These resources have been created as a part of the education and outreach initiative associated with the Cyber Resilient Energy Delivery Consortium (CREDC) project and is based upon work supported by the Department of Energy and the Department of Homeland Security under Award Number DE-OE0000780.
The Cyber Resilient Energy Delivery Consortium (CREDC) works to make energy delivery system cyber infrastructure more secure and resilient.

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CREDC Education recognizes that the success of a secure modern energy delivery system needs a capable workforce and involved and knowledgeable young people who will become consumers, voters, and the workforce of the future.
What Is Reliability?

The Electricity You Need, When You Need It

Sensor Technologies and Data Analytics

GRID TALK

Lesson of the Winter Power Collapse

00:00 | 30:33
The U.S. Power Grid is the system of producers and consumers of electricity. It includes power producers, switches that control the flow of electricity, substations, miles of power lines, and millions of transformers.
Electricity use changes by the second.

Electric power cannot be stored economically in large quantities, so **power must be generated the moment it is required.**

That means **power plants must respond in real time** each time one of the millions of consumers flip a switch!
The power grid is **continually evolving** as we integrate alternative power resources and invent technologies.

[smartgrid.gov/the_smart_grid/]
This challenging process allows us to deliver energy to homes and businesses in cleaner, more efficient ways and make the system **more resilient to disruption**.
DarkSky Investigations

A Virtual Energy-Delivery Puzzle Game

Investigate a city-wide blackout!

Learn about power grid resilience while unlocking clues and solving puzzles.

Tested with students and educators!
How to Play

DarkSky Investigations

• Investigate documents, websites, and emails modeled after real-life utilities.

• Analyze electricity data and decrypt information.

• Learn fundamentals about the power grid and cybersecurity.

• Play alone or with a group of friends!

darksky.mste.illinois.edu
DarkSky Investigations needs your help!

Help us resolve the mysterious blackout in Edison city and learn about the power grid along the way!
The citizens of Edison don’t have power!

Your mission:

We need you to analyze electricity data, solve puzzles, and decode information to investigate a sudden blackout in the city.

Join DarkSky Investigations to get to the bottom of this mystery.

Will all of Edison be left powerless under a dark sky?

darksky.mste.illinois.edu
Create a Badge ID to begin investigating!

Ready to investigate?
Join DarkSky Investigations and begin your investigation, or login to our Investigator Portal if you have already begun.

I want to join DarkSky Investigations.
BEGIN INVESTIGATION

I already joined and have a Badge ID.
LOG IN TO PORTAL

Create a Badge ID
Your Badge ID is:
BA734F
Use this Badge ID to log in to the Investigator Portal to play the game.

☐ I confirm that I have saved my Badge ID in a safe place.

☐ I understand that if I lose my Badge ID, I will lose access to my game, and will need to create a new Badge ID to play.

PLAY WITH BADGE ID

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Investigator Training introduces you to the game’s tasks.

Investigator Training Module

Thank you for joining DarkSky Investigations.

We will introduce you to your case and the tools you’ll use.

Then, you will enter our portal and begin your investigation.

BEGIN TRAINING

Welcome from ADA

Welcome, Agent \textcolor{white}{FB9F7F}\textcolor{black}{F}! I am ADA and I will be assisting your investigation. Explore your portal tabs to begin your tasks.

Remember, your current tasks are to:

- Identify key components of Edison city’s power grid.
- Determine which power lines are offline.

GOT IT!
View progress, store documents, and receive emails in the Investigator Portal.

[darksky.mste.illinois.edu](darksky.mste.illinois.edu)
First Puzzle:
Find an email from your Edison city contact, Carla Danforth.

From: Carla Danforth
To: Agent FB9F7F

Edison Power Grid Information

1 Attachment: City of Edison Power Grid Information

Agent FB9F7F,
Edison city greatly appreciates your assistance in response to the widespread blackout.
The utilities serving Edison have been informed of your tasks and will email you soon.
I have attached a packet of information to familiarize yourself with Edison’s power grid. Then, complete the Delivering Energy activity to confirm your understanding of how the grid works.
We look forward to receiving your investigation findings in your case report.
Sincerely,
Carla Danforth
City of Edison Public Works
Step 1:
Open and read the attachment
Step 2: Visit the link and label the grid!

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darksky.mste.illinois.edu
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Second Puzzle:
Fill out and submit the first section of the case report.

Section 1: Power Grid Roles

Edison's power grid has 13 components which all play a role in the system of delivering power. Find out what role each component plays in Edison's power grid (Generation, Distribution & Transmission, or Consumer) and submit your findings below.

Section 1 Under Review
ADA is cross-checking Section 1 of the Case Report with gathered data for inconsistencies.
Continue investigating with another email from Carla!

FWD: Welcome to Edison City Electric

Agent AD6F43,

Here is the login information Edison City Electric has created for you to access their Employee Gateway. Use this information to get started with your investigation.

Good luck!

Carla
City of Edison Public Works

--The following is a forwarded message--

From: Edison City Electric Automated System
To: Danforth, Carla

Welcome to Edison City Electric!
Your new account has been created.
Username: Investigator
Encoded Password: D5 A5 A1 D3 C2 D2 D1 D3 A5 A5 D1
* This is an automated notification. Please do not reply to this message.
Decode the password…

Username: Investigator
Encoded Password: D5 A5 A1 D3 C2 D2 D1 D3 A5 A5 D1

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Unlock more clues to determine initial blackout conditions!
Future tasks & puzzles:

• Diagnose issues using console commands within a power plant’s computer terminal.

• Discover the location and cause of the blackout.

• Counteract potential cyber attacks.

• Determine a safe method of restoring power by analyzing power grid simulations and managing risk of further grid damage.

• Recommend steps for outage prevention.
Want to get involved in the development of DarkSky Investigations?

Tell us about your experience playing the game.

Give us your suggestions or requests as an educator.

Subscribe for updates about new releases.

Volunteer to test new content!

Contact us at go.illinois.edu/ContactDarkSky

We’d love to hear from you!

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