Welcome to WAPA’s Technology and Security Symposium

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Administrator and CEO
August 21, 2018
Goals for today

- Raise awareness
- Share leading practices
Risks and costs

\[
\text{Risk} = \text{Threats} \times \text{Vulnerabilities} \times \text{Impact}
\]
Lowering WAPA’s risk profile

• Utility operating under federal government
• Compliance with NERC standards
• Knowledge is power
• Data-driven decisions, investments
Wake-up call

Power grid cyber attacks keep the Pentagon up at night

Keeping the lights on: Is our power grid safe from attack?

How Power Grid Hacks Work, and When You Should Panic
Key issues

- Asset management
- Physical security
- Cybersecurity
What we manage

• $4.3 billion in assets
• 177,000 structures
• 17,360 miles of transmission line
• 316 substations
• 288 transformers
• 659 buildings
• 482 communication sites
Security evolution

Security 3 years ago

UGP

RM

SN

DSW

Security Today

WAPA-wide

Risk Management

Physical Security

Personnel Security

Emergency Management
Physical security

• Continue to improve security posture
• Completed all substation assessments completed FY 2017
• 75 second-round assessments to be completed in 2018
• 37 complete as of Q3
Physical security incidents

80 incidents from 2014 – present
Cybersecurity

- Secure Enclave Systems control
- Regular scanning
- Logging events
- Alerting, patching, updating
- Partnership with DOE
Cyber attacks

WAPA defended against 61,658,926 blocks on its firewall (July 2017 – May 2018)

<table>
<thead>
<tr>
<th>Source (country/region)</th>
<th># firewall blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>4,282,627</td>
</tr>
<tr>
<td>China</td>
<td>15,176</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>8,191</td>
</tr>
<tr>
<td>France</td>
<td>7,934</td>
</tr>
<tr>
<td>Chechnya</td>
<td>5,430</td>
</tr>
<tr>
<td>Germany</td>
<td>2,699</td>
</tr>
<tr>
<td>Brazil</td>
<td>2,419</td>
</tr>
<tr>
<td>Russia</td>
<td>2,072</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1,907</td>
</tr>
<tr>
<td>Seychelles</td>
<td>1,800</td>
</tr>
</tbody>
</table>
WAPA response

• Critical Infrastructure Protections v5
  • 40,000+ hours investment
• Network Access Control
• Secure Enclave Systems Control (substations)
  ▪ Avoid spending $6.5M over 5 years
  ▪ WAPA-wide solution
Maturing IT program

• Improving reliability through lifecycle management
• Federal overlay
• Audit load
• Increasing cyber threats
• Supply chain risk management
### Value in all we do

<table>
<thead>
<tr>
<th>Driver</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>O&amp;M costs</td>
<td>Increased resilience and reliability</td>
</tr>
<tr>
<td>Capital investments</td>
<td>Increased resilience and reliability</td>
</tr>
<tr>
<td>Physical and cybersecurity</td>
<td>Mitigated risk</td>
</tr>
<tr>
<td>Increasing regulatory requirements</td>
<td>Strengthened grid</td>
</tr>
<tr>
<td>Organizational realignment</td>
<td>Increased efficiency, cost reduction</td>
</tr>
</tbody>
</table>
Value in all we do

Enduring value for customers and the nation in the 21st century

Supporting our customers with industry developments

Complying with regulatory drivers

Re-investing in assets

Improving organizational alignment

Hardening against physical and cyber threats
Information sharing is critical

- Secure, confidential, rapid
- Actionable
- Indemnify
- Cyber happens in milliseconds and is not regional
Key takeaway
Keep the conversation going ...

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