U.S. DEPARTMENT OF ENERGY | *Office of* Cybersecurity, Energy Security, and Emergency Response

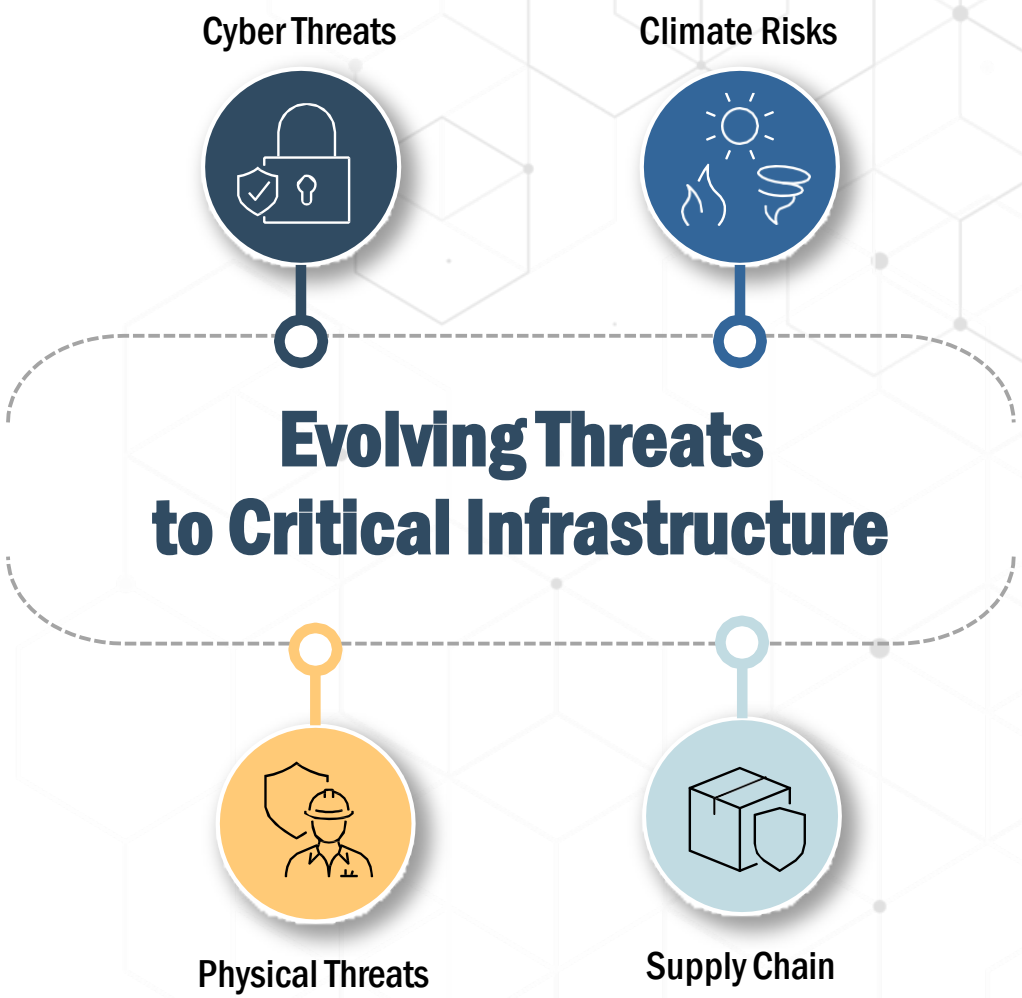
Missouri PSC Workshop

Megan Levy and Cynthia Hsu

April 21, 2023

CESER Mission & Energy Threat Landscape

To enhance the security of U.S. critical energy infrastructure to all hazards, mitigate the impacts of disruptive events and risk to the sector overall through preparedness and innovation, and respond to and facilitate recovery from energy disruptions in collaboration with other Federal agencies, the private sector, and State, local, tribal, and territory governments.



Collaboration and Coordination is Essential

State, Local, Tribal, and Territorial (SLTT) Governments

NASEO
National Association of State Energy Officials

National Association of Regulatory Utility Commissioners

American Public Power Association

NCSL

NEMA™

National Governors Association

Energy Government Coordinating Council (EGCC)

NASEO NARUC NGA

Industry Councils

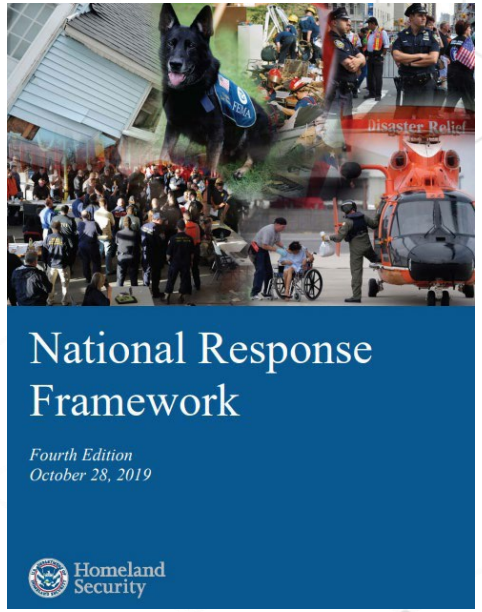
ESCC
Electricity Subsector Coordinating Council

Oil and Natural Gas Subsector Coordinating Council

What is Emergency Support Function (ESF) #12?

ESFs are part of FEMA's National Response Framework

- How the Nation responds to disasters and emergencies
- Built on the National Incident Management System
- Scalable, flexible, and adaptable coordination structures



Emergency Support Functions:

- ESF1 Transportation
- ESF2 Communications
- ESF3 Public Works & Engineering
- ESF4 Firefighting
- ESF5 Emergency Management
- ESF6 Mass Care, Housing & Human Services
- ESF7 Resources Support
- ESF8 Public Health & Medical Services
- ESF9 Urban Search & Rescue
- ESF10 Oil & Hazardous Materials Response
- ESF11 Agriculture & Natural Resources
- **ESF12 Energy**
- ESF13 Public Safety & Security
- ESF14 Cross-Sector Business & Infrastructure
- ESF15 External Affairs

Emergency Support Function (ESF) #12 Functions

ESF#12 assists government and private sector stakeholders in overcoming inherent challenges associated with reestablishment of the energy system in a variety of ways.

ESF#12 Support Includes:

- Facilitating the restoration of damaged energy systems
- Coordinating with federal, state, local agencies, and other ESF's
- Providing technical expertise at Federal, State, and regional levels
- Assist in overcoming barriers and challenges to restoration
- Collects, evaluates, and shares energy sector information and visualizations

ESF#12 Does Not Typically:

- Physically repair or rebuild the grid
- Determine priority restoration of electricity
- Prioritize fuel distribution

Bipartisan Infrastructure Law (BIL) Key Opportunities

Investing in a Secure, Resilient, and Clean Energy Future

The IIJA includes over $62B for the U.S. Department of Energy to deliver a more equitable clean energy future

Provisions to review:

- Grid resilience 40101, 40103, 40107
- State energy security plan: 40108
- Cyber-related: 40124

DOE BIL Homepage

BIL Programs at Department of Energy

State Energy Security Plans (SESP) 40108

Purpose

State energy security plans—

1) assess the existing circumstances in the State
2) propose methods to strengthen the ability of the State, in consultation with owners and operators of energy infrastructure in the State to:
   - secure the energy infrastructure of the State against all physical and cybersecurity threats;
   - mitigate the risk of energy supply disruptions to the State; and to enhance the response to, and recovery from, energy disruptions; and
   - ensure that the State has reliable, secure, and resilient energy infrastructure.

Contents

A State energy security plan shall—

1) address all energy sources and regulated and unregulated energy providers;
2) provide a State energy profile, including an assessment of energy production, transmission, distribution, and end-use;
3) address potential hazards to each energy sector or system, including physical threats and vulnerabilities; and cybersecurity threats and vulnerabilities;
4) provide a risk assessment of energy infrastructure and cross-sector interdependencies;
5) provide a risk mitigation approach to enhance reliability and end-use resilience; and
6) Address
   A. multi-State & regional coordination, planning, and response; and
   B. coordination w/ Indian Tribes w/ respect to planning and response; and
   C. to the extent practicable, encourage mutual assistance in cyber and physical response plans.

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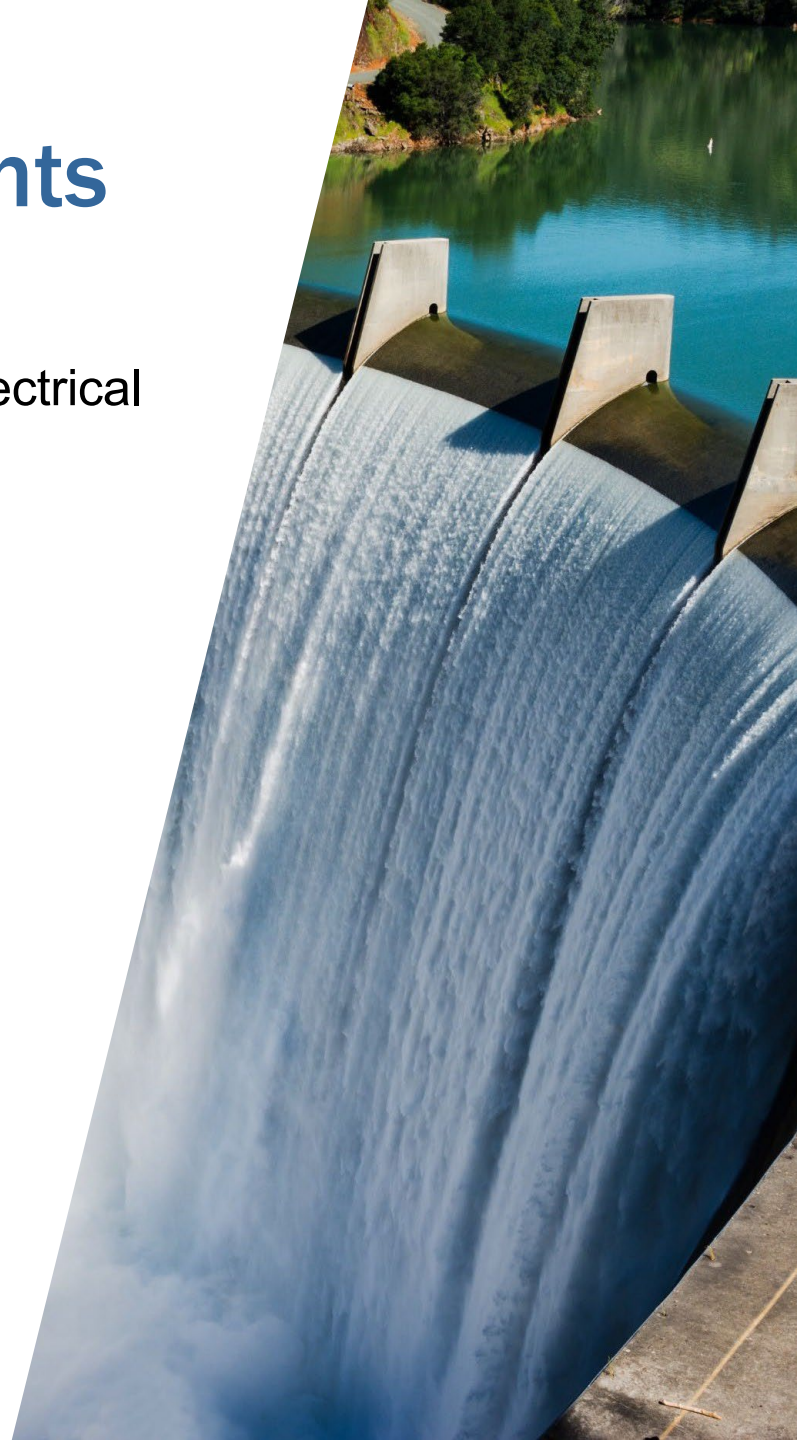
40101D: Grid Resilience Grant Highlights

- $2.3B over five years
- Grants for projects reducing the likelihood and consequences of electrical outages due to extreme weather, wildfire and natural disasters
- State and tribal applications are due **May 31, 2023**
- States must subgrant to ‘eligible entities’ to execute grid resilience projects. Eligible entities include:
- Electric grid operators
    - Electricity storage operators
    - Electricity generators
    - Transmission owners or operators
    - Distribution providers
    - Fuel suppliers
- Small utility set aside
- Subgrant and cost match requirements



GRID DEPLOYMENT OFFICE

40101D: Resilience investments permitted under the Grant program

Potential Investments include:

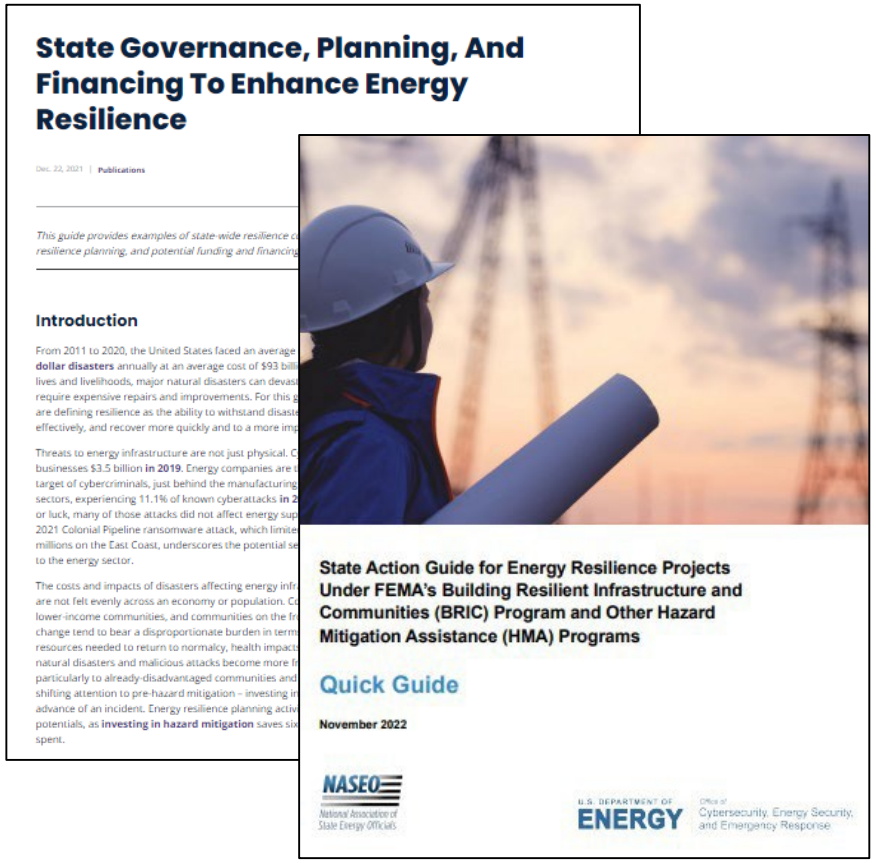
- Utility pole management,
- Hardening of power lines, facilities, substations, of other systems,
- Undergrounding of electrical equipment,
- Replacement of old overhead conductors and underground cables,
- Relocation of power lines or the reconductoring of power lines with low-sag, advanced conductors,
- Vegetation and fuel-load management,
- Weatherization technologies and equipment,
- Fire-resistant technologies and fire prevention systems,
- Monitoring and control technologies,
- Use or construction of distributed energy resources for enhancing system adaptive capacity during disruptive events, including microgrids, and battery-storage subcomponents,
- Adaptive protection technologies, and
- Advanced modeling technologies

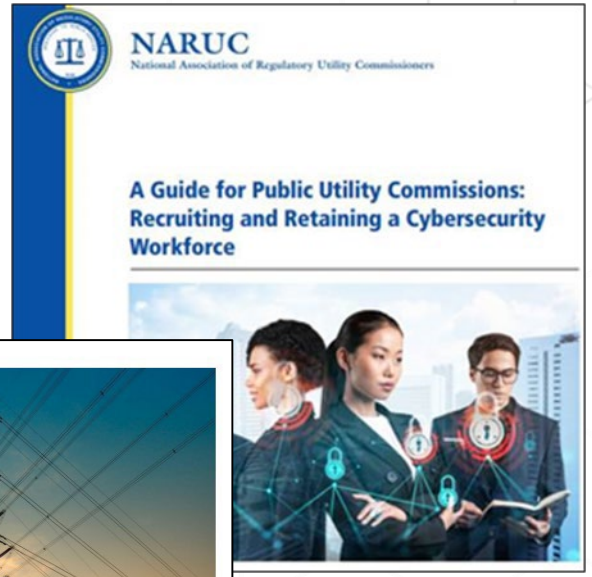
Ineligible Investments

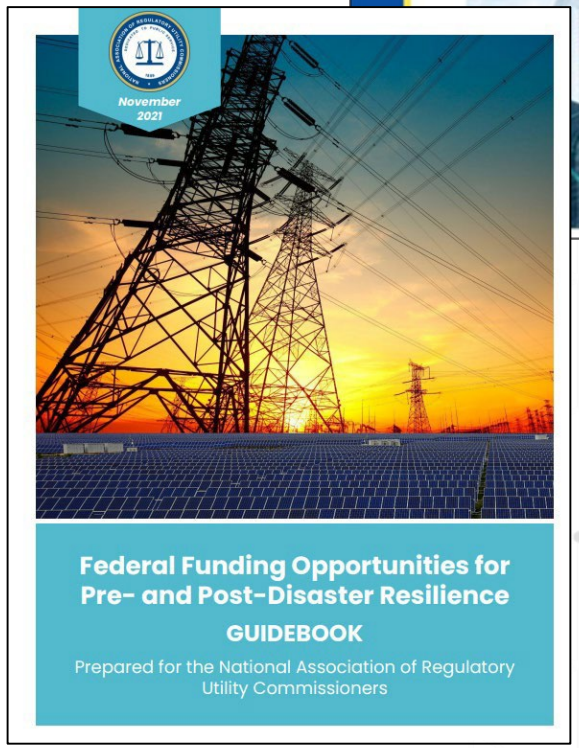
- Construction of a new electric generating facility
- Large-scale battery storage facilities not being used to supply electricity where needed during disruptive events
- Cybersecurity measures

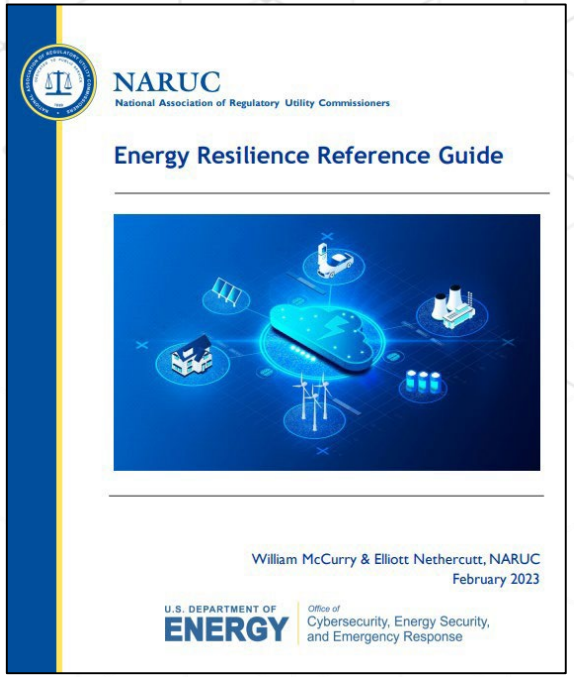
GDO GRID DEPLOYMENT OFFICE

CESER Supported Resources









[SLTT Program Resource Library | Department of Energy]

Infrastructure Investment and Jobs Act (IIJA)

Public Law 117–58
117th Congress

An Act

To authorize funds for Federal-aid highways, highway safety programs, and transit programs, and for other purposes.

Nov. 15, 2021
[H.R. 3684]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Infrastructure Investment and Jobs Act.

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

23 USC 101 note.

(a) SHORT TITLE.—This Act may be cited as the "Infrastructure Investment and Jobs Act".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Sec. 1. Short title; table of contents.
Sec. 2. References.

DIVISION A—SURFACE TRANSPORTATION

Sec. 10001. Short title.
Sec. 10002. Definitions.
Sec. 10003. Effective date.

TITLE I—FEDERAL-AID HIGHWAYS

Subtitle A—Authorizations and Programs

Sec. 11101. Authorization of appropriations.
Sec. 11102. Obligation ceiling.
Sec. 11103. Definitions.
Sec. 11104. Apportionment.
Sec. 11105. National highway performance program.
Sec. 11106. Emergency relief.
Sec. 11107. Federal share payable.
Sec. 11108. Railway-highway grade crossings.
Sec. 11109. Surface transportation block grant program.
Sec. 11110. Nationally significant freight and highway projects.
Sec. 11111. Highway safety improvement program.
Sec. 11112. Federal lands transportation program.
Sec. 11113. Federal lands access program.
Sec. 11114. National highway freight program.

https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf

Infrastructure Investment and Jobs Act (IIJA) Section 40124

Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance Program (RMUC Program)

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Subtitle B—Cybersecurity

Sec. 40121. Enhancing grid security through public-private partnerships.
Sec. 40122. Energy Cyber Sense program.
Sec. 40123. Incentives for advanced cybersecurity technology investment.
Sec. 40124. Rural and municipal utility advanced cybersecurity grant and technical assistance program.
Sec. 40125. Enhanced grid security.
Sec. 40126. Cybersecurity plan.
Sec. 40127. Savings provision.

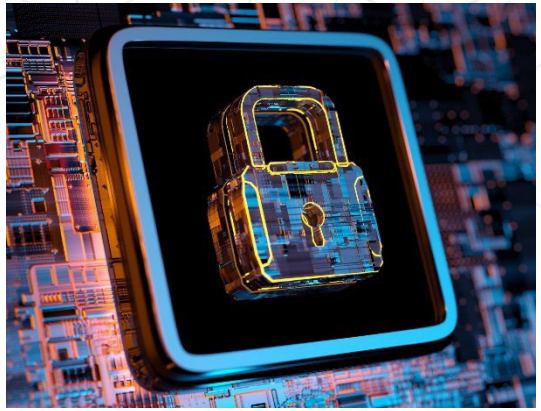
Sec. 40124. Rural and municipal utility advanced cybersecurity grant and technical assistance program.

https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf

40124: Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance (RMUC) Program

Funding:

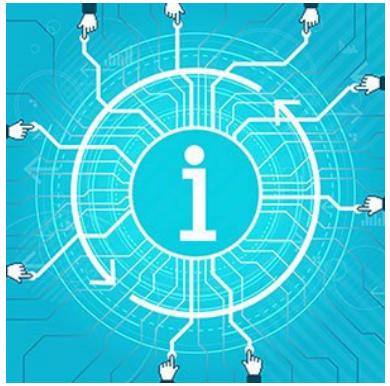
$250 million over 5 years (FY22-26) via grants, technical assistance, and cooperative agreements



Objectives:

1. Deploy cybersecurity technology, operational capability, or services that *enhance the security posture* of electric utilities through improvements in the ability to protect against, detect, respond to, or recover from a cybersecurity threat.

2. Increase the participation of eligible entities in cybersecurity threat *information sharing* programs.



Authorizing Language for IIJA Section 40124

(d) AWARDS.—

(1) IN GENERAL.—The Secretary—

(A)shall award grants and provide technical assistance under the Program to eligible entities on a competitive basis;

(B) shall develop criteria and a formula for awarding grants and providing technical assistance under the Program;

Authorizing Language for IIJA Section 40124

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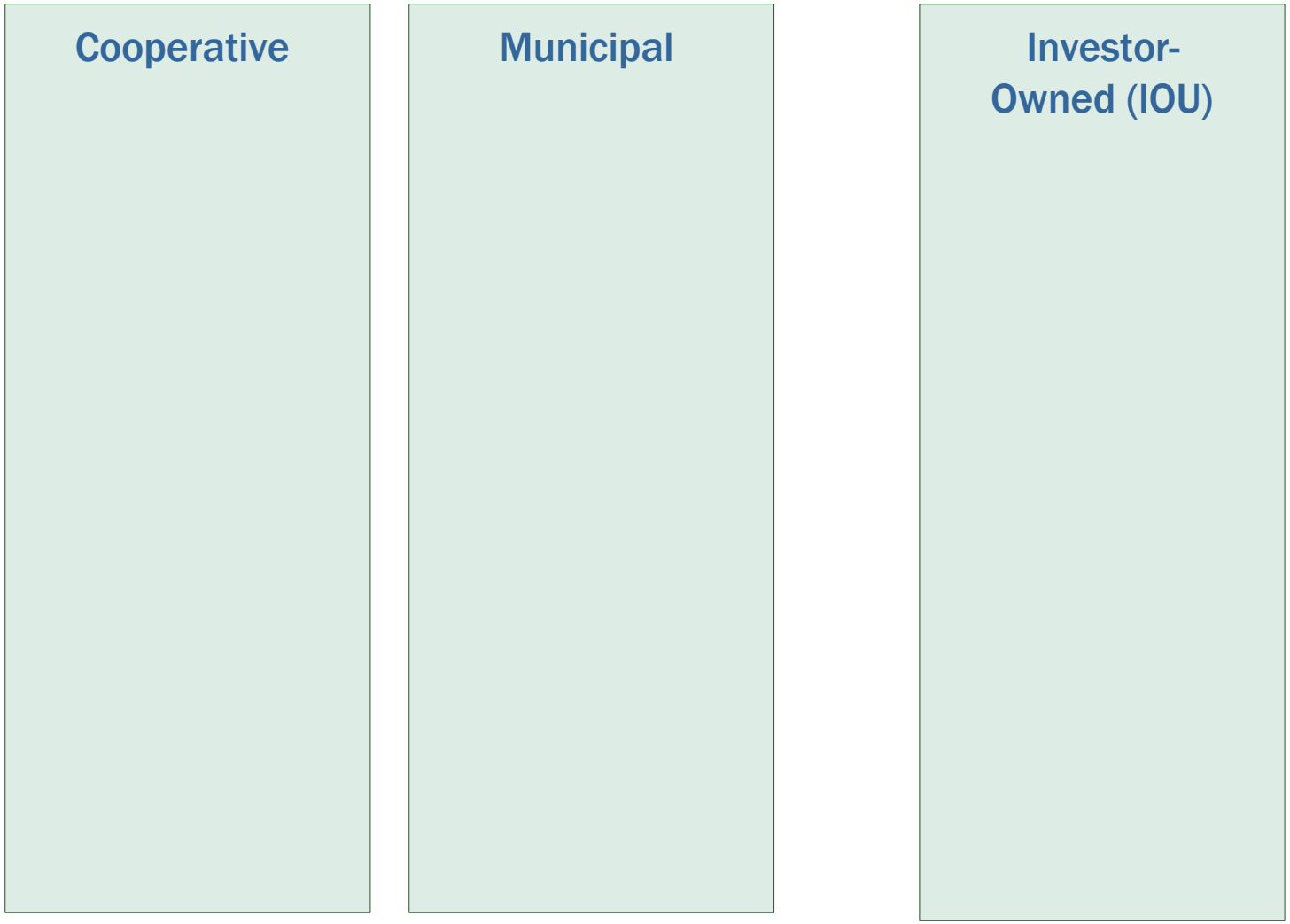
(C) may enter into cooperative agreements with eligible entities that can facilitate the objectives described in subsection (c); and

(D) shall establish a process to ensure that all eligible entities are informed about and can become aware of opportunities to receive grants or technical assistance under the Program.

RMUC Priorities

RMUC Priorities



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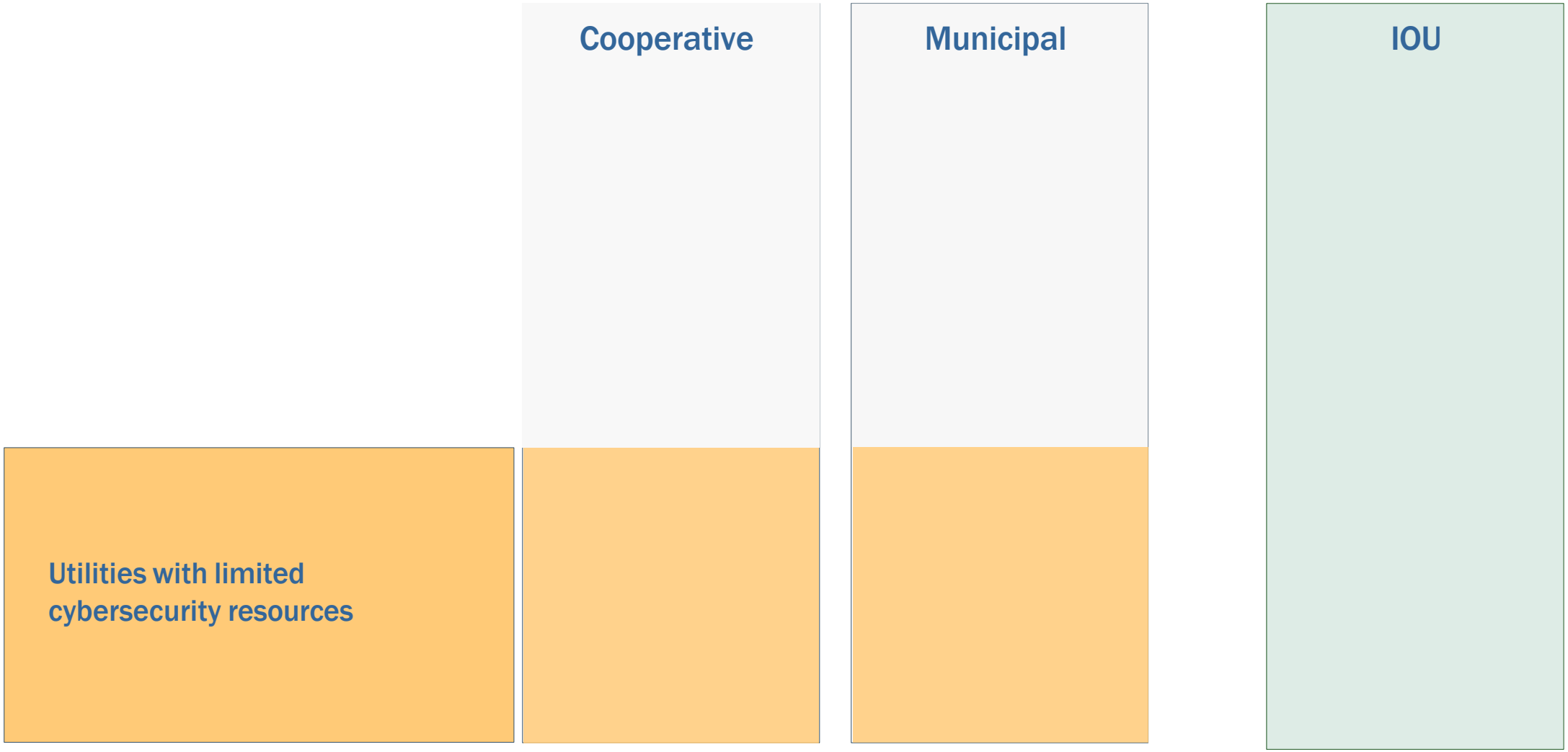

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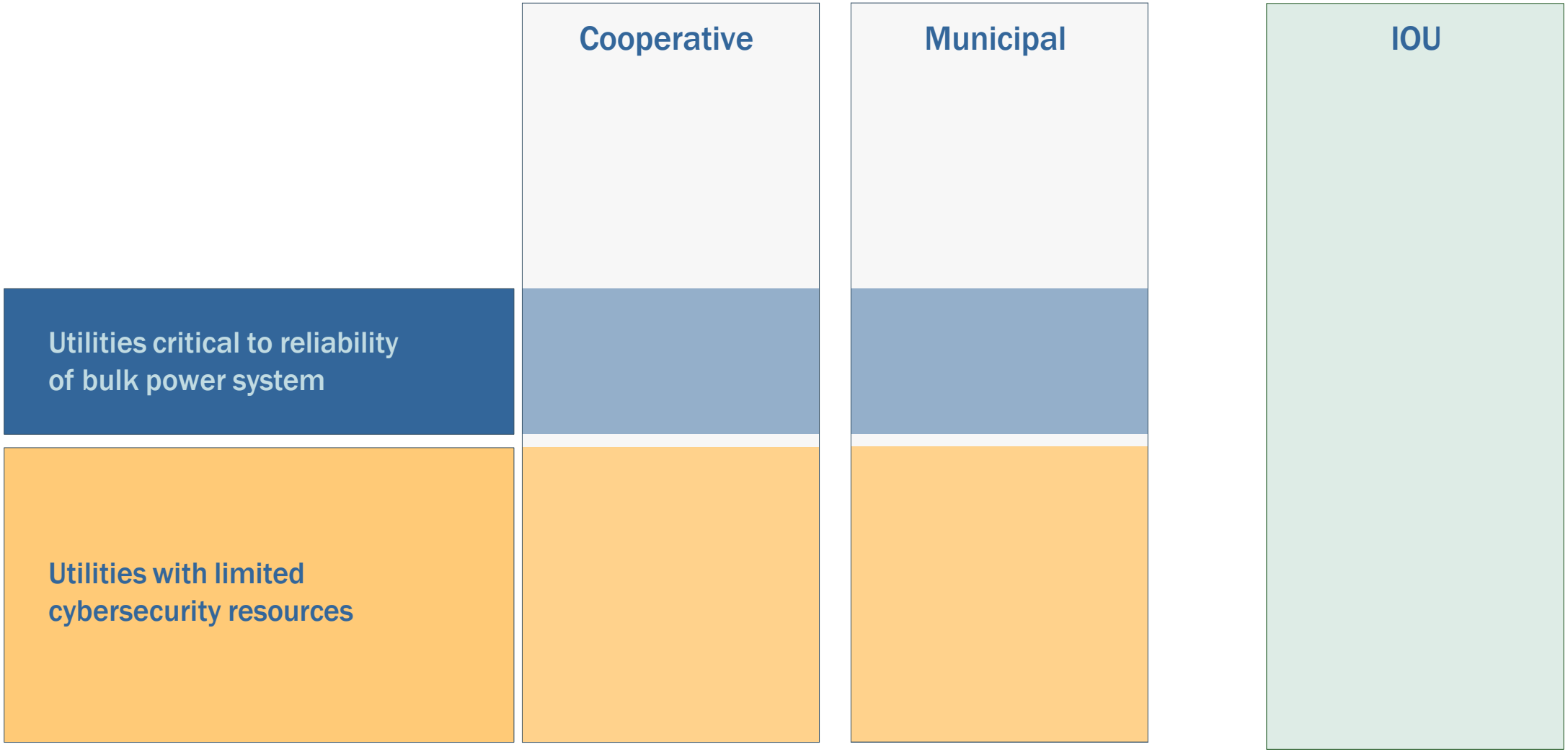

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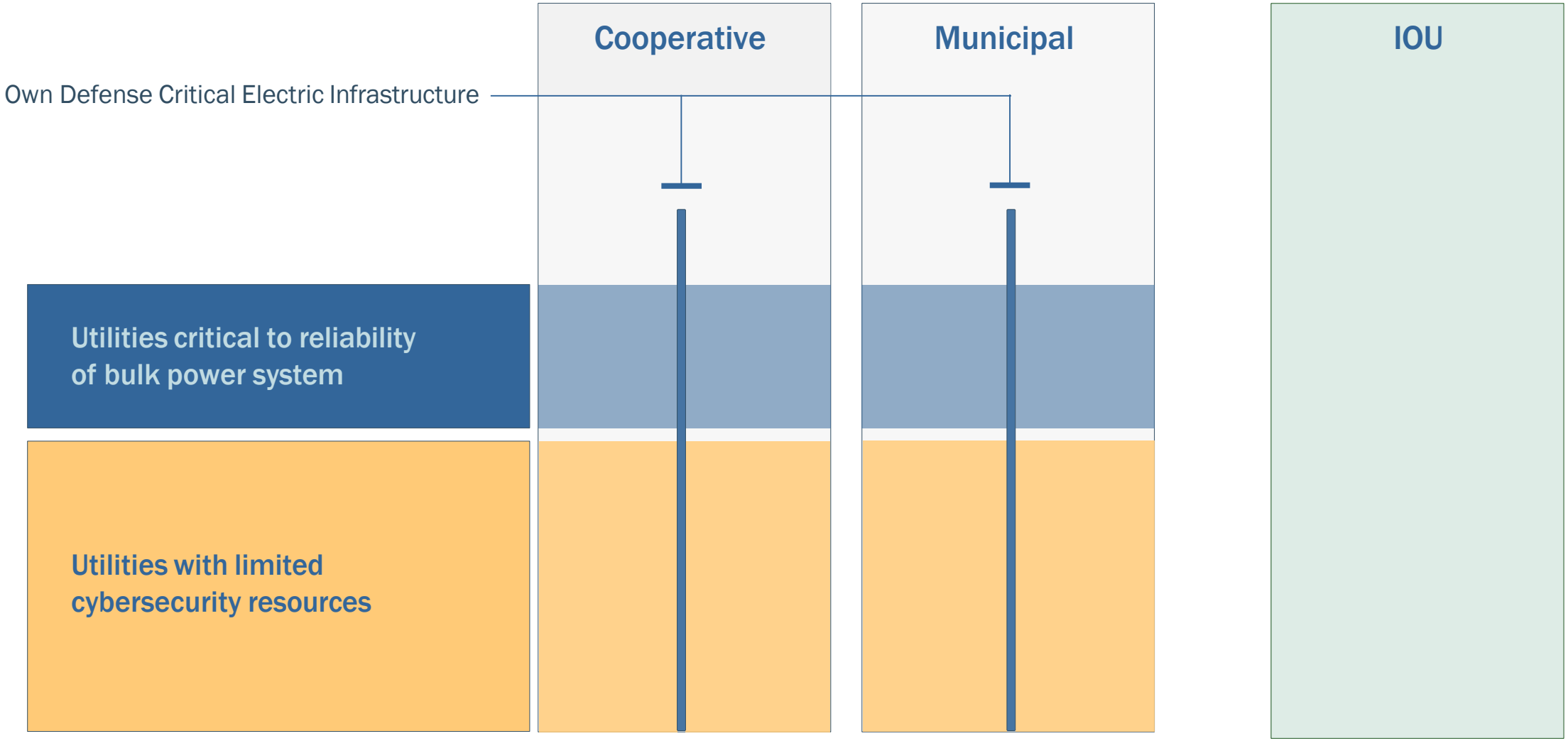

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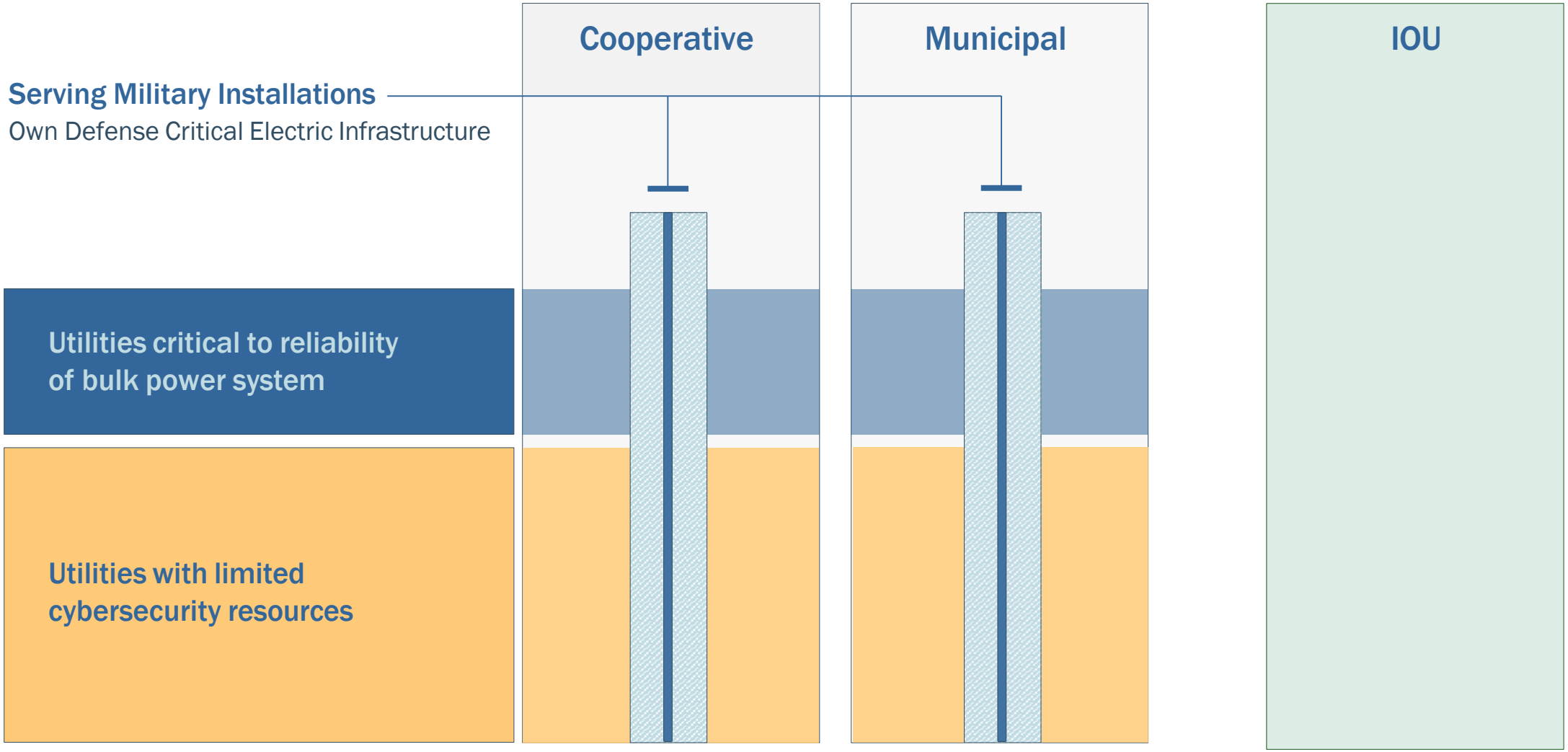
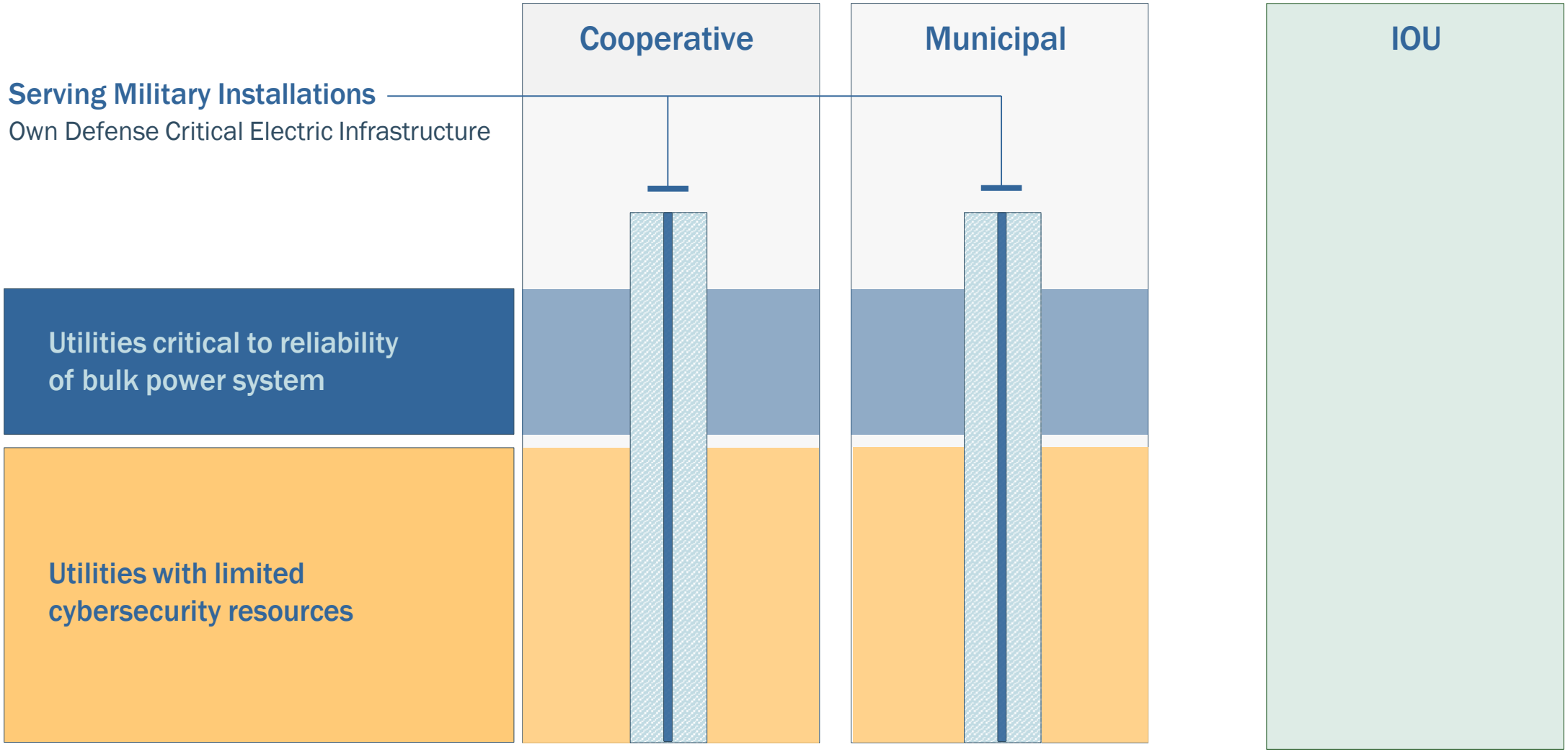


RMUC Priorities

Not-for-profit entity that is in a partnership with six (6) or more cooperative and/or municipal utilities.



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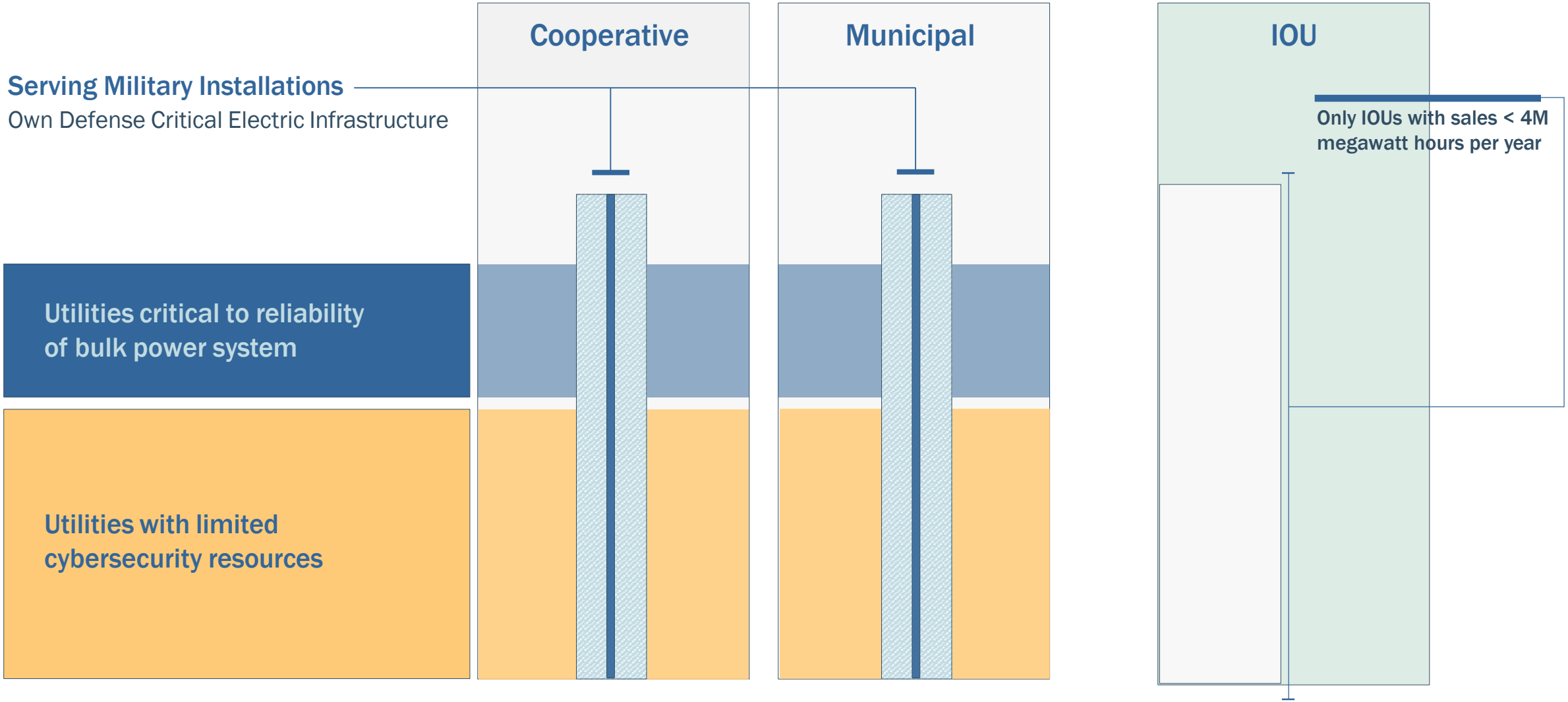
Serving Military Installations
Own Defense Critical Electric Infrastructure



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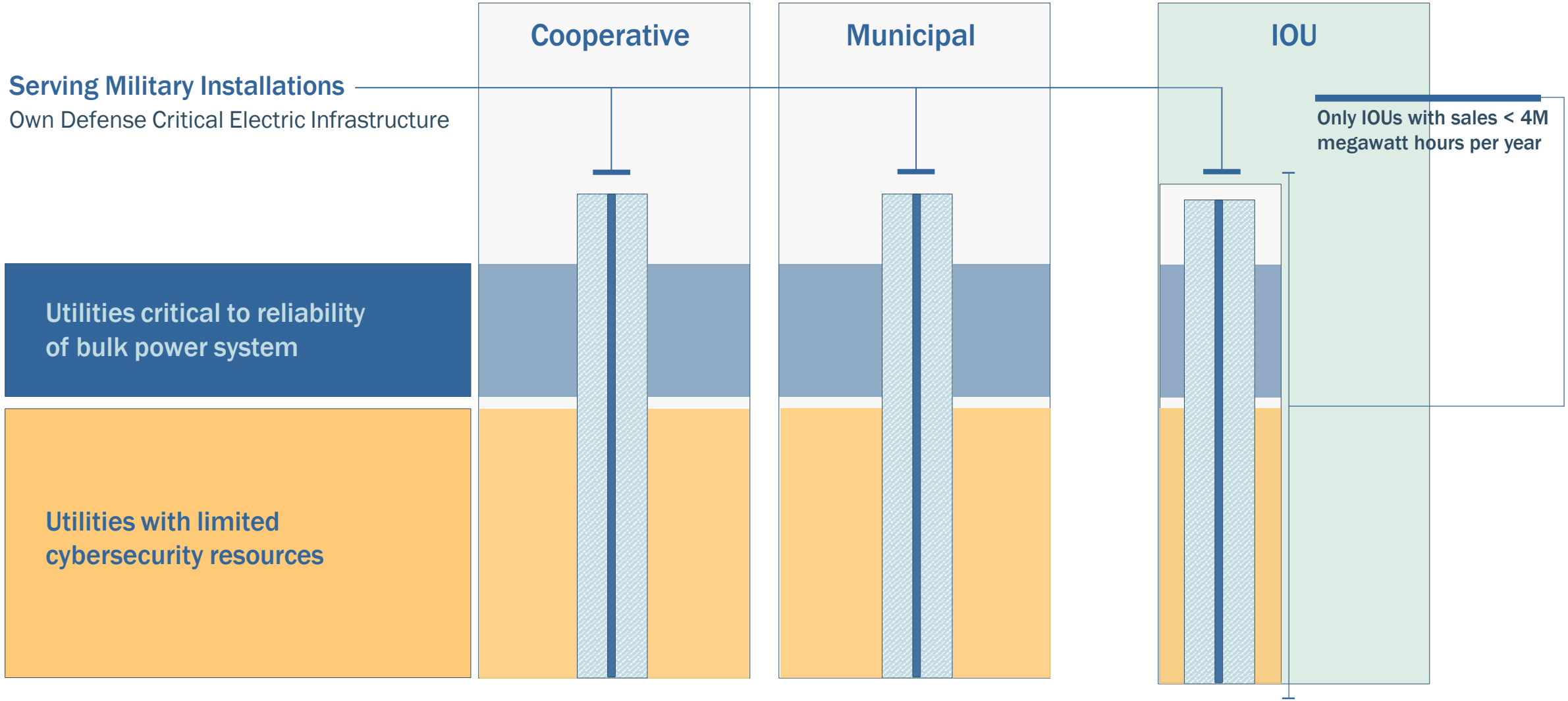
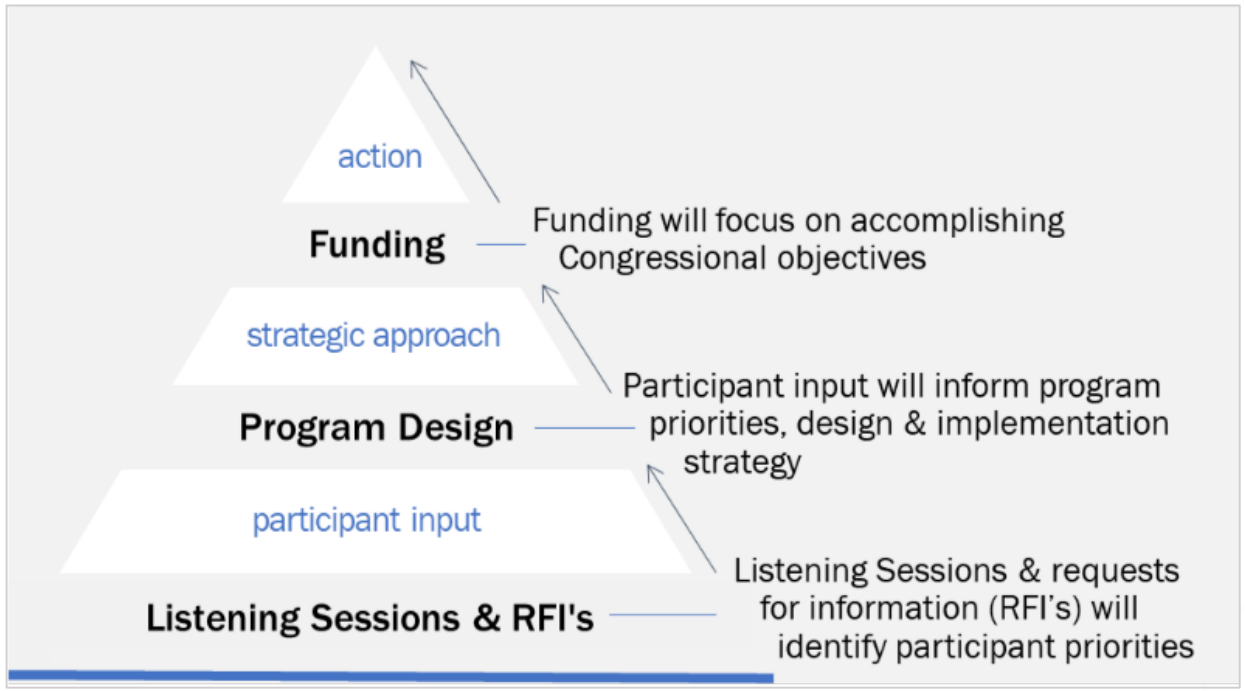


Listening Sessions & Request for Information (RFI)



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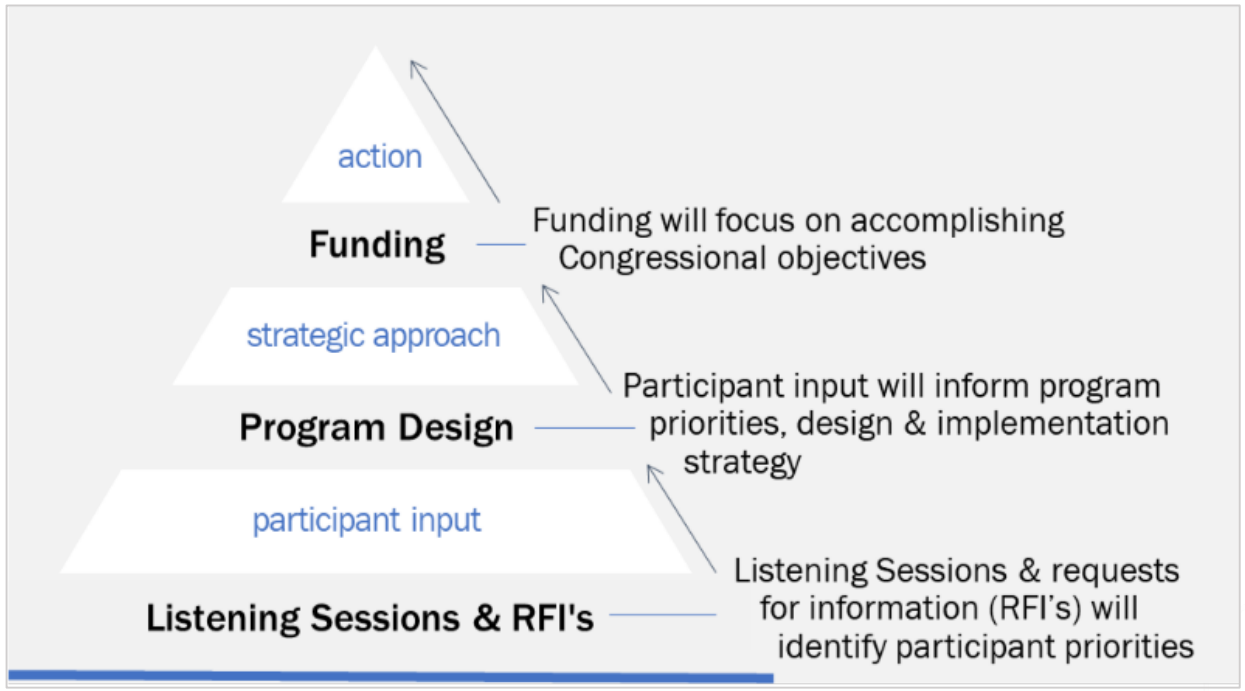
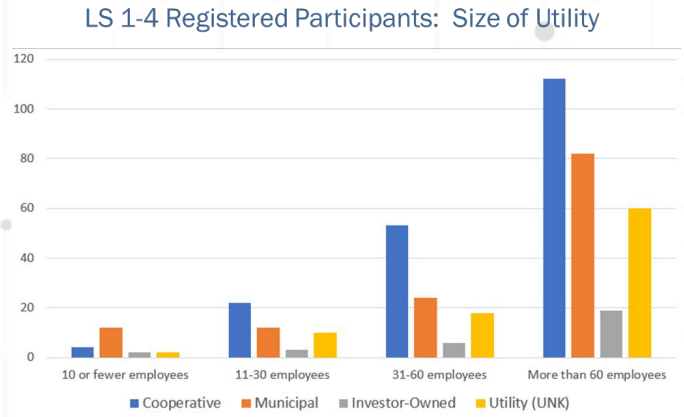


Listening Sessions Combined	# Registered[1]	# Attended[1]
Number of Utility Staff Participants	452	315
Number of Utilities[2]	283	232
Cooperatives[1]	163	134
Municipals[1]	94	75
IOUs[1]	26	23

[1] Individuals may have registered and/or attended more than one session and data may include duplicates.

[2] The totals for # Registered and # Attended will not add up to the Number of Utilities because some participants entered inconsistent data.



RFI: 99 responses received

RMUC Program: Next Steps

- Program design
- Identifying funding mechanisms that support multiple recipients
- Developing templates and resources to minimize challenges associated with applying for funding
- Streamlining funding mechanisms to minimize challenges in application process, funding management process, and close-out process
- Continuing to develop and implement outreach and engagement activities to reach eligible entities

CESER Priorities

Increase the visibility of threats targeting critical energy infrastructure through risk analysis, detection, discovery, and mitigation efforts.

Strengthen supply chain security and resilience of energy systems through swift and informed actions.

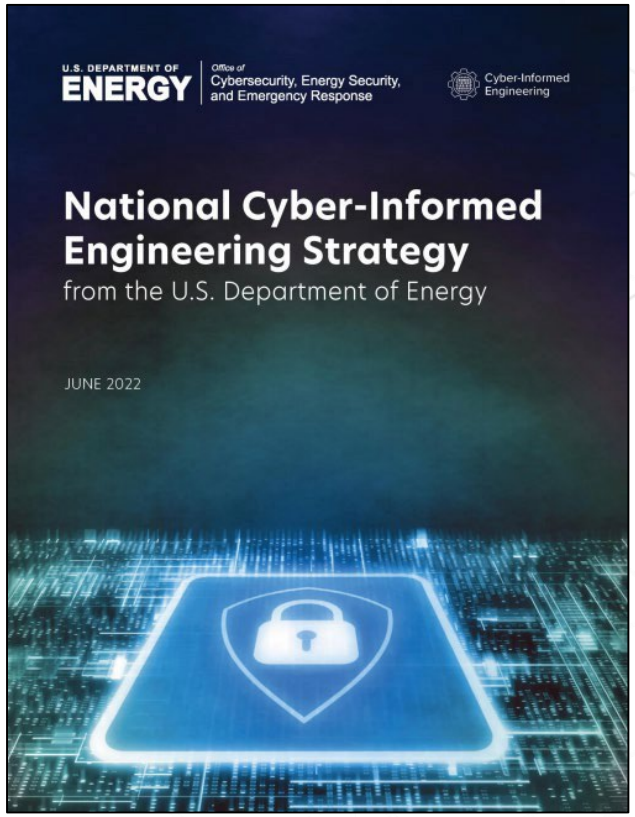
Implement security and resilience by design in next generation energy systems through research, development, demonstration and deployment.

Capacity building for state, local, tribal, and territorial (SLTT) government and industry, helping them prepare for and respond to energy system threats.

Lead the safe and efficient restoration of U.S. energy systems from all hazards.

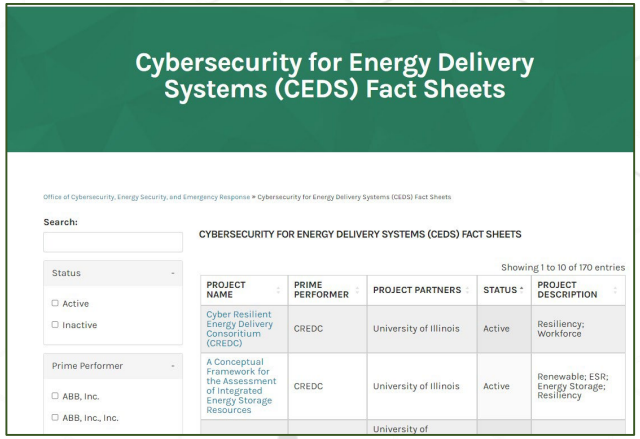
CESER's Cybersecurity Resources

Tools and Technology



FINAL DOE National CIE Strategy - June 2022_0.pdf (energy.gov)

Today's research is tomorrow's capabilities



Cybersecurity for Energy Delivery Systems (CEDS) Fact Sheets | Department of Energy

CESER's Cybersecurity Resources

Tools and Technology

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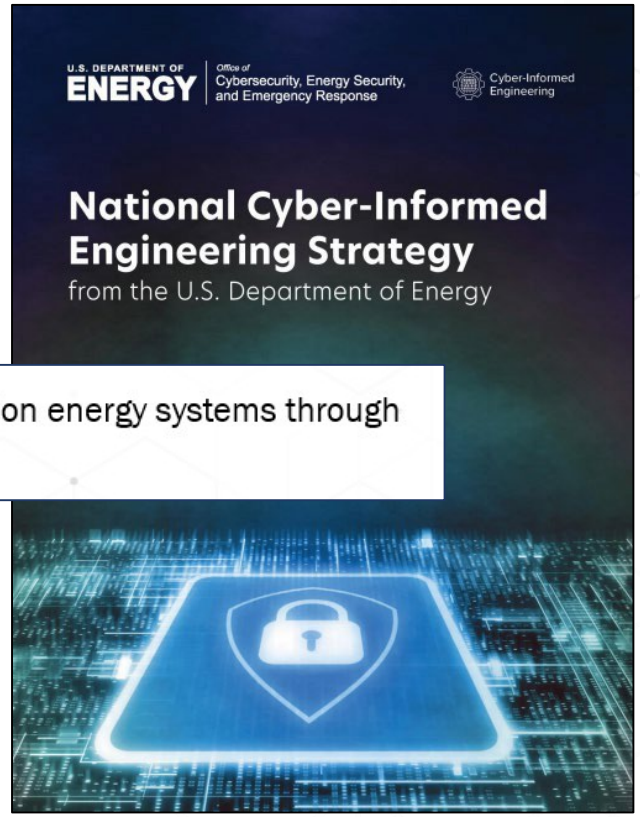

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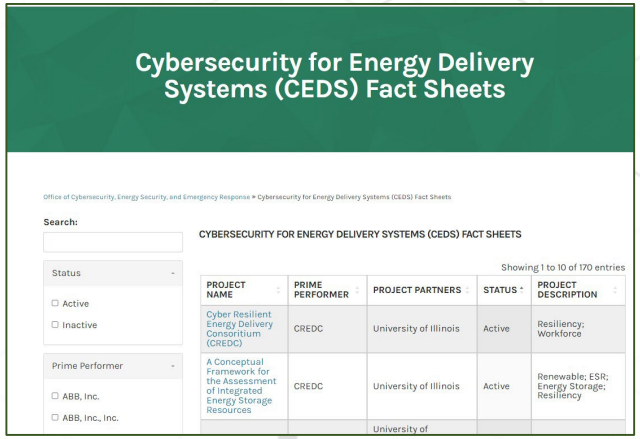


Cybersecurity for Energy Delivery Systems (CEDS) Fact Sheets | Department of Energy

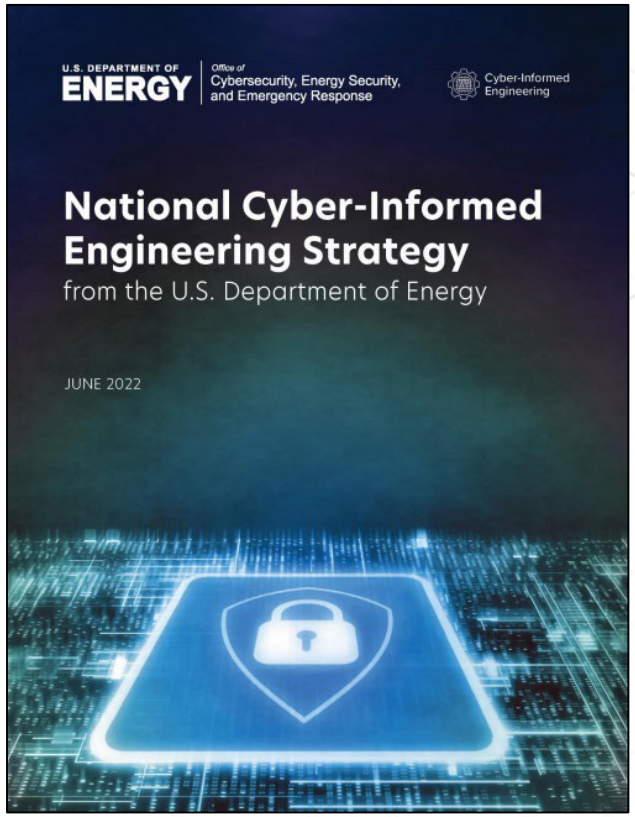
CESER's Cybersecurity Resources

Tools and Technology

[CyTRICS: Cyber Testing for Resilient Industrial Control Systems (inl.gov)]

[CyOTE: Cybersecurity for Operational Technology Environments (inl.gov)]

C2M2
Cybersecurity Capability Maturity Model



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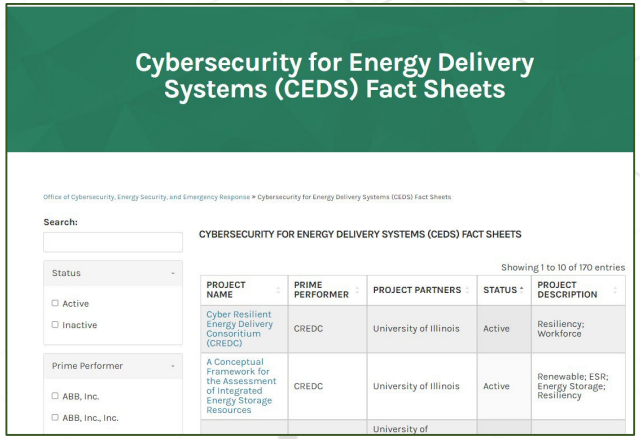

[Cybersecurity for Energy Delivery Systems (CEDS) Fact Sheets | Department of Energy]

CESER's Capacity Building

Clear Path

Annual all-hazards energy security and resilience exercise

IV: Portland, OR/Washington, DC
Cascadia Subduction Zone

V: Houston, TX
Hurricane (Gulf)

VI: Herndon, VA
Hurricane (Atlantic)

VII: Memphis, TN
New Madrid Seismic Zone

VIII: Salt Lake City, UT
Wasatch Fault Zone

IX: States of Washington/Oregon
Cascadia Subduction Zone

X: Southeast Regions (TX/LA/NC/SC)
Hurricanes (Atlantic and Gulf)

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Participating Organizations

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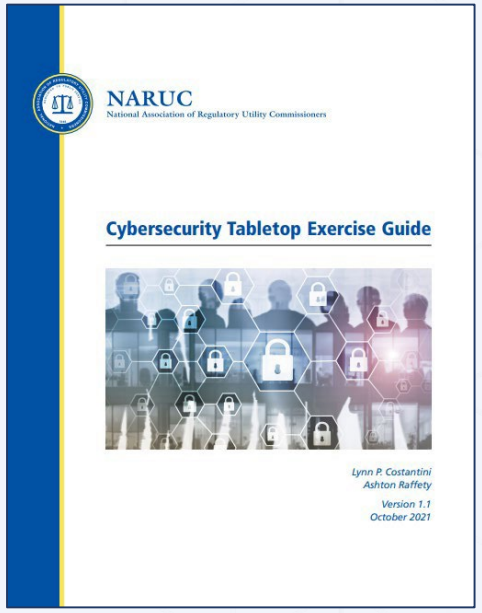
Hurricanes (Atlantic and Gulf)

Participating Organizations

Hawaii State Energy Office
Hawaiian Electric
Kaua'i Island Utility Cooperative
Par Pacific
Kalaeloa Partners, LP
AFPM American Fuel & Petrochemical Manufacturers
Island Energy
EEI Edison Electric Institute
NRECA America's Electric Cooperatives
NASEO National Association of State Energy Officials
NGA
EMAI
E-ISAC
NEMA
American Public Power Association
AGA American Gas Association
FEMA

[Cybersecurity Tabletop Exercise]



CESER's Capacity Building

Training and Workforce Development

- 82 training sessions
- Trained approximately 3,700 personnel

CyberStrike Training - INL

- 3rd Cohort
- 21 Alumni

OTDefender: Operational Technical Defender Fellowship (inl.gov)

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Department of Energy's CyberForce® Program

CyberForce Competition®

The CyberForce Competition is the original competition that started the program back in 2016. This is a defend/attack cyber-physical scenario.

Conquer the Hill Series

The Conquer the Hill competition series provides smaller individual based competitions that narrow in on specific skills for participants.

Virtual Career Fair

The CyberForce Program will be hosting a Virtual Career Fair for the participants of its collective programs on Wednesday, October 11, 2023.

Webinar Series

The Webinar Series was also added in 2021 to expand on our industry and academia partner engagement. These webinars will highlight upcoming news within the program as well as key topics of interest within cybersecurity.

Workforce Portal

The Workforce Portal will be the CyberForce Program's main hub for all things program related. Participants will have a chance to better understand their skills, engage in regular communication, check job boards, and be the first to hear about upcoming events and trainings.

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