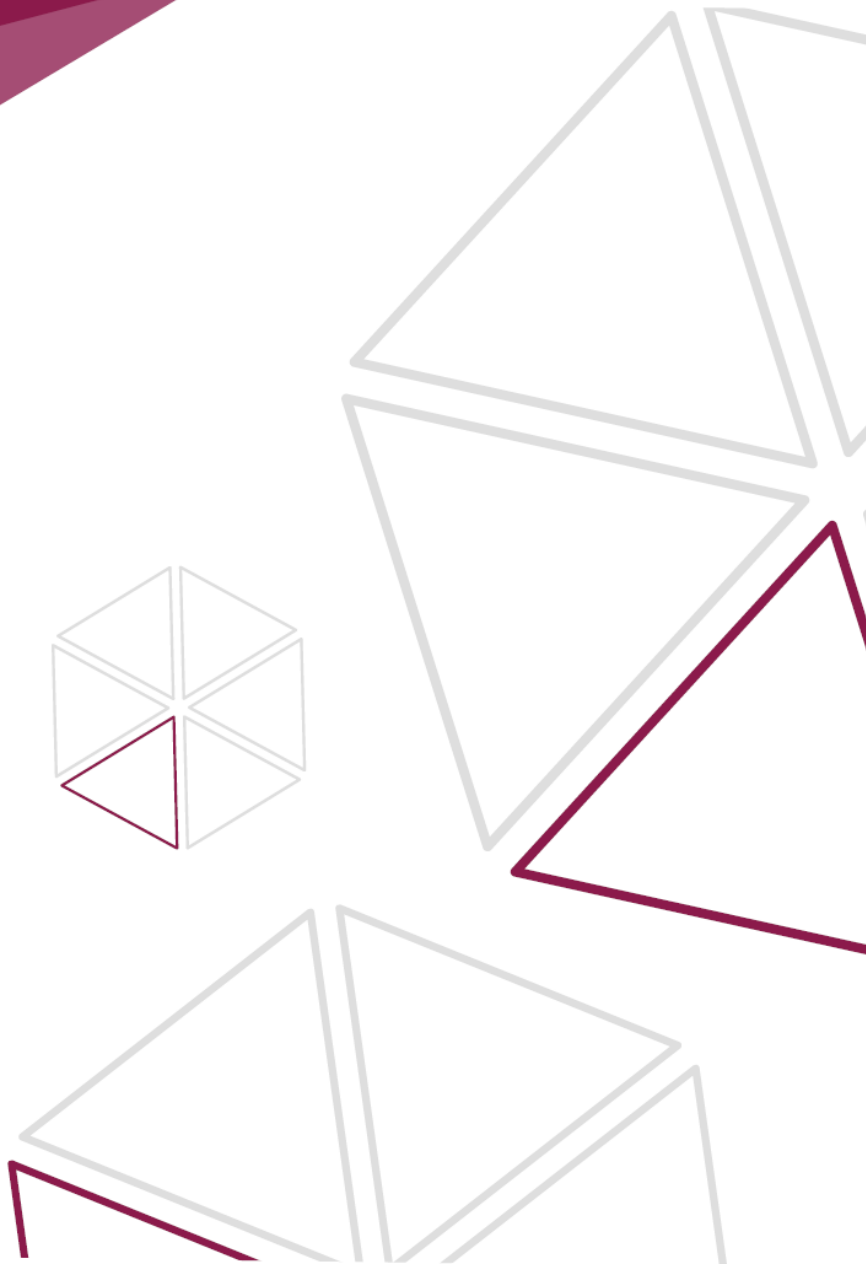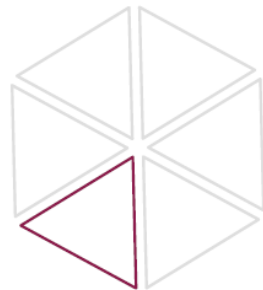# CRITIS
2018

The 13th International Conference on Critical Information Infrastructures Security

PROGRAMME

24-26 September 2018
Kaunas, Lithuania

Contents

Preface

CRITIS 2018 continues the tradition of presenting innovative research and exploring new challenges in the field of critical (information) infrastructure protection (C(I)IP) and fostering the dialogue between all C(I)I stakeholders. CRITIS 2018 aims at bringing together researchers and professionals from academia, C(I)I operators, industry, defence sector and governmental organisations working in the field of the security of C(I)I.

As in previous years, invited speakers and special events will complement a programme of original research contributions. The conference organisers invite the different research communities and stakeholders involved in C(I)IP to attend and present their progress and encourage discussions and multi-disciplinary approaches to relevant C(I)IP problems.

The Projects Dissemination Session will be an opportunity of dissemination for ongoing European, multinational, and national projects. These presentations will not be submitted to the reviewing process and will not lead to any publication. The purpose of this activity is sharing ideas and experiences among scientist and experts working on different research and development projects in the C(I)IP domain.

Besides, CRITIS 2018 conference has a special focus on current and future energy infrastructures within the special session "Energy infrastructure operators and stakeholders: key challenges and solution directions". Invited speakers for this special session will be from European electricity and/or gas Transmission System Operators (TSO), European electricity and gas Distributed System Operators (DSO), NATO, national and European policy-makers.

Acknowledgements

We would like to thank many people for their support and contributions to the 13th International Conference on Critical Information Infrastructures Security (CRITIS 2018). We gratefully acknowledge the members of CRITIS Steering Committee, Programme Committee, Chairs and Co-Chairs.

We also thank Invited Speakers of CRITIS 2018 for sharing their expertise in the field. We also thank all the authors of the contributed papers for their submissions and participation.

Finally, we thank the respective organisations for supporting the conference. CRITIS 2018 has been made possible by the Lithuanian Energy Institute working together with the support of Vytautas Magnus University.

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Lithuanian Energy Institute

The Lithuanian Energy Institute was established in 1956. LEI is a technical research centre dealing with energy related research in renewable energy (wind, biomass), smart grids, analysis of security of energy supply, energy efficiency (modelling and consulting), simulation of complex energy systems, energy planning (municipal, regional, country, international level), nuclear safety and radioactive waste management, structural integrity assessment of components and structures, thermal physics and fluid mechanics, combustion engineering, hydrogen storage, plasma research, material research (accredited laboratory), metrology (accredited and notified laboratory), hydrology studies (modelling of hydrodynamic and sediment processes).
www.lei.lt

Vytautas Magnus University

Vytautas Magnus University was established in 1922 and re-established in 1989 in Kaunas, Lithuania. It is one of the most liberal and modern universities in Lithuania and recognized worldwide – ranked among top 800 universities by QS World University Rankings and U-Multirank Ranking. At present, there are 10 faculties at VMU: Arts, Catholic Theology, Economics and Management, Humanities, Informatics, Law, Natural Sciences, Political Sciences and Diplomacy, Social Sciences, Music Academy, over 7,500 students of 50 nationalities and over 480 members of academic staff.
Vytautas Magnus University is the city's hub of academic, scientific and cultural activities, distinguished by its liberal education system (Artes Liberales), humanist spirit, cultivation of creativity and opportunities for wider, more universal enlightenment.
www.vdu.lt/en/

Programme

Travel day, Sunday, 23 September 2018

17.00 – 20.00   **Reception & Welcome Cocktail**

The rectorate building of Vytautas Magnus University - Museum of S. and S. Lozoraičiai (K. Donelaičio g. 58, Kaunas)

Venue: Vytauto Didžiojo universitetas (Vytautas Magnus University)
S. Daukanto g. 28 (Small Hall, 2nd floor), Kaunas

1st day, Monday, 24 September 2018

08.30 – 09.00   **Registration**

09.00 – 09.20   **Welcome to participants**

Juozas Augutis (Rector of Vytautas Magnus University)

Sigitas Rimkevičius (Director of Lithuanian Energy Institute)

Bernhard Hämmerli (Chair of CRITIS Steering Committee)

09.20 – 10.00   **PLENARY SESSION**
Chair: Bernhard Hämmerli

Protecting Critical Information Infrastructure on National and EU level – Lithuanian approach
Edvinas Kerza (Vice-Minister, Ministry of National Defence of the Republic of Lithuania)

10.00 – 11.00   **SESSION 1: Advanced Analysis of Critical Energy Systems**
Chair: Sigitas Rimkevičius

In-Cycle Sequential Topology Faults and Attacks: Effects on State Estimation
Ammara Gul* and Stephen D. Wolthusen   * Young CRITIS Award (YCA) candidate

Health Monitoring of Critical Power System Equipments using Identifying Codes
Kaustav Basu, Malhar Padhee, Sohini Roy, Anamitra Pal*, Arunabha Sen, Matthew Rhodes and Brian Keel   * Young CRITIS Award (YCA) candidate

Node Importance Analysis of a Gas Transmission Network with Evaluation of a New Infrastructure by ProGasNet
Pavel Praks and Vytis Kopustinskas

11.00 – 11.30   Coffee Break

11.30 – 12.50   **SESSION 2: Strengthening Urban Resilience**
Chair: Bernhard Hämmerli

Computer-aided Security Life Cycle Management for Critical Systems
Florian Patzer, Ankush Meshram, Pascal Birnstill, Christian Haas and Jürgen Beyerer

A Measure for Resilience of Critical Infrastructures
Sandra König, Thomas Schaberreiter, Stefan Rass and Stefan Schauer

Earthquake Simulation on Urban Areas: Improving Contingency Plans by Damage Assessment
Antonio Di Pietro, Vittorio Rosato, Maurizio Pollino, Gregorio D'Agostino, Luigi La Porta, Sonia Giovinazzi, Aldo Fabiani and Alberto Tofani

IVAVIA: Impact and Vulnerability Analysis of Vital Infrastructures and Built-Up Areas
Erich Rome, Oliver Ullrich, Daniel Lückerath, Jingquan Xie, Rainer Worst and Manfred Bogen

12.50 – 14.00	Lunch
14.00 – 14.40	**SESSION 3: Securing Internet of Things and Industrial Control Systems** *Chair: Simin Nadjm-Tehrani* **SMuF: State Machine Based Mutational Fuzzing Framework for Internet of Things** *Neeraj Karamchandani, Vinay Sachidananda, Suhas Setikere, Jianying Zhou and Yuval Elovici* **Leveraging Semantics for Actionable Intrusion Detection in Building Automation Systems** *Davide Fauri*, Michail Kapsalakis*, Daniel Ricardo Dos Santos, Elisa Costante, Jerry Den Hartog and Sandro Etalle * Young CRITIS Award (YCA) candidate*
14.40 – 15.25	**>> Short papers: seeking your inputs and dialogue** **RICS-el: Building a National Testbed for Research and Training on SCADA Security** *Magnus Almgren, Peter Andersson, Gunnar Björkman, Mathias Ekstedt, Jonas Hallberg, Simin Nadjm-Tehrani and Erik Westring* **Efficient Analysis to Protect Control into Critical Infrastructures** *Shuo Zhang* **Denial of Service Attacks: Detecting the Frailties of Machine Learning Algorithms in the Classification Process** *Ivo Frazão, Pedro Abreu, Tiago Cruz, Helder Araújo and Paulo Simões*
15.25 – 16.00	**Coffee Break**
16.00 – 16.30	**POSTER TALKS** *Chair: Linas Martišauskas* **Practical Framework for Security Monitoring on Industrial Control System with Historian Data and Network Security Appliances** *Jongwon Choi* **CASE|KRITIS - Findings from the Case Study Series on IT-Security in Critical Infrastructures** *Ulrike Lechner*
16.30 – 17.00	**POSTER SESSION**

2nd day, Tuesday, 25 September 2018

09.00 – 09.40	**KEYNOTE LECTURE** *Chair: Grigore Havarneanu* **Bridging the gap between ICS and corporate IT security: Finding common culture and views** *Stefan Lüders (Head of Computer Security at CERN, Switzerland)*
10.00 – 11.00	**SESSION 4: Need and tool sets for Industrial Control System security** *Chair: Grigore Havarneanu* *Cybersecurity Self-assessment Tools: Evaluating Importance for Securing Industrial Control Systems in Critical Infrastructures* *Georgia Lykou, Anagnostopoulou Argiro – Angeliki, George Stergiopoulos and Dimitris Gritzalis* *Gathering Intelligence through Realistic Industrial Control System Honeypots - A real-world Industrial Experience Report* *Óscar Navarro, Servilio Alonso, Joan Balbastre and Stefan Beyer* *A Comparison of ICS Datasets for Security Research based on Attack Paths* *Seungoh Choi, Jeong-Han Yun and Sin-Kyu Kim*
11.00 – 11.30	**Coffee Break**
11.30 – 12.50	**SESSION 5: MS&A - Advancements in governance and resilience of Critical Infrastructures** *Chair: Vittorio Rosato* *PPP(Public-Private Partnership)-based Cyber Resilience Enhancement Efforts for National Critical Infrastructures Protection in Japan-2* *Kenji Watanabe* *Governance Models Preferences for Security Information Sharing: An Institutional Economics Perspective for Critical Infrastructure Protection* *Alain Mermoud, Marcus Matthias Keupp and Dimitri Percia David* *Conceptual Framework for Hybrid Situational Awareness in Critical Port Infrastructures* *Stefan Schauer, Benjamin Rainer, Nicolas Museux, David Faure, Federico Jesús Carvajal Rodrigo, Javier Hingant Gómez, Stefan Beyer, Rafael Company Peris and Sergio Zamarripa Lopez.* *Discovering Vulnerabilities in Heterogeneous Interconnected Systems* *Luca Faramondi*, Gabriele Oliva, Stefano Panzieri and Roberto Setola* ** Young CRITIS Award (YCA) candidate*
12.50 – 13.45	**Lunch**
13.45 – 15.45	**INVITED SESSION 1: Energy Operators and Stakeholders (technologies)** *Chair: Marcelo Masera* **New challenges for the security of the electricity markets in Europe** Eryk Kłossowski (CEO, President of the Management Board of PSE S.A, PSE S.A, Poland) **The Necessity of Synchronization of the Baltic States' Electricity Network with the European System** Ramūnas Bikulčius (Head of Strategy and Research Division, Litgrid, Lithuania)

Building a network of trust among European utilities to foster proactive security though info sharing
Massimo Rocca (Enel Security representative and EE-ISAC Chair, Enel, Italy)

Securing BKW's Electrical Power Production and Distribution: A 3D Approach to Cyber Threats
Ivo Maritz (Head, Cyber Security (CSO/CISO), BKW Group, Switzerland)

15.45 – 16.15	**Coffee Break**

16.15 – 18.15   **INVITED SESSION 2: Energy Operators and Stakeholders (policy issues)**
Chair: Bernhard Hämmerli

Title of the presentation t.b.a.
Egidijus Purlys (Vice-Minister, Ministry of Energy of the Republic of Lithuania)

Cybersecurity in the energy sector – The EU perspective
Michaela Kollau (European Commission, Directorate-General for Energy)

Implications of political and policy decisions to energy security
Einari Kisel (Regional Manager for Europe, World Energy Council, Estonia)

Role of Public - Private Partnership in Critical Energy Infrastructure Protection: NATO ENSEC COE Perspective
Artūras Petkus (Head of Strategic Analysis Division, NATO ENSECCOE, Lithuania)

20.00	**Conference Dinner**

3rd day, Wednesday, 26 September 2018

09.00 – 09.40   **KEYNOTE LECTURE**
Chair: Roberto Setola

Comparison of Nordic and Continental Europe Grids from the Cyber Resilience Perspective
Hayretdin Bahşi (Center for Digital Forensics and Cyber Security, Tallinn University of Technology, Estonia)

10.00 – 11.00   **Projects Dissemination Session**
Chair: Roberto Setola

EISAC.it: a first node of the European Infrastructure Simulation and Analysis Centre. Technologies, services and perspectives
Vittorio Rosato, ENEA Casaccia Research Centre and EISAC.it, Italy

RESIN – Making Cities and Infrastructures Climate Resilient
Daniel Lückerath, Fraunhofer IAIS, Germany

CERBERUS: Cross Sectoral Risk Management for Object Protection of Critical Infrastructures
Stefan Schauer, AIT Austrian Institute of Technology GmbH, Austria

SAURON: Scalable Multidimensional Situation Awareness Solution for Protecting European Ports
Stefan Schauer, AIT Austrian Institute of Technology GmbH, Austria

11.00 – 11.30	**Coffee Break**

11.30 – 12.30	**Projects Dissemination Session** *Chair: Bernhard Hämmerli*
	ZONeSEC: Towards an EU framework for the security of widezones *José-Ramón Martínez-Salio, Atos, Spain*
	"Vernetzte IT-Sicherheit Kritischer Infrastrukturen"(VeSiKi) – Networked IT Security of Critical Infrastructures *Ulrike Lechner, Universität der Bundeswehr München, Germany*
	European Reference Network for Critical Infrastructure Protection *Alessandro Lazari, European Commission, Joint Research Centre, Italy*
	EU-CIRCLE – Critical Infrastructure Climate Change Risk Assessment *Micheal A. Skitsas, ADITESS, Cyprus*
12.30 – 12.50	**SESSION: Young CRITIS Award** *Chair: Marco Santarelli*
12.50 – 13.00	**Farewell and thank you**

13.00 – 14.00	**Lunch**

Invited Speakers

Tuesday, 25 September 2018: 09.00 – 09.40

Bridging the gap between ICS and corporate IT security: Finding common culture and views
Stefan Lüders
Head of Computer Security at CERN, Switzerland

The Large Hadron Collider (LHC) at the European Organization for Nuclear Research (CERN) is a unique one-off prototype within the particle physics community. The accelerator itself and its attached experiments are development, managed and operated from a world-wide community of physicists, engineers and technicians. In parallel, CERN serves as a university-like campus for this community and provides the IT environment for massive data storage, computing clusters and any other service needed to enable collaboration and research. As such, "one-off prototype" and "world-wide community" plus the general attitude of an academic environment present particular challenges in securing CERN's data centres, the office networks and the multitude of different control systems deployed for running the LHC and its experiments.

Stefan Lüders, PhD, graduated from the Swiss Federal Institute of Technology in Zurich and joined CERN in 2002. Since 2009, he is heading the CERN Computer Security Incident Response Team as CERN's Computer Security Officer with the mandate to coordinate all aspects of CERN's computer security – office computing security, computer centre security, GRID computing security and control system security – whilst taking into account CERN's operational needs. Dr. Lüders has presented on computer security and control system cyber-security topics at many different occasions to international bodies, governments, and companies, and published several articles.

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Tuesday, 25 September 2018: 13.45 – 14.15

New challenges for the security of the electricity markets in Europe
Eryk Kłossowski
CEO, President of the Management Board of PSE S.A, PSE S.A, Poland

Following issues to be addressed:
- Electricity markets in Europe within the context of security of supply.
- Digitalization of the sector and security challenges.
- Towards the distributed system via prosumers, energy clouds and microgrids. Resilience and security.
- Key security requirements for new electricity markets.

Eryk Kłossowski graduated from the Faculty of Law and Administration and the Post-graduate Intellectual Property Law Studies at the University of Warsaw. In 2005, completed barrister training at Warsaw Bar Chamber. Worked with law firms until 2015. Involved with Ernst & Young in 2000-2003. Expert at the Jagiellonian Institute in 2011-2012. President of the Security-Development-Energy Initiatives Foundation since 2014. Lecturer to post-graduate students at Collegium Civitas, Warsaw University of Technology and Helena Chodkowska University of Technology and Economics. Specialised primarily in energy law and European competition law.

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Tuesday, 25 September 2018: 14.45 – 15.15

Building a network of trust among European utilities to foster proactive security though info sharing
Massimo Rocca
Enel Security representative and EE-ISAC Chair, Enel, Italy

The private operators have a reduced self-sufficiency when facing threats aimed to compromise the critical infrastructures due, for example, to limited resources, legal implications and variable capability to influence provider's roadmap to obtain secure by design solutions. To overcoming these gaps, operators must act proactively: cooperate with each other, with institutions and authorities in terms of info sharing, simulations, joint programs and trainings. EE-ISAC is a no profit association founded by Enel and other European utilities with the aim to build a trusted community, where the members can discuss on threats and vulnerabilities that are affecting their infrastructures and cooperate in building awareness and security culture dissemination. EE-ISAC is the outcome of Distributed Energy Security Knowledge (DENSEK), a CIPS European project launched in 2012. The presentation will illustrate the achievements of the association and its perspective fostering critical infrastructure resilience.

Massimo Rocca is a cyber security expert and the Head of Enel's Security Processes, systems and planning unit. Based in Italy, he participates to several national and international working groups on critical infrastructure protection and coordinates the multinational's security activities in more than 40 Countries. Leveraging on this visibility, he sponsored the development of a cooperation network to assist other security managers from the utilities; in few years, it became the first European Energy - Information Sharing and Analysis Center.

Tuesday, 25 September 2018: 15.15 – 15.45

Securing BKW's Electrical Power Production and Distribution: A 3D Approach to Cyber Threats
Ivo Maritz
Head, Cyber Security (CSO/CISO), BKW Group, Switzerland

The BKW Group is a Bern-based international energy and infrastructure company with more than 6,500 employees. The Group plans, builds and operates infrastructure to produce and supply energy to businesses, households and the public sector. In addition, it offers engineering of energy, infrastructure and environmental projects, building technology planning, installation and maintenance as well as the construction, servicing and maintenance of energy, telecommunications, transport and water networks. To protect its IT and OT infrastructures, BKW runs a three year program addressing Cyber Security with a three dimensional approach: Creating Awareness and Acceptance, fully implementing IT, OT and PHY Protection and improving Resilience and Reaction.

After his studies in Civil Engineering at ETH Zurich Ivo Maritz was an Assistant in Computer Science and then the Deputy Manager of the newly founded Informatics Services at the University of Berne. After a station with one of the large Swiss Banks, he held different ICT leadership positions with a global Pharmaceutical Corporation headquartered in Basel during 11 years. Thereafter he ran Engineering and Operations as the CTO and COO of a Swiss Telecom Carrier providing B2B and B2B2C services. Before joining BKW in 2014, Ivo led the ICT Infrastructure Organization of a globally operating Machinery Industry group. With the BKW Group Ivo served as its CIO, leading the ICT Business Unit with 160 employees. He initialized the next steps of the digital trans-formation of the company on the IT side. Since the beginning of 2017, Ivo leads primarily the Cyber Security Program of the BKW Group as its CSO/CISO.
BKW is a Berne-based international energy and infrastructure services corporation with more than 6,500 employees.

Tuesday, 25 September 2018: 16.45 – 17.15

Cybersecurity in the energy sector – The EU perspective
Michaela Kollau
Security of Supply Unit, European Commission's Directorate General for Energy

The energy system is one of the most complex and largest infrastructures in Europe as well as one of the most critical assets for a modern society. Due to the needs to tackle climate change, the energy sector of today is undergoing a very rapid change in terms of infrastructure and market. In particular, it is subject to a continuously increasing degree of digitalization, bringing new challenges for the sector with respect to cybersecurity.
Thus, it is indispensable to take into account the particularities of the energy sector that create challenges in terms of cybersecurity: (1) real-time requirements, (2) cascading effect, and (3) the combination of legacy systems with emerging technologies.

Ms Michaela Kollau works at the European Commission's Directorate General for Energy dealing with cybersecurity in the energy sector and security of supply. She joined the European Commission in 2014 following a career in the Austrian Regulatory Authority for the electricity and gas market. Ms Kollau studied in Austria (Graz), the US (New Mexico) and in France (Nice - Sophia Antipolis) and holds master degrees in economics and environmental system sciences.

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Tuesday, 25 September 2018: 17.15 – 17.45

Implications of political and policy decisions to energy security
Einari Kisel
Regional Manager for Europe, World Energy Council, Estonia

Energy sector is going through a number of parallel transitions in terms of technologies, market designs, business models and resilience. An energy policy has to guarantee in parallel with energy security also sustainability and affordability of energy supplies. The presentation will focus on several examples from Europe, where political or policy framework has supported or hindered those transitions, especially in terms of energy security. It also takes a look into coming future by analysing what trends and developments are likely to influence the power sector of Europe in the coming decade in terms of energy security.

Dr. Einari Kisel is the Regional Manager for Europe in the World Energy Council Secretariat. He is responsible for the development of relations with all European Member Committees, companies and institutions. In 2017 he was also nominated to act as a Member of Supervisory Board of Eesti Energia AS, Estonian energy utility. Before joining WEC Secretariat in 2012, he was engaged for 10 years as the Undersecretary of State for Energy (until 2008 as the Director of Energy Department) in the Ministry of Economic Affairs and Communications of Estonia, being responsible for all energy policy affairs of the state. Until 2002 he worked for 7 years in the Estonian energy utility Eesti Energia, where his last duty was the appointment as the Director of Trade. He has received PhD degree in Power Engineering, and Master degrees in Thermal Engineering and in Business Administration from Tallinn University of Technology.

Tuesday, 25 September 2018: 17.45 – 18.15

Role of Public - Private Partnership in Critical Energy Infrastructure Protection: NATO ENSEC COE Perspective
Artūras Petkus
Head of Strategic Analysis Division, NATO Energy Security Centre of Excellence, Republic of Lithuania

While most of critical energy infrastructures are owned by the private sector, the government has the responsibility to regulate it as well as protect it to some extent especially where protection is too important to leave to the private sector. In order to protect critical energy infrastructure, the risk management programme should incorporate the main stakeholders, share of responsibilities, analysis of the possible threats, the risk assessment, the vulnerabilities, and the implementation of hazard mitigation procedures. In this context, the risk analysis is particularly important because it is useful to determine the likelihood that an event occurs.

Public-Private Partnerships (PPPs), which are long-term contracts between a public agency or public sector authority and a private sector entity, are a key factor in the protection of critical energy infrastructure. They are crucial in terms of efficient response to the worldwide escalating threats that may jeopardize the good functioning of critical energy infrastructures. In spite of this, the establishment of PPPs is not an easy process for a number of reasons. One reason concerns the fact that the interests of the state and of companies do not coincide. Indeed, while the main interest of the state is national security, companies are very much business-oriented. This means that these latter accept to make critical energy infrastructure secure only to the point that it is profitable, which means to the extent that the cost of dealing with an outage would cost more than preventing it. Another reason concerns the problem of information sharing. The private and the public sectors are not always willing to share all the necessary information and techniques related to risk assessment, the identification of weak spots, plans and technology to prevent attacks and disruptions, and plans for recovering from them.

The commitment of international organisations such as NATO and the OSCE in protecting critical energy infrastructure is of utmost importance because they concretely contribute to information and knowledge sharing among their members. Those afore mentioned and other related issues will be discussed in the presentation.

Artūras Petkus received his PhD in Laws from Mykolas Romeris University (Lithuania) in 2006. After 15 years of experience working as lecturer and later as associate professor at university, he joined the Strategic Analysis Division of the NATO Energy Security Centre of Excellence in 2015 as a Head of division. His main areas of responsibility are: performance of energy security related analysis on strategic level; contribution to petroleum supply chain analysis; assessment of energy security risks and threats, as well as Critical Energy Infrastructure Protection; contribution to development of NATO ACT Strategic Foresight Analysis Report as well as Framework for Future Alliance Operations Report; contribution to research in field of Energy Security (Overview of energy security in Baltic States, study "Hybrid Conflict and Critical Energy Infrastructure: the Case of Ukraine" etc.); analysis of physical threats to the power transmission system of Baltic States.

Wednesday, 26 September 2018: 09.00 – 09.40

Comparison of Nordic and Continental Europe Grids from the Cyber Resilience Perspective
Hayretdin Bahşi
Center for Digital Forensics and Cyber Security, Tallinn University of Technology, Estonia

Baltic States have investigated the options of de-synchronisation from Russia controlled IPS/UPS system and synchronisation with Continental Europe or Nordic Grids. In this presentation, the comparison between the cyber resilience levels of Nordic and Continental Europe grids is given in order to provide domain-specific insight into this strategic decision. Moreover, additional technical and organizational countermeasures that can be taken during this transition period are provided as guidance for transmission system operators and relevant national/international authorities. The comparison is conducted at five levels, transmission system operator, energy sector, critical infrastructure, national and grid levels.
This comparison was conducted as a part of the comprehensive analysis coordinated by International Centre for Defence and Security. In addition to the cyber resiliency aspect, political, geopolitical and physical security aspects were incorporated into the analysis which was published in a report named as "The Geopolitics of Power Grids: Political and Security Aspects of Baltic Synchronization").

Dr Hayretdin Bahşi received his PhD from Sabancı University (Turkey) in 2010. He was involved in many R&D and consultancy projects on cyber security as a researcher, consultant, trainer, project manager and program coordinator at the Informatics and Information Security Research Centre of the Scientific and Technological Research Council of Turkey between 2000 and 2014. He acted as the founding director of National Cyber Security Research Institute. Currently, he is a senior researcher at the Centre for Digital Forensics and Cyber Security at Tallinn University of Technology. His research interests include critical information infrastructure security, cyber situational awareness systems and application of machine learning methods to cyber security problems.

General information

Conference venue

Vytauto Didžiojo universitetas (Vytautas Magnus University)
S. Daukanto g. 28 (Small Hall, 2nd floor), goo.gl/IUk03p
Kaunas, Lithuania

Kaunas is the second-largest city in Lithuania and has historically been a leading centre of Lithuanian economic, academic, and cultural life. Kaunas was the biggest city and the centre of a county in the Trakai Municipality of the Grand Duchy of Lithuania since 1413.
Kaunas is unique place since it has the oldest funiculars in the world. Kaunas is surrounded by old fortification system (now the castle are used for cultural activities, as museums). Kaunas has the best example of high Baroque in Northern and Eastern Europe – "Pažaislis" Church and Monastery Ensemble; and has the longest pedestrian street in Eastern Europe – "Laisvės alėja".

An old legend claims that Kaunas was established by the Romans in ancient times. These Romans were supposedly led by a patrician named Palemon, who had three sons: Barcus, Kunas and Sperus. Palemon fled from Rome because he feared the mad Emperor Nero. Palemon, his sons and other relatives travelled all the way to Lithuania. After Palemon's death, his sons divided his land. Kaunas got the land where Kaunas now stands. He built a fortress near the confluence of the Nemunas and Neris rivers, and the city that grew up there was named after him. There is also a suburban region in the vicinity named "Palemonas".

Kaunas is first mentioned in written sources in 1361 when brick Kaunas Castle was constructed. In 1362, the castle was captured and destroyed by the Teutonic Order. The Kaunas castle was rebuilt at the beginning of the 15th century.

In 1408, the town was granted Magdeburg Rights by Vytautas the Great and became a centre of Kaunas Powiat in Trakai Voivodeship in 1413. Vytautas ceded Kaunas the right to own the scales used for weighing the goods brought to the city or packed on site, wax processing, and woollen cloth trimming facilities. The power of the self-governing Kaunas was shared by three interrelated major institutions: vaitas (the Mayor), the Magistrate (12 lay judges and 4 burgomasters) and the so-called Benchers' Court (12 persons). Kaunas then began to gain prominence, since it was at an intersection of trade routes and a river port. In 1441 Kaunas joined the Hanseatic League, and a Hansa merchant office called 'Kontor' was opened — the only one in the Grand Duchy of Lithuania. By the 16th century, Kaunas also had a public school and a hospital and was one of the best-formed towns in the whole country.

After the final partition of the Polish–Lithuanian state in 1795, the city was taken over by the Russian Empire and became a part of Vilna Governorate. During the French invasion of Russia in 1812, the Grand Army of Napoleon passed through Kaunas twice, devastating the city both times.
Kaunas is also the seat of the Roman Catholic Archdiocese of Kaunas.

Modern Kaunas has close links with critical infrastructures. It is an important railway hub in Lithuania and city of the crossroads of international air transport (Kaunas airport) and road transport (Via Baltic, Rail Baltic). The Kaunas Hydroelectric Power Plant, located near the Nemunas River, is producing electricity for Kaunas city.

Kaunas is often referred to as a city of students and basketball, often called as the second religion of Lithuania.

http://visit.kaunas.lt/en/

Guidelines for presenters and session chairs

Each presentation has been allocated 15 minutes, with an additional 5 minutes for discussion. Please keep to the scheduled times so that the conference can run smoothly and participants can attend the talks they wish to see. Session chairs have been asked to keep exactly to the timetable.

Presenters should upload their presentation onto the presentation computer at the latest during the break before their session using a USB memory device. The presentation computer has the CRITIS 2018 directory structure that corresponds to the session location, day and time.

This computer is running the Windows operating system, and is preloaded with Windows 10, Powerpoint 2016 and Adobe Acrobat Reader software to display PowerPoint and PDF files. No other file formats are supported.

Presenters are strongly discouraged from using their own computers and should do so only in exceptional cases. Changing computers takes time away from other presenters and valuable discussions. In these special cases, presenters should verify that their presentation works by connecting their device to the projector in the room where they will present and trying their presentation out before their session. Conference staff will be there during the breaks to help.

Presenters should meet the Session Chair during the break before the session. They are encouraged to provide a very short (a couple of lines) written biographical statements to the Session Chair in advance.

Discussion and time keeping

Session Chairs have the responsibility to introduce the speakers, to lead the discussions, and to ensure that the session schedule is observed. Every effort should be made to keep to the 20-minute total time allocation for each presenter, in order that the next talk starts on time.

Internet access

A free WiFi network is available. Login details will be provided to participants at the reception desk.

Language

The official Language of CRITIS 2018 conference is English.
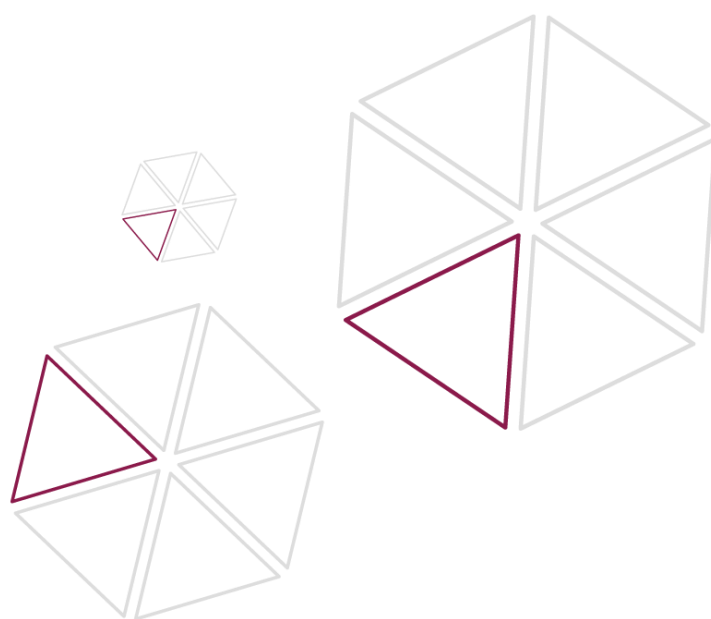
Emergencies

In case of an emergency during the conference, the organising committee can be contacted at +37067083955 phone. For other inquiries before and during the conference use the contact information below.

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