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Utility Technology Association

Risk Mitigation in the Energy Sector

Presented by:
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Sr. Director Energy - LenelS2

Discussion Points

1. The **Future** of the Energy Industry
2. **Business Risk Drivers** in the Energy Sector
3. The **Regulatory** Environment
4. **Applying Technologies** to Mitigate Risk
5. **Selling** the Countermeasure

Darin Dillon, CPP

LENEL·S2

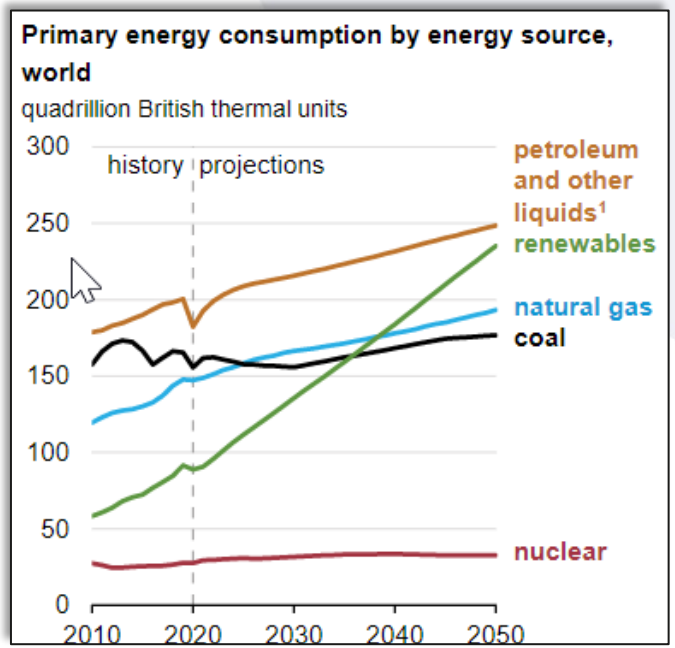
Sr Director Energy

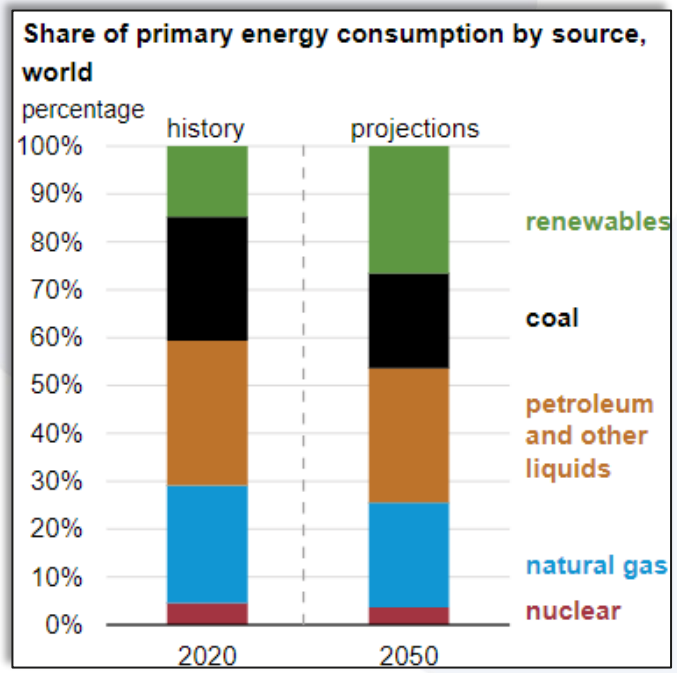
- 4-decade tenured business leader in the integrated electronic security field as a corporate officer, principal, sales leader and more
- Conceptualizes, designs and delivers enterprise solutions for Fortune 1000 clients in the energy, utility, oil & gas plus transportation markets
- Bachelor of Science in Organizational Leadership and Master in Security Management
- Certified Protection Professional
- Board member of the Energy Security Council and SIA Utilities Advisory Board plus actively involved with ASIS International
- Married and has three adult daughters, two dogs, two cats and a flock of chickens
- Resides in SW Colorado growing a fruit orchard plus Christmas tree farm and loves travel
- Impact investor by serving around the globe in business-as-mission

Industry Overview

Energy Overview: By the Numbers

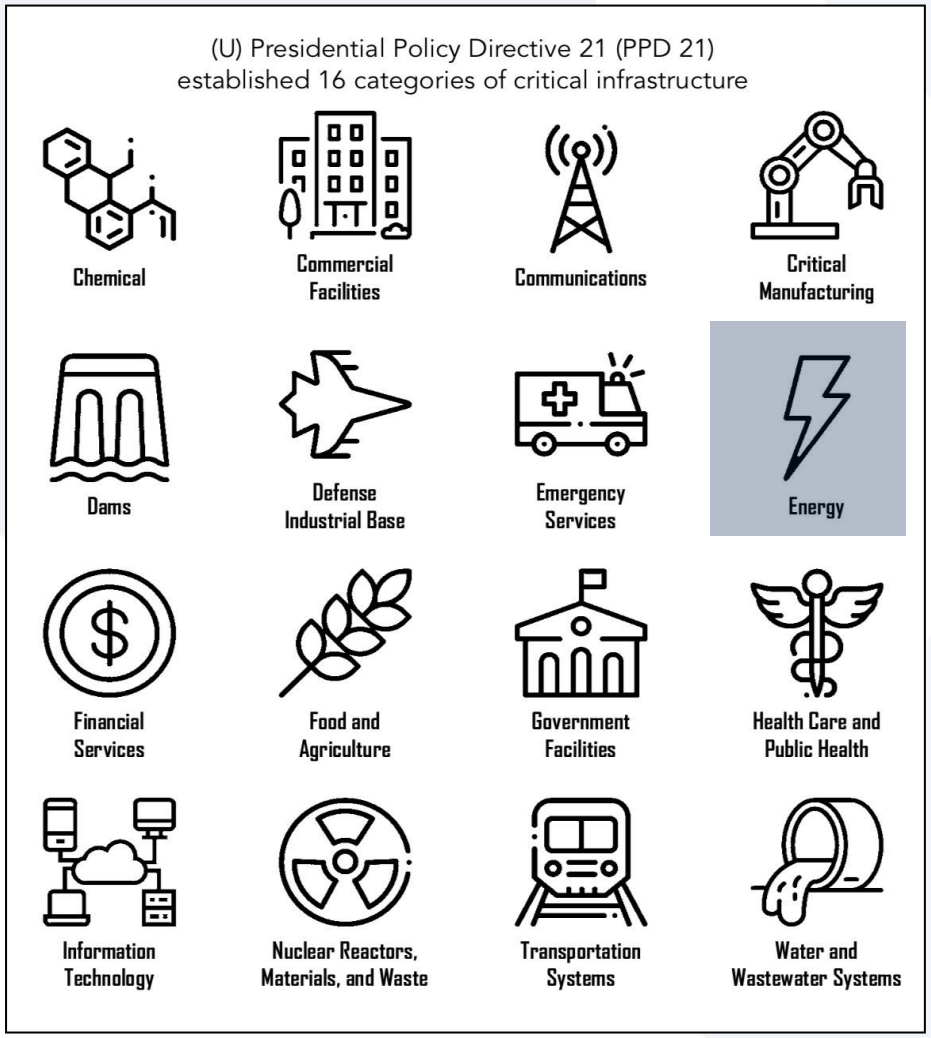
- **Energy = $5+ Trillion Industry** *(per Fidelity on September 25, 2023) Includes Electric Utilities, Gas Utilities, Independent Power and Renewable Electricity Producers, Multi-Utilities, Water Utilities + Energy Equipment & Services, Oil, Gas & Consumable Fuels*
- **Energy employs 65 million people worldwide and accounts for 2% of global employment,** relatively evenly distributed across fuel supply, power sector, and end uses
- **Global energy consumption will increase through 2050 as a result of population and economic growth**
- **Renewables will be the primary source for new electricity generation, yet natural gas, coal and batteries will be used to help meet load plus support grid reliability** *(per the Energy Industry Association)*





Energy Overview: According to DHS

According to the Department of Homeland Security, there are 16 "critical Infrastructure sectors" whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof.

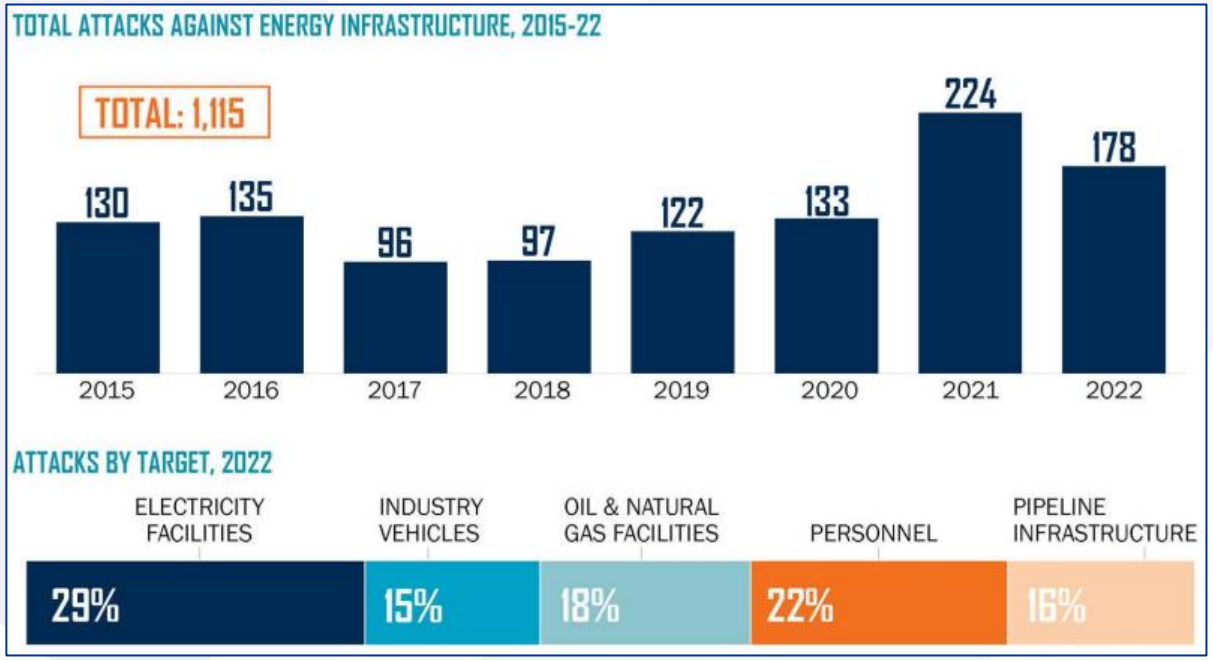


"Energy" is one of these 16, yet without "Energy", all other sectors are immediately affected and tumble.

Business Risk Drivers

Business Risk Drivers: Energy Sector

- (U/FOUO) **Terrorist and Militant Attacks on Energy Infrastructure continue at High Rate in 2022** *(Excerpted from the April 2023 issue of The Searchlight)*
- (U/FOUO) **1,115 total attacks against Energy Infrastructure in 2015-2022**
- (U/FOUO) **In 2022, the largest percentage of Energy Infrastructure attacks in were led by Asia, then the Middle East, then Africa, then Latin/South America**
- (U/FOUO) **The tactics utilized against the Energy Infrastructure were led by Explosives, followed by Small Arms/Light Weapons, followed by any Fire Incident**



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Business Risk Drivers: Energy Sector

What are the most important global business risks for 2023?

This 12th annual Allianz Risk Barometer identified the top corporate perils for 2023, based on the insight of more than 2,712 respondents from risk experts in 94 countries across 23 Industry Sectors.

Top 5 risks in Power and utilities

Source:
Allianz Global Corporate & Specialty

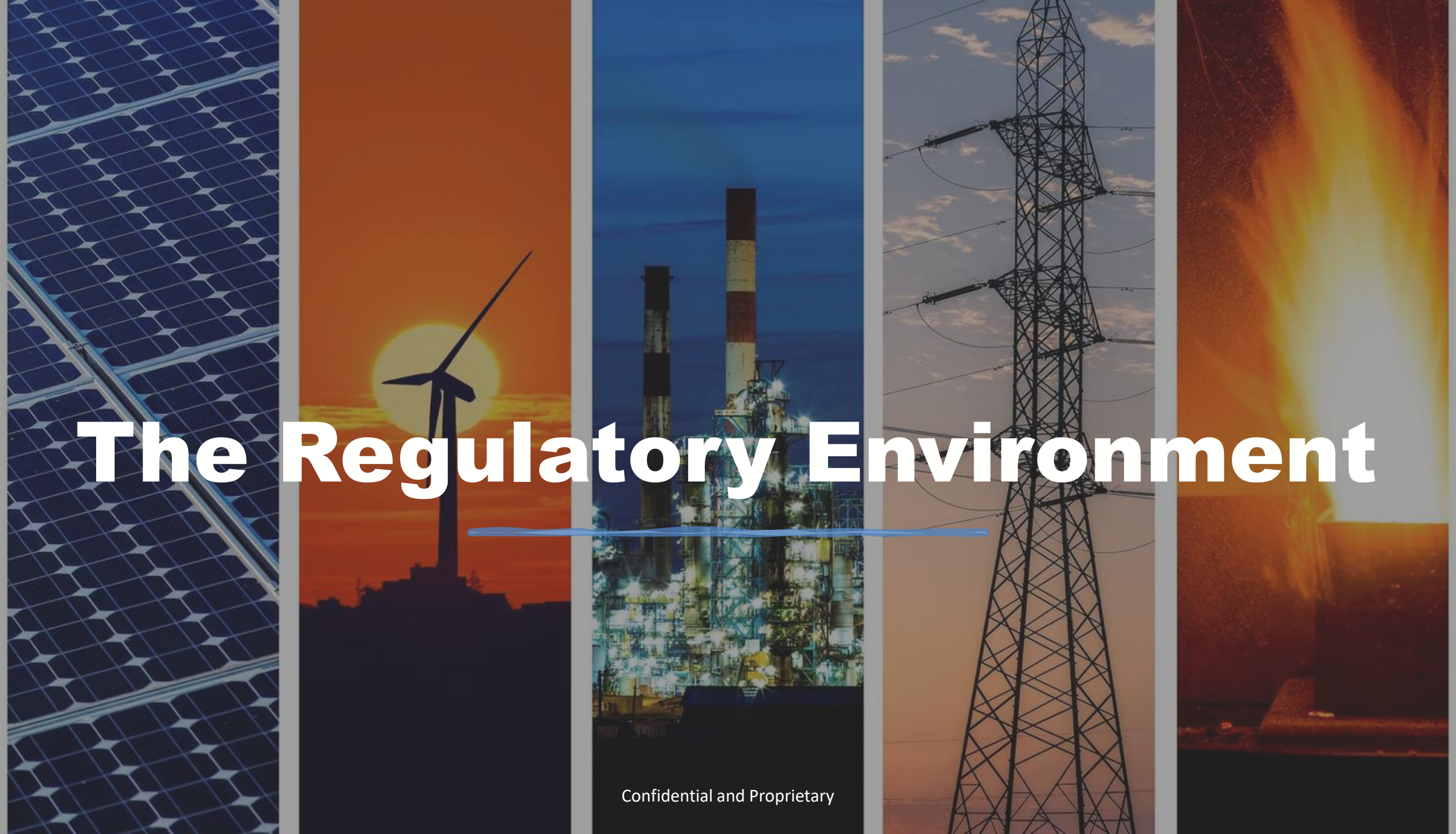
Figures represent how often a risk was selected as a percentage of all responses for that industry sector

Respondents: 61

Figures don't add up to 100% as up to three risks could be selected

NEW New entry in the top 5 risks

Rank		Percent	2022 rank	Trend
1	Business interruption *(incl. supply chain disruption)*	39%	*1 (46%)*	→
2	Energy crisis *(e.g. supply shortage/outage, price fluctuations)*	36%	NEW	↑
2	Natural catastrophes *(e.g. storm, flood, earthquake, wildfire, extreme weather events)*	36%	*2 (41%)*	→
4	Cyber incidents *(e.g. cyber crime, malware/ ransomware causing system downtime, data breaches, fines and penalties)*	30%	*3 (33%)*	↓
5	Climate change *(e.g. physical, operational and financial risks as a result of global warming)*	25%	*5 (26%)*	→



The Regulatory Environment

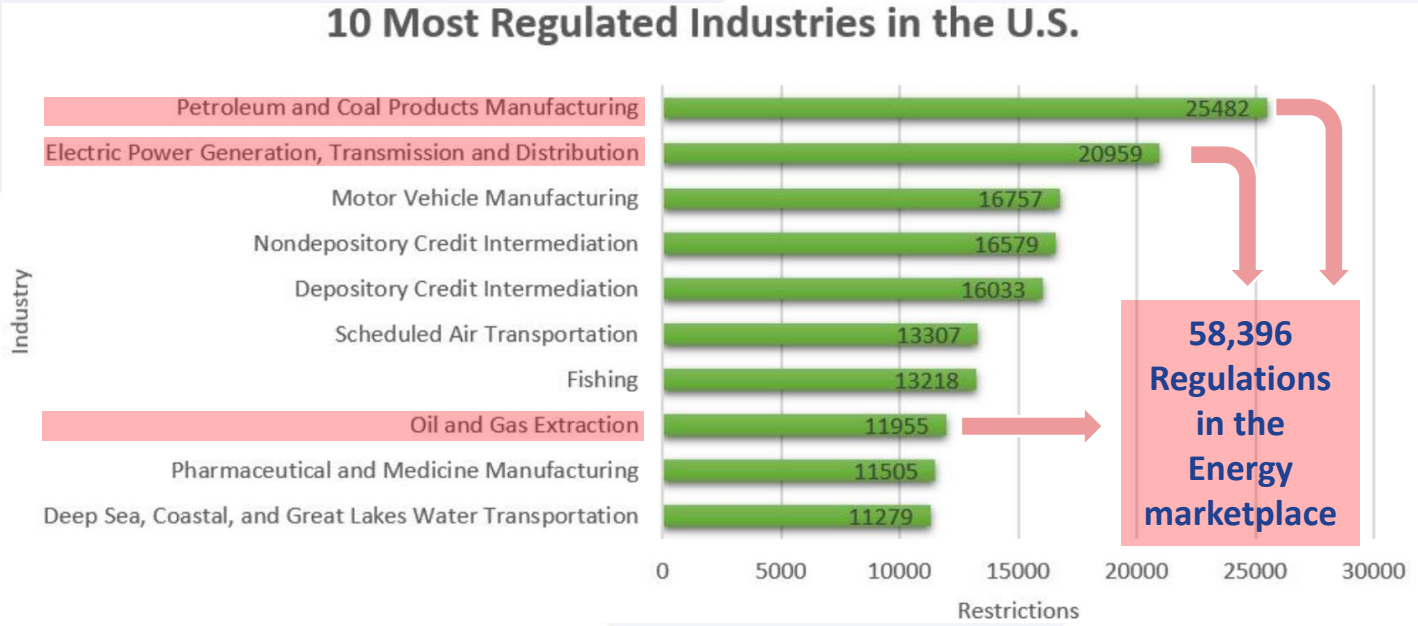
The Present Regulatory Climate

Broadly applicable laws and regulations - Sarbanes-Oxley Act (SOX); Payment Card Industry Data Security Standard (PCI DSS); Gramm-Leach-Bliley Act (GLB) Act; Electronic Fund Transfer Act, Regulation E (EFTA); Customs-Trade Partnership Against Terrorism (C-TPAT); Free and Secure Trade Program (FAST); Children's Online Privacy Protection Act (COPPA); Fair and Accurate Credit Transaction Act (FACTA), including Red Flags Rule; Federal Rules of Civil Procedure (FRCP)

Industry-specific guidelines and requirements - Federal Information Security Management Act (FISMA); North American Electric Reliability Corp. (NERC) standards; Title 21 of the Code of Federal Regulations (21 CFR Part 11) Electronic Records; Health Insurance Portability and Accountability Act (HIPAA); The Health Information Technology for Economic and Clinical Health Act (HITECH); Patient Safety and Quality Improvement Act (PSQIA, Patient Safety Rule); H.R. 2868: The Chemical Facility Anti-Terrorism Standards Regulation (CFATS); plus others imposed by the ATF, DHS, DOT, EPA, FIP201, HSPD12, MTSA, NFPA, NRC, OSHA, PCI, TSA, USCG & "many" more…

Plus, various International Laws and Key state laws - Personal Information Protection and Electronic Documents Act (PIPED Act, or PIPEDA)—Canada; Law on the Protection of Personal Data Held by Private Parties—Mexico; European Union Data Protection Directive; Safe Harbor Act, Massachusetts 201 CMR 17 (aka Mass Data Protection Law); Nevada Personal Information Data Privacy Encryption Law NRS 603A

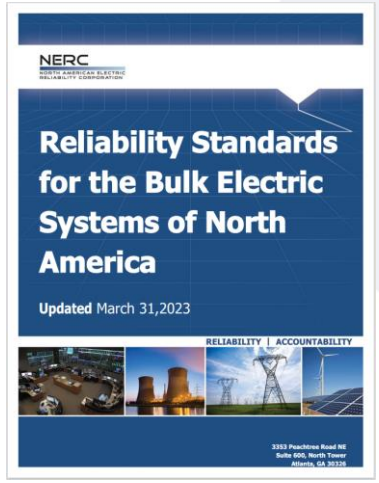
The Energy industry is "the most" regulated of all industries!



McLaughin-Sherouse List

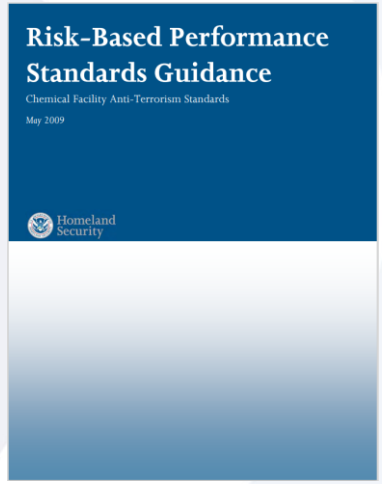
The Regulatory Climate for Utilities

Two Primary Regulations Impacting “Security” in the Utility Marketplace



NERC CIP (1,900+ “Operators” = Many More Facilities)

Maintenance mode, with numerous audits/inspections, yet quite active with routine modifications to CIP 002 – CIP 014



DHS CFATS (~3,250 Facilities)

Maintenance mode with numerous audits & inspections

Applying Technologies to Mitigate Risk

Revisiting Risk Drivers: Energy Sector

Let's revisit those top global business risks for 2023?

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Fragility of the Supply Chain

- Hurricane Katrina (2005)
  - Shut down 23% of US oil refining capacity.
  - Following hurricane Rita, 73% of total offshore production was removed and 47.1% of natural gas production
    - Impact to Offshore Production *reduced ability to produce feedstocks*
    - Impact to Refining Capacity *reduced ability to produce finished product*
    - Damage to Pipelines for Transport *reduced ability to transport feedstocks and finished products*
    - Inability to Access Docks for Feedstock or Product Import *reduced ability to transport feedstocks and finished products*
- Texas Freeze (2021)
  - Power disruptions caused refinery shutdowns, pipeline instrumentation problems
  - Nitrogen and hydrogen supply (pipeline) and other feedstock gases were *force majeured*, with 7 to 10 days of delay
  - Took 75% of ethylene capacity offline. Based ingredient for the most widely used plastic in the world.
  - Reduced the availability of raw materials and created shortage in base components for face shields and smart phones
  - Chemical, rubber, and plastic product exports dropped by 20% MoM, with estimates of $130B in losses
- Colonial Pipeline Attack (2021)
  - Immediate base gas price increases of 18-21 cents per gallon in select markets
  - Airline industry supply was reduced, reducing flight availability for many carries, including American Airlines
- Mountain View (2017)
  - A single drone impacted a high-voltage line causing 1,600 PG&E customers to go without power
  - Dozens of similar events have occurred in the previous 5 years, posing the risk of unplanned shutdowns at refineries

What happens to one, impacts us all – well beyond our veritcal

Applying Technologies to Mitigate Risk

Technologies Beyond Card Readers/Cameras for Consideration (and common Energy integrations)

- **Advanced Analytics** - Deep Learning / Machine Learning / Artificial Intelligence / Forensics
- **Advanced Digital Identities**
- **Asset Tracking, RFID & Real Time Location Systems** (RTLS)
- **Audio Content Analysis / Audio Analytics**
- **Biometrics, Facial Detection & Facial Recognition**
- **Contractor Management for Payroll**
- **Crowd Management**
- **Cyber Security**
- **Data Visualization**
- **Drones & Drone Detection**
- **Fusion center** (situational awareness within EOC/SOC)
- **Identity Access Management** (IAM)
- **Key Management**
- **Intelligent Enterprise** (i.e., workspace optimization)
- **Intelligent Video Analytics** (IVA) **&Video Content Analysis** (VCA)
- **IoT Devices** - Combine & Enhance Sensors for Big Data Effect
- **License Plate Recognition** (LPR)
- **Mass Notifications (MNS)** - Critical Communication / Giant Voice
- **Mustering & Accountability**
- **Outdoor Perimeter Detection** (i.e., Radar, Thermal Radar, Seismic, Laser, & more)
- **Physical Security Incident Management** (PSIM) i.e., Situational Awareness
- **Robots and Robotics**
- **Shooter Detection / Gunshot Detection**
- **Smart Credentials for Physical / Logical Access**
- **Smart Sensors**
- **Social Media** (how to harness Social Media for greater good?)
- **Tailgate Detection**
- **Under Vehicle Inspection** (UVI)
- **Visitor and Contractor Management System** (VM)
- **Weapons Detection**

VS

Model Application: Challenges & Solutions

Here are just a few Security Technologies that are integral to mitigating risk to Business Interruption to the Supply Chain:

- Advanced Analytics - Deep Learning / Machine Learning / Artificial Intelligence / Forensics
- Asset Tracking, RFID & Real Time Location Systems (RTLS) for automated route monitoring
- Biometrics
- Contractor Management Systems
- Cyber Security
- Data Visualization
- Fusion center for situational awareness within EOC/SOC
- Key Management
- License Plate Recognition (LPR)
- Mass Notification, Critical Communication &/or Giant Voice
- Mobile Credentialling
- Perimeter Hardening
- Robots and Robotics
- Workspace Optimization

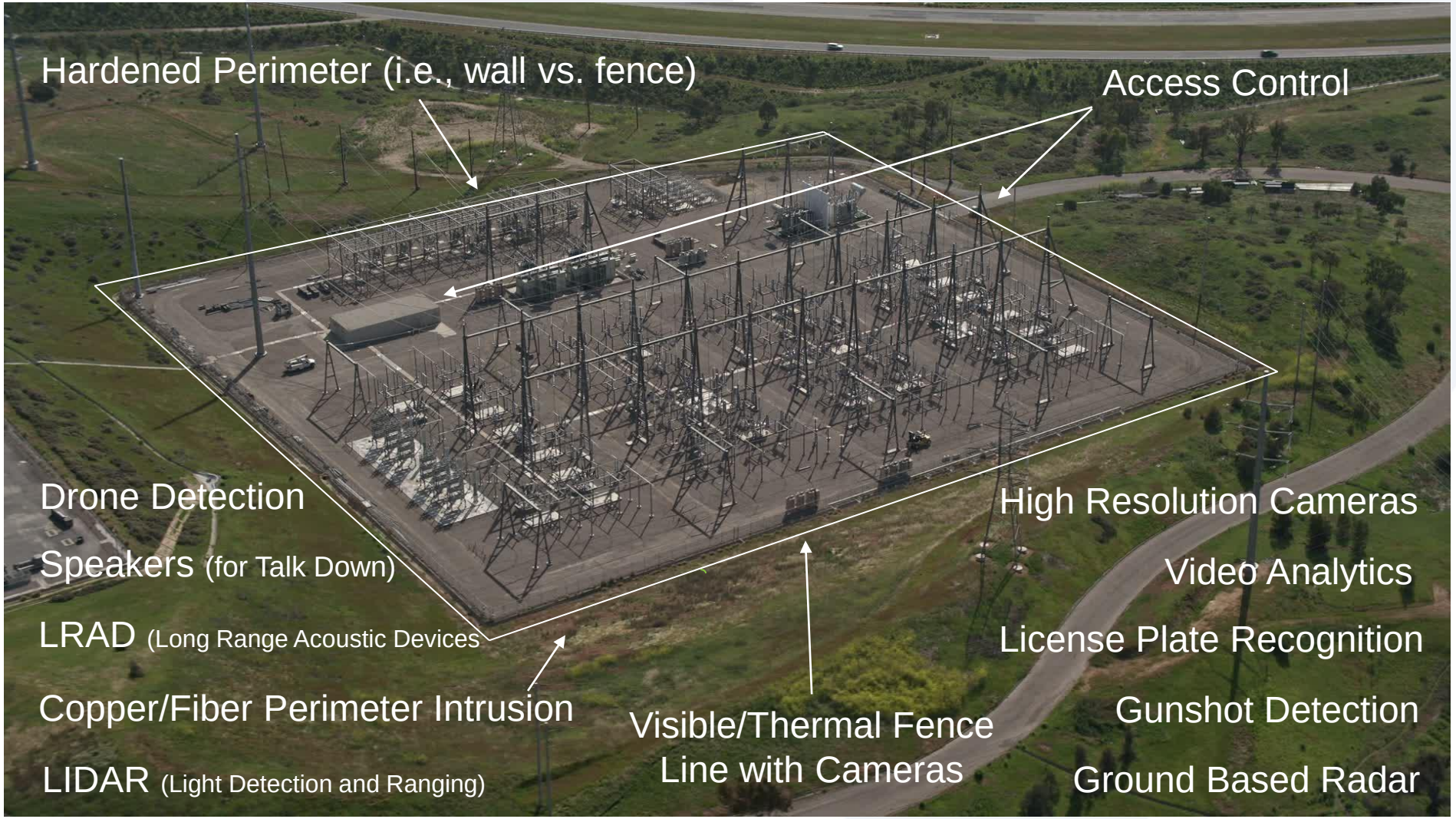
All of these lead to a more secure supply chain plus maximized corporate profits.

Utility Challenges & Solutions

Hardening the perimeter is paramount, yet electronic options should also be considered, therefore providing a “layered effect”.

Consider “early detection” via Short Range radar with classification abilities and or thermal or visible camera for verification and tracking triggering an audio speaker system with a pre-recorded message stating” Warning you are entering a restricted area”.

Thermal cameras providing imaging in total darkness can be coupled with analytics to classify a threat outside the perimeter and alarm on an intrusion via cutting or climbing fence.

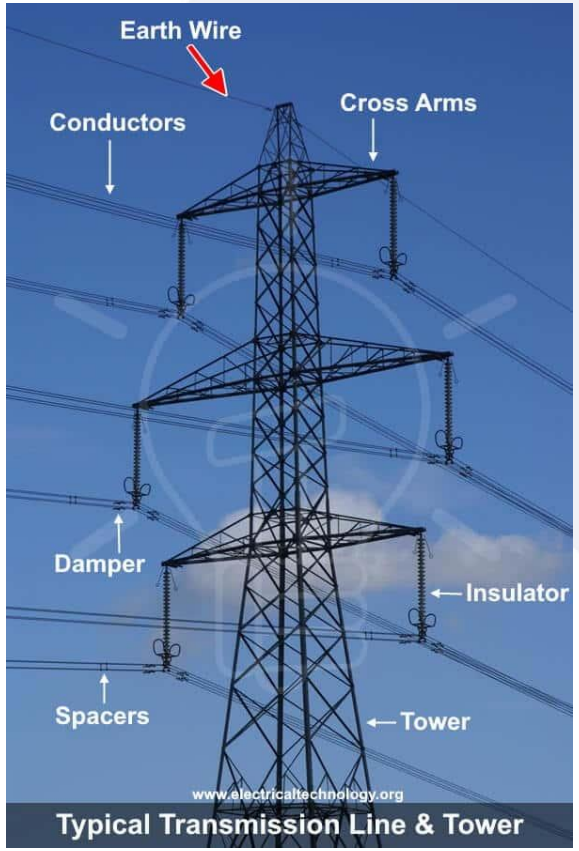


Early detection can alert ALL for quicker response…

Utility Challenge?

How are we to safeguard these assets?

Unknown suspects are now **shooting and hitting Transmission Lines plus Tower components** leaving Security teams to formulate a way to protect these Lines plus Towers?



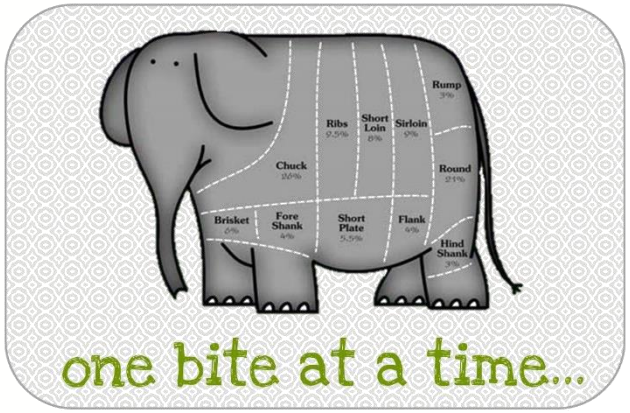
Unknown suspects are now **shooting and hitting Communications plus Cell Towers** leaving Security teams to formulate a way to protect these Towers?

Selling the Countermeasure

Selling the Countermeasure

The best countermeasures are useless if they cannot be sold!

How do you Eat an Elephant?



Darin's "Top Ten" List:

Keys to selling a project or program

1	KNOW YOUR BUSINESS, ITS LANGUAGE & ITS ENVIRONMENT
2	INCORPORATE LANGUAGE OF THE COMPANY'S FINANCIAL METRIX
3	TIE THE SOLUTION TO THE MISSION, VISION AND VALUES OF THE COMPANY
4	KNOW YOUR NUMBERS; HOLD YOUR EMOTIONS
5	DEMONSTRATE ALTERNATIVES WERE EVALUATED
6	DON'T SELL MAGIC; EDUCATE, ESTABLISH EXPECTATIONS
7	FILL THE TABLE; NO ONE CAN EAT AN ELEPHANT ALONE
8	TIE THE RECOMMENDED SOLUTION TO A REGULATION OR POLICY
9	PICK MATURE PARTNERS & PRODUCTS
10	KNOW WHEN TO STOP SELLING

A project without a champion is an *idea* – and ideas do not get funded, nor do they reduce risk.

Tying It All Together…

Questions You Should Ask

1. What is the challenge?
2. What problem could be solved?
3. What cost can be reduced?
4. How can we reduce Business Interruption?
5. How may we enhance Business Resiliency/Continuity?
6. How can we minimize the Loss of Reputation or Brand Value?
7. Can we assist when making Acquisitions/Divestitures?
8. What are my peers doing?
9. Who is the right partner for any solution?
10. What's coming to market next?

thank you!

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