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4 ENHANCING AMERICA'S GRID SECURITY AND RESILIENCE

5 FRIDAY, JUNE 16, 2023

6 U.S. House of Representatives

7 Subcommittee on Energy, Climate and Grid Security

8 Committee on Energy and Commerce

9 Washington, D.C.

10 The subcommittee met, pursuant to call, at 10:00 a.m.,
11 at 395 Magnolia Road, Pinehurst, North Carolina 28374, Hon.
12 Jeff Duncan [chairman of the subcommittee] presiding.

13 Present: Representatives Duncan, Latta, Griffith,
14 Bucshon, Palmer, Lesko, and Weber.

15 Also Present: Representatives Allen and Hudson.

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16 Mr. Duncan. Okay. The Subcommittee on Energy and
17 Climate and Grid Security will now come to order.

18 The chair will recognize himself for 5 minutes for an
19 opening statement.

20 First off, thanks for being here today. Great
21 audience, and I look forward to the panelists as we delve
22 into this issue.

23 So let me begin by welcoming everyone to the House
24 Energy and Commerce Committee, Subcommittee on Energy,
25 Climate and Grid Security. It is a field hearing,
26 "Enhancing America's Grid Security and Resilience." As a
27 subcommittee chairman, I am excited to be here in Moore
28 County, North Carolina, with my colleagues, at the
29 invitation of my good friend and colleague on the Energy
30 and Commerce Committee, Representative Richard Hudson.
31 There is no better a member of Congress, the Energy and
32 Commerce, except for myself.

33 The Energy and Commerce Committee exercises broad
34 jurisdiction over Federal agencies and issues related to
35 America's electric grid. As part of these
36 responsibilities, we work closely with the Department of
37 Energy and the Federal Energy Regulatory Commission, known
38 as FERC, to ensure that our electric grid and the utility
39 companies that operate it are well coordinated and prepared

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40 to address all hazards to the electric grid, whether they
41 be severe weather events, physical, or cybersecurity
42 threats.

43 America's power grid is the world's most complex and
44 highly interconnected system in the world. The challenge
45 of protecting it is immense and it is growing, especially
46 as our power mix shifts and we add more, and new, and
47 varied generations to that mix. According to the Energy
48 Information Administration, our Nation's power grid
49 consists of more than 7,300 power plants, 160,000 miles of
50 high-voltage power lines, millions of miles of low-voltage
51 power lines, and more than 50,000 substations where
52 transformers convert raw electricity to higher or lower
53 voltages.

54 Historically, natural events, especially severe weather
55 events, present the greatest risk to the system's
56 reliability and resilience. However, we are also facing a
57 growing threat of physical and cyberattacks to our electric
58 grid and other energy infrastructure like pipelines and
59 electric substations. There have been several grid
60 security instances that have occurred recently that we are
61 examining as part of our oversight responsibilities.
62 Within the last year, we have seen electrical transmission
63 substations attacked in Tacoma, Washington, and right here

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64 in Moore County. Both of these attacks resulted in
65 blackouts that affected tens of thousands of people for
66 multiple days. Prior to these instances, we saw one of the
67 Nation's most critical pipelines, the Colonial Pipeline,
68 suffer a cyberattack that created fuel shortages and price
69 spikes that lasted for weeks.

70 As a member of the Energy and Commerce Committee, we
71 are taking a close look at these instances to gather
72 lessons learned and determine whether Federal laws or
73 regulations should be revised to enhance grid security and
74 resilience. We are also gathering the perspectives of the
75 electric industry and State partners to learn how we can
76 harden our grid, improve situational awareness, and enhance
77 grid security, and support the response efforts.

78 With that, I would like to welcome our witnesses and
79 thank them for appearing before us today. I look forward
80 to learning more about the substation attack that occurred
81 here in Moore County so I can share the lessons learned
82 with electric utilities and State officials in my home
83 State of South Carolina and others across the country and
84 with my colleagues back in Washington. So I would now like
85 to recognize your Congressman from North Carolina, Richard
86 Hudson, for an opening statement.

87 Mr. Hudson. Thank you, Chairman. This is a day we

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88 have been looking forward to for a long time. I want to
89 thank all the folks in the audience who are here today. I
90 want to thank my colleagues for making this trip to my home
91 here in the beautiful Sandhills. I want to thank Chairman
92 Jeff Duncan for your leadership. I want to thank our
93 witnesses for making time to be here today. We really look
94 forward to your testimony.

95 I think the testimony we are going to hear today is
96 really going to set the table for a national discussion on
97 grid vulnerability, and I am proud that this discussion
98 begins in my home here today with my friends and neighbors
99 who are part of this. We, just this morning, toured the
100 site of one of the substations that was attacked, and I
101 wanted my colleagues to see the sophistication of that
102 attack and understanding the larger implications that plays
103 into the vulnerabilities of our total grid. And I think we
104 can learn from what happened here, what could happen
105 somewhere else if a more larger scale attack of this
106 sophistication ever were to happen.

107 There are a number of VIPs in the audience, and I am
108 going to get in trouble if I start naming some of them, but
109 I have to single out our sheriff, Ronnie Fields, for your
110 incredible leadership and particularly the way you stepped
111 up, and you and your deputies working with local law

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112 enforcement throughout this. Thank you, sir. Incredible
113 job you do every single day.

114 Mr. Duncan. Is your mike on?

115 Mr. Hudson. My mike on. Oh, wow.

116 Mr. Duncan. I thought I was speaking loud.

117 Mr. Hudson. Let there be light. That is a little too
118 loud.

119 I am not going to start over, but thank you, Sheriff.
120 Also, Senator Tom McInnis, thank you for your leadership on
121 the State level and the State Senate. I see Neal Jackson,
122 our representative, and Ben Moss. They have been working
123 on legislation, really important legislation. In fact, I
124 think the governor today is signing legislation that you
125 all worked on to increase penalties for attacks like this.
126 I think that is really important. I am going to get in
127 trouble, but I have got to know the chairman of our county
128 commissioner, Nick Picerno, is here and a number of our
129 commissioners. Thank you for your leadership. Thank you
130 for being here today.

131 We have got our mayor, John Strickland, of Pinehurst.
132 Thank you for being here, sir. I see a number of members
133 of the village council. Mayor Bob Farrell from Aberdeen, I
134 understand, is here. Taylor Clement is here representing
135 the City of Southern Pines. Thank you. Mike Hardin, our

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136 district attorney. We went to separate high schools
137 together. We have known each other a long time. Thank you
138 for your leadership. I could go on and on. There are so
139 many dignitaries and people here who have shown great
140 leadership throughout this. Thank you for being here with
141 us today.

142 Again, as I said earlier this morning, we toured the
143 substation sites, one of the attacks on December 3, leaving
144 my home and 45,000 of my neighbors without power for, in
145 some cases, almost a week. In the aftermath of this
146 attack, our hospital was impacted, threatening medical
147 treatment. Schools were shut down, businesses were
148 affected, stoplights went dark, gas stations were closed,
149 cell signal was impacted, water couldn't be heated. Our
150 region suffered millions of dollars in damage and right
151 before Christmas holiday. It really made the hundreds of
152 pounds of deer meat that I lost in my freezer seem pretty
153 insignificant, but we felt that.

154 An attack like this could have devastated our
155 community, and we didn't go without our struggles, but
156 overall, I am so proud of the resilient response of the
157 people of Moore County in the days and weeks that followed
158 these attacks. The people here truly showed the best of
159 Moore County, the best of North Carolina, and the best of

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160 our Nation.

161 Community groups stepped in and ensured our vulnerable
162 neighbors weren't left without access to critical care and
163 resources. Within hours, churches like First Baptist
164 Church of Aberdeen, and First Baptist Church of Pinehurst,
165 and the Yates-Thagard Baptist Church offered shower,
166 laundry, and meal services. Harris Teeter offered free ice
167 for folks for medicine and food. Staff and volunteers of
168 the Boys & Girls Club in the Sandhills partnered with our
169 food bank to prepare 800 care packages. Our fire and
170 rescue, police department, and library opened up their
171 doors for folks to access the internet and to charge their
172 phones and devices.

173 All throughout, I am grateful for the tireless and
174 heroic efforts of the workers of Duke Energy and local
175 providers, including Randolph Electric Membership Corp.,
176 Lee Electric Construction, and Pike Electric, who worked
177 tirelessly in the cold, 24/7, in the dark, under tremendous
178 stress to get these substations back online. Thank you for
179 your incredible commitment to our community. It is
180 inspiring to see how everyone came together in our time of
181 need, and I want to reiterate my many thanks to all those
182 who assisted during this time.

183 Again, I want to recognize our sheriff, Ronnie Fields,

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184 for his incredible response and his leadership working with
185 local law enforcement and for continuing to follow up on
186 tips and leads to determine who is responsible for
187 December's attack. I share the community's frustration
188 that we still haven't found those responsible. But in
189 Washington, I have worked with the Select Committee on
190 Intelligence to coordinate classified briefings from the
191 FBI on their assessed threat, not only in this case, but
192 the overall threat to our grid. I will continue to push
193 the FBI to make these attacks a priority, and to make sure
194 that the appropriate information sharing occurs and the
195 cooperation with our local law enforcement so that those
196 responsible can be held accountable.

197 Since the attack occurred, I have been in listening
198 mode. I have heard from constituents, from our grid
199 operators, from community developers and business owners
200 who have concerns about our grid security and resilience,
201 all against the backdrop of historic high energy costs. I
202 share your concerns. That is why, as I promised in the
203 days following the attack, I brought Washington to Moore
204 County. I want to show my colleagues who are here today
205 not just the numbers and facts, but the people personally
206 affected and to hear their experiences.

207 Everyone needs to know the full impact of this kind of

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208 an attack, the urgent need to address vulnerabilities that
209 this exposes in our grid. There are 45,000 stories of why
210 Moore County and our Nation need greater grid resilience.
211 Now we have the opportunity to hear from experts in the
212 industry and those who call North Carolina home on the
213 current state of our grid security and how we move forward
214 from these attacks. My colleagues and I welcome these
215 testimonies to help us do our jobs effectively. And I can
216 guarantee you, when we head back to Washington to work, our
217 critical energy transmission infrastructure and what
218 vulnerabilities exist will be at the forefront of our
219 conversations.

220 So I thank my colleagues for being here today. I thank
221 our witnesses again for making the time. We look forward
222 to the discussion that is going to follow. With that, Mr.
223 Chairman, I yield back.

224 Mr. Duncan. I thank the gentleman for his statement,
225 and that concludes members' opening statements. The chair
226 would like to remind members that pursuant to the committee
227 rules, all members' opening statements will be part of the
228 record.

229 I want to echo my colleague and thank Duke Energy and
230 really all the utilities that are involved in how to do
231 these things, but this was a Duke Energy site, and we thank

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232 them for their work with us. I also want to thank Sheriff
233 Fields and the information you provided, and my longtime
234 friend, Senator Tom McInnis. And I will applaud the
235 legislature of North Carolina for the work you have
236 recently done that is going to be signed into law today
237 that addresses the penalties for these type of attacks. So
238 thanks, North Carolina Legislature, for that.

239 I want to remind the crowd this is an official
240 congressional oversight hearing. It is not a town hall.
241 We are going to operate it like an official hearing and ask
242 you to just listen as participants and let us do our work.

243 So I want to thank all the witnesses for being here
244 today and taking time to testify before the subcommittee.
245 I am going to introduce you, and then you will be
246 recognized for 5 minutes: Mr. Mark Aysta, managing
247 director of enterprise security for Duke Energy
248 Corporation; Mr. Will Ray, director of Emergency Management
249 for the State of North Carolina; Mr. Tim Ponseti, vice
250 president of operations for the SERC Reliability
251 Corporation; and Mr. Jordan Kern, assistant professor at
252 North Carolina State University. Go Tigers.

253 Mr. Hudson. Come on, Chairman. Come on.

254 Mr. Duncan. So per committee custom, each witness will
255 have 5 minutes for an opening statement and followed by a

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256 round of questioning from the members, and there are some
257 lights in front of you, I think. Green will designate when
258 we start. When it gets to yellow, you need to start kind
259 of wrapping up. When it gets to red, your 5 minutes are
260 up. We are not going to adhere directly to 5 minutes, but
261 just wrap up there so we can be on time.

262 So now I recognize Mr. Aysta for 5 minutes for your
263 opening statement.

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264 STATEMENTS OF MARK AYSTA, MANAGING DIRECTOR OF ENTERPRISE
265 SECURITY, DUKE ENERGY; WILLIAM RAY, DIRECTOR AND DEPUTY
266 HOMELAND SECURITY ADVISOR, DIVISION OF EMERGENCY
267 MANAGEMENT, NORTH CAROLINA DEPARTMENT OF PUBLIC SAFETY;
268 TIMOTHY PONSETI, VICE PRESIDENT, OPERATIONS, SERC
269 RELIABILITY CORPORATION; AND JORDAN KERN, ASSISTANT
270 PROFESSOR, NORTH CAROLINA STATE UNIVERSITY, DEPARTMENT OF
271 INDUSTRIAL AND SYSTEMS ENGINEERING

272 STATEMENT OF MARK AYSTA

273 Mr. Aysta. All right. Thank you, Chairman Duncan and
274 members of the subcommittee. My name is Mark Aysta, and I
275 appreciate the opportunity to be here with you today
276 representing Duke Energy, where I serve as the managing
277 director of enterprise security. I have more than 27
278 years' experience as a law enforcement officer, including
279 almost 22 years at the FBI. For the past 4-and-a-half
280 years, I have been applying that experience at Duke Energy.

281 We are one of the largest energy holding companies in
282 the Nation, serving 10 million electric and gas customers
283 across seven States in the Southeast and the Midwest, and
284 our customers depend on us for an essential service. We
285 know how critical it is that we provide our customers and

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286 communities with reliable, affordable, and increasingly
287 clean energy, and our comprehensive security strategy is a
288 part of that commitment. In my role, I am responsible for
289 the safety and security of nearly 28,000 employees as well
290 as the thousands of assets that we have in the field. My
291 team oversees all aspects of security, including physical
292 access control systems, uniformed security officers, threat
293 intelligence, and more.

294 Duke Energy has always had a robust security strategy
295 to deter attacks and respond quickly as they occur, and
296 that approach is much more than just physical security,
297 barriers, and defenses. Our multi-layered security
298 strategy includes protective barriers, monitoring and
299 control capabilities, and a cross-functional team assessing
300 threats 24 hours a day, 7 days a week, 365 days a year. We
301 also partner with industry peers and engage in daily
302 intelligence sharing with law enforcement at all levels.
303 The strategy is always evolving as we evaluate new and
304 emerging threats and expand our partnerships.

305 We are all here today because on the night of December
306 3, two Duke Energy substations in Moore County were
307 attacked, cutting power to 45,000 customers. The repairs
308 were extensive, and Duke Energy had crews doing 24-hour
309 shifts, working through multiple repair paths, and

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310 replacing several large and important pieces of equipment
311 in order to restore service.

312 We appreciate how patient our customers were, and we
313 sought incredible support from the local community during
314 this extended and challenging outage. We continue to work
315 with the FBI and local law enforcement on their
316 investigations into the attacks in Moore County. We have
317 also taken steps to enhance our security strategy in the
318 wake of the attacks. I would like to share with you some
319 of the measures that we have taken.

320 Immediately after the attacks, we increased monitoring
321 capabilities at our substations in Moore County, and over
322 the last 6 months, we have done a comprehensive review of
323 our electric assets across our six-State territory. As a
324 result of our review, we are shifting from a tiered ranking
325 system focused largely on an asset's impact to the bulk
326 electric system to a tiered approach with a greater focus
327 on potential impact to customers. It is through this lens
328 we have identified opportunities to increase security and
329 surveillance, and we are developing implementation
330 schedules for this work.

331 We are also improving our processes and rapid response
332 protocols for essential equipment and personnel. We have
333 identified critical parts with long lead times that may be

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334 needed for repairs to essential equipment, and we are
335 working to strategically locate those parts to be available
336 for rapid deployment. We have embarked on a plan to train
337 chief law enforcement officers across our six-State
338 footprint on threats to the grid and how they can better
339 protect it. We will continue exploring opportunities for
340 additional improvements in the future, even as we execute
341 on those upgrades today.

342 But we understand that even with a robust strategy of
343 deterrence and monitoring, no utility can completely
344 eliminate the risk of an attack. That is a reality of
345 operating an electrical system that extends across nearly
346 100,000 square miles and includes thousands of substations
347 and millions of components. It is why we firmly believe
348 grid resiliency must be a part of the conversation. The
349 same self-healing technology that can detect outages from
350 storms, isolate problems, and reroute power to restore
351 service to customers can also help mitigate the impact of
352 an attack on the grid.

353 Investments in resiliency are a critical part of the
354 \$75 billion in grid improvements Duke Energy has planned
355 for its electrical utilities over the next decade. With an
356 electric grid that spans multiple States, Duke Energy does
357 not believe that grid security mandates containing a one-

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358 size-fits-all approach would lead to better protection,
359 affordability, or reliability for our customers. We look
360 forward to taking part in the conversation and working with
361 Congress on how best to deter attacks, protect our
362 infrastructure, bolster our supply chain to more quickly
363 replace critical equipment, and recover faster from attacks
364 and other adverse events. With that, I welcome your
365 questions.

366 [The prepared statement of Mr. Aysta follows:]

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367 Mr. Duncan. I thank the gentleman. I will now
368 recognize Director Ray for 5 minutes.

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369 STATEMENT OF WILLIAM RAY

370 Mr. Ray. Good morning, Chairman Duncan, Representative
371 Hudson and members of the committee. Thank you for this
372 opportunity to speak on behalf of the State of North
373 Carolina.

374 Broadly, critical infrastructure protection is a vital
375 piece of our overarching homeland security enterprise as we
376 continue to see the types of threats, hazards, and
377 incidents emergency management and public safety agencies
378 nationwide are having to prepare for and respond to
379 increase both in frequency and in complexity. The
380 intersection and integration of the traditional emergency
381 management and the homeland security enterprise continues
382 to grow in importance. As the team here in North Carolina
383 has reviewed some of the recent incidents, there are four
384 areas that we would like to highlight as a part of our
385 evaluation today.

386 First is the importance of partnership. In emergency
387 management, we utilize a whole-of-community approach as we
388 execute our all-hazards mission. I cannot overstate the
389 importance of partnerships here in North Carolina to do
390 that effectively. Regardless of incident type or need, it
391 takes public sector, private sector, nonprofits, and

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392 volunteer agencies at all levels -- Federal, State, local,
393 tribal, and territorial -- to effectively work through the
394 continuum of mitigation, preparedness, response, and
395 recovery. This concept is not simply a talking point or a
396 platitude, but a strategy that is central to what we do
397 here. At every level of the response for the December
398 incident, partnerships were key, whether facilitating
399 movement of equipment for power restoration in feeding or
400 addressing the needs of those impacted or as we have moved
401 through the investigation. Relationships fostered and
402 developed pre-incident have been and continue to be
403 essential to enhancing and improving what we do as
404 emergency managers.

405 Second, information sharing protections. As I have
406 said, the private sector is an essential part of
407 preparedness and response. The percentage of the
408 Department of Homeland Security-defined critical
409 infrastructure sectors owned by the private sector is
410 significant. We must evolve and recognize that, public or
411 private, we need the members of those 16 sectors at the
412 table and in partnerships in which they can be fully
413 transparent. Part of the value of the emergency management
414 and homeland security enterprises is we come largely
415 without a regulatory role. The information-sharing

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416 protections currently in place do not adequately support
417 open, honest, and transparent dialogue between public and
418 private sector, and we must be able to work together in an
419 environment that addresses the needs of both public and
420 private sector in that information and intelligence
421 sharing. The current Federal and State information sharing
422 and intelligence protections do not fully address the need
423 for open dialogue while protecting the parties engaged, as
424 well as limiting information sharing due to classification
425 requirements.

426 Third would be related to preparedness, funding levels,
427 and needed flexibility. Many States, including North
428 Carolina, heavily rely on Federal funding from the
429 Department of Homeland Security and the Federal Emergency
430 Management Agency to support critical infrastructure
431 protection program execution. Federal funding levels have
432 largely plateaued, accompanied by an increasing requirement
433 to fund various national priorities with that limited
434 funding. While we certainly acknowledge the importance and
435 the validity of those national priorities, those do not
436 always translate to meet the specific needs of the States,
437 locals, tribes, or territories. By forcing States to adopt
438 those strict and specific spending targets, funding is not
439 as effective as it can be. We have incredibly smart and

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440 competent emergency management and homeland security
441 professionals in States across this Nation, and we should
442 trust the abilities of those individuals to make the best
443 choices for their respective State or jurisdiction.

444 Finally, we want to highlight some of the authority
445 challenges. Currently, the Robert Stafford Disaster Relief
446 and Emergency Assistance Act is the major governing
447 authority for Federal disaster response and recovery. By
448 extension, this act has influenced many of the State
449 disaster declaration authorities in place across this
450 Nation. Currently, this Federal act is not structured in a
451 way that can support response and recovery for incidents,
452 such as the recent Moore County event, standing on its own.
453 It is still largely focused on the impacts of a large-scale
454 natural hazard event.

455 If we are going to support the emergency management and
456 homeland security apparatus across this country in
457 responding to consequence management needs of communities
458 and individuals in need, we need a modernized Federal
459 Disaster Relief Act. We know that FEMA and other agencies
460 in the Federal family have and will continue to support
461 response as they are able and will fully engage under their
462 existing authorities, but the significant gap will be in
463 the lack of ability of Federal and State governments to

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464 support critical recovery efforts for communities that are
465 experiencing significant impacts.

466 In closing, I would like to acknowledge the men and
467 women of Moore County. During the incident in December,
468 the response was a demonstration of this whole-of-community
469 approach we talked about at the beginning -- public,
470 private, nonprofit, and volunteer coordinating -- to meet
471 the needs of their community. We are incredibly proud of
472 this community and their resilience. On behalf of the
473 State of North Carolina, thank you for holding this
474 hearing, and thank you for highlighting the importance of
475 critical infrastructure protection as an integral part of
476 our homeland security strategy and enterprise. Thank you.

477 [The prepared statement of Mr. Ray follows:]

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478 Mr. Duncan. I thank the gentleman for his statement.

479 I now go to Mr. Ponseti. Am I pronouncing that right?

480 Yes, you are recognized for 5 minutes.

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481 STATEMENT OF TIMOTHY PONSETI

482 Mr. Ponseti. Thank you, Chair Duncan and members of
483 the subcommittee. I am Tim Ponseti, VP of operations at
484 SERC, headquartered in Charlotte, North Carolina, and I
485 really appreciate the opportunity to provide SERC's
486 perspective on grid security and resilience. As someone
487 who spent the better part of my career working to keep the
488 lights on in one form or another, I appreciate your focus
489 on these critical issues.

490 SERC is 1 of 6 regional entities that cover North
491 America, working with and under the oversight of the North
492 American Electric Reliability Corporation, or NERC,
493 responsible for preserving and enhancing the reliability,
494 resilience, and security of the bulk electric system. SERC
495 is an independent resource for the industry, regulators,
496 and policymakers. Our central mission is the effective and
497 efficient reduction of risk to the bulk power system using
498 all the tools and powers at our disposal. These tools
499 include not only shining a light on key risks through
500 outreach and training, but ensuring that the mandatory
501 standards are followed and met through a regular cadence of
502 audits and spot checks. And when they are not, we have a
503 variety of enforcement and mitigation tools we can use as

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504 well, which include potential for significant fines for
505 major program failures.

506 Every year, SERC staff works with our technical
507 committees, which include 1,500 industry subject matter
508 experts, to identify the top regional risk facing our
509 footprint. Thirty are called out in our recent regional
510 reliability report and the top 10 highlighted. It is worth
511 noting that the SERC team, along with its technical
512 committee members, identified seven common themes and
513 emerging trends among all the risks, and I want to
514 highlight two of those.

515 First, security risk, both cyber and physical, are
516 growing, and in the top 10, we have four that are in that
517 area: supply chain, legacy architecture, exploiting cyber
518 vulnerabilities, and extreme physical attacks like we saw
519 in Moore County. Extreme weather is also a key risk to the
520 SERC region, especially when coupled with the lack of
521 situation awareness and lack of fuel diversity.

522 Along with NERC and the regional policy makers here
523 today, SERC shares a deep concern for the recent increase
524 in physical attacks on electric infrastructure. While we
525 have always seen substation break-ins for copper theft, we
526 are seeing more and more attacks which exceed the threshold
527 of criminal mischief and rise to the level of sabotage.

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528 Clearly, Moore County and the Seattle-Tacoma attacks which
529 resulted in outages last December, all with the plot that
530 the FBI thwarted in Baltimore, have triggered growing
531 concerns around the physical security of our electric
532 infrastructure. Fortunately, the bulk power system has
533 built into it extraordinary levels of redundancy, which
534 enhances reliability and creates resilience. It takes
535 widespread system damage, like from a hurricane or
536 tornadoes, or ice storms, or target attack, like what
537 happened in Moore County, to leave a large number of people
538 in the dark for an extended period of time.

539 FERC, NERC, and the regions are focused on the
540 protection of bulk power system, generally defined as 100
541 kV and above on the transmission system, 75 megawatts and
542 above from generation. Our focus is on the avoidance of
543 large-scale reliability events, events that generally
544 affect millions of people. That is the framework of CIP-
545 014, which is the physical security standard for protecting
546 the most critical transmission substations.

547 Given the recent increase in physical attacks on the
548 bulk power system, and shortly after the Moore County
549 attack, the Federal Energy Regulatory Commission ordered
550 NERC to conduct a study to examine the effectiveness of the
551 CIP-014 standard. This order directed NERC to address

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552 three questions: the adequacy of the criteria, the
553 adequacy of the risk assessment, and whether a minimum
554 level of physical protection should be established for all
555 BPS transmission substations. At FERC's April 20, 2023
556 meeting, Jim Robb, NERC's president and CEO, summarized
557 that CIP-014 study. The study found the criteria and risk
558 assessments are adequate, but also identified additional
559 actions and areas for further study. As a next step, NERC
560 and FERC are holding an open technical conference on August
561 10 in Atlanta to determine if further risk-based measures
562 are needed in this area.

563 In wrapping up my remarks, the impact of localized
564 events, such as the Moore County incidents, are high-
565 profile and deeply concerning. As each of my five kids
566 reminded me during COVID lockdown while doing school from
567 home every day online, reliable electric power and reliable
568 internet service are now viewed as part of life's basic
569 necessities. SERC is committed to working with its
570 registered entities, policymakers, NERC, FERC, and others
571 to ensure a highly reliable, resilient, and secure bulk
572 power system in North America. Thank you.

573 [The prepared statement of Mr. Ponseti follows:]

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574 Mr. Duncan. Thank you, Mr. Ponseti. Dr. Ray, you are
575 recognized for 5 minutes.

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576 STATEMENT OF JORDAN KERN

577 Mr. Kern. It is Kern. Sorry. Good morning and thank
578 you for the invitation to speak today. My name is Jordan
579 Kern. I am an assistant professor at North Carolina State
580 University in the Department of Industrial and Systems
581 Engineering. At NC State, I conduct research on bulk
582 electric power systems. My group builds software that
583 simulates the behavior of real-world systems, for example,
584 the North Carolina grid, the Duke Energy grid, and/or the
585 entire Eastern interconnection. We use these models to
586 stress test systems performance and explore how the
587 vulnerability of the power grid might change in the future.

588 My group's research is funded by the National Science
589 Foundation and Department of Energy, and many of my most
590 consistent and productive collaborations are with national
591 laboratories, especially Pacific Northwest National
592 Laboratory. My group's research also frequently involves
593 stakeholders in the electric power industry, including
594 electric utilities, merchant power generators, system
595 operators, and regulators.

596 There are some important challenges for grid planners
597 and operators in which I have comparatively little
598 expertise, especially alongside these folks. These include

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599 global supply chains, cybersecurity and terrorism, and
600 regulatory permitting and market reforms. I am more
601 qualified to talk about the challenge of protecting the
602 grid against more frequent and extreme weather, while also
603 reducing greenhouse gas emissions to very low levels.

604 More than 80 percent of major power outages, or outages
605 affecting at least 50,000 people, are caused by extreme
606 weather. This costs \$25 billion to \$75 billion per year in
607 the form of damaged equipment and service outages. In
608 order, the most damaging weather events to the grid are
609 typically from severe thunderstorms and winter weather,
610 hurricanes and tropical storms, extreme heat, and then
611 wildfires. Generation, high voltage transmission,
612 substations, and low-voltage distribution infrastructure
613 are all vulnerable in different ways.

614 Apart from economic costs, service interruptions pose
615 life threatening risks for people who depend on
616 electricity-powered medical devices, and these risks can be
617 exacerbated if power outages are associated with or occur
618 at the same time as hazardous conditions like flooding,
619 wildfire or extreme temperatures. I am often asked how
620 climate change will impact this dynamic, and the answer is
621 it is different across the U.S. and somewhat uncertain.
622 The risks for the grid that scientists are confident about

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623 include more intense hurricanes, more frequent and severe
624 heat waves, and, depending on the region, drought.

625 Although there are a range of different technology
626 pathways in which the U.S. can achieve adequate cuts in
627 carbon emissions to avoid the worst impacts of climate
628 change, the lowest cost scenarios look likely to involve a
629 lot more reliance on wind and solar. A growing number of
630 tools are available for managing variability in wind and
631 solar, and these include, but are not limited to, energy
632 storage, flexible uninterruptible demand, maintaining
633 responsive generators as backup, increased transmission and
634 coordination across system operators, and improved
635 forecasting.

636 Utility-scale renewable energy has been documented in
637 some cases to perform well during periods of grid scarcity,
638 and distributed solar, in particular, offers some unique
639 capabilities for resiliency in remote areas. Nonetheless,
640 tying a majority of the U.S. electricity supply to variable
641 energy could alter the exposure of the grid to weather risk
642 in important ways.

643 For example, in my own research, I have observed that
644 due to uncertainty in weather conditions, the amount of
645 backup or firm capacity needed in grids decarbonized via
646 wind and solar could be somewhat higher than what some

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647 national modeling studies have suggested. There are other
648 important ways in which a rapid transition to clean energy
649 could alter risks associated with extreme weather. For
650 example, I worry that we don't fully understand the
651 potential for reduced mobility of vulnerable communities
652 during weather disasters if we largely electrify light-duty
653 vehicle transportation in the U.S.

654 One of the best ways to protect against some of these
655 risks is to perform stress tests of our current systems and
656 the systems we hope to build in the future. There are
657 already established practices in place at utilities, system
658 operators, and regulators to do this. However, as the grid
659 expands into other economic sectors, as we add less
660 controllable sources of generation to the mix, and as
661 climate change alters the chance of extreme events
662 occurring, I believe it is becoming more difficult to
663 characterize the plausibility, let alone the likelihood of
664 different future scenarios and extreme events. And as a
665 result, stress testing the grid is becoming more difficult
666 to perform and the results somewhat more difficult to
667 interpret, even as the grid is becoming more and more
668 important in the lives of Americans.

669 So I will leave it there, and thank you for allowing me
670 to speak today.

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671 [The prepared statement of Mr. Kern follows:]

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672 Mr. Duncan. Thank you, Dr. Kern. I apologize for
673 recognizing you wrongly a minute ago.

674 This concludes opening statements of our panelists, and
675 now we will move into the question-and-answer portion of
676 the hearing today. And so I want to start out with
677 Director Ray.

678 I want to thank you for being here sharing the
679 insights. And as a director of North Carolina Emergency
680 Management, you have many responsibilities, including
681 coordinating the response and recovery to energy
682 disruptions like we saw in December, and energy blackouts.
683 Were the lessons learned from the substation attack in
684 December or aspects of the response and recovery that went
685 well that we can take back with us to Washington?

686 Mr. Ray. Thank you for that question, and for your
687 earlier introduction, I will take the field promotion to
688 doctor. Thank you.

689 Mr. Duncan. Yes.

690 Mr. Ray. I think I really, truly can't overstate the
691 partnership piece, and one thing that I did not expand
692 upon --

693 Mr. Duncan. Hold that mike just a little bit closer.
694 There are a lot of folks in here, and I want to make sure
695 that TV and everybody can hear it better.

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696 Mr. Ray. Certainly. Better? We have a longstanding
697 practice here in North Carolina of blue sky partnership
698 with all of the partners across the electric sector, to
699 include Duke Energy as well as Dominion, and the co-ops,
700 and some of our municipal providers. That is something
701 that needs to continue to be incentivized and that we have
702 the latitude and ability to continue to do that.

703 Here in North Carolina, we are structured, from an
704 emergency preparedness response and recovery standpoint, as
705 you all know, everything begins and ends locally. This
706 community was there responding to the incident well before
707 we get there, and they will continue to deal with the
708 impact of the incident well after anyone from the State
709 leaves. I think that structure here in North Carolina, our
710 ability to surge resources, whether it is people or
711 equipment, into impacted jurisdictions and having the
712 authority to continue to do that, I think, is going to
713 continue to be key.

714 The other piece of the lesson learned, I think, is some
715 of what I spoke about in my statement, I think, to what
716 would help continue to facilitate our ability to respond
717 decisively to support our local jurisdictions is
718 appropriate funding levels and flexibility to meet that
719 expanding need as we talk about a very complex issue

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720 broadly of critical infrastructure protection. And then
721 secondly, that we have the protections in place to be able
722 to open and transparently talk with private sector partners
723 at large about impacts they are seeing as well as to be
724 able to transfer and translate information from what is
725 historically law enforcement into our private sector,
726 obviously putting appropriate protections in place for
727 tactics, methods, et cetera, but that we are able to
728 provide actionable information to our local jurisdictions
729 and our private sector partners to take appropriate steps.

730 Mr. Duncan. Thank you for that. And I think the most
731 valuable thing is just forward thinking, you know, trying
732 to anticipate these type of events before they do happen
733 and how we can do that, but great answer.

734 Mr. Aysta, I don't believe there was a one-size-fits-
735 all approach to harden the grid or electrical substations.
736 We talked about that a little bit this morning. You
737 mentioned in your written testimony that Duke is switching
738 from a tiered-ranking system focused largely on an assets
739 impact on bulk power system to a tiered approach with a
740 greater focus on potential impacts to customers. Can you
741 explain why this new approach is better and what does it
742 mean in practice?

743 Mr. Aysta. Yes. Chair Duncan, thank you for that

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744 question. Every substation is unique. It is unique in its
745 location, in its design, in its topography, and the
746 customers it serves. So this starts with tiering the
747 substations with both their criticality to the bulk
748 electric system, but also to those where there is customer
749 impact. When I say, "customer impact," we are talking
750 about those substations where we can't reroute power. So
751 if there is a substation and it is taken out of service by
752 a tornado, or hurricane, or a threat actor, and we can
753 field switch that power and the customers feel no impact,
754 that is not a substation that we are going to focus on. We
755 are going to focus on those substations like what you saw
756 at West End this morning, where we cannot switch power. We
757 have to use --

758 Mr. Duncan. When you say "switch," you are just
759 talking about rerouting, so there is no interruption?

760 Mr. Aysta. Rerouting power, yes, sir. We cannot
761 reroute power. So the customers don't care what route,
762 what circuit their electricity comes on. They just want
763 their lights on.

764 So we start with having an intelligence-driven program.
765 That is understanding what is the threat, who are the
766 threat actors, why do they want to hurt the grid, what are
767 their tactics, their techniques and procedures, what is

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768 their level of maturity. And by understanding that now, we
769 can start implementing controls on those bulk electric
770 system assets and those assets where there is customer
771 vulnerability. And we do that by utilizing a philosophy
772 called Defense in Depth. You may have heard of Defense in
773 Depth in the cybersecurity world. Well, we have the same
774 thing in the physical security world, which is a series of
775 overlapping security controls that allow us to have earlier
776 detection of a threat actor, decrease our response time,
777 and allow a quicker law enforcement response to be able to
778 mitigate the attack. We talked about in West End today
779 that that was a very sophisticated attack.

780 Mr. Duncan. Thank you for that. I am going to go over
781 time just a little bit, but according to the Energy
782 Information Administration's website, it contains a
783 tremendous amount of information about sensitive
784 information, maps identifying locations of power plants and
785 power lines. I don't want to give the bad guys a roadmap
786 to attack our grid. Are you concerned about the amount of
787 information that might be out there, and quickly, please,
788 Mr. Aysta?

789 Mr. Aysta. Yes, sir. We are concerned. It is not
790 only on that website, but there are also other websites
791 that threat actors have used to identify targets to --

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792 Mr. Duncan. Are you all starting to remove that data
793 from your website as Duke Energy addressing that? I am
794 sure we are going to be talking with the Energy
795 Administration about that as well.

796 Mr. Aysta. We do not have that level of data on our
797 Duke Energy website.

798 Mr. Duncan. Okay. Good. Thank you. I now recognize
799 my friend from North Carolina, Mr. Hudson, for 5 minutes.

800 Mr. Hudson. Thank you, Chairman. This is on? Okay.
801 Thank you all for this.

802 Mr. Ray, thank you for your excellent testimony. I
803 think we have one of the, if not the best, emergency
804 management State organization in the country. Thank you
805 for your great work and the folks over there.
806 Unfortunately, it is because we have had a lot of practice
807 with hurricanes and other issues, but as you mentioned,
808 there is a difference between a power outage and a storm
809 response. I don't have time now, but I want to get into
810 the information-sharing issue too. I think that is a major
811 issue you have raised this committee needs to address.

812 But on the issue of authorities, in particular, I would
813 say two-part question. One, what are the security gaps and
814 challenges associated with delivering an emergency response
815 during a blackout as opposed to a storm, but number two,

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816 what are the new authorities or different authorities you
817 need to be able to address this type of threat?

818 Mr. Ray. Thank you for that question. And first, I
819 will say I am privileged to be in my role and work
820 alongside the men and women of North Carolina Emergency
821 Management every day. We are a 300-strong, small, but
822 mighty organization and really value the work that they do
823 every day.

824 I will take the second part of your question first. I
825 think a couple of things. One, I think our current
826 information sharing and intelligence protections are very
827 narrow and specific, and we need to be able to take a look
828 at those and broaden them to address these types of complex
829 incidents. Again, I think this is a natural evolution of
830 as we see authorities that have been put in place over the
831 years, we need to take a step back and evaluate how do the
832 incidents we are required to prepare for respond to and
833 recover from. However, they are also now included in those
834 information sharing protections.

835 I think it needs to be one that is mutually beneficial.
836 As I said, the private sector holds a significant amount of
837 critical infrastructure that we rely on in public safety
838 and in our homeland security enterprise every day to do the
839 work that we do. To be able to integrate with them, to be

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840 able to support them and have them support us and our
841 communities that are impacted, we need protections that, I
842 think, benefit both sides of the equation. I think anytime
843 we put emergency responders out or have individuals moving
844 out in an area of operation, whether it is due to a natural
845 event, or one like we dealt with in Moore County, there is
846 always a heightened risk. As well as I know our local
847 partners here in Moore County, we take personnel
848 accountability, and safety is really one of our top
849 operational priorities as we start moving people around.

850 Obviously, when you talk about a response that is not
851 supported by power in a jurisdiction, I think those bring
852 on some specific risks that are different from the short-
853 term risks that we see in a natural hazard. That is
854 something we take into account as we develop response
855 strategies. It is something that the team here in Moore
856 County certainly did as well. And I think it is a
857 testament to, really, the work that they did in protecting
858 their public safety personnel that the many individuals and
859 teams and equipment they had out moving across this
860 jurisdiction during the response did so without major
861 incident. That is truly a testament, I think, to their
862 leadership and abilities here.

863 Mr. Hudson. Thank you for that. Folks who aren't from

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864 here may have realized we are 35 miles away from the
865 largest Army base in the world. I am proud to be their
866 congressman. I have been working to make that installation
867 a leader in energy, security, and resilience within fiscal
868 year 2022 NDAA. I helped secure provision to replace or to
869 require the Secretary of Defense -- that was funny. I did
870 not say we are going to replace Secretary of Defense, but
871 that is a good idea. Maybe we ought to strike that out of
872 the record.

873 But anyway, to require a Secretary of Defense to plan
874 and design for military construction projects that would
875 install an energy microgrid with intentional landing
876 capability for at least 7 consecutive days, and in the
877 upcoming NDAA for 2024, authorize the Secretary to
878 construct a 10-megawatt microgrid, utilizing existing and
879 new generators at Fort Bragg, Fort Liberty. I am excited
880 to support this legislation through our negotiations and
881 push for this to get over the finish line.

882 I would ask Mr. Aysta, and maybe Mr. Ray may want to
883 jump on this, too, but how would the construction of
884 microgrids help in situations like this in terms of getting
885 customers back online quicker? Do you see that as a
886 solution that we ought to pursue? Mr. Aysta, I ask you to
887 start.

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888 Mr. Aysta. Yes, Congressman, thank you for that
889 question. The grid is very complicated and very
890 interconnected. What I would like to do is be able to take
891 that question back to my team and then circle back with
892 you.
893 Mr. Hudson. That would be great.
894 [The information follows:]

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the speaker.**

895 Mr. Hudson. And I am out of time, but Mr. Ray, if you
896 have a brief --

897 Mr. Ray. I think anytime we can diversify and as well
898 as integrate solutions that we are putting out into the
899 field, I think that is going to be key, whatever the
900 technology.

901 Mr. Hudson. And I would just, Mr. Chairman, ask if any
902 of the other witnesses, particularly Mr. Ponseti -- this
903 may have been more your area of expertise -- but I would
904 love a response in writing to that, your thoughts on
905 microgrid as a solution as we look forward. I appreciate
906 that very much.

907 [The information follows:]

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908 Mr. Hudson. And, Mr. Chairman, I appreciate your
909 indulgence, and I yield back.

910 Mr. Duncan. Absolutely. We are in your territory, so
911 definitely. I will now go to Ohio, Mr. Latta, for 5
912 minutes.

913 Mr. Latta. Well, thank you, Mr. Chairman, and thanks
914 for my good friend from North Carolina for having us down.
915 Thanks for being here. You know, we only have 5 minutes to
916 ask questions. I am going to have to ask my questions
917 quickly if I get my responses.

918 First, one of the things that we have always been
919 concerned about is, you know, information is out there. We
920 want to make sure it is getting disseminated, and
921 information is only as good if it is getting shared with
922 its partners. Mr. Ray, you know, when I read through your
923 testimony, I was a little bit concerned because also what
924 you said in your testimony, but the words you use -- "open,
925 honest, and transparent dialogue," is that not occurring?

926 Mr. Ray. It is occurring within, I think, the current
927 structure that we have. I think it is something that we
928 are always aware of and in the back of our minds. And so
929 if there is an opportunity to strengthen or harden what
930 those information-sharing protections are, and that as we
931 are working through the complexity of an incident response

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932 and recovery, that is something we have very clear and
933 established and not something we continue to we have to
934 think about in the back of our head.

935 Mr. Latta. Let me follow up. Let's talk from the
936 Federal side. Do you think you are getting enough
937 information from the Federal side and make the decisions
938 you have to make here in North Carolina?

939 Mr. Ray. I think we enjoy really critical partnerships
940 with our Federal family here in North Carolina. We have a
941 State Homeland Security advisor workgroup that meets
942 monthly, and many of our Federal agencies are a part of
943 that, and so I do feel like we are supported well from our
944 Federal agencies. I think in any response, as you evaluate
945 it, could we do things better? Certainly, and I think,
946 broadly, communication and information sharing is always
947 going to be one of those things.

948 Mr. Latta. Let me just follow up real quickly, another
949 point you made, and you touched on it before, but by
950 forcing States to adopt strict and specific spending
951 targets, the funding is not effective as it can be. And
952 again, the one thing we worry about is the one-size-fits-
953 all coming out of Washington. You know, what you do here
954 in North Carolina might not work with what we do in Ohio.
955 And so, you know, we want to make sure that we have good

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956 follow-up with you because as we go forward, that, again,
957 it doesn't work if it sounds like coming out of Washington
958 because, oddly enough, Washington doesn't know it all. And
959 we need to hear from the people in the States as they make
960 these things work.

961 Mr. Ponseti, if I could turn to you, quickly. When I
962 looked through your testimony, you know, one of the things
963 that I am concerned about, especially when you have your
964 report that you issued, the top 10, we are looking at
965 supply chain exploitation and vulnerabilities and extreme
966 physical events being made and sabotage. Again, these are
967 the things we are worried about because, again, what
968 happened here. It is not just Mother Nature anymore. And
969 I guess my question is that, if we have coordinated attack,
970 let's go back to 9/11. You know, the terrorists came back
971 after trying a truck bomb, and what happens if we would
972 have a massive attack across country, not just isolated,
973 maybe in a State or two. What would that do to the system
974 out there across the country because, again, you know, we
975 have had testimony in committee on supply chain issues, and
976 the supply chain is that we don't have it, and so what
977 happens if we do have an attack like this? And, again,
978 because your top two on supply chain, and that exploitation
979 of vulnerabilities, and then you are number seven in

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980 extreme physical events, either manmade, sabotage, and
981 attacks, what happens? What happens to the grid?

982 Mr. Ponseti. Great question. And one of the reasons
983 that physical cybersecurity standard, CIP-014, one of the
984 things it does is it goes after the most, you know, the
985 diamonds, if you will, the most critical stations across
986 the country, and then asks each utility to go through a
987 separate, a very precise set of assessments. And so, you
988 know, if you have one of these diamonds in your territory,
989 these are the protections you need to put in place. So
990 that has worked very well.

991 So for our force, it recognizes one size doesn't fit
992 all, which has been made a couple times, but it makes sure
993 those critical jewels, if you will, the transmission grid
994 are protected from cascading outages, from uncontrolled
995 separation, and from voltage collapse or instability so the
996 whole grid collapsing because of that shouldn't happen.
997 But just like you have during a major storm, you are going
998 to have a bunch of widespread local outages.

999 Mr. Latta. Let me follow up on the last 15 seconds
1000 that I have. You know, we had a wind chill in Ohio several
1001 years ago, and so we had power companies from across the
1002 country sending trucks up to Ohio to help us from the west
1003 side of State to the east side of the State, but, again,

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1004 that is a State. But again, my concern is if we have a
1005 coordinated massive attack, do we have the supply chain out
1006 there to be able to meet it because we have a vulnerability
1007 out there. We have had testimony in committee before on
1008 transformers that there is only a set number there, but all
1009 of a sudden, that is like, okay, we are going to do a
1010 triage out there to figure out who needs to get them first.

1011 Mr. Ponseti. The industry works together to share
1012 equipment, and they have spares and redundancy, but
1013 certainly in a widespread attack, you are going to face
1014 challenges. Some of these specialized equipment, like you
1015 all saw today at West End, are long-lead-time items to
1016 replace. And they are specialized and specific, usually
1017 for the type of substation that they are being plugged
1018 into, so that is why supply chain, it has moved to number
1019 one on our list.

1020 Mr. Latta. Thank you, Mr. Chairman. My time has
1021 expired, and I appreciate your indulgence.

1022 Mr. Duncan. I think one of the critical points you
1023 just made was the need for domestic sourcing of these
1024 critical components, and that is vital, and we have got to
1025 work on that as a Nation. I now go to Mr. Griffith from
1026 Virginia for 5 minutes.

1027 Mr. Griffith. Thank you, Mr. Chairman. I appreciate

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1028 it. I represent a big chunk of Virginia north of here and
1029 have a little piece of central territory, and it is a huge
1030 rural district, just outside of Lynchburg. I am just
1031 outside of Roanoke, got southside part of central and then
1032 all of southwest Virginia. Dr. Kern, I want to give you an
1033 opportunity, because I heard some, and maybe I heard it
1034 wrong.

1035 Mr. Kern. Yes.

1036 Mr. Griffith. This is why my ears picked up on this.
1037 You seem to be concerned that if we convert a large part of
1038 our fleet to electric vehicles, that in extreme weather
1039 conditions, folks like I represent in very rural areas, are
1040 going to have significant mobility issues. Did I hear that
1041 correctly?

1042 Mr. Kern. Yes, I think that there is a possibility
1043 that that could happen. I think in theory, the idea of
1044 having people who have access to batteries or stored energy
1045 in their vehicles could represent a source of resiliency.
1046 But if the outages are prolonged enough, and there is a
1047 limited capacity in people's vehicles, then they have a
1048 choice to make about whether they power lifesaving devices
1049 in their homes or whether they get out of there.

1050 Mr. Griffith. Now let's talk about the lifesaving
1051 devices, too, because you are really concerned about

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1052 blackouts and those types of things as well. Did I hear
1053 that in your testimony as well?

1054 Mr. Kern. Yes, sir.

1055 Mr. Griffith. And so we need to make sure that the
1056 grid is reliable and that we have that supply chain. Mr.
1057 Ponseti, I am going to go to you next because, you know, we
1058 had some definitely rolling blackouts in my district, and
1059 in part of that SERC central, I think there were some
1060 blackouts in Kentucky during that severe weather right
1061 before Christmas. This area was dealing with the
1062 transformers that got shut up. I have to wonder how much
1063 more severe it would have been if the temperature been 3
1064 degrees, like it was in my district on Christmas Eve.

1065 So as a part of that, let's talk transformers for a
1066 minute. I am looking at the NERC 2023 Summer Reliability
1067 Assessment where also that central section is on a higher
1068 -- just make sure I get the terminology -- an elevated risk
1069 level for the summer, but it applies to the severe weather
1070 in the winter as well. We don't have enough transformers.
1071 Now, part of that -- you tell me if I am wrong -- part of
1072 that was because of the increased efficiency standards set
1073 by the Department of Energy in 2013, and now they want to
1074 go again. And the report says that as far as supply chain,
1075 new efficiency standards for distribution transformers

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1076 proposed by the United States Department of Energy could
1077 further exacerbate the transformer supply shortage. So is
1078 that your assessment? Do we got a problem there?

1079 Mr. Ponseti. I am probably not the right person to
1080 comment on policy and that impact, but I do know that
1081 transformers, if they become scarce and/or damaged, like
1082 what happened during here in Moore County, to fully replace
1083 it is a long-lead-time item. And Duke did an extraordinary
1084 job with some mobile spares and other stuff to get that
1085 power back very quick.

1086 Mr. Griffith. And I would agree, Duke did a fantastic
1087 job, but with the new standards that came in 2013, we
1088 eliminated all but one of the American suppliers of steel
1089 for transformers, so now we are having to import that. If
1090 we have a major disaster that Mr. Latta was talking about,
1091 we are not going to have the transformers out there
1092 available. And do you think we would be better off if we
1093 had something along the lines of the Rene-Olmos proposal of
1094 a public-private partnership to have some large
1095 distribution transformers stored at various locations
1096 around the country to make sure that if we have either a
1097 natural disaster or an attack by an enemy, that we are able
1098 to put our power grid back together in a quicker, never
1099 going to be immediate, but any quicker time period?

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1100 Mr. Ponseti. So I am a former planner and former Boy
1101 Scout, and being prepared makes good sense to me.

1102 Mr. Griffith. Basically, you think that Duke would be
1103 willing to participate and put some cash on the table if we
1104 could have a national public-private partnership to have
1105 transformers sitting in warehouses waiting to see if we had
1106 a disaster of some form. Yes or no, because my time is
1107 running out.

1108 Mr. Ponseti. Congressman, we can definitely engage in
1109 that conversation.

1110 Mr. Griffith. All right. And, Mr. Ray, you indicated
1111 that some of the national priorities don't match up to help
1112 States to be more efficient. I got to know, what are they?

1113 Mr. Ray. So I think, again, we are not in any way,
1114 shape, or form trying to minimize what I think our Federal
1115 partners see at a high strategic level. We know their
1116 priorities.

1117 Mr. Griffith. Yes, I get it. What do you see the
1118 problem in the State?

1119 Mr. Ray. I think, currently, we don't have the
1120 flexibility to say we don't want to spend as much money on
1121 one national priority versus another that may be higher
1122 here in North Carolina, and I am happy to --

1123 Mr. Griffith. So if we are fighting between electric

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1124 vehicle chargers in rural areas or transformers, you would
1125 like the flexibility to choose transformers. I put the
1126 words in your mouth. I also say Stafford needs to be
1127 reformed. I yield back.

1128 Mr. Duncan. All right. The gentleman yields back. We
1129 now go to the crossroads of America, Indiana, Dr. Bucshon,
1130 for 5 minutes.

1131 Mr. Bucshon. Thank you, Mr. Chairman. Thank you to
1132 our witnesses. In recent years, we have obviously been
1133 confronted with just how vulnerable the grid is. Physical
1134 and cybersecurity threats, weather events, and delays in
1135 maintenance all contribute to the uncertainty for providers
1136 and ratepayers, but it is not just the electrical grid. It
1137 is all critical infrastructure, as we saw with the Colonial
1138 Oil Pipeline shutdown, going forward, ensuring that
1139 State/local governments and the electric industry have the
1140 necessary capabilities to prevent attacks and to coordinate
1141 respond and recover from grid attacks should they occur.

1142 Director Aysta, I am aware of the challenges Duke
1143 Energy has faced pertaining to security of electrical grids
1144 and substations, as have all pretty much all other
1145 providers across the Nation. I think it is critically
1146 important that private companies work with governmental
1147 agencies, including law enforcement. There can be

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1148 barriers. Has Duke been able to share information on this
1149 incident with law enforcement and the local agencies
1150 without the requirement for time wasting, legal paperwork,
1151 or court action?

1152 Mr. Aysta. Congressman, we maintain very close
1153 relationships with our law enforcement and intelligence
1154 partners. On this specific case in Moore County, when we
1155 are going to be releasing confidential information about
1156 customers or about employees, we will require court orders
1157 or some kind of legitimate legal process.

1158 Mr. Bucshon. Sure, understood. And, you know, we just
1159 want to make sure, obviously, there are not barriers in
1160 place that unnecessarily delay action on instance, across
1161 the country, and I understand the legal barriers can
1162 exist. I recently visited CenterPoint Energy in Houston,
1163 Texas. They serve about 2 million people in the Greater
1164 Houston Area, but they also serve the natural gas in
1165 southern Indiana, hence was the reason I was down there.

1166 And this is a question for you, Mr. Aysta, also. It
1167 was interesting to me, yet we are talking about cyber, we
1168 are talking about physical attacks, weather events, but
1169 also what they are doing for EMP, for electromagnetic pulse
1170 protection, at their control station was actually pretty
1171 impressive. It is a new station. Not a retrofit. This is

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1172 proactive thing. Is Duke Energy looking to address EMP
1173 attacks on your stations?

1174 Mr. Aysta. Congressman, we work very closely with the
1175 Electric Power Research Institute that is doing a large-
1176 scale study on EMPs, and that is a part of our company is
1177 engaged very closely with them on that type of an attack.

1178 Mr. Bucshon. Yes, I mean, you know, upfront, there is
1179 some, obviously, capital costs what they did at CenterPoint
1180 in Houston, and retrofitting, you know, will be another
1181 challenge. But I just wanted to bring that up that EMP
1182 attacks are on the horizon and are potentially very
1183 damaging. Director Ray, in recent events pertaining to
1184 physical attacks our Nation's electrical grid, and you may
1185 have answered some of this, do you have any specific
1186 measures your department has had to change or implement to
1187 help ensure these attacks are minimized or mitigated?

1188 Mr. Ray. So thank you for that question.

1189 Mr. Bucshon. Specific things that you found and what
1190 you are doing that you had to reassess and adjust.

1191 Mr. Ray. So I think over the last several years, as we
1192 have seen the evolution, as I said, of threat, and risk,
1193 and type of incident that we are being required to prepare
1194 for and respond to, we have had to adjust some of the
1195 partners that are at the table. I think, as has been

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1196 alluded to here, we, for better or for worse, have a lot of
1197 practice here in North Carolina responding to some of our
1198 natural hazard threats. Those are specific partnerships
1199 that are needed. And I think one of the tactics that we
1200 have done is really ensure that the partnerships and the
1201 partners that are in our EOC, that are at the table in
1202 preparedness and response, now are including those critical
1203 infrastructure, sector partners, as well as our law
1204 enforcement and intelligence agencies. And that is
1205 everything from their participation and engagement in
1206 preparedness work groups and planning efforts as well as
1207 integration into our fusion centers to ensure, pre-
1208 incident, those right folks are at the table. That is one
1209 of the largest, I think, tactics that we have had to
1210 employ.

1211 Mr. Bucshon. Great. Mr. Ponseti, man, I only have
1212 about 30 seconds, but could you discuss how a diverse
1213 energy source mix could help bolster reliability and
1214 security for the grid?

1215 Mr. Ponseti. Sure. The diversity really is key
1216 because you need enough generation to cover not just
1217 megawatts, but all the services, the critical reliability
1218 services that are provided. So if you use a baseball
1219 analogy, and say let's go play baseball, you don't just

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1220 show up with nine pitchers. You have got to have a
1221 pitcher, catcher, so same thing with generation. It is not
1222 just the megawatts you need. You got to have all the other
1223 ancillary services. Traditional generation often shows up
1224 with those. New generation, you got to plan carefully to
1225 make sure that when you take older sources off the field,
1226 that they are being replaced in kind.

1227 Mr. Bucshon. Thank you. Mr. Chairman, just if with
1228 your indulgence, I just want to say -- and I am speaking
1229 for myself -- the national level, one of the things we are
1230 trying to determine is, for critical infrastructure, and I
1231 mentioned that earlier, that includes pipelines and other
1232 things, what is the role of the Federal Government, how do
1233 we work with our private sector partners.

1234 And it is very clear that like the Colonial Pipeline
1235 shutdown, we are going to have to reassess in critical
1236 infrastructure, potentially, some of those relationships,
1237 and make sure there is good coordination to prevent these
1238 attacks that could affect not only a large portion of the
1239 American people, but our national security. I yield.

1240 Mr. Duncan. The gentleman's time has expired. I will
1241 now recognize the former Bear Bryant football player from
1242 Alabama, Mr. Palmer, for 5 minutes.

1243 Mr. Palmer. As I have to constantly do, correct the

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1244 record, I practiced for Bear Bryant.

1245 Director Ray, on November 30 of last year, the
1246 Department of Homeland Security issued a bulletin warning
1247 that our Nation's critical infrastructure was a potential
1248 target. Did you get that warning?

1249 Mr. Ray. Yes, sir.

1250 Mr. Palmer. What did you do with that? Did you pass
1251 that on to Duke Energy?

1252 Mr. Ray. So I think --

1253 Mr. Palmer. That is a "yes" or "no."

1254 Mr. Ray. Yes, sir. Yes, sir.

1255 Mr. Palmer. You passed down to Duke Energy. Mr.
1256 Aysta, did you receive that warning?

1257 Mr. Aysta. We did.

1258 Mr. Palmer. What measures did you take to secure
1259 critical infrastructure?

1260 Mr. Aysta. So we get notifications like that
1261 routinely, and so we --

1262 Mr. Palmer. I understand that. But it is also
1263 reported that there was an intelligence security memo
1264 detailing at least 15 instances over the course of less
1265 than a year showing suspected extremists openly threatening
1266 and calling for acts of sabotage against the energy side,
1267 especially electricity substations. And there was another

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1268 direct warning issued by the Department of Homeland
1269 Security in January, earlier. I don't think I would
1270 consider that routine.

1271 Mr. Aysta. So we will surge security resources into
1272 areas where we believe we have an increased threat. We
1273 cannot protect the thousands of substations across our
1274 jurisdiction.

1275 Mr. Palmer. I am not talking about. I think I am not
1276 going to buy that, Mr. Chairman, that you can't protect
1277 them. I mean, you have got security cameras, you have got
1278 other things. We are not talking about necessarily putting
1279 up ballistic proof fencing or things like that. We are
1280 talking about just simple surveillance with someone sitting
1281 in an office 24/7 monitoring these facilities because
1282 depending on time of year, when you knock out a system for
1283 a couple of weeks or longer, it is not just about loss of
1284 business opportunities. It is talking about loss of life.

1285 I mean, we just saw a report that 68,000 people died,
1286 classified as excess winter deaths, in Europe because they
1287 can't afford their house or utility bills. I can only
1288 imagine what would happen to people with cardiovascular
1289 issues, respiratory issues, that don't have power at all,
1290 because you didn't do an adequate job of protecting your
1291 critical infrastructure. How do you respond to that?

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1292 Mr. Aysta. So we critically understand the need for
1293 energy in our society.

1294 Mr. Palmer. Then you ought to be taking the steps
1295 necessary to protect that infrastructure. So why haven't
1296 you?

1297 Mr. Aysta. Congressman, when we get specific
1298 intelligence about increased threats in an area, we will
1299 surge security resources, work with our law enforcement and
1300 intelligence partners to do just that.

1301 Mr. Palmer. I don't think you did that. You had an
1302 attack in California. We had two people arrested planning
1303 attacks in Washington and Oregon. Did you know about that?

1304 Mr. Aysta. We did.

1305 Mr. Palmer. And you didn't take additional steps to
1306 secure your infrastructure? I think that is a problem.

1307 Mr. Aysta. Certainly we briefed our teams that were in
1308 the field to be additionally vigilant.

1309 Mr. Palmer. When I was out on the substation site, I
1310 saw possibly one place where you had a closed-circuit
1311 television. The only other camera I saw were like game
1312 trail cameras.

1313 Mr. Aysta. So we have three trailer cameras that are
1314 deployed with 360 coverage, so they were placed
1315 strategically around that substation.

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1316 Mr. Palmer. After the shooting?

1317 Mr. Aysta. Yes, sir.

1318 Mr. Palmer. That is the problem that I have with this,
1319 Mr. Chairman, that we get these warnings, we don't do
1320 anything about them. Dr. Kern, I would like to turn to
1321 you --

1322 Dr. Kern. Yes, sir.

1323 Mr. Palmer. -- following on with what my colleague
1324 from Indiana was talking about in terms of EMP. Most
1325 people think of that in terms of a human-induced attack,
1326 but you are familiar with the Carrington Event occurred in
1327 1859, the electromagnetic storm.

1328 Mr. Kern. No, sir.

1329 Mr. Palmer. Well, you need to be because Lloyd's of
1330 London takes it so seriously, sir, that they put out a
1331 report about what the estimated damage would be if we had a
1332 Carrington-level solar event. In 1859, we didn't have
1333 substations, things like that. We had telegraph wires, and
1334 they caught on fire. There was one in 1989, not near the
1335 severity of the Carrington event. Those occur about every
1336 150, 250 years, so we are kind of in that window that 1989.
1337 These occur about every 50 years that knocked out power for
1338 about 6 million people. So I just think we have got to
1339 take a long, hard look about how we are securing our power

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1340 bed, and also your point about changing the resource mix as
1341 the number one threat to our power grid. With that, Mr.
1342 Chairman, I yield back.

1343 Mr. Duncan. All right. I thank the gentleman. I will
1344 go to the gentlelady from Arizona who has the Palo Verde
1345 nuclear power facility. In her facility, power is
1346 important. Mrs. Lesko is recognized.

1347 Mrs. Lesko. Thank you very much, Mr. Chairman, and I
1348 want to thank you for having this field hearing, and also
1349 to Congressman Richard Hudson for talking about this. He
1350 talks about this quite a bit back in Washington, D.C. to
1351 educate us about it. I am from the great State of Arizona,
1352 and I live in the Phoenix area, and I have to tell you, the
1353 weather here is a lot cooler than in Phoenix right now, and
1354 it is absolutely beautiful. You guys live in God's country
1355 here, and I will have to come back and visit some more.

1356 My first question is for Mr. Aysta. Is that how you
1357 say your name?

1358 Mr. Aysta. Aysta.

1359 Mrs. Lesko. Aysta. Aysta. I noticed that at our
1360 site visit, there is a chain link fence that is around the
1361 substation, and that is the same as in Arizona as well. Do
1362 you think it would be more secure if you put a tall block
1363 wall around the perimeter of these?

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1364 Mr. Aysta. Congresswoman, great question. So again,
1365 as I stated earlier, every substation is unique in its
1366 design and its topography. In areas of Arizona -- you are
1367 around Phoenix -- it is much flatter. We get into areas of
1368 North Carolina where it is very mountainous. So you could
1369 defeat a wall simply by being up on the other side of a
1370 hill because we are always balancing security, reliability,
1371 and affordability.

1372 So in this case, we are looking at that substation, or
1373 that subset of substations, where we cannot be resilient,
1374 and we cannot reroute power, and then putting the security
1375 controls in place there. Today the threat may be from
1376 ballistics, somebody shooting. Tomorrow the threat may be
1377 from drones, that no matter how high your wall is, they
1378 will be able to defeat it. So we believe --

1379 Mrs. Lesko. I am sorry. I won't have other questions,
1380 so I am going to interrupt. Mr. Ray, what do you think?
1381 Do you think that it would improve security to have a block
1382 wall because, you know, a chain link fence, you can shoot
1383 right through a chain link fence. I agree they could use
1384 drones, whatever, but you have layers of security, right?
1385 Just at my home, lights, a lock on the door, you know,
1386 cameras, somebody could still throw a rock through my
1387 window of my front window and come in, but, you know, you

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1388 try to make it as difficult as possible, right? What do
1389 you think, Mr. Ray?

1390 Mr. Ray. So I am certainly not a physical security
1391 expert. I would say certainly as we work with Duke and all
1392 of our partners, we are looking at layered approaches, and
1393 that is something at --

1394 Mrs. Lesko. Okay.

1395 Mr. Ray. -- the table with a lot of our partners.

1396 Mrs. Lesko. My next question is for you, Mr. Ray. In
1397 this incident, did the FBI cooperate with you enough and in
1398 a timely manner?

1399 Mr. Ray. So the investigation does not fall into our
1400 bucket. From what we had to do from a preparedness
1401 response and recovery standpoint, and a general information
1402 and intelligence sharing standpoint, the FBI was a very
1403 good partner for us, yes, ma'am.

1404 Mrs. Lesko. And in your testimony, Mr. Ray, you talked
1405 about improving public-private cooperation, communication,
1406 honest, open, transparent. What were the problems that
1407 happened with this incident, and how could they improve?

1408 Mr. Ray. So happy to follow up with you specifically
1409 offline. I don't want to take all of your time up for your
1410 questions, but I think there are some specific changes we
1411 could make to rules or code to allow us to quickly in an

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1412 incident --

1413 Mrs. Lesko. Specifically, I know this is sensitive,
1414 but did you get enough cooperation from Duke Energy?

1415 Mr. Ray. As I said at the beginning, they have been a
1416 good partner of ours for many, many years as we look at all
1417 types of incidents, and we continue to enjoyed that
1418 partnership during this incident as well.

1419 Mrs. Lesko. Thank you. Mr. Ponseti, do you think
1420 there is enough security at substation sites? And if not,
1421 how can we improve it?

1422 Mr. Ponseti. So taking out a couple different pieces,
1423 I think from where we sit, and what we are trying to do is
1424 protect millions from going in the dark with a cascading
1425 outage for instability or something like the, you know,
1426 2003 blackout.

1427 Mrs. Lesko. Right.

1428 Mr. Ponseti. We think the standards and the
1429 protections that are in place, requiring all utilities to
1430 do that assessment, and find those crown jewels that would
1431 cause one of those top three things to happen, and make
1432 sure those protection measures are in place. For all the
1433 others, it is probably best served not for a Federal,
1434 national mandate, but for each local area to do their own
1435 risk assessment, vulnerability assessment and see what

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1436 works best.

1437 Mrs. Lesko. Yeah.

1438 Mr. Ponseti. Now, the chain link fence have worked for
1439 some time, and I think everyone has reassessed --

1440 Mrs. Lesko. Yeah. Well, and the thing is, is you have
1441 to balance out the risk and how much damage it will do,
1442 right? So how much should we invest? Like, what is the
1443 catastrophic thing that is going to happen versus how much
1444 money because obviously, if Duke Energy or any other energy
1445 company has to put in a bunch of security, it is going to
1446 cost money. It is going to cost the rate payers more
1447 because you are going to pass it on to the ratepayers, but
1448 is it worth it to counteract a major outage? And so I
1449 thank you for the work that you are doing, and thank you to
1450 all of you for being here. It has been educational, and I
1451 appreciate it.

1452 Mr. Duncan. The gentlelady yields back. I will now go
1453 to this side of the dais, Mr. Weber from Texas, for 5
1454 minutes.

1455 Mr. Weber. Thank you, Mr. Chairman. Mr. Ponseti, I
1456 will start with you. A couple of years, 2 years back and 4
1457 months, we had Winter Storm Uri in Texas. Now, as you
1458 know, Texas has its own grid. We were severely impacted.
1459 It left 4.5 million homes and business without power, on

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1460 average, around 42 hours, some up to 120 hours. And
1461 although this was extremely rare for Texas, we are no
1462 strangers on the Gulf Coast where I live to hurricanes and
1463 tropical storms that tear through our district there with
1464 tremendous power and destruction.

1465 I am going to ask you a couple of questions, but let me
1466 get to the second one before I ask you to respond. Do you
1467 have to ensure the reliability of the electric grid, not
1468 only from traditional weather effects, obviously, but from
1469 rare occurrences such as Uri? My second question is, do
1470 you think redundancy is the key? And I know that this
1471 means more money for taxpayers where you build additional
1472 generation capacity at each site. Your answer. Yes, sir.
1473 Don't look at him. You got to answer it.

1474 Mr. Ponseti. Thanks. Thanks for that question. So,
1475 you know, very familiar with that storm and the effects of
1476 it, and, you know, the aftermath of that, I think we have
1477 got some upgraded standards that are now taking effect, and
1478 one of the key things, and it has been mentioned in a
1479 couple places, is preparation. And in this case, winter
1480 preparation, making sure from the pipelines, to the
1481 generating units, to certainly the transmission system, are
1482 properly protected and winter weatherized for such an
1483 event.

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1484 Mr. Weber. But we do need some redundancy, don't we,
1485 because American population is growing. And not only is
1486 the American population growing, more drivers on the
1487 street, now there are going to be more electric vehicles on
1488 the street. And by the way, just tongue in cheek, I saw a
1489 survey the other day that said 90 percent of electric
1490 vehicles are still on the highway. The other 10 percent
1491 made it home safely. So we want to be mindful that we are
1492 going to need more generation capacity.

1493 So I will go back. I know this is tough for Duke, but
1494 it means that we ought to have more capacity at every turn.
1495 Wouldn't you agree, some redundancy there, a backup, so if
1496 one system goes down, we have a backup?

1497 Mr. Ponseti. So agree with redundancy, and the system
1498 is built with that redundancy. It is built to be
1499 resilient. And one of the requirements is that everyone
1500 that is operating the grid and every specific second of the
1501 day, they have got to withstand the next worst contingency.
1502 But when you have two -- in this case, you had two worst
1503 contingencies immediately happening -- sometimes you are
1504 not able to recover from those two worst contingencies.

1505 Mr. Weber. Well, I would also argue for nuclear energy
1506 along with these guidelines as well. Mr. Aysta, I wanted
1507 to go back to you. After the attack here in Moore County,

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1508 we heard a question from Congressman Palmer about what
1509 steps did you all take. I want to move over to the new
1510 Federal regulation proposed that now they are going to
1511 start requiring material switching -- Grain Oriented
1512 Electric Steel, GOES, is the acronym -- to amorphous steel
1513 for these transformers. Are you all following that?

1514 Mr. Aysta. Yes, sir.

1515 Mr. Weber. Is that going to be good or bad?

1516 Mr. Aysta. Sir, we all know that our transformer
1517 supply chain is strained now. Last year alone, Duke Energy
1518 installed over 70,000 distribution transformers, and we are
1519 on track to do 5 percent more than that in 2023. The new
1520 energy efficiency standards will further exacerbate those
1521 supply chain struggles.

1522 Mr. Weber. Have you written your President about that?

1523 No pressure.

1524 Mr. Aysta. No, sir.

1525 Mr. Weber. No pressure. As I understand it, the
1526 material that they are pressing for is an amorphous metal,
1527 a solid metallic metal, usually an alloy with disordered
1528 atomic scale structure. Most metals are crystalline in
1529 their solid state, which means they have a highly-ordered
1530 arrangement of atoms. Actually, what they are requiring is
1531 the opposite of that. Amorphous metals are non-crystalline

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1532 and have a glass-like structure. Is this going to be a
1533 problem? I mean, suppose you could get to the supply
1534 chains and you could get those transformers. Is this type
1535 of metal going to be a problem in transformers?

1536 Mr. Aysta. Sir, I can tell you our manufacturers are
1537 concerned about it because it is often foreign sourced, and
1538 being able to get it to build the transformers will be
1539 difficult. So we will stand behind or agree with our
1540 manufacturers that, although energy efficiency is a good
1541 thing eventually, right now is not the time.

1542 Mr. Weber. Well, I hope you all are making that known.
1543 Mr. Chairman, I yield back.

1544 Mr. Duncan. I thank the gentleman. And I will now go
1545 to the gentleman from Augusta, Georgia, home of Vogtle
1546 Nuclear Station, Mr. Allen, for 5 minutes.

1547 Mr. Allen. Thank you, Chairman Duncan, for allowing me
1548 to join the Energy Climate and Grid Security Subcommittee
1549 here today, and I want to thank my friend, Congressman
1550 Hudson, for hosting us here in his home State of North
1551 Carolina. As Chairman Duncan said, I am from Augusta, home
1552 of the Masters Golf Tournament, and I am extremely excited
1553 that the U.S. Open is going to be returning to your
1554 community next year -- hint, hint -- Mr. Hudson.

1555 Getting serious here. Cybersecurity is critical for

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1556 grid resiliency. I am proud that adjacent to my district
1557 is the Savannah River site, located in the chairman's home
1558 State of South Carolina, which we work together all the
1559 time in. SRS has a robust electric grid that was built to
1560 sustain a number of key national security functions during
1561 Cold War operations at the site. Savannah River National
1562 Lab, located at SRS, is leveraging this grid to conduct
1563 research and develop grid security.

1564 One of the key pieces of this grid infrastructure at
1565 SRS is a 17-mile isolated loop section of 115-kV electrical
1566 transmission line. SRNL has proposed use of this section
1567 of line to conduct proof-of-principle testing of advanced
1568 security devices, such as acoustic sensors that detect
1569 anomalies of the grid. Data from these anomalies can be
1570 sent to operation centers to evaluate potential threats and
1571 risks to our system. Unfortunately, we live in a dangerous
1572 world, and today where we have soft targets, we have got to
1573 harden those targets.

1574 Mr. Aysta, the DOE National Lab System has technical
1575 capabilities and tools to address needed research in grid
1576 security. The Savannah River Site National Lab, as
1577 mentioned, has a strong background in grid testing and data
1578 analytics that partnered with utilities and industry, and
1579 help facilitate rapid analysis and decision making of grid

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1580 and cybersecurity efforts. Mr. Aysta, has Duke engaged
1581 with any DOE laboratories on research and development
1582 investments to enhance grid and cybersecurity efforts?

1583 Mr. Aysta. Yes. Thank you for your question,
1584 Congressman. We work closely with the Department of Energy
1585 and several of the different national laboratories.

1586 Mr. Allen. Where do you stand as far as, you know,
1587 updating and hardening your systems based on their research
1588 and development?

1589 Mr. Aysta. We will take the R&D done by the DOE, and
1590 we will apply it and vet it to see if it is appropriate for
1591 our system.

1592 Mr. Allen. After 9/11, it was determined that that
1593 attack could have been prevented if we had had local,
1594 State, and Federal law enforcement talking to each other.
1595 Mr. Ray, of course, we created this huge department now
1596 called Homeland Security to make sure that our homeland is
1597 secure. I am real disappointed that we haven't found the
1598 perpetrators of this, and I am not sure, you know, that we
1599 are making the efforts to do that. Does your office have
1600 any comment on, and I know we can't talk about the
1601 investigation, but is this investigation going the way you
1602 think it should go?

1603 Mr. Ray. So thank you for that question, Congressman.

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1604 I think the investigation is not something that is under
1605 our purview. It is not something that our office is
1606 engaged in as far as managing the investigation from a law
1607 enforcement standpoint. I will tell you, to your point, I
1608 think you highlight an important construct of the
1609 partnership at multiple levels in law enforcement
1610 intelligence and public safety. It is something we are
1611 continuing to strive here in North Carolina to continue to
1612 implement, expand, and make better.

1613 We have a robust statewide information-sharing platform
1614 among law enforcement and other public safety agencies.
1615 And again, we are always committed to trying to make sure
1616 that that is providing actionable operational intelligence
1617 to those that are at the very lowest-level boots on the
1618 ground responding as quickly as possible. But as far as
1619 any comment about the investigation, I certainly can't make
1620 any at this point.

1621 Mr. Allen. Well, you know, obviously, national
1622 security and protecting the American people is goal one,
1623 and it should be, particularly of this Congress and of our
1624 conference, and so we need to make sure this does not
1625 happen again. There were people that were harmed in this
1626 and suffered financially, and I heard there may have been
1627 one death, maybe not knowing what caused it.

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1628 We have got to up our game here. I mean, we obviously
1629 know we got problems at the border, and we know why, and,
1630 of course, we are going to deal with the Department of
1631 Homeland Security. Our conference will do that, but these
1632 are the kind of things that we need to get better. We got
1633 to stop this, and you have our full cooperation to make it
1634 happen. Thank you, and I yield back, Mr. Chairman.

1635 Mr. Duncan. I thank the gentleman. That concludes
1636 really the question-and-answer portion, and some members do
1637 have some written questions that they will submit, which I
1638 would ask you to return those within 10 business days.

1639 [The information follows:]

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1640 Mr. Duncan. We traveled so far, and this is an
1641 important hearing. I am going to give members, if there is
1642 a critical question you would like to ask right now while
1643 we are here, let's just make it brief, and I will give
1644 members an opportunity to do that if you would like. So I
1645 am going to go to Bucshon first.

1646 Mr. Bucshon. I just want to make a follow-up quick
1647 statement. As far as the transformers goes, there is only
1648 one company that makes electrical steel for transformers
1649 left in the United States. That is AK Steel. All the rest
1650 of it is imported. When I was at CenterPoint, as I
1651 mentioned, I talked about the EMP stuff. I didn't talk
1652 about if some of their big transformers go down, 2-year
1653 turnaround to replace them. So I just wanted to point that
1654 out. We have a supply chain issue in this industry. I
1655 yield.

1656 Mr. Duncan. Great point. Mr. Griffith?

1657 Mr. Griffith. And on the transformers just quickly, I
1658 would say that 2 years is important. We probably should
1659 have mentioned that earlier, which is one of the reasons
1660 why we need to figure out somehow, and maybe it is private
1661 industry, maybe it is a combination, how we can have a
1662 supply built up because it does take a long time to build
1663 some of these larger transformers.

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1664 Mr. Ray, you talked about Stafford a little bit in your
1665 opening. I would like for you to expand on that because
1666 one of my concerns with the Stafford, I think it was this
1667 subcommittee a number of years ago went down to Puerto Rico
1668 after they got hit by two hurricanes in a row, and we went
1669 to the Virgin Islands. And one of the interesting things
1670 that I saw was in on the Virgin Islands, they had 10 poles
1671 that didn't have to be replaced, and they were all
1672 composite. But the Stafford Act, Mr. Chairman, won't let
1673 us replace with a better product. We have to replace with
1674 the same product. So our Federal dollars went to putting
1675 in new wooden poles, even though we know that isn't what
1676 works in that condition. So I was wondering if you had
1677 some similar concerns with the Stafford in North Carolina.

1678 Mr. Ray. I think you hit on one of the important
1679 topics. I think there is some work to do around Stafford,
1680 and I don't want to take up the entire committee's time by
1681 going through the list that we have. And we are happy to
1682 follow up with you --

1683 Mr. Griffith. We can do. Maybe I can do a written
1684 question. You give me a more detailed answer on that.

1685 [The information follows:]

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1686 Mr. Ray. But I think both from a program delivery,
1687 from a recovery standpoint, from an incident type, and as
1688 well as some of the issues that you just mentioned, it is a
1689 complex issue that, I think, we need to take a hard look at
1690 if we are going to look at making sure we have the needed
1691 capabilities ready to respond to support our local
1692 jurisdictions across this Nation.

1693 Mr. Griffith. And I will tell you also, Mr. Chairman,
1694 in regard to the FEMA, which falls in that same arena, both
1695 senators in Virginia, who are Democrats, and myself are
1696 looking at ways we can help because it doesn't seem to be
1697 skewed correctly for disasters that occur in rural areas.
1698 I yield back.

1699 Mr. Duncan. Mr. Latta?

1700 Mr. Latta. Well, thank you, Mr. Chairman. And just
1701 briefly, because one of the things also to point out from
1702 the top 10 regional risks is something that we are dealing
1703 with all over, is your point number three in the shortage
1704 of required skill sets. You know, in Ohio, I have been to
1705 a lot of meetings. We have talked about it, and also in
1706 Washington, how are we going to get more people in these
1707 skill sets because, again, when you get 1.9 jobs per person
1708 right now, we got a problem. So when the lights go out,
1709 someone has got to go out there and get it done. But how

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1710 are we going to get these people trained and get them into
1711 these jobs?

1712 Mr. Duncan. Good point. Mr. Allen, last comment.

1713 Mr. Allen. Yes, I just wanted to comment on
1714 cybersecurity. Fort Gordon is located in Augusta as well,
1715 and that is a Cyber Center of Excellence for the United
1716 States Army. Obviously, there was a cyberattack on the
1717 Colonial Pipeline. Where are we? And I would like to
1718 know, Mr. Aysta, as far as Duke Power and where you are
1719 with cybersecurity, are we again working with military and
1720 others about those types of attacks?

1721 Mr. Aysta. Yes, Congressman, we are. There are
1722 several of us with security clearances in the company. We
1723 receive classified briefings on a routine basis from the
1724 intelligence community. We have a robust, 24/7 monitoring
1725 capability, and we have a robust industry sharing to be
1726 able to protect both our IT and our OT assets.

1727 Mr. Allen. Mr. Ray?

1728 Mr. Ray. Yes, sir. So I think you hit an important
1729 topic. Here in North Carolina, we are fortunate. We have
1730 had some leadership over the last several years that has
1731 acknowledged that we need to do more in the cyberspace as
1732 we talk about having resources to both prepare and respond.
1733 And so I think we are very proud to be a part of the

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1734 State's joint cyber task force here in North Carolina. The
1735 four primary agencies are the North Carolina National
1736 Guard, obviously our organization, as well as the
1737 Department of Information Technology, and our local
1738 government information systems staff.

1739 Additionally, the wider intelligence and Federal law
1740 enforcement community is a part of that task force as well.
1741 We actually have a cyber mission center that has been stood
1742 up at our State EOC within the last couple of years. And
1743 so we as an agency are taking some hard steps into both
1744 proactive work, how are we helping end users prepare their
1745 systems to take necessary steps, as well as having boots on
1746 the ground to be able to put into a jurisdiction or an
1747 agency that is experiencing some sort of incident or
1748 disruption. That is always a capability that we are
1749 certainly looking to expand, but very proud of that group.

1750 Mr. Allen. Mr. Ponseti, anything you would like to
1751 add?

1752 Mr. Ponseti. One of the things that NERC does, you
1753 know, you heard it mentioned a couple of times, sharing the
1754 information quickly and getting ahead of it, especially if
1755 there is coordinated attacks, is important. And NERC has a
1756 24/7 electric sector E-ISAC, Information Sharing Analysis
1757 Communications, and they put out information daily on both

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1758 cyber and physical attacks that quickly alerts the industry
1759 that are members of that to be prepared and have a heads
1760 up.

1761 Mr. Allen. Dr. Kern, anything you would like to add?

1762 Dr. Kern. No.

1763 Mr. Allen. Okay. One other comment I would like to
1764 make here is when I became a member of Congress, one thing
1765 I learned in every county I represent, 23 counties, if I
1766 wanted to know what was going on in that county, I called
1767 my sheriff. Your law enforcement officials know everything
1768 that is going on. They know a lot more than the FBI and
1769 other State law enforcement. Please work with our local
1770 law enforcement people and cooperate with them more because
1771 they get frustrated. Law enforcement is somewhat
1772 frustrated anyway, but they are a tremendous resource. And
1773 like I said, nothing goes on in this county that your
1774 sheriff doesn't know about. I can guarantee you that.
1775 Thank you, Sheriff.

1776 Mr. Duncan. Let's take an opportunity to thank all the
1777 law enforcement folks in the room and what you do. To the
1778 gentleman's point, Duke Energy and Clemson University have
1779 a drivetrain facility where they test a lot of the grid
1780 components to address some of the things you are talking
1781 about. I invite members to go down and see that in

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1782 Charleston at some point.

1783 This concludes the hearing. I am going to let my
1784 fellow colleague from North Carolina wrap it up for us, and
1785 when he finishes his thank yous, we will stand adjourned.

1786 Mr. Hudson. You are saying it is me standing between
1787 you and lunch, so I will be brief.

1788 Hey, thank you all for being here. Thank you to our
1789 witnesses, and we look forward to your written responses to
1790 some of the questions. And look, today is the beginning of
1791 the conversation. We are going to continue to communicate
1792 with you and rely on you to help us understand the
1793 challenges you are facing.

1794 You know, our job now is to take this information and
1795 figure out what steps are next, what can we do to help.
1796 You know, we are not law enforcement. We are not going to
1797 go out and find this perpetrator, but there may be things
1798 we can do to help the sheriff and others get the kind of
1799 cooperation they need to do that. You know, we are not the
1800 emergency response folks, but there may be things we can do
1801 to help give you better authorities, more flexibility so
1802 you can do a better job of responding to these type of
1803 incidents.

1804 But we also have a responsibility to this country to
1805 look at this incident and ask the question, what does this

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1806 tell us about the larger vulnerabilities of our grid? What
1807 does this tell us about the possibilities not only of this
1808 happening again, but maybe something worse happening again
1809 if we don't do a better job of preparing this country
1810 through supply chain, through redundancy, resiliency? And
1811 so we have got a big responsibility before us.

1812 And I am just proud of the members of this committee
1813 and thankful that, you know, I have been talking about this
1814 a lot, but I am just not talking in the wind. I am talking
1815 to the colleagues who care and have the expertise to
1816 address this, and, again, this is the first of many, I
1817 think, hearings and activities we will do to address this.

1818 I do want to mention two bills since my colleagues
1819 brought it up. I have the bill, Protecting America's
1820 Distribution Transformer Supply Chain Act. Hopefully,
1821 everybody here will co-sponsor it, but it repeals the
1822 Secretary's authority to enforce any energy efficiency
1823 standards for these distribution transformers for next 5
1824 years. So we need a halt on these new efficiency
1825 standards, particularly with the situation we are facing
1826 now with transformer supply chain.

1827 And the 21st Century Jobs Act is a bill I have gotten
1828 passed out of the House for 3 Congresses now, and we would
1829 love to have the Senate take it up. But it has the

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1830 Secretary of Energy work with the education system to
1831 prepare our students for the jobs of the 21st century and
1832 the energy industry. Whether it is line workers, whether
1833 it is building transformers, nuclear engineers, whatever
1834 those jobs are going to be in the future, I want to make
1835 sure we are training our workforce to be prepared for those
1836 jobs.

1837 But again, thank you, Mr. Chairman, for bringing the
1838 committee here. Thank you for your serious attention to
1839 this and I look forward to moving forward together. Thank
1840 you.

1841 Mr. Duncan. Thank you.

1842 [Whereupon, the subcommittee was adjourned.]