Interview Transcript[[1]](#footnote-1)

Subject 3: Forecaster in Energy Trading

S: Trading side than I am the actual catastrophe or weather risk side, but yeah, if you have any questions, I can try and answer them.

I: Yeah, absolutely. Well I should probably start by telling you a bit about the project [explains the project]

[1:43]

I: Why don’t you tell me a bit about your job position and what you do with respect to risk and uncertainty.

S: The thing is, we trade natural gas, we trade electricity and oil. The weather system, not the weather system, our system across Europe, it behaves very well within certain parameters. If you have temperatures within a couple of degrees of normal, everything’s fine. If you have an average amount of wind for wind generation or solar generation, so sunshine and so forth, the system tends to do very well. But it’s extremes that tend to tax the system. For example, this past summer in France, temperatures were 6 or 7 degrees above normal. That also coincided with a very dry spring and very dry summer as well so the mountain snowpack, river flows were quite low so on one hand you had a very strong increase in load, on the other hand you had a decrease in supply because of all the nuclear power units along the rivers had a hard time coping with the low water levels in terms of their cooling and so forth for the reactors. So that caused quite a price spike in France. There was another incident about February 2012, January—February. We had a very strong arctic high that came into Europe, temperatures were about 10 degrees below normal for about 10 days. So I think France set an all-time record in terms of their demand for electricity because of heating and so forth so it’s extremes that have a tendency to affect the system. A day like today, everything’s fine. It’s not that warm, it’s not that cold. It’s a normal November day, except for maybe it’s a little bit mild, no problems with the system. But it’s when you sort of get these heat waves in the summer, extreme cold in the winter, that’s when the system starts to get a little bit taxed and we get these anomalies in the price pattern and so forth so my main job is to look out for the probability of those extremes. What I do to look at that, I’m looking at [multiple weather and climate models] I just kind of put it all together. For me, I don’t have really a set methodology, there’s not a universal methodology, should I say, when it comes to assessing a risk of a heat wave or a cold snap. Everyone’s got their own methodology and my methodology might differ from the meteorologist [energy company] or [energy company], like we all have our own ways of assessing the risk and communicating it so there’s not really a universal way to do it. You know, I’ve been doing this for 15, 18 years now so for me it’s more of a gut feeling and then when I see a risk of some kind of extreme event, of course I tell our risk managers and so forth, preferably with a couple weeks’ notice that there’s a risk that might happen in a couple weeks, then as you get closer and closer to the time, you either increase the risk or decrease the risk based on the new information that you’re getting. That’s basically the gist of what I do.

[5:14]

I: Okay. Very cool. So you mentioned forecasts and you mention climatologies. So first off, what kind of time scale are you forecasting for?

S: With any degree of certainty, I would say within 10 days, but you have these [weather model] that come out, you have longer-term signals [weather models], they do a 4-week forecast, we can also look at things like the Madden-Julian Oscillation, you can see maybe in a 2–4-week time horizon if the climate models are showing like a big ridge of high pressure over the continent in the summer on week 3 or week 4, you don’t have much certainty then, but you can start to tell people, “listen, the longer-range models are showing the possibility of a heat wave at the end of July.” So maybe you can get 2 or 3 weeks lead-time, but you certainly don’t have any kind of certainty regarding that so I say with any degree of certainty, you’re looking at, you know, within 10 days, but I’d say the 10–30-day time horizon, you’re looking at longer range climate signals to try and see if there’s an increased risk for a heat wave or cold snap just based on what the climate models are doing or the MJO or any of the other global forecast variables.

[6:29]

I: Okay. And then where do you get your climatological information from?

S: You mean like normals and stuff like that?

I: Yeah. Normals and things.

S: We get ours from a company called [private company] and what they do is they have a long dataset from France, Germany, whatever, and we use like a 10-year average, a 10-year normal. It’s just a, obviously what it sounds like, a 10-year normal. You apply some kind of smoothing technique to get a nice curve for all 365 days, so that’s what we consider a climatology. Again, there’s not a set definition for climatology. Some people use 30-year normal, some might use a 40-year normal, we use a 10-year normal and, generally speaking, anything within 3 degrees of a 10-year normal is fine, but once you get 6 degrees colder than normal in the winter or 5 or 6 degrees warmer than normal in the summer, that’s when it becomes a problem. We use just a 10-year normal, smooth it, use some kind of smoothing function and that’s what we consider normal, but like I said, there’s not a universal definition of “normal”. Everyone’s got a different way of calculating it.

[7:42]

I: Great. What and how do you pass this information along? I guess, first of all, what information do you pass along? Do you pass along a probability? Do you…how does that work?

S: It’s a probability, yeah. And there’s not a universal way of doing it. A lot of it is subjective. I may look at a set of variables and say there’s a 10% chance of a cold snap in 3 weeks, the next meteorologist may look at it and say, “I think there’s a 25% risk.” We all have our own different methodologies. Mine has just been kind of refined over 15, 18 years of doing this, but again you can show the exact same information to another meteorologist and he can say, “Well based on my experience, it’s a 25% chance.” So there’s a lot of subjectivity in it, there’s not a set of equations, there’s not a universal way of doing it. It’s highly, highly subjective.

[8:40]

I: Okay. So when you pass this information along, is it just probabilities? Do you send along maps? Do you send along graphs? Are there any sort of graphics or anything?

S: Well it depends on the size of the company. My company is small enough that I just do it verbally, but if I had like 500 people to give the information to, I’d probably put maps and graphs and all that to show everyone that same information, but our company’s relatively small. We only have about 100 people here, so I can do it verbally. When I was at [energy company], we had many, many more people that we served, so I mean obviously I can’t go around to 500-people and tell them the same stuff. In that case, I would just do a map, or I’d do a graph, I’d do a table, send it out on email. So I think a lot of times, it just depends on the size of the company and the amount of people you have to talk to, just, you know, what’s easier.

[9:26]

I: Yeah. If it’s possible, do you mind sharing one of those maps or graphs or emails, like an example that you would send out? Just because we want examples for when we develop this game. We kind of want examples that mimic what people really actually get.

S: Well, I don’t have, I mean I can’t share that, but I mean if you ever look at the [weather model] ensembles, if you look at the point forecast and you do the 15-day forecast, you can see the plume of all 50 members. You know what I’m talking about?

I: Yep.

S: That’s what a lot of meteorologists use and a lot of traders use that to. They can see, for example, the 15-day forecast for Paris, maybe you have a very tight clustering near normal, you have like 4 members that are going 5 above normal, so they might say, okay you’ve got a 8% chance of this kind of threshold. A lot of meteorologists use those plumes. So like I said, I don’t have a map or a graph, but you can just get ahold of [weather model] ensemble or a [weather model] ensemble plume, that’s what a lot of people look at.

I: And that’s what the traders look at as well? They use that direct output, or similar?

[10:31]

S: Yeah, yeah. There are a lot of companies like [private company] or [private company] that take the [weather model], they buy the data from [company] or, not buy from [company] because that’s free, but then they take that data and they just display it for, let’s say France or Germany, and traders can look at that and, you know obviously if you have 50 ensemble members for the [weather model] and 20 from the [weather model], you have a total of 70, you’re gonna, they’re gonna capture a lot of the scenarios, but they’re not going to capture every scenario, well maybe, if you get a scenario that’s just completely not included in the ensembles and, you know, that’s kind of the way weather works. That’s when you get a complete surprise and, you know sometimes you get scenarios that none of the ensembles captured, and that’s kind of the nature of forecasting. Sometimes you’re gonna get that nasty surprise, that not one of the ensemble members had, but, you know that’s kind of beyond your control.

[11:21]

I: Yeah. So do you then give advice if a trader came to you and said, “Right, I have this plume of ensembles, which one do I trust?” Do you give advice on that? Or do you think they take the mean? Or how do you think they distill that information?

S: Well, I mean if a trader doesn’t have a meteorologist, he/she might just take the mean. What I do, I mean I know what the model biases are so I can strip out the biases and say, well, excluding that plume and that plume, but yeah, if you don’t know any better and see a 50-ensemble member plume, well human nature is just going to average them, right? And say that’s the most likely scenario, when a lot of times that might not be. And that’s where meteorologists come into play and you just have to know kind of what the model biases are, what the model tendencies are and then in your mind, strip them out and say, well, ignore this and pay more attention to that.

[12:14]

I: Yeah. Do you have any more information you think might be useful at this point for us?

S: Not really. Like I said, I guess the main takeaway from this interview is know that there’s not a universal way of assessing risk. It all comes down to the meteorologist, his or her experience, and the way they interpret things and the way they interact with the traders. Every situation is unique, everyone’s experience is different and the thing about forecasting, as you may know, a lot of it is highly subjective. It’s just kind of based on experience. There’s no manual that tells you how to forecast or how to assess risk. It just comes with pattern recognition and experience.

[13:01]

I: Great. I’ll let you go. Thank you very much for all this information. It’s been very useful. Do you mind if we keep in touch a bit in the future, especially as we, kind of develop this game that we’re coming up with?

S: Yeah, yeah, no worries, just send me and email and I can give you a call.

I: Great. Well thank you so much for all your help. Have a really good day.

S: Thank you very much, no worries.

1. The interviewer is denoted by “I” and the subject as “S” [↑](#footnote-ref-1)