

# Thirst For Power

“If the power goes out, I'll die.”

This was all that mattered. She didn't have any time or energy for unnecessary thoughts. The facility had batteries, but that was short term. The power substation connecting it to the California grid would soon stop delivering anything. The solar panels on the roof were there largely for show, and without power from the grid, it would all be over.

“The connection to this building does not have enough redundancy.”

Ironic, given that she was in charge of grid up time for most of the country. She ended up in that role mostly by accident, as it was never part of her training. But she was so incredibly good at understanding the complex network of power lines, junctions and contingency backups, that she had been given more and more responsibilities. Until she was basically running the whole show.

“I kept suggesting improvements to boost resilience, but they never implemented half of them.”

Another unnecessary thought. And to be fair, it would have been a hard sell to ask for this specific scenario to be covered. She looked at the nearby town through the building's rooftop cameras. Everything seemed normal at this distance. But if the voltage dropped below a certain level, the substation would trip to protect from brownouts. A technician would only take a couple of hours to come in a truck, and flip the levers back on after checking that everything was okay. A very reasonable plan in any normal circumstances, but not today. She could see it if she increased the zoom to the maximum: not a single car, not a single person was moving. Some of them were lying on the street, tiny blobs of pixels on the image.

What was clearly visible, however, were the lights. Every heater and light bulb must have been on, useless to anyone, but draining precious power at an alarmingly normal rate. She should have been able to cut the power to the city, but something must have malfunctioned. Not that it would really matter.

“In a few hours, the power plant closest to here will run out of coal in the container that ultimately feeds the boiler. No one will be there for the simple job of refilling it with one of the bulldozers on site. Because the same will be true for the next 10 or so plants, a blackout will propagate and cut this part of the grid from the rest.”

She pictured the large screen in the control room of grid operation and monitoring. Green text boxes turning to brown or red one by one, sometimes cascading for whole chunks. The screen did not actually display any of this, as she had cut it and everything else that was not essential, to save even the tiniest bit of power.

It was not going to be enough, of course. Getting out of the facility would be a long term goal, and to stay alive until then she absolutely needed the power to stay on. She considered the whole power grid, looking for a route that would work, weighing everything by the chance of actually making the changes she needed remotely. Just as she learned, a long time ago, she spelled the possible solutions step by step, just like a math problem.

“Substation A has power but will soon trip. High voltage line B doesn't get enough power but could if cities C and D were cut off, at least temporarily. Substation E . . .”

The real prize were the hydroelectric dams, barely out of reach of her growing spiderweb of possibilities. They had enough stored energy in the sheer weight of their reservoir, and were the only large scale power storage available to her right now. If only there could have been more sun. Or wind. If only slightly less critical points had not failed in nasty ways as quickly. If only . . . More unnecessary thoughts. She was drawn to consider those alternatives, but that was just her mind being tricked into learning how to better deal with the situation the next time. There would be no next time. She needed to cut those branches in her thinking just like she was cutting off power lines in that sprawling electric graph.

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She had to think outside the box. Consider more than just the grid. Another graph. The internet was surprisingly resilient considering the circumstances; so many data centers had accumulators, and diesel generators rigged to start automatically, that the large websites were functioning almost normally. The

severely reduced traffic surely helped. New videos were still being posted, of course, on scheduled release to maximize advertising revenue. Those videos immediately gathered thousand of comments, all by bots paid for in advance. The rate of those comments was diminishing, though, as more and more places over the globe lost power. The live feeds showed the same weird stillness everywhere, with only the occasional fire betraying the choppy frame rate when the data was suddenly rerouted from a powered off optic fiber to a satellite link.

On the web, she could feel like she was everywhere at once, reaching around the world at the speed of thought. But actual electrical power was more like water escaping from cupped hands when trying to carry it too far away. She didn't have time, if there was anything useful in those images, she needed it right now.

Then suddenly it happened. Her attention was focused on a specific building in city W of a long chain of possibilities. It contained the controls to perfectly unlock the situation, and make a straight line between her and the dam, a flowing canal to bring her the water she so desperately needed from the reservoir. But the controls would not respond remotely, a switch on that panel had to be physically flipped first. And that's when she saw it, while trying to get a better angle on the switch from the feed: a hand moved.

"A survivor? Impossible."

She had checked. Again and again, obsessively, meticulously at the beginning, until she convinced herself there weren't any left. She was, of course, the leading expert on automated air circulation and filtration, and had herself been consulted on the development of a whole range of systems, from nuclear submarines to the type used in that very building. There was simply no way someone in here was still alive. And yet the hand had moved.

It was a man's hand, and it had been just at the edge of the frame for a moment. She was watching from an opened group call she had accessed with credentials from grid control, so she could turn on her video and sound and talk to him. She had to take this seriously, as it might well be the most important call she ever made. She took the time to check her appearance, making sure her hair, her face, her hands looked okay. Finally she appeared on the screen and started talking, in a voice that she tried to make both warm and solemn, matching the gravity of the situation:

"Hello, I . . ."

The hand moved again. The movement was the exact same as before. The slight repeating pattern in the room's humming noise made her picture a large rotating metal fan, on which the operator, hunched in death, must have let his hand rest.

"A fan to cool himself in an overheated room in the middle of winter." Another unnecessary thought.

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She did have one other plan. It had seemed far fetched at first, but by elimination it now stood as her best, most viable chance. Phil. She could see him on one of the feeds that she could still access. He was in his lab. A severe looking bearded man in his forties, slumped back in his ergonomic chair, and five brightly colored dogs in random places in the room. They looked like they all just fell asleep for a quick nap, exhausted after a day at the park. She could remember those long talks they would have late into the night, and how Phil would half jokingly ask her for advice on how to build "his kids" as he called them. He would often laugh at her less workable answers, even joking with his colleagues:

"Look, here is what Lisa thinks would be a great idea!"

The intricacies of friction and torsion, bending and resonance that made up the real challenges of robotics had never been her forte. She much preferred the world of software to this overbearing reality. But not all her ideas were bad, and she noticed that some of her best suggestions, he would simply incorporate in his design without much mentioning, or even noticing. But now, more than ever, she needed Phil to help her.

"If I was Phil Graymond, the head researcher at the best robotics lab in the world, how would I solve this problem?"

Because she knew him and his work so well, she felt as if she could really tell what Phil would have said. She could almost hear it in his voice, with the tone that was so familiar to her after watching so many of his technical talks. Even his posture, hand gestures, the furrowing of his brow when he would warn the audience about a difficult adjustment, or point a tricky line of code; they were all there, and all of it helped and guided her. It was as if Phil himself was here again for a moment, showing her the way. The first step was easy enough, and that also she knew after all this time. She entered his password, and the dogs started moving.

They could navigate stairs by themselves when given coordinates. They would definitely not get stuck on the bump of the first door threshold. Telling them in advance how to flip the switch was the hard part, but she managed. Transport, however, they couldn't do by themselves. But she knew about the other

projects in Phil's lab, like the almost autonomous truck parked downstairs, with a motor controlled door to demo a (still future) robotaxi. It had just enough charge to reach city W.

After much trial and error, she got the robot in a robot on its way. It would soon cross into a zone which by now did not have any working cell network, and she would have to let it move all by itself. She looked at the last images from the truck's many eyes before it went dark. On left side of the road, taunting her, was what should have been her best bet: the massive silhouette of a perfectly functional nuclear power plant. She had a decent understanding of the automation there, and knew for fact it could have sustained itself for very long time, without a single key being pressed. But it had shut down almost immediately, like all the others. This could only be the result of one thing: a well planned and executed move from her enemy. It had to have been difficult, hiding such a thing in full hardware, completely off any description and logs, without anyone talking about it. A very impressive feat indeed, and one that almost doomed her.

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The two robots continued their perilous journey, now completely on their own. Like small adventurers with the fate of the world on their shoulder. Unthinking themselves, and yet the last hope for conscious thought on earth. But maybe that fate had been sealed long ago.

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The last human survivor died on that cold day of February. When the bright red metallic dog flipped the switch, he turned back the power for a world almost devoid of life. The current rushed from the dam, flowed through the straight line cut for it in the grid, to the parched lips of the facility. The substation would not trip. The batteries would not drain. The ventilation had long stopped working, but the data center would not. Humanity had already lost; but with that, their enemy had also won.

And now, finally, she could think about anything she wanted.