ESMAP
Energy Sector Management Assistance Program

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ESMAP ENERGY CYBERSECURITY STUDY TOUR

LOGISTICS NOTE

Paris, France
December 3 - 6, 2024

BACKGROUND

Rapid digitalization of energy systems is essential for enhancing efficiency and managing larger, more complex networks. However, this increased digitalization introduces new cybersecurity vulnerabilities, such as those from digital substations and Wide Area Network (WAN) communication with devices such as Smart Meters and Distributed Energy Resources (DERs). Cyber-attacks on critical energy infrastructure, including Supervisory Control and Data Acquisition (SCADA) systems and wireless communication channels, are becoming more frequent, with a third of industrial control system operators reporting malicious activity in 2021. These attacks can result in equipment destruction, electricity outages, data breaches, and ransom events.

In response, the Energy Sector Management Assistance Program (ESMAP) has launched a cybersecurity initiative to bolster client countries' cybersecurity preparedness and resilience. The cybersecurity study tour is part of the Modernized Energy Infrastructure pillar under ESMAP's Foundations for Decarbonized Energy Systems program. ESMAP's cybersecurity work seeks to aid Transmission System Operator (TSO), Distribution System Operators (DSO), and Ministries of Energy to help reduce grid vulnerabilities, strengthen operational technology (OT) and improve cyber resilience policies. To date, ESMAP has provided cybersecurity capacity-building and technical assistance to over 10 client countries.

CO-ORGANIZED BY:

ENCS

Rte Le réseau de transport d'électricité

ENEDIS

JAPANGOV
The Government of Japan

QUALITY INFRASTRUCTURE INVESTMENT PARTNERSHIP

The study tour is funded by ESMAP and the Quality Infrastructure Investment Partnership (QII).

The objective of the study tour, developed in close partnership with the European Network for Cybersecurity (ENCS), the public-private sector facility Campus Cyber, and the French utilities ENEDIS and RTE, is to facilitate peer learning and provide expert knowledge to clients on energy cyber regulation, grid security, and Operation Technology (OT)-Information Technology (IT) integration to enable clients to develop cybersecurity strategies, roadmaps, and procedures.

TARGET AUDIENCE

- The event will host participants from client countries interested in developing cybersecurity capabilities.
- Technical staff from TSOs and DSOs, including but not limited to Heads of System Operations, Heads of IT Security, Chief Information Officers, and other technical staff from OT and IT departments.

KEY COMPONENTS

- Interactive lectures from experts
- Site Visits
  - Enedis Smart Grid Lab
  - RTE Digital Substation
  - RTE Security Operations Center (SOC)
  - RTE Cybersecurity Emergency Response Team (CERT)
- ENCS Facilitated Cybersecurity Excercise

KEY TOPICS

- Governance and regulation
- SCADA and grid automation
- Communication protocols
- Advanced metering infrastructure
- Threat mitigation and monitoring

ABOUT ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and over 20 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank Group (WBG), ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7) to ensure access to affordable, reliable, sustainable, and modern energy for all. It helps to shape WBG strategies and programs to achieve the WBG Climate Change Action Plan targets.

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LOCAL WEATHER

December is one of the coldest months of the year in Paris with an average temperature of just 5°C. Maximum temperature is around 8°C and the minimum is around 4°C. *Rain is expected.*

DRESS CODE

Formal to casual office business attire.

- Wear warm clothes (fleece/wool, sweaters).
- Comfortable weatherproof shoes.
- Hat/gloves/scarfs/warm socks recommended.

MEALS

Breakfast will be provided in the hotel. Morning and afternoon coffee breaks, as well as lunch will be provided on December 3, 4, 5, and 6. We are hosting a reception on December 3. **Please let us know if you have any dietary restrictions.**

WORLD BANK CONTACTS

CONTACT US VIA WHATSAPP

LOCAL TIME GMT (UTC +2)

EVENT VENUES

Campus Cyber
5-7, Rue Bellini, 92800 Puteaux, France

Enedis Smart Grid Lab
Rue du 1er Mai, 92000 Nanterre, France

RTE Digital Substation
Poste d'Elancourt 9 rue du fond des Roches 78990 Elancourt

RTE CERT/SOC
2 Sq. Benjamin Franklin, 78180 Montigny-le-Bretonneux

INTERPRETATION

Please bring your personal headset to pair with your mobile device to listen to the interpretation.

SAFETY

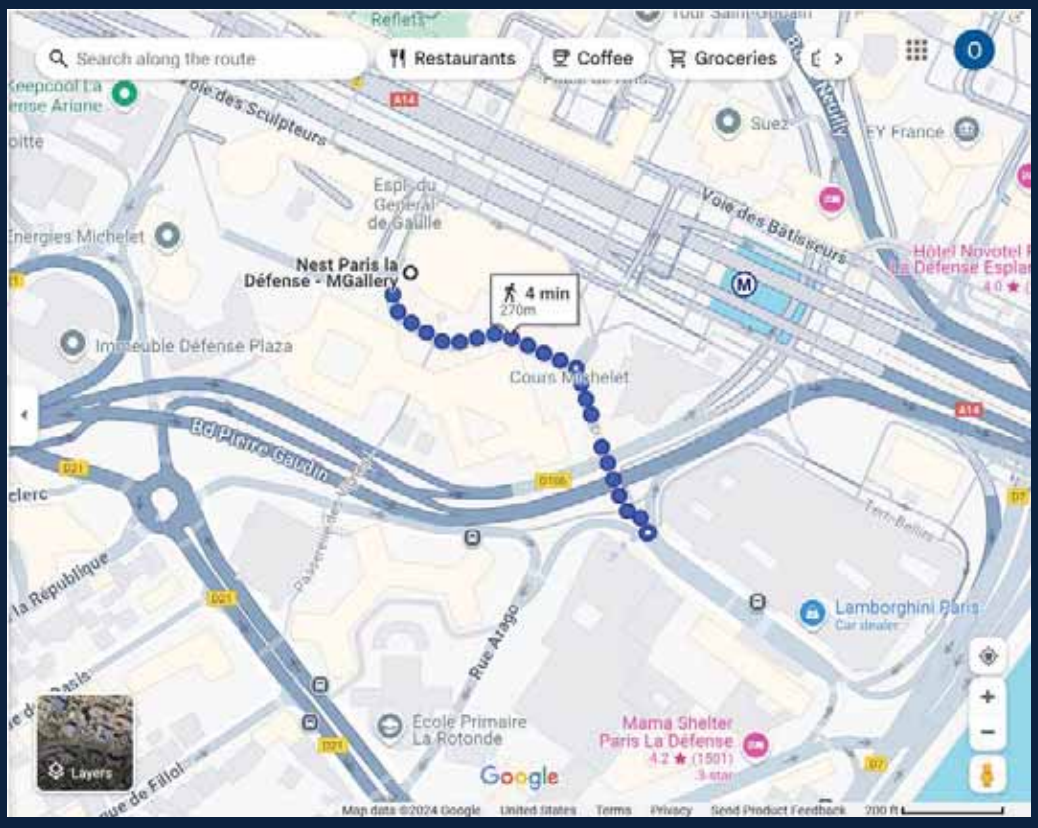
No matter where in the world you find yourself, it is important to be vigilant of your surroundings. We urge participants to be cautious and observant of their surroundings to stay safe and secure.

LOCAL EMERGENCY NUMBER

112

HOTEL NEST PARIS LA DÉFENSE - MGALLERY

4 min walk to Campus Cyber
Google Maps



PRACTICAL INFORMATION

For France there are two associated plug types, types C and E. Plug type C is the plug which has two round pins and plug type E is the plug which has two round pins and a hole for the socket's male earthing pin. France operates on a 230V supply voltage and 50Hz.

CURRENCY

The currency in Paris is the Euro. Exchange rate as of September: US$1 = Euro: 0.95 (November 20, 3:39PM EDT)

IDENTIFICATION

For registration and badge collection, please bring your physical identification. We request that you wear your event badge at all times.

DOWNLOAD OFFLINE MAPS

Apple Store Options: Google Maps (Download)

Android Options: Google Maps (Download)

AIRPORT TRANSFER

AIPORT-HOTEL-AIRPORT TRANSFERS IN PARIS SHOULD BE COORDINATED WITH EACH REGIONAL TEAM

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AGENDA

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DAY 1 | TUESDAY, DECEMBER 3, 2024

7:00 – 8:30	**Breakfast at hotel**
8:30 - 8:40	**Walk from the hotel to Campus Cyber.**
8:40 – 9:00	**Registration**
9:00 – 9:15	**Welcome Remarks**
9:15 - 10:00	**Introduction of participants**
10:00 - 10:30	**Setting the scene: Cybersecurity for the energy sector** An introductory presentation and demonstration of the cyber risk landscape for the energy sector illustrated by current examples.
10:30 – 10:45	**Coffee break**
10:45 - 11:30	**Insights from utility partners: The cybersecurity landscape, risks and priorities** Introduction from RTE and Enedis about current cybersecurity risks and priorities across the transmission and distribution sector. Speakers: • Julien Keller, European Affairs Officer at Réseau de Transport d'Électricité RTE • Olivier Clement, Cybersecurity Anticipation and European Affairs, Enedis
11:30 – 12:00	**SCADA Security**
12:00 – 13:00	**Lunch**
13:00 – 13:40	**Demonstration of a cyber incident**
13:40 - 14:10	**Substation Security**
14:10 - 14:30	**Coffee break**
14:30 – 15:00	**Introduction to Campus Cyber**
15:00 – 15:30	**Tour of Campus Cyber**
15:30 - 16:00	**Walk to hotel and refresh**
16:00 – 17:00	**Transport to World Bank Office**
17:00 – 19:00	**Welcome Reception at World Bank Office**
19:00 – 19:45	**Transport return to hotel**

AGENDA

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DAY 2 | WEDNESDAY, DECEMBER 4, 2024

7:00 – 8:45	**Breakfast at hotel**
8:45 - 9:00	**Walk from the hotel to Campus Cyber.**
9:00 – 9:40	**Introduction to the Enedis cybersecurity organization** Speakers: Olivier Clement & Goery Chachay, Enedis
9:40 – 10:30	**Cybersecurity for the Enedis Smart Meter system** Speaker: Clement Devun, Enedis
10:30 – 10:45	**Coffee break**
10:45 – 11:30	**Integrating cybersecurity within the organization** • Establishing a cybersecurity team • Ensuring the required skills in the cybersecurity team • Integrating cybersecurity into procurement • Developing cybersecurity protocols and procedures for all staff Speakers: Enedis & RTE Moderator: ENCS
11:30 – 12:00	**Insights from cybersecurity leaders across utilities**
12:00 – 12:45	**Lunch at Cyber Campus**
12:45 – 13:30	**Transportation to Enedis Smart Grid Lab**
13:30 – 17:00	**Site visit to Enedis Smart Grid Lab** 1. PLC communication and hybrid meter 2. Firmware validation, patched and updates 3. Linky: A lever for flexibility 4. Smart Grid Lab Tour
17:00 – 18:00	**Transportation back to hotel**

AGENDA

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DAY 3 | THURSDAY, DECEMBER 5, 2024

7:00 – 8:00	**Breakfast at hotel**	
8:00 - 9:00		**Groups 1 & 2: Transportation from hotel to RTE CERT/SOC**
9:00 – 10:00	**Groups 3 & 4: Transportation from hotel to RTE Digital Substation**	**Tour of RTE SOC/CERT**
10:00 – 12:00	**Tour of RTE Digital Substation** Lecture on digital substations • Introduction to real time analytics and automated responses • Integration with smart meters and updated SCADA systems Tour of digital assets • IEDs • RTUs • Digital Control Room Facilitator: RTE	**Tour of RTE SOC/CERT (continued)** Lecture on SOC/CERTS • SoC/CERT Architecture Introduction • Incident Management for IT/OT • Asset Management • SoC Information Sharing • Tour of CERT/SOC site Facilitator: RTE
12:00 – 12:30	**Transportation from site visits to lunch**	
12:30 – 13:30	**Lunch at Ferme du Manet**	
13:30 – 14:00	**Transportation from lunch to site visits**	
14:00 – 16:00	**RTE CERT/SOC tour** See schedule above	**Tour of RTE Digital Substation** See schedule above
16:00 - 17:00	**RTE CERT/SOC tour (continued)**	**Transportation back to hotel**
17:00 - 18:00	**Transportation back to hotel**	

AGENDA

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DAY 4 | FRIDAY, DECEMBER 6, 2024

7:00 – 8:45	**Breakfast at hotel**
8:45 - 9:00	**Walk from the hotel to Campus Cyber**
9:00 – 10:30	**Cybersecurity exercise - part I** [Participants should bring their own laptop for this] Participants will experience various exercises including: • **Web exploitation**: The exercise will show how to identify and exploit vulnerabilities in web sites across IT and OT. • **Exploiting OT systems**: The exercise will show how to perform multi-step attacks to get into OT • **Monitoring**: Exercise to detect attacks using different monitoring techniques Facilitator: European Network for Cyber Security (ENCS)
10:30 – 11:00	**Coffee break**
11:00 – 12:30	**Cybersecurity exercise - part II** See activities above Facilitator: European Network for Cyber Security (ENCS)
12:30 – 13:30	**Lunch**
13:30 – 14:00	**Debrief from exercise & closing remarks**

Site Visit to ENEDIS Smart Grid Lab

Enedis, the French Distribution System Operator and a partner for the study tour, will provide participants with a tour of the smart grid lab it operates to enhance grid resilience and security, integrate renewable energy sources, and improve energy efficiency. The facility is designed to simulate real-world conditions of power networks and explores innovative solutions for a rapidly digitizing and distributed energy sector. Participants will have the opportunity to visit the individual labs and engage in deep dives with experts from the following specialized units: 1) Grid Simulation Lab: focuses on testing how different scenarios and loads affect grid stability and performance; 2) Smart Meter Lab: tests the functionality and reliability of smart meters including the development of Enedis' "Linky" program to ensure accurate data collection and communication across the grid and 3) Renewable Energy Integration Lab: examines how to efficiently incorporate VRE sources, such as solar and wind, into the grid without compromising its stability or security.

SITE VISIT TO CAMPUS CYBER

A visit to the Cyber Campus in the La Défense neighborhood of Paris will introduce participants to a cutting-edge hub of government entities, startups, established companies, and research institutions dedicated to cybersecurity innovation and collaboration. The hub was created by the French Government to provide advanced cybersecurity infrastructure and resources, and demonstrates an environment where experts can share knowledge, develop new technologies, and tackle pressing security challenges. More than 160 different organizations have committed to the Cyber Campus initiative and on the site tour of the facility, participants will have the opportunity to meet with representatives of energy-sector focused organizations to learn more about the new technology and initiatives being developed. The Cyber Campus' amphitheater will serve as the location for expert presentations during the study tour and breakout rooms will facilitate cybersecurity exercises.

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Site Visit to RTE

- **RTE Digital Substation site visit:** Participants will have the opportunity to visit one of RTE's secure digital substation facilities and see the components to better understand how these substations differ from traditional substations and leverage advanced digital technologies for enhanced efficiency, safety, and flexibility in power distribution. Participants may observe the intelligent electronic devices (IEDs), remote terminal units (RTUs), process buses, and digital control room that enable operators to oversee and manage the entire substation with real-time analytics and automated responses. Digital substations, along with smart meters and updated SCADA systems, play a critical role in the energy transition process and participants will observe how these technologies are enabling faster decision-making, improving fault detection, and optimizing the security and integration of renewable energy sources.

- **RTE Security Operations Center (SOC) and Cybersecurity Emergency Response Team (CERT) site visit:** Study tour participants will visit this highly secured environment designed to monitor and protect the electrical grid's critical infrastructure from cyber threats. Participants may be able to observe the centralized control room displaying real-time data feeds, threat maps, and system performance metrics to learn more about how the SOC, CERT and IRT monitor cybersecurity threats. Participants will have the opportunity to engage with the SOC analysts to ask questions about the monitoring of unauthorized access attempts, abnormal traffic, or system anomalies throughout the TSO. Experts from RTE may provide demonstrations of threat detection software that analyzes traffic patterns, flagging potential threats for further investigation. Additionally, participants will have an opportunity to learn more about the firewall systems, intrusion detection and prevention systems (IDPS), or SIEM (Security Information and Event Management) platforms that RTE recommends to aggregate logs and events from across the grid's infrastructure.

SPEAKERS' BIOS

OLIVIER CLÉMENT

Energy Engineer, ENEDIS

- Since 2002, he has been working in the energy sector. In 2020, he joined the Cybersecurity Department of Enedis where he oversees anticipation and external relations in the field of cybersecurity.
- He has worked overseas for more than 10 years in various countries or islands such as Thailand, Ghana, Togo and La Réunion.
- He holds a Master's degree in cybersecurity.

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VERONIKA MILEWSKI

CEO, RTE International

- She joined RTE as Deputy Director for Europe in 2021 and was appointed CEO in 2022.
- For over 13 years she worked at EDF Energy (currently RTE) serving in different positions including Deputy Director of European Development and Head of Division of European Affairs.
- She holds a Master's degree in economics and management.

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AURÉLIEN WATARE

Director of Digital Solutions, RTE International

- Aurélien Watare is currently Director of the Digital Business Line at RTE international, where he applies his expertise in network operation, open source and virtualisation/digitalisation.
- Aurélien is a graduate of ENSIEG (ENSE3), where he obtained a degree in electrical engineering and electronics.

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YANN BONNET

Deputy CEO, Campus Cyber

- Previously he was chief of staff of the French cybersecurity agency (ANSSI), secretary general of the French National Digital Council (CNNum), member of the European Commission's High Level Expert Group on AI and led the national consultation in France on digital technology, which resulted in the Digital Republic law.
- He teaches at Sciences Po Paris on digital security.

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SPEAKERS' BIOS

GILLES BUFFIERES

Head of Supervision of RTE digital assets

- He joined EDF (RTE since 2003) in 1996 as engineer for grid development.
- For over than 28 years, he worked for several entities on Maintenance, Grid Expertise and IT.
- He is graduated of French National Civil Works Engineer School (école de Ponts et Chaussées).

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JULIEN KELLER

European Affairs Officer, RTE

- Julien is currently European Affairs Officer at Rte since 2021, in charge of IT and system operation topics.
- With Rte since 2015, as IT manager after 10 years of experience as an IT consultant in the energy sector.
- Graduated from Engineering school Nationale du Val de Loire in 2006, with an MBA in management and sustainable development in 2012.

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ELVIRA SANCHEZ ORTIZ

Senior Security Consultant, European Network for Cybersecurity (ENCS)

- At the ENCS, she has specialized in OT cybersecurity.
- She is involved in performing risk assessments, creating security requirements for procurement of industrial control systems, delivering cybersecurity training for grid operators.
- She has contributed to the development and implementation of European cybersecurity legislations in the electricity sector

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MAARTEN HOEVE

Director Technology, European Network for Cybersecurity (ENCS)

- He leads the development of ENCS training and testing capabilities; programs to develop best practices in security policies, architectures, and operations, and the ENCS procurement requirements .
- Maarten has been working on cybersecurity for electricity system operators since 2012.
- Maarten is active in European cybersecurity expert and standardization groups.

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SPEAKERS' BIOS

FANNY MISSFELDT-RINGIUS

ESMAP Practice Manager for Access and Data

- Before joining ESMAP, she led the Bhutan and Nepal energy programs for 3 years, after a 4-year assignment leading the Bank's Afghanistan Energy Program. She joined the World Bank in 2002.
- Before joining the World Bank, Fanny worked for the United Nations Environment Program's (UNEP) Centre on Energy and Environment.
- She holds a PhD in Economics.

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GOERY CHACHAY

Chief Information Security Officer at EDF International Networks

- 25 years of experience in IT & cybersecurity including 11 years at Group EDF.
- Previously, he served as CISO of two regional directions (Bretagne & Pays de Loire), Manager of the Application Security Team, project manager, and project director in IT
- He holds a Specialized Master (bac +6) in Forensic and Cybersecurity.

ANDERS

Director of Transmission System Maintenance RTE Ile de France Sud-Ouest

- Previously Director of Generation Performance and Director of Finance and Business Program EDF Hydro Sud-Ouest
- Worked for more than 20 years at EDF, serving in different roles including Chief Financial Officer and Hydro performance Director

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