the same jobs. That's the tension. And because we had the credible threat of federal preemption, people were motivated to look at the question. As that credible threat has waned, people are drifting back into parochialism.

Marta: That's also a reminder of how short our memories can be at times.

Clair: Yeah, it's kinda back to that it's a hundred-year facility, but the political cycle is 4 years. So something I didn't say in the middle of all that, is while we were working our way through those MVP projects, we had state house changes almost everywhere. Iowa flipped from D to R. Minnesota flipped from R to D. Wisconsin flipped from D to R. Michigan flipped from D to R. Michigan was the only place we had trouble trying to hold it all together, every place else it was essentially a bipartisan sort of policy agreement, which made an enormous difference. If I'd of had that same problem in all the states, not just Michigan, it would have fallen apart.

Marta: Let's wrap CapX into this. By the time the MVP were decided, did MISO have a handle on all the generation interconnection requests?

Clair: We're still fighting with that. We're gonna fight with that forever.

Marta: The success that CapX had getting their lines approved as MVP's...how much can that be credited to the fact that they were 11 utilities partnering together to do this? Say these were Xcel, or GRE lines. Do you think they still would have gone through the way they did?

Clair: The thing that the 11 utilities did, at least locally, I can't tell you what it looked like in Iowa. But at least in the Dakota's, Minnesota, Wisconsin...it's part of why the bipartisan nature held. It's not a fair characterization, but I'll make a cartoon out of it: Coop's are D's, and IOU's are R's. But because they both had something to play here, when the political flips happened, it never became an issue. Because one of them didn't feel injured that...Xcel was going to build all this stuff and we're gonna get the bill. They saw that they'll all get to build it and get the benefits from it. I think a large reason it stayed bipartisan is they were able to construct that across-the-aisle between public power and investor owned power. There was nobody who had an interest in making it a political ping-pong match.

I think it's different in Iowa...in Iowa it's about jobs. It's either green jobs or jobs that are green. They are wind rich, and they're an exporter. That's probably true in the Dakota's as well, but in Wisconsin and Minnesota, that bipartisan coalition that was on the ground floor made it possible for it to disappear from the political landscape.

Marta: I've been asking others if they think a group like CapX could crop up in another state or region.

Clair: In the old days, right after dinosaurs and just before refrigerators, the build-out of the transmission grid from the early 60's through the early 70's were mostly done by consortiums, but they weren't as broad a coalition as what you saw in CapX. They tended to be the dominant utilities. The line between here and Kansas City was broken up in 4 or 5 segments, but it was the big utilities that were doing it. The one between here and Milwaukee, the handoff is in Appleton...NPS owns it to Appleton, and Wisconsin Electric owns it from Appleton to Milwaukee. That's how that worked. So the broad coalition...in Wisconsin, they have the American Transmission Company (ATC) which is a similarly themed coalition...they've got both public power and private power, Coop's, all the original transmission owners in Wisconsin are a part of ATC, so that same kind of broad coalition happened there, but they are more formal about it than CapX. Same kind of theme though.

I don't see it breaking out any place else. The industry history, as you move east, is way more Balkanized. The co-mingling of public and private that we have here is very different than what is in Ohio and Indiana. Public power tends to be smaller player. They tend to be municipal utilities that are a city. There isn't a GRE equivalent, and that's just an accident of history.

As you look to the western interconnection, there is more public power than private power out there, but frankly, the federal power market agencies aren't so easy to get along with. They are trapped in their legislation, so TVA, WAPPA, SWAPPA, all those guys are trapped in the legislation that formed them, and so they have a hard time moving.

Coops are much more opportunistic. They are in it the same way we are--what's the cheapest way to serve my customer?

So, Wisconsin and Minnesota, they've pulled that off, I don't see anywhere else where they're trying it.

Marta: Do you have any final thoughts that you'd like to share about the CapX projects?

Clair: The thing that has made my life easiest is their estimates were accurate. It really helps. Those projects were...the last time a project of that scale was done was 1985, so there's like 30 years between. The fact that they were that proficient at estimating accurately, timely, predictably, they were able to show the rest of the community that it's just work, every project doesn't over-run 200%. The technical skills that they showed dramatically helped the momentum towards transmission investment, because they showed that it can be done.

That is a real important element of what they've been able to do. They said it's going to cost \$500 million dollar, and it cost \$500 million, not \$700 million.

Marta: Yes, they are very proud of that: on-time and on-budget. I was looking at the list of the current status of the MVP lines, and I noticed a few were over budget, but not the CapX lines.

Clair: Yeah, usually the over-budget has to do with your inability to project your routing. You turn a 90 degree corner that you didn't plan on, you have to turn 3 more 90 degree corners....and they are \$250,000 a copy--at least! So you spend a million bucks for every unanticipated corner.

Marta: Wow that just skyrockets the price.

Clair: So the engineering they did on the front end, mostly around routing, kept the cost on track. And I don't know if this is still true...it was when I was still at NSP--part of that is including the environmental professionals in the routing process, rather than having engineers with rules going in to find the shortest line. I presume that part of the reason it worked so well is that they worked hard at anticipating the route on the way in.

And they had their fights with the Department of Transportation...who are notoriously hard to get along with, which is back to that federal thing.

Marta: And again! This is not something that I've heard.

Clair: They helped out a lot, but to get there, there was a long ping-pong game. But they got there.

If you're a utility, and you know you're going to have another ask of the Department of Transportation, it is not in your interest to characterize them as "difficult to work with." Period. So, they are not lying to you, *but...*

Marta: And I do not feel like I am being fed lines by people, but it's question that I have. But, at the end of the day, they got to an agreement.

Clair: They got where they needed to be, got the route that is appropriate. It seemed hard at the time, and of course in retrospect you realize it was necessary. The reason they call it work is because it is.

Marta: Is there anything that I didn't ask you about, or something that's important that I should know about?

Clair: Holding it together across this much time also has to do with interpersonal relationships with respect and trust. That's non-trivial. Will Kaul calls me up and says "hey, Clair, I've got a problem, can you help?" Because I've got a 20 year relationship with Will Kaul, I know he's not calling me to pull my leg or get something. I know he's got an actual problem that he actually wants some help with. Where, if it's a cold-call from somebody I never heard of, it's like yeah, everybody does [have a problem].

The fact that the folks around CapX have histories together that are bigger than just CapX, I think was an important part of the success too.

Marta: Ok final question--what is the biggest emerging issue that will influence your work going forward?

Clair: The Clean Power Plan. We await the final rule, the draft rule was.... When the rule came out that had differential burdens state-by-state, it makes it very difficult for states not to retreat to parochialism. We will spend billions in excess of what we need to if we don't find a way to defeat that knee-jerked parochialism. We'll spend a lot of the customer's money, just because we are mad, and that's not a good place to go.

The thing that I am disappointed with from EPA is probably because I grew up watching FERC work. In FERC-land, they will start with a notice of inquiry, followed by a notice of proposed rulemaking, followed by a rule that you litigate to its conclusion....it's a very deliberate, predictable process, and I've never seen the final rule substantively different than the draft. They

are very transparent about where they are going, and you can kind of read the draft....notice of proposed rulemaking....and you know the contours of where we're going. EPA seems to take more latitude between their requests for comments and when the final rule comes out. It makes them less predictable, and it makes it harder to get in front of, and do the leg work you need to do to build these consortiums of consensus. They'll drop their final rule, and they are going to want compliance plans in a year? Ha. Everybody knew what they needed to do, and it took us 5 years to approve Multi-Value Projects--and we even agreed with what we were doing! Well, we're going to go to litigation hell, and no one will move because it will jeopardize their litigation position. I like the more deliberate process that FERC uses because it's more predictable. You can start working on it before you get the final rule.

Marta: Well, that brings us to our time. Thank you for sharing all you did today, I appreciate it.

Clair: My pleasure.