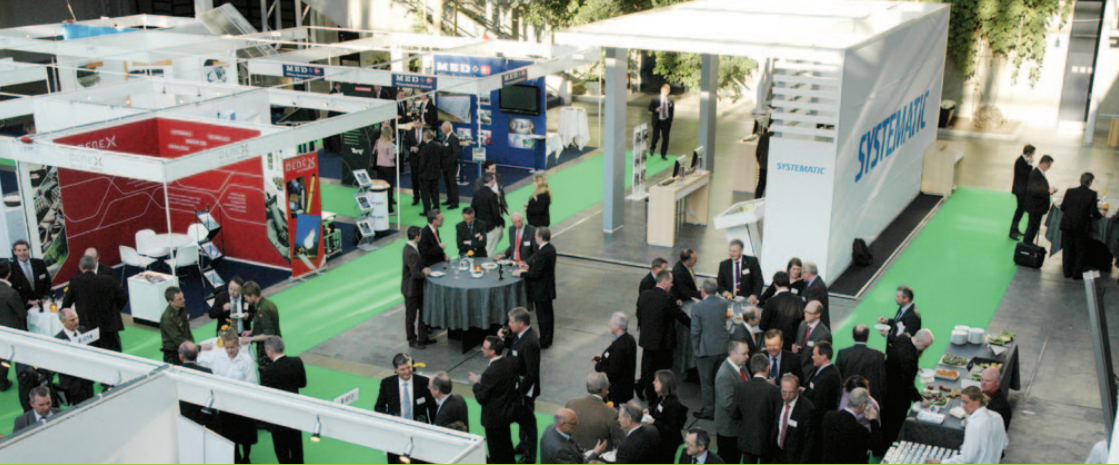


FORSVARSMINISTERIET  
DANISH MINISTRY OF DEFENCE



**2012**

**NORDEF**CO  
NORDIC DEFENCE COOPERATION



# A SMARTER AND GREENER DEFENCE

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**NORDIC DEFENCE  
INDUSTRY SEMINAR**

COPENHAGEN, 2-3 MAY 2012

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**CHAIRMAN'S CONCLUSIONS**

# A SMARTER AND GREENER DEFENCE

On 2-3 May 2012 the 4th Nordic Defence Industry Seminar took place in the Bella Center in Copenhagen. 325 highly skilled professionals from Government, Defence and Industry participated in making the seminar a fruitful and inspirational event. The chairman's conclusions are to be found hereunder.



## GENERAL SUMMARY:

The effects of climate change, energy scarcity and economic crisis are relevant to all actors in the defence sector. The Defence Sectors are relatively large actors. The US military – for instance - has an energy consumption equal to that of Portugal. The potential for energy and monetary savings is thus large and real. Furthermore, smarter and greener solutions may be implemented without compromising the effect and the safety of military operations. In some ways it may even reduce vulnerability. Reducing energy consumption in missions for instance reduces risks entailed in transporting fuel into mission areas.

### The tools to realize the potential are:

1. Dedicated use of new technology and innovative thinking.
2. Changing the mindset of the soldier, the buyer and the planner.
3. Committed international cooperation and public-private partnerships, which may indeed serve as a force multiplier and a rich source of inspiration.
4. Cooperation with the industrial base in the Northern Group, which is diverse and technologically high-end.

If successful, defence can increase operational effectiveness, save money, reduce strategic dependencies and minimize operational and societal vulnerabilities. Thus climate change and economic restraints also entails opportunities.

## CONCLUSIONS FROM: KEY NOTES SESSIONS

- 👑 Making defence greener and smarter is needed – and it is possible.
- 👑 Defence is a major owner of vehicles, ships, helicopters/planes, buildings and land. Hence the potential for savings is substantial.
- 👑 The Northern Group nations share basic values, challenges and military commitments. Climate change, energy scarcity/dependency, and budget restraints are common challenges – and we need to look for common solutions.
- 👑 There is a real incentive and will to enhance and deepen cooperation with neighbors and between industry and governments.
- 👑 Military spending in the west has come to a standstill, and this forces industry to refocus. Industry thus also has an incentive to find greener and cost-saving products and processes in order to stay competitive and meet demands internationally.
- 👑 Apart from closer cooperation and applying new technology – a third key is the changing of mindset. This change is already happening.
- 👑 The prospects of using alternative energy sources are good. By 2020 about 20 % of the world's consumption of electricity may for instance come from wind power. And it is tangibles to make the shift – also for defence. 13 large windmills are enough to cover the Danish Defence's needs for electricity.



## CONCLUSIONS FROM: **NORDEFCO - STATE OF PLAY**

- 👑 Generally NORDEFCO has a large number of cooperation projects – yet armament projects are not well represented so far.
- 👑 Joint acquisition was pointed out as the strongest enabler for cost-effective solutions opening the door to more cooperation on for instance spare parts, training, maintenance etc.
- 👑 Political attention is necessary – and a stronger and clearer top-down demand for NORDEFCO solutions would be beneficiary.
- 👑 Improved dialogue between NORDEFCO – especially the PSC – and Industry is needed. cover the Danish Defence's needs for electricity.

## CONCLUSIONS FROM: **CLIMATE AND ENERGY – GLOBAL TRENDS**

- 👑 Climate change is real, and despite our efforts, CO2 emissions are still increasing. Furthermore, the demand for resources are approaching supply, making access to resources a strategic and a security interest.
- 👑 The effects of climate change will become apparent in more and more geographical regions, and climate change is not a trend, nor an evolution – it is a revolution.
- 👑 Future growth cannot be based on traditional sources of energy
- 👑 Effects of climate change and the access to resources is a potentially huge source of future conflicts.
- 👑 The operational need for fossil fuels is a source of vulnerability – concretely as convoys are key targets for attacks – and strategically, as the access to energy is a prerequisite for operations.
- 👑 To make the needed change of mindsets and culture – we need to focus on the benefits of greener solutions.
- 👑 Furthermore, it is important to set ambitious goals. A prerequisite for getting anywhere, is knowing in which direction you want to go. Even if you don't reach your goal, you're still closer to the goal than if you hadn't started the journey.

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**Climate change  
is a threat multiplier**

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## CONCLUSIONS FROM NORDEFCO: **MULTILATERAL COOPERATION**

-  Within NORDEFCO (and through joint procurement) countries may be able to achieve what would have been impossible as a single country.
-  Harmonization and pooling of demands are vital enablers, yet cross-border transparency is a prerequisite for success.
-  Pooling and sharing is the pragmatic way forward if we want to meet the growing operational demands, and given the right priority NORDEFCO may become an international role model for developing smart defence solutions.
-  Revision of the Agreement on Support for Industrial Cooperation in the Defence Acquisition area is very important indeed to support the cooperation with industry, cover the Danish Defence's needs for electricity.

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**Effective Defence calls  
for effective cooperation**

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## CONCLUSIONS FROM: **DEVELOPING GREEN POLICIES FOR DEFENCE**

- 👑 Setting ambitious date-specific goals are necessary – and a good start. But in implementing them a change of culture is needed. You thus need a comprehensive approach to making defence greener.
- 👑 Some of the obstacles are lack of available data and how to ensure focus and commitment for a cross-organization topic that is not a core assignment.
- 👑 In making the needed change of mindset within the military, green thinking should be an integrated and natural part of all training and education of military personnel.
- 👑 Knowledge sharing – for instance in NORDEFCO or Northern Group – about the formulation and implementation of green policies, the obstacles involved and how to tackle them, is needed and potentially very beneficiary.

## CONCLUSIONS FROM:

# INDUSTRIAL COOPERATION

- 👑 Government and industry need each other, and industry wants to be involved in NORDEFECO. The political will, however, needs some clarification.
- 👑 Nordic Industry is world class – and NORDEFECO may assume a prominent role in industry-defence cooperation for instance regarding research and development, green defence and pooling and sharing.

## CONCLUSIONS FROM:

# PUBLIC PRIVATE PARTNERSHIPS

- 👑 To be a trustworthy partner, which can help making public partners greener, industry needs to “take its own medicine” and implement sustainable greener solutions within the company.
- 👑 The potential for benefits are real, but state actors need to overcome a certain integral risk aversion when embarking on public private partnerships to find greener solutions.

## CONCLUSIONS FROM:

# ALTERNATIVES TO FOSSIL FUELS

- 👑 Finding alternatives to fossil fuels is a key to reducing costs and environmental/climate impact. Biofuels, solar-energy and wind power are far advanced technologies – and in many ways real alternatives – or supplements.
- 👑 At one point bio fuel, for instance, will be fully competitive with regard to price, performance and stability.
- 👑 Yet bio fuels cannot be the entire solution.
- 👑 If we are successful in finding and implementing alternatives, cost and risks will go down – while our capabilities go up.
- 👑 Even without the cost of energy and the impact of emissions it would still be in the interest of military to reduce the dependency of fossil fuels, which needs to be transported over long distances under heavy protection.

## CONCLUSIONS FROM: **SIMULATION IN DEFENCE**










- 👑 There is great potential in simulation for making training cheaper, more environmental friendly – and more effective.
- 👑 The context of modern military operations is often so complex that ordinary training fails to produce the right training environment.
- 👑 Thus simulation may lead to far more effective training, and in doing so it may lead to the saving of lives and the reduction of the risk of suffering and collateral damage.
- 👑 To make the best use of simulation multinational cooperation is needed, and cooperation between industry and defence.





## CONCLUSIONS FROM: **INTERNATIONAL OPERATIONS**

**There is a huge potential for energy savings, yet it takes an effort.  
What can and should we do?:**

-  Optimize existing facilities – there is great potential in making better use of existing assets, for instance by optimizing insulation and generator efficiency.
-  Mapping of where the energy consumption is.  
(Electricity: A/C 50 % – 75% if we include heating!)
-  Use a deliberate approach to change mindsets and make things practical and easy for the soldiers.
-  Use new – and renewable – technologies: solar mats, solar powered water purification systems etc.
-  Think ahead: If you start a mission in energy inefficient tents, you'll probably end the mission in such tents. Planning/buying needs to be green as well. Furthermore, the cheapest solution – may not always be the most cost-effective solution.
-  Share information and knowledge – it may be done bilaterally, through NORDEFCO, NATO, EU or through the Lithuanian COE on Energy security.
-  Make NATO standards! If we don't specify to contractors that we want energy efficient solutions, we'll get standard/traditional solutions.
-  Make it easy for companies with innovative ideas to get in contact with military actors
-  It is doable: The UK goal is to reduce in theatre electricity consumption by 50%.  
The estimate is that 25% could be saved by "easy-wins" such as using equipment more efficiently, improve culture and ensure better insulation.

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### **The cost of fuel is well known:**

- **An aircraft carrier goes 7 cm pr liter fuel**
- **Every time one liter of fuel reaches Afghanistan it has taken 7 liters to get it there**
- **Total cost of 1 liter of fuel brought by UK forces to remote patrol bases may be 40 times the price (allowing for security and protection)**

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**Cost of one liter water transported into the area may be 3 times higher as one bought locally**

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## CONCLUSIONS FROM: **COMBAT UNITS AND THE INFANTRY SOLDIER**

- 👑 Green technology is making it possible to make armored vehicles greener, and bio diesel has proven itself. Yet industry lacks environmental requirements (Official demand).
- 👑 The Norwegian NORMANS programs aims at improving efficiency, while saving costs and improve interoperability. The program has been running since 2000, and since 2007 industry has been involved.
- 👑 Finland's Warrior 2020 program is a next generation soldier system, which aims at completely modernizing and integrating the soldier's equipment by 2020 in areas such as communication, target acquisition, sensor capability and personal protection. This is done by implementing high tech. solutions and complex soldier-machine interfaces.
- 👑 The Swedish authorities (FMV) in 1995 demanded greener ammunition with less lead and toxic substance, and the result today is NAMMO's greener ammunition, which has proven as efficient or better in tests. Today more than 360 000 000 lead free cartridges are produced and delivered in a number of countries. NAMMO has likewise developed lighter bullets.
- 👑 Generally, there is no easy fix to getting the weight down, and there is a dilemma between getting new technology to the soldier while reducing the weight he carries. Yet lighter passive armor based on fiber for ships, aircrafts and vehicles are available and reliable as one way of reducing weight – at a low cost.

## CONCLUSIONS FROM: **DOMESTIC DEFENCE**

- 👑 Local business and national politicians are eager to move forward despite the international hesitation in the COP process.
- 👑 Defence can be a role model and at the same time save energy and money by implementing ambitious strategies.
- 👑 The Norwegian Energy Program for the armed forces yielded an annual saving of 100 million NKR (Approximately 20 million US dollars). Now the goal is to obtain another 100 million NKR. Yet meeting your goals takes investments.
- 👑 Certification systems are very useful tools in achieving a more sustainable building mass. The chosen Danish system for instance measures environmental impact over 50 years and looks at economy over 50 years.
- 👑 When making decisions about whether or not to energy optimize existing buildings, focus should be on building with a real potential and with a decent life expectancy.
- 👑 Optimizing the existing building mass will only take you some of the way. New ecofriendly buildings will within the next 20 years approach next to zero energy consumption.
- 👑 Focusing only on “low hanging fruits” in energy optimizing solutions, such as light sensors and heat pumps, will only take energy reduction to a certain level, and investments may block incentive for more thorough energy optimizing.



Chairman  
**Kristian Fischer**  
Deputy Permanent Secretary of State for Defence



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