



NATO ENERGY  
SECURITY  
CENTRE OF  
EXCELLENCE



3rd AIEE Energy  
Symposium,  
Milan  
NATO UNCLASSIFIED,  
releasable to PfP



## NATO ENSEC COE

for "Current and Future Challenges to Energy Security – the energy transition" Conference

12<sup>th</sup> of December

"How the increase of renewable energy sources will change our energy security landscape?"

*A look on the Baltic Sea Region states*

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# AGENDA

1. What does the NATO ENSEC COE do?
2. Premises of the study
3. Conducting the study
4. Conclusions and lessons learned

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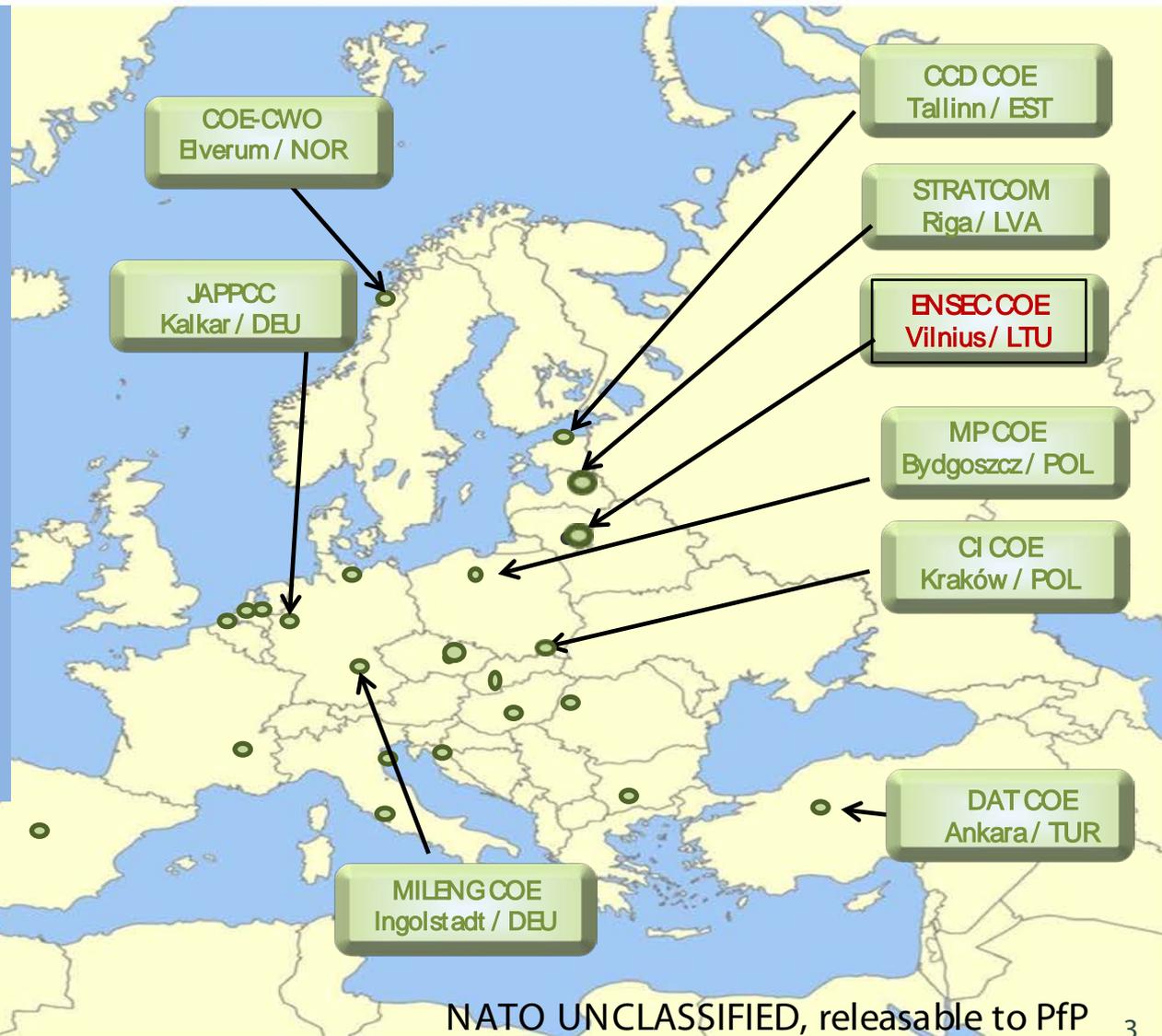


# COMMUNITY OF NATO COE'S

## 25 NATO Centres of Excellence (COE)

### Each COE:

- has a recognized expertise on a given subject,
- Owned by Nations,
- Out of Chain of NATO Command





# NATO ENSEC COE: Organisation



## MISSION:

To **assist NATO**, Nations, Partners and other bodies by supporting NATO's capability development process, mission effectiveness and interoperability providing comprehensive and timely **expertise on all aspects of energy security.**

Civilian and military expertise from different national Ministries and militaries.

In addition to seconded experts, the COE has several fellows and interns on annual basis.

# NATO ENSEC COE: Means / Structure



## STEERING COMMITTEE

Strategic Analysis

Research and Lessons Learned

Education, Training and Exercise

Development  
Concept  
Doctrine and

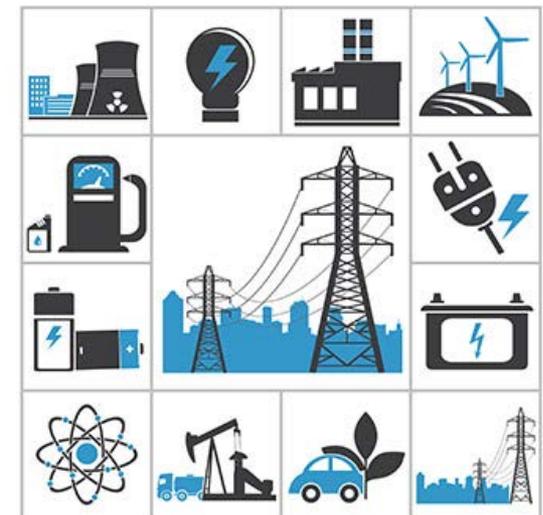
## PROGRAMME OF WORK



# PREMISES OF THE STUDY



- A global energy system transformation is underway
- NATO nations and partners are in the forefront of this evolution
  - Especially true in the Baltic Sea Region
- New energy landscape, new energy security concerns?
- Part of Energy Security: Operational Highlights publication





# CONDUCTING THE STUDY

- Theoretical approach:
  - Methodology based on previous academic research on renewable energy related risk factors
  - Local, regional and global levels
  - Economic and political, technological, and environmental risk factors
- Data collection:
  - 15 individuals from different levels of policy making, private sector and academia
  - Topic relevance vital
  - A set of preliminary questions
  - Pre-structured interviews

RISK FACTORS	Economic and political risk factors	Technological risk factors	Environmental risk factors
<b>GEOGRAPHICAL SCOPE</b>			
Local	<ul style="list-style-type: none"> <li>• Lobbying both for and against renewables – risk of uninformed policy decisions<sup>1</sup></li> <li>• Corruption – risk of uninformed policy decisions</li> <li>• Social unrest where large scale biomass plantations might substitute small-scale farming<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Grid reliability<sup>3</sup></li> <li>• Base-load issues</li> <li>• Cyber security of individual electricity producing units</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental regulations prohibiting new grids, building sites or mining</li> <li>• NIMBY<sup>4</sup> people</li> </ul>
Regional	<ul style="list-style-type: none"> <li>• Subsidization of RES might lead to market distortions or creation of new market that disrupts the current system<sup>5</sup></li> <li>• Resilience of the interconnected system to large-scale terrorist attacks or sabotage</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate storage capacity<sup>6</sup></li> <li>• RES usually located elsewhere where the need/consumption is</li> <li>• Potential targets for terrorist groups<sup>7</sup></li> <li>• Cyber-attacks on the grid or power producing units</li> </ul>	<ul style="list-style-type: none"> <li>• Threats to biodiversity<sup>8</sup></li> </ul>
Global	<ul style="list-style-type: none"> <li>• Investment heavy sector – resources for Research and Development needed, which might produce more winners and losers<sup>9</sup></li> <li>• Security of demand for fossil-fuel based energy exporters<sup>10</sup></li> <li>• Scarcity of critical resources<sup>11</sup></li> <li>• Supply chain of Critical resources</li> <li>• Violations of intellectual property rights<sup>12</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Technological uncertainty<sup>13</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Environmental risk factors related to non-energy resources, such as mining of rare earth minerals</li> <li>• Recycle rate of RES</li> </ul>

<sup>1</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
<sup>2</sup> Van den Hoek, D., Vermeulen, S. Spatial scale and social impacts of biofuel production in Johansson, Bengt. 2013. A broadened typology on energy and security. *Energy*, 53:199-205  
<sup>3</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
<sup>4</sup> 'Not in My Backyard' people often describes a group of people who in principle support a certain decision as long as it does not have any negative consequences on their lives.  
<sup>5</sup> O'Sullivan, Meghan, Overland, Indra, Sandalow, David. June 2017. *The Geopolitics of Renewable Energy*. Center on Global Energy Policy, Columbia University and The Geopolitics of Energy Project, Harvard Kennedy School  
<sup>6</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
<sup>7</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
<sup>8</sup> Johansson, Bengt. 2013. A broadened typology on energy and security. *Energy*, 53:199-205  
<sup>9</sup> Johansson, Bengt. 2013. A broadened typology on energy and security. *Energy*, 53:199-205  
<sup>10</sup> Johansson, Bengt. 2013. Security aspects of future renewable energy systems – A short overview. *Energy*, 61:598-605  
<sup>11</sup> Stang, Gerald. July 2016. *Shaping the future of energy*. European Union Institute for Security Studies.  
<sup>12</sup> Semkin, N., Lyyra, S., Sipilä, O. Policy Brief. 14/2017. Global energy sector transitions will have an impact on geopolitics. 2017 Government plan for analysis. [www.tietokeskus.fi](http://www.tietokeskus.fi)  
<sup>13</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
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<sup>15</sup> O'Sullivan, Meghan, Overland, Indra, Sandalow, David. June 2017. *The Geopolitics of Renewable Energy*. Center on Global Energy Policy, Columbia University and The Geopolitics of Energy Project, Harvard Kennedy School  
<sup>16</sup> Palsev, Sergey. 2016. The complicated geopolitics of renewable energy. *Bulletin of the atomic scientist*, 72(6), 390-395  
<sup>17</sup> Johansson, Bengt. 2013. Security aspects of future renewable energy systems – A short overview. *Energy*, 61:598-605  
<sup>18</sup> O'Sullivan, Meghan, Overland, Indra, Sandalow, David. June 2017. *The Geopolitics of Renewable Energy*. Center on Global Energy Policy, Columbia University and The Geopolitics of Energy Project, Harvard Kennedy School  
<sup>19</sup> O'Sullivan, Meghan, Overland, Indra, Sandalow, David. June 2017. *The Geopolitics of Renewable Energy*. Center on Global Energy Policy, Columbia University and The Geopolitics of Energy Project, Harvard Kennedy School



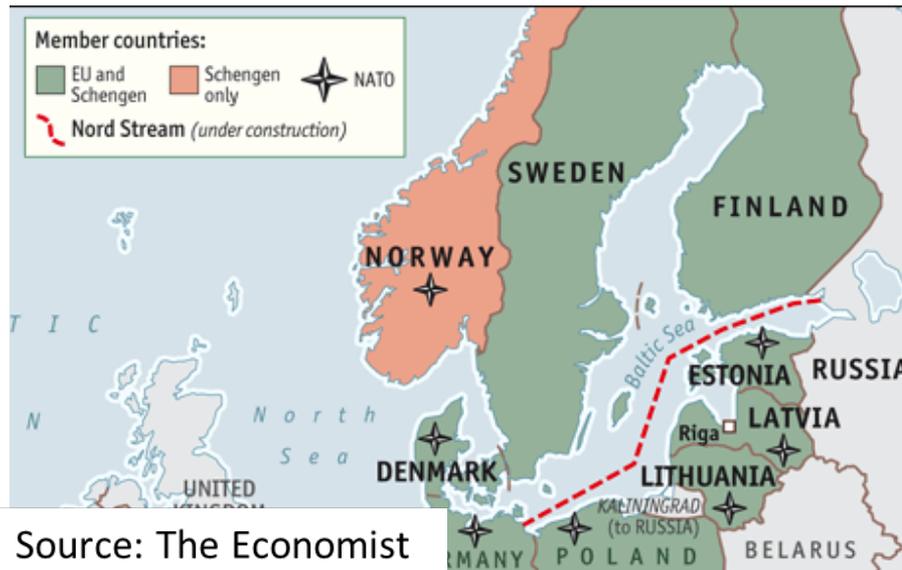
# CONCLUSIONS AND LESSONS LEARNED



- Approaches to energy security risk factors varied between countries
  - Abundance of renewable energy sources **does not** mean ignorance
  - Concern over consumer prices more prevalent in the Baltic States
  - System stability and intermittency issues
  - Cyber security caused concern
  - Geopolitical risk factors occurred most often
  - Collision of national security interests and wind farms



# CONCLUSIONS AND LESSONS LEARNED



- Renewable energy sources are not considered as a major risk to national security
- National energy strategies are not familiar with risks from renewable energy sources
- Experts identified especially risks related to geopolitics
- Main identified lessons learned for NATO nations and PfP countries:
  - Increase awareness of interconnectivity in Europe
  - Prepare for the change in what is considered as *critical energy infrastructure*
  - Keep a close eye on the geopolitical changes in countries dependent on fossil fuel production



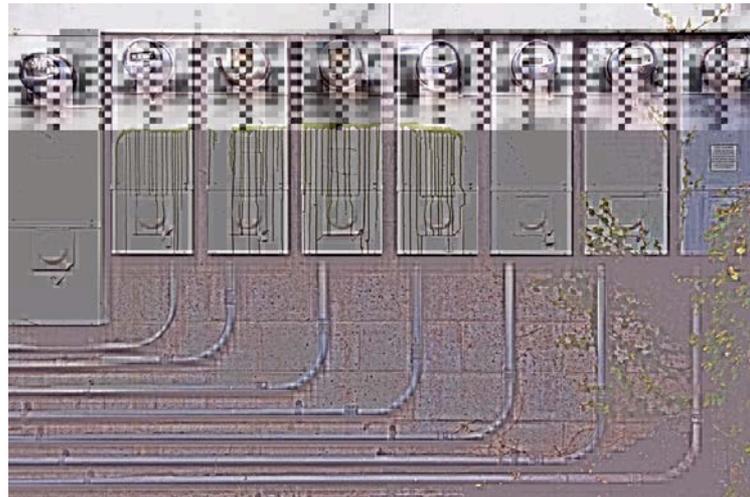
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# Thank you for your attention!



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