**FEBRUARY 13, 2022 / POW POW POWER GRID**

**[HALF SECOND OF SILENCE]**

**[BILLBOARD]**

NOEL: 72 hours after SOMEONE shot up a power substation in Moore County, North Carolina late last year, the authorities said they were moving QUICKLY, leaving zero stones unturned,

*<CLIP> Chief Deputy Richard Maness, Moore County Sheriff's Office: Our tip line has been very very active in the last 24 hours.*

NOEL: But active as that tip line has been, more than two months later, authorities in North Carolina haven’t made an arrest. And in fact, they’re now trying to find who is responsible for ANOTHER attack on a substation about an hour away from Moore County, back in January.

The number of attacks on the power grid in the U.S. is rising. The FBI warns about white supremacists targeting it. But some of the attacks haven’t had anything to do with extremism - they’re cases of vandalism, attempts to cause chaos in order to make it easier to ROB stuff, or just as often, as in North Carolina, we don’t know.

Coming up on Today, Explained: criminals, collectively, have figured out that the American power grid is the definition of an easy target.

**[THEME]**

NOEL: It’s Today, Explained. I’m Noel King. Tell me your name, and what you do?

CATHERINE: My name is Catherine Moorhouse, and I'm a reporter at Politico, where I cover mostly the electric power grid and federal regulations and issues surrounding the power system.

NOEL: Every few months, it seems like we get a new story about someone who either attacks a power substation or plans to attack a power substation. What's happening?

CATHERINE: I mean, first of all, it seems that way because we actually are seeing a pretty significant uptick in these physical or cyber, in some cases, incidents against the grid.

SCORING IN - LOCRIAN SNAILS

CATHERINE: Last year, utilities actually reported 169 of these incidents in total, which is more than we've seen in the past decade, according to an analysis of DOE data. That 169 number is actually a 74% rise in incidents just over last year. And it has gotten bad enough that the FBI sent a memo to utilities detailing some recent incidents, including previously unreported attacks in California and Florida that unfortunately left some customers without power.

*<CLIP> ABC NEWS: A number of utility companies have reached out to federal authorities in recent days about recent or past instances of sabotage, and all are being reviewed.*

CATHERINE: And there have been other really high profile incidents that also, unfortunately, have really impacted people.

*<CLIP> ABC7 CHICAGO: Police say multiple power stations were shot up in an act of sabotage that knocked out power to thousands of homes in near-freezing temperatures. The FBI is now involved.*

*<CLIP> ABC NEWS: Four power substations in Washington State vandalized, including one found set ablaze overnight, knocking out power on Christmas.*

CATHERINE: Power is very important to our daily lives. It’s keeping the heat on, keeping the air conditioning on… so you can imagine on a really hot or cold day the grid is out, in Texas we saw that even led to deaths in some instances. In kind of the broader instances, this 169 number that I mentioned, that could include a range of things. Copper theft is really common and other forms of vandalism or sabotage at these stations and not necessarily, you know, lead to the kind of power outages that we're seeing again in these more high profile instances.

SCORING OUT

CATHERINE: The latest attempts did involve a couple with ties to two neo-Nazis, and it was thwarted by authorities before they had the chance to cause this major outage in Maryland.

*<CLIP> CBS NEWS: The Justice Department has charged a Maryland woman and a neo-Nazi leader from Florida with allegedly plotting to attack Baltimore’s power grid. According to a criminal complaint, Sara Beth Clendaniel spent months conspiring with Brandon Russell to shoot multiple power stations.*

CATHERINE: Russell was serving a five year sentence for stockpiling explosives and was also known to the authorities for having founded that violent neo-Nazi group called the Atomwaffen.

*<CLIP> MSNBC, ALL IN WITH CHRIS HAYES: According to the Southern Poverty Law Center, the Atomwaffen is a terroristic neo-Nazi organization with the main aim of ushering in the collapse of civilization, so a white ethnostate, or whites only utopia can be constructed in its wake.*

CATHERINE: And according to the criminal complaint that was filed, it charged the pair with conspiracy to destroy an energy facility. And this pair actually met in in prison.

And that complaint says that the pair believe that attacks on a handful of substations would basically lead to a cascading failure throughout the grid. And their goal was kind of to sow maximum chaos.

*<CLIP> WBAL-TV 11:*

*FBI, BALTIMORE, THOMAS SOBOCINSKI: Russel provided instructions and location information. He described attacking power transformers as the greatest thing somebody can do.*

*<CLIP> CBS NEWS: The FBI said the suspects had racially and ethnically motivated extremist views and wanted to destroy the entire city.*

CATHERINE: So Clendaniel told an FBI confidential informant about plans to attack five substations

*<CLIP> WBAL-TV 11:*

*FBI, BALTIMORE, THOMAS SOBOCINSKI: In her own words, Clendaniel said she was determined to do this. She added it would ‘lay this city to waste.’*

CATHERINE: Ultimately, that's how they were caught is through going through this informant. And there have been other instances as well where folks with neo-Nazi or white supremacy ties have been thwarted in their attempts to take down the grid. For instance, last year, three men pled guilty to a plot to take down the grid in the name of white supremacy. The plan was essentially to sabotage three different electric substations across the US to kind of sow unrest, cost the government money and lead to quote, a race war, which is how they described it. Four men in North Carolina were also charged in 2021 with a similar conspiracy to attack this critical energy infrastructure while espousing neo-Nazi views. But of course, on the other side of it, ultimately, the pair that was charged in Washington State, for instance, they were not connected with neo-Nazis or alt right or anything like that. Their motive was robbery. They were hoping to rob places nearby and wanted to cause an outage to kind of assist in that.

NOEL: Okay, so some of them are thwarted by authorities, but some of these attacks have happened. Tell us about those.

CATHERINE: the Duke Energy incidents for for instance, in North Carolina, in that case, around 45,000 customers lost power after after two different power substations were shot.

*NBC NEWS, BLAINE ALEXANDER: More than 30,000 people are still in the dark this morning, some crucial places like the sheriff's office are running on back up generator power. An official tells me that the damage to the substations is so severe that some of the parts have to be completely replaced and it takes time to ship those replacements in.*

CATHERINE:: In North Carolina, the authorities have not made any arrests that we know of. It appears that they're still looking for the people who who took down the grid there in there. We haven't seen any evidence on who might have done that or what their motivations might have been. And then on Christmas Day, there were four power substations taken down in Washington state, which left about 14,000 people without power.

<CLIP> ABC NEWS: Officials at one of the substations said they arrived to find a fire that was set intentionally. At others, they say there was forced entry, and equipment was vandalized causing a power outage.

CATHERINE: Two people were charged in the attacks in the Washington substation. One man told law enforcement that he and another person had planned to disrupt power in the area and commit a burglary, according to court documents. And again, that attack left thousands of people without power.

NOEL: So some of the attacks that have actually happened, in fact, a significant number, they have not been about white supremacy. They've been about other things. The FBI, though, says white supremacy is a through line here. It is a trend here. Why do you think the authorities are saying it's a trend if many of the attacks that happen are not carried out by white supremacists or people with neo-Nazi ideology?

CATHERINE: Yeah, I think because they have uncovered enough plots with the intent of taking down the grid. And in many of these incidents, they haven't actually found people who are responsible for the for these attacks and haven't been able to assign a motive. I think for them, it's a maybe a jump, but not a far jump to say that among the many instances that they have kind of where they have been able to foil these plots, some of those plots were not foiled. And in fact, did did lead to, you know, some sort of attack on the grid.

NOEL: Is there a broad awareness that there's vulnerability here? And how are the federal government, the state government, local governments, how are they responding? Is is there a sense that we should just post a couple of armed guards outside of every substation in America?

CATHERINE: Yeah, it's funny you say that, because that was that's pretty much the exact question that the now chairman of of FERC, which is in charge of of the maintaining the reliability of the bulk power system. He asked that exact same question.

*<CLIP> FERC COMMISSIONER WILLIE PHILLIPS: Is the expectation that we can protect these assets all the time? Are we going to have armed guards at every substation, every transformer in the country in order to make sure this doesn’t happen? Or is there some different level of expectation?*

CATHERINE: I think that federal regulators are increasingly aware that this is an issue and increasingly concerned about the vulnerability of some of these of of some of these, you know, parts of the grid. But at the same time, the question is, you know, how much ratepayer money because remember, utilities, when they when they make these big updates, they're charging us as consumers through our electricity bills to make those updates. How much is do we want to charge ratepayers for these updates and for, you know, protecting a facility when not all facilities are the same in terms of how they could impact large parts of the grid. And so I think that there's…these incidents have certainly made federal regulators and states in some instance want to go farther. But I think that we're far from, you know, posting armed guards it at every substation because that would be just incredibly expensive.

*<CLIP> FERC COMMISSIONER MARC CHRISTIE: This is just like the North Carolina utility commission… their big concern is cost… how're we gonna make people pay for this? So I hope we can use some of all that money that’s in the Infrastructure Act, to start defraying some of the cost of all this hardening that we know is gonna have to take place.*

NOEL: And so, I mean, without asking you to predict because you're a reporter, do you think there is a broad solution to this problem or do you think we're going to see this go on sporadically until something catastrophic happens? It almost seems like we might we may be barreling toward a disaster here.

CATHERINE: It will be interesting to see, you know, what comes out of the subsequent investigations here. You know, after there was a threat in 2013 against Pacific Gas and Electric and after that incident, we saw a much bigger emphasis on physical protections and physical standards. Obviously, there are still some holes in the system, as you noted, because we're once again, you know, several years later seeing even more of those incidents. But I think it will be interesting to see, you know, what vulnerabilities federal regulators and federal reliability standards makers ultimately find in their investigation. And, you know, I do think that there are there are always things that you can do to make a system more secure. Right. I don't think it's a it's a doomed cause. But there are also always people who are wanting to kind of disrupt the system.

SCORING IN - Theme From ϟ TIME PHONE ϟ

And I guess if there's one maybe positive thing, regulators have been warning about this kind of vulnerability since the eighties. And thus far, we've managed to, you know, whether it's through the FBI thwarting these attacks or whether it's from increased security, we've managed to kind of stave off some of the worst impacts. And and we do know that that our most critical assets are really, really well protected. So I I guess it remains to be seen, you know, whether any of these incidents are successful and how far kind of federal and state authorities are willing to go in making sure the most vulnerable parts of our system are protected.

SCORING POST

NOEL: That was Catherine Morehouse of Politico. Coming up next: What makes the power grid so vulnerable.

**[BREAK]**

**[BUMPER]**

NOEL: Today, Explained. We’re back with Jonathon Monken. He’s a principal at CONVERGE STRATEGIES, a consulting company that focuses on energy and national security and the pow pow power grid problem is well-known to Jonathan.

JONATHAN MONKEN (CONVERGE STRATEGIES): It's definitely been something at the forefront of my mind for a long time.

NOEL: I asked him, what makes the grid so vulnerable?

JONATHON: Right now, the way the grid is designed, it's it's built with what's called N minus one level of reliability, which is you could remove any individual component, meaning a specific node, a substation, a transmission line, a distribution line. And the grid should be able to solve around that problem. It'll continue to work. You'll find an alternate path. You'll find another way to get it done. But essentially what we see in a type of targeting likehis couple in Baltimore, you know, if they're looking at five different substations, that's obviously well beyond the contingency that utilities are really supposed to plan for..

NOEL: What do these substations look like?

JONATHON: Certainly, they're very unsightly, which is one of the reasons why where these are located tend to be either away from where people live or if they are close to where people live, companies typically try to obscure them because nobody wants to live next to one of these things. Essentially, you're looking at a fence line and inside of it is really just a complex network of machinery and components that are really there to make sure that you're maintaining stability of the electricity flow in that particular area.

*<CLIP> ABC 11: Yea Amber, these sites can be pretty physically vulnerable. I’m here at the site in Carthage that was one of the sites that was targeted this weekend … it does have a fence behind it but the rest of the station is still very visible to a person with a gun that’s looking to fire at it.*

*<CLIP> 60 MINUTES: many substations remain vulnerable targets like this one we found in Southern California that serves more than 300,000 customers. Huge transformers protected by a chain link fence.*

JONATHON: And essentially it's just there to take it from one voltage level to another so that it can be usable by consumers that live close to those substations.

NOEL: Does the fact that they're out of sight, out of mind - out of necessity, one might say, because nobody wants to look at them…

JONATHAN: right <<chortles>>

NOEL: Does that make them more vulnerable?

JONATHON: In some ways it really does, because essentially there's there's no style points when it comes to substations. It's pure function over form in terms of how they're designed. One of the challenges, though, is when you're looking at the expense associated with building a substation, upgrading a substation, maintaining a substation, it's significant. It's a major asset for a utility. And the hard part is everything's expensive. And so when you're making decisions about what you're going to spend money on, essentially what you want is that initial function above everything else, which is making sure that there's [an] adequate number of transformers that are there to handle the amount of capacity that it needs to deliver to to customers. And so it really takes that mentality first. And then there's a lot of questions about what other things you can do to make sure that it's more secure. And that's where the price tag starts to go up very, very quickly.

NOEL: Does the level of security at these substations…is it adequate given how vital these places are?

JONATHON:II think, generally speaking, the security falls below what we would normally expect for something that's that important. Now, what I will say is that utilities aren't just leaving the front door open, right, and just letting anybody walk in there that wants to. I think the biggest challenge that they have is the sheer volume of substations that are out there. There are almost 80,000 substations in the United States. There are so many of these facilities out there. And the hard part is you can't harden all of’em, all the way all the time and have everything that you want for physical protection, because it really just becomes cost prohibitive when you consider what it takes in order to protect these. So I think generally speaking, what needs to happen is the baseline needs to come up, meaning that, you know, just kind of the entry level of physical security that's necessary for substations has been demonstrated in these recent events to just be insufficient for what we would expect, given the importance of those assets.

NOEL: Yeah, it sounds like if I'm one of the bad gals, all I need is a rifle and some bolt cutters, and I'm on my way to causing a lot of trouble.

JONATHON: Yeah, unfortunately, I think that's that's really been demonstrated to be true, which is, it does not require a lot of sophistication. It really requires simple tools that are readily available to really anyone who wants to perpetrate this type of attack. And unfortunately, the methods are being more widely shared.

*<CLIP> CBS NEWS: CBS News obtained a federal law enforcement bulletin that says Oregon and Washington State experienced physical attacks on substations using hand tools, arson, firearms and metal chains possibly in response to an online call for attacks on critical infrastructure.*

JONATHON: So there are forums online, there are places that people can go that if they want to learn more about what it takes to try and disrupt a substation, just trying to damage anything in the substation is not always going to bring about the result that somebody who's attacking it would want to have. So having a little bit of knowledge about what components are most important, what pieces of those substations are most likely to cause an outage or cause a problem. Those are the types of things that if they learn and they have access to these simple tools already, it's not particularly difficult.

NOEL: Who is doing that? Who is organizing people online about how to attack power substations?

JONATHON: A lot of the recent events have been perpetrated by what we call HVE’s… homegrown violent extremists.

SCORING IN - uh oh i slipped and dropped the keys into the ocean

*<CLIP> CHANNEL 10 WBIR: The FBI says the man behind the Christmas Day suicide bombing in Nashville was fueled by conspiracy theories and paranoia. The explosion damaged 41 buildings and knocked out AT&T’s communication system across the state.*

*<CLIP> CBS NEWS: A top former energy official claims an attack on an AMerican power grid, was terorrism. One or more snipers opened fire, knocking out 17 transformers that send power to California’s Silicon Valley.*

JONATHON: So whether that's white supremacists or neo-Nazis, it's really just a group of people that are looking to essentially undercut the general faith and confidence in government. And what's interesting is that even though it's not typically run by government - the grid is largely owned and operated by the private sector - It serves as kind of a proxy for government competence. So when critical infrastructure systems fail, right, when there's a big outage in North Carolina or there's a big outage in Texas like we've seen in the last couple of years, it's the governor who gets called on the carpet, even though they're not the one who runs the grid. They see this as kind of a proxy for government, and that makes it a very lucrative target for HVE’s because the ease of access and really the potential consequences to government officials, It just helps them achieve either social or political goals with a very low threshold in terms of the point of entry for sophistication.

SCORING OUT

NOEL: We were talking about some of these recent attacks that have been thwarted by federal authorities, the FBI, which is really, really interesting. How is the FBI copping on to the fact that these attacks are being planned?

JONATHON: If it's a lone wolf actor, right, it's just an independent person that's out there doing their thing. There's essentially some limitations associated with the legal pathways that are available to prosecute or investigate individuals in this particular space. Now, without a doubt, there are stiff federal laws related to attacking infrastructure no matter what. So if it does happen or when it does happen, they can throw the book at them. But obviously, you don't want to wait until the terrible thing happens first. So when you look at kind of the confluence of these really like the Venn diagram of the people that are plotting for these types of things, people that are incentivized to do these types of things, it gets back to that domestic terrorism, that homegrown violent extremist and that infrastructure terrorism that really speaks to really the network of planning that happens around these types of things. They have to get the equipment from somewhere. They have to get the knowledge and expertise necessary to execute the attack from somewhere. And there's a level of organization that's necessary for targeting infrastructure that at least gives. You know, law enforcement authorities a little bit more ability to investigate these types of things because there are those forms. So that information is being shared. There are places where people are being radicalized and see this as a pathway to achieve a political objective.

NOEL: Do you think from what you've seen, is security enough of a priority?

JONATHON: Physical security, especially in recent years, in the last decade, doesn't have anywhere near the prominence of both the level of awareness within the general public or the level of funding that's been dedicated to it. As cybersecurity has, cybersecurity and security professionals in that particular area have done a stellar job, honestly, of raising the overall public awareness of cybersecurity risk. I don't think you could find a person anywhere at this point that doesn't acknowledge the fact that cybersecurity is real and it's potentially a problem when it comes to physical security. I think what's been interesting is they're just really have an outside of things, just like routine theft. There hasn't been a lot of physical security risks to great infrastructure. But now what we're seeing in the last couple of years and really especially in the last, you know, 12 to 18 months, is it's raising in prominence because it's it's being taken advantage of. The lack of physical security is now being seen. And so I think when it comes to security as a priority, physical security is has not raised to the level of prominence that cyber has.

NOEL: And so what are some possible solutions as you see them, aside from like just put an armed guard in front of every power substation, How do we fix this problem?

JONATHON: So understanding that in an average substation, a chain link fence with cameras that are not being monitored in real time and is an unmanned facility, that's probably not going to cut it anymore, that's that's not going to be enough. Now, there are substations and I live close to one that is heavily protected with tall ballistic walls that are impenetrable to any readily available weapon that somebody would just try and shoot at it. You can't get in it. You can't shoot at it. You can't even see it from the street because they recognize the importance of the substation. So somewhere in there is going to be this tiered approach of saying, okay, well, if we have almost 80,000 of these substations, we have to get better from the bottom up.

SCORING IN - Theme From ϟ TIME PHONE ϟ

JONATHON: The lowest level of security that currently exists today for some stations isn't enough. And then there just needs to be a clear understanding of where that cost benefit tier really exists of saying this is this is enough to get us at least to a risk reduction level that's acceptable, but it's never going to be impenetrable.

CREDITS: Today’s show was produced by Victoria Chamberlin and edited by Matthew Collette. It was fact-checked by North Carolina’s own Laura Bullard and engineered by Patrick Boyd, who also lives in North Carolina. Hm. I’m Noel King. It’s Today, Explained.

**[10 SECONDS OF SILENCE]**