NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

PROPOSED AGENDA

JOINT NYPA & CANAL CYBER & PHYSICAL SECURITY COMMITTEE MEETING

January 30, 2019 at 9:15 a.m. (approximately)

Clarence D. Rappleyea Building, White Plains, NY

1. **Adoption of the January 30, 2019 Proposed Meeting Agenda**
2. **Motion to Conduct an Executive Session**
3. **Motion to Resume Meeting in Open Session**
4. **CONSENT AGENDA:**
    a. Adoption of the Joint NYPA/Canal Meeting Minutes of August 7, 2018
5. **DISCUSSION AGENDA:**
    a. 2019 Q1 Security Briefing (Kenneth Carnes)
6. **Next Meeting**

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January 30, 2019

Motion to Conduct an Executive Session

I move that the Board conduct an executive session pursuant to the Public Officers Law of the State of New York §105 to discuss matters regarding public safety and security.

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January 30, 2019

Motion to Resume Meeting in Open Session

Mr. Chairman, I move to resume the meeting in Open Session.

MINUTES OF THE REGULAR JOINT MEETING
OF THE
CYBER & PHYSICAL SECURITY COMMITTEE
August 7, 2018

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August 7, 2018

Minutes of the regular joint meeting of the New York Power Authority and Canal Corporation's Cyber and Physical Security Committee held at the Authority's offices at 123 Main Street, White Plains, New York at approximately 9:20 a.m.

Members of the Cyber & Physical Security Committee present were:

Michael Balboni - Chairman
John R. Koelmel
Eugene L. Nicandri
Tracy B. McKibben
Dennis G. Trainor

Also in attendance were:

Anthony Picente, Jr.	Trustee / Board Member
Gil Quiniones	President and Chief Executive Officer
Justin Driscoll	Executive Vice President and General Counsel
Joseph Kessler	Executive Vice President and Chief Operating Officer
Randy Crissman	Senior Reliability and Resilience Specialist - Operations
Kenneth Carnes	Chief Information Security Officer
Karen Delince	Vice President and Corporate Secretary
Thomas Spencer	Senior Director of Enterprise Risk and Corporate Insurance
Lawrence Mallory	Director - Physical Infrastructure Security
Lorna Johnson	Senior Associate Corporate Secretary
Sheila Quatrocci	Associate Corporate Secretary

Chairman Balboni presided over the meeting. Corporate Secretary Delince kept the Minutes.

Introduction

Member John Koelmel said the Committee Chair, Michael Balboni, asked him to Chair the meeting until his arrival. He welcomed the committee members, Eugene Nicandri, Tracy McKibben and Dennis Trainor and the Authority's senior staff to the meeting. He said that the meeting had been duly noticed as required by the Open Meetings Law and called the meeting to order pursuant to Section B(4) of the Cyber and Physical Security Committee Charter.

1. Adoption of the August 7, 2018 Proposed Meeting Agenda

Upon motion made by member Dennis Trainor and seconded by member Tracy McKibben, the agenda for the meeting was adopted.

Committee Chair, Michael Balboni joined the meeting.

2. Motion to Conduct an Executive Session

I move that the Committee conduct an executive session pursuant to the Public Officers Law of the State of New York §105 to discuss matters regarding public safety and security. Upon motion made by member Dennis Trainor and seconded by member Tracy McKibben, an Executive Session was held.

3. Motion to Resume Meeting in Open Session

I move to resume the meeting in Open Session. Upon motion made by member John Koelmel and seconded by member Tracy McKibben, the meeting resumed in Open Session.

Chairman Balboni said no votes were taken during the Executive Session.

4. CONSENT AGENDA

Upon motion made by member Tracy McKibben and seconded by member John Koelmel, the Consent Agenda was adopted.

a. NYPA Matters:

i. Adoption of the Meeting Minutes of January 30, 2018

Upon motion made and seconded the Minutes of the meeting held on January 30, 2018 was unanimously adopted.

b. Canal Matters:

i. **Adoption of the Meeting Minutes of January 30, 2018**

Upon motion made and seconded the Minutes of the meeting held on January 30, 2018 was unanimously adopted.

5. DISCUSSION AGENDA

a. State of the Industry

Mr. Kenneth Carnes, Vice President and Chief Information Security Officer and Mr. Lawrence Mallory, Director of Physical Infrastructure Security provided an overview of the security posture for the industry and for NYPA (Exhibit "5a-A").

Threat Monitoring and Analysis

At the end of July, the National Cybersecurity and Communications Integration Center, ("NCCIC"), released the awareness brief on the Russian activity against critical infrastructure. That information was released, in part, earlier in the year. The critical infrastructure in the electric sector is targeted worldwide; this is why the supply chain remains a key focus area for NYPA in its increased security posture.

With more sophisticated networks and defense capabilities, NYPA will continue to monitor and perform any risk mitigations to implement and ensure the security of its systems and operational resilience.

The North American Electric Reliability Corporation ("NERC") recently released updates to increase reporting on cyber-attacks or attempted compromise on any of NYPA's protected systems within the NERC scope. When those regulations are processed NYPA will address them accordingly.

NYPA is continuing to review new technologies for any new risks that potentially will come into scope. NYPA is working with partners such as the National Terrorism Advisory System in order to make sure that NYPA's controls are appropriate.

NYPA is also leveraging new information, e.g. the attack which disrupted the operations of the Metcalf substation and impacted network operations, system operations, and physical security.

NYPA's iSOC could also be used as an internal fusion center where the Authority could monitor, both procedurally and informally, physical security, cyber security, asset health, and Operations Technology. To that end, if the Authority were subject to a Metcalf-style attack where there was a simultaneous attack on phone lines, transformers, and physical security systems, the Authority would have a better chance of quickly diagnosing the incident in real time by the nature of the policies and procedures implemented, and by the fact that the groups doing the monitoring are physically next to each other.

Committee Chair Michael Balboni added that NYPA is among the best of class in many of the cyber and physical security elements of the operation. Member John Koelmel said that, in combination with the

partners, NYPA can leverage the collaboration between cyber and physical security; therefore, the Authority's continuing focus and efforts are appreciated.

6. Next Meeting

Chairman Balboni said that the next regular meeting of the Cyber and Physical Security Committee is to be determined.

Closing

Upon motion made by member Tracy McKibben and seconded by member John Koelmel, the meeting was adjourned by Chairman Balboni at approximately 10:06 a.m.

Karen Delince

Karen Delince
Corporate Secretary

CYBER & PHYSICAL SECURITY COMMITTEE

EXHIBITS

For

August 7, 2018

Meeting Minutes

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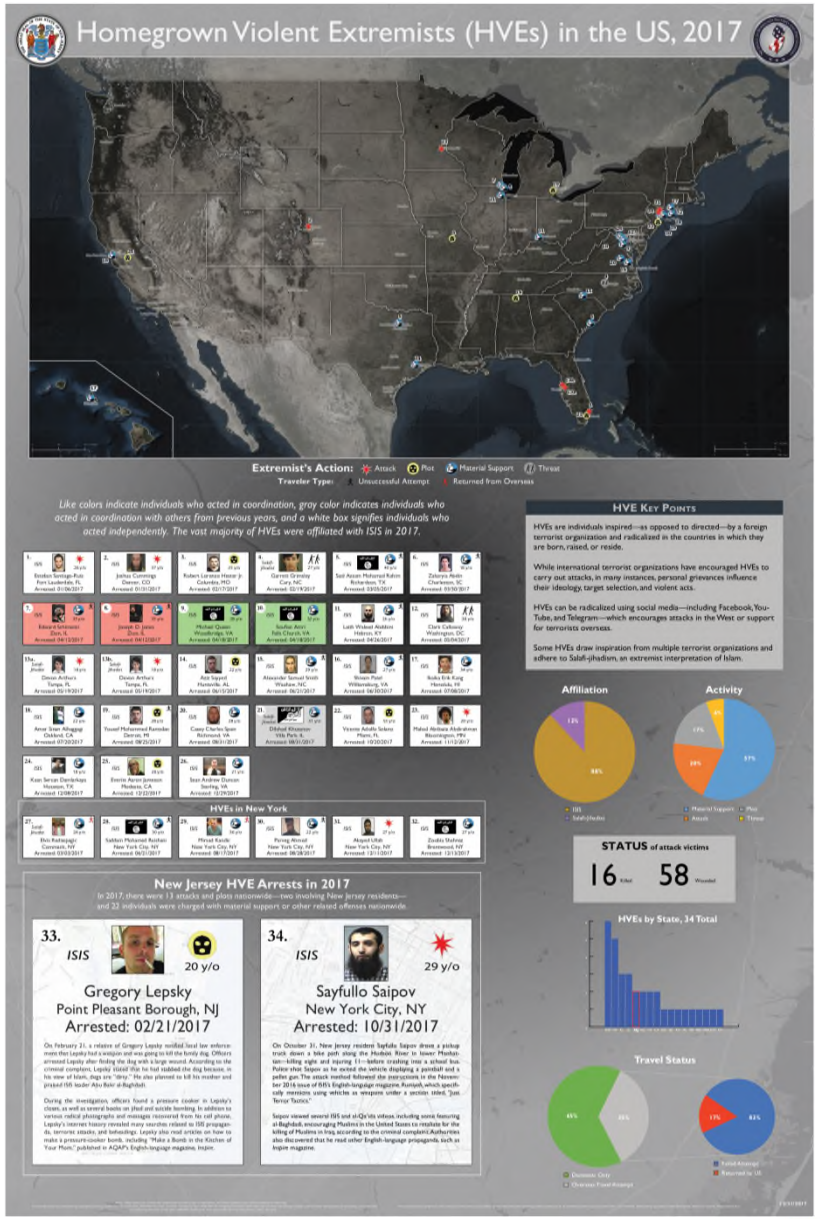
State of the Industry

Larry Mallory
Directory Physical Infrastructure Security
Kenneth Carnes
VP & Chief Information Security Officer

August 7, 2018

Threat Monitoring and Analysis

- State of the Industry
- Physical & Cyber Threat Persistent
- Evaluation
  - Trusted Partners
  - External Incidents
- Technological Enhancements
  - Risk Introduction
- National Terrorism Advisory System Bulletin (issued May 9, 2018)
- Information Sharing
  - E-ISAC Efforts



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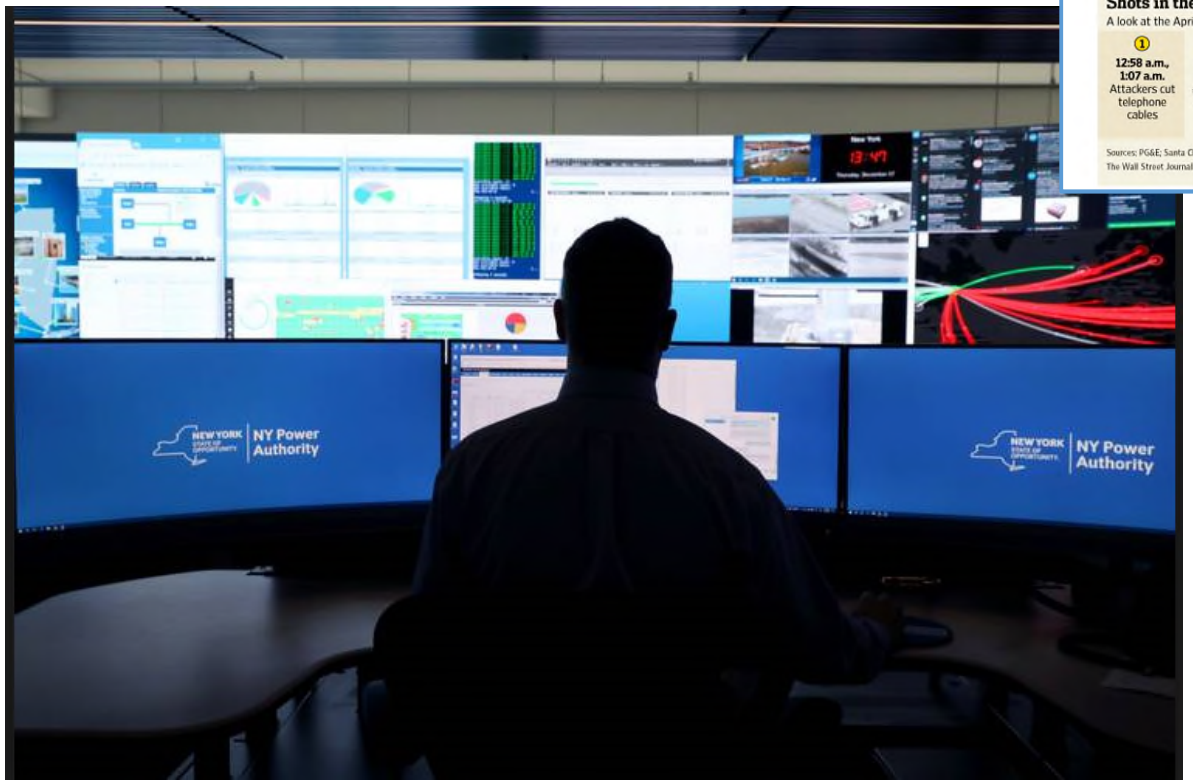
Situational Awareness

- Metcalf Incident
  - Data Silos
- Internal Information Sharing



CIP-014 - Metcalf

Shots in the Dark

A look at the April 16 attack on PG&E's Metcalf Transmission Substation

1	2	3	4	5	6	7
12:58 a.m., 1:07 a.m. Attackers cut telephone cables	1:31 a.m. Attackers open fire on substation	1:41 a.m. First 911 call from power plant operator	1:45 a.m. Transformers all over the substation start crashing	1:50 a.m. Attack ends and gunmen leave	1:51 a.m. Police arrive but can't enter the locked substation	3:15 a.m. Utility electrician arrives

Sources: PG&E; Santa Clara County Sheriff's Dept.; California Independent System Operator; California Public Utilities Commission; Google (image)
The Wall Street Journal

Event Comparison		
	April 16, 2013	August 27, 2014
Physical Evidence of pre-event surveillance	Yes	No
Major Damage to Substation Equipment (i.e. Transformers)	Yes	No
Security System Alarm Triggered	Yes	Yes
Fence Cut	No	Yes
Unauthorized Entry into Substation	No	Yes
Materials Stolen	No	Yes
24x7 Security Personnel Posted	No	Yes
FBI Investigative Lead	Yes	No

April 16, 2013 – Clear Intent to at, a minimum, disrupt the operation of the Metcalf Substation. > $15 Million Damage

Aug 27, 2014 – Intent seems to be theft. No Damage to Substation equipment.

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- Procedural Relationships
- Informal Daily Relationships

NY Power Authority | Canal Corporation

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2019 Q1 Security Briefing

Cyber Security | Physical Security | Compliance | Emergency Management

Kenneth Carnes - VP Critical Secure Services & Chief Information Security Officer

Monitoring — Internal | External | Both

- Threat Vulnerability Management Program
- Continuous External scanning | Automated Indicators of Compromise
- Continuous Logging & Monitoring 24x7 Security monitoring and response

Partnerships — State & Local | Federal | Industry

- State Partnerships –Homeland Security | National Guard | Security Working Group
- Information Sharing - Federal Partners | Information Sharing & Analysis Centers | State Fusion Center
- Industry Focused Partnerships – Sector specific Agencies like Electric Subsector Coordinating Council| EPRI | NERC

Exercises — Internal | External

- Response – Cross functional All Hazards drills | Quarterly Cyber Incident Response Drills
- Training - Annual Staff technical training | NERC CIP site drills | Manual Control Exercises | Purple Team Exercises
- Black Start / Significant Impact - GRID Ex | Liberty Eclipse | NY State Exercise

Assessments — Internal | External | Both

- Assessment tools – NIST CSF | NREL C2M2 Assessment | LPPC Cyber Principles | NPCC Internal Controls
- Continual Improvement - Internal Audit | Cyber Hygiene | LPPC Cyber Principles | CIP Assessments
- Frequent External Penetration Testing | Red Team Exercises

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2019 Predictions / Things to Watch

- New Zero Trust Models
- Managed Service Provider Attacks
- Supply Chain Attacks
- AI based attacks
- Nation State Actions

2019 Investments

IT/OT Visibility

- Innovative Pilots
- Strengthen Security and Compliance
- Further iSOC integration

Segmentation

- Build on zero trust
- Create risk based microsegments
- Explore new methods to separate

Access Anywhere

- Enhanced Multi-Factor
- Cloud Security
- Data Loss and Data Protection

Resiliency

- Continued Exercises
- Coordinated Response
- Standardized processes
- New Partnerships

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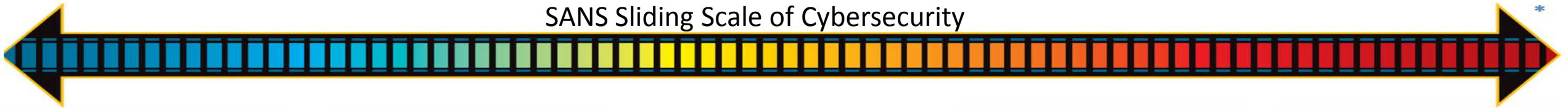
Security – What is really changing?

SANS Sliding Scale of Cybersecurity *



ARCHITECTURE	PASSIVE DEFENSE	ACTIVE DEFENSE	INTELLIGENCE	OFFENSE
The planning, establishing, and upkeep of systems with security in mind	Architecture to provide reliable defense of insight without human interaction	Analysts monitoring for, responding to, and learning from information	Collecting data, exploiting it into information, and producing intelligence	Legal countermeasures and self-defense actions against an adversary

Continual improvement : NYPA's will maintain focus on our standard security architecture and security controls but leveraging the MITRE ATT&CK Model in order to increase our cyber detection capabilities

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* Sliding Scale Image referenced from SANS (text summarized for clarity)

*Image referenced from MITRE

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January 30, 2019

Next Meeting

The next regular meeting of the Cyber & Physical Security Committee is to be held on Tuesday, July 30, 2019 at 8:30 a.m. via videoconference.