



MILITARY GREEN

Energy & Environment at
the European Defence Agency



The European Defence Agency works to foster European defence cooperation to become more cost efficient and increase capabilities. An agency of the Council, we combine ministerial-level political influence with technical expertise to deliver capabilities, drawing on input from all stakeholders. Pooling capabilities are cornerstones alongside collaborative efforts ranging from disruptive research through effective test, evaluation and procurement onto delivering hands-on capabilities.

Effective Defence and Crisis Management

Energy is the backbone of defence and crisis management. It is essential for the effectiveness of operations. It also ensures sustaining a high level of preparedness for prospective future EU Common Security and Defence Policy operations as well as for conventional territorial defence. With the days of its unlimited access long gone, steps towards increasing efficiency and reducing consumption offer many new benefits and opportunities. The subse-

quent reduction in fossil fuel consumption cuts costs, decreases emissions and reduces our dependencies on non-European sources. The number of casualties can be reduced significantly on account of there being fewer fuel convoys for adversaries to target, freeing up resources that are used for protecting the convoys. Overall capabilities are made more effective through enhanced endurance, mobility and autonomy.

A Step beyond Reducing the Footprint

Military Green is EDA's vehicle for the will of twenty-six Member States to make an environmental difference. It is a strategic tool supporting the mitigation of adverse effects to the climate and ecology while strengthening defence and crisis management capabilities. It deals with environmental values in the Defence and Crisis Management Community. It tackles our habits of consumption when preparing for operations and while conducting them.

It promotes development and implementation of novel environmentally responsible technologies. In addition it offers to take us a step beyond merely reducing our own footprint. Educating the local population on the benefits of taking environmental responsibility while providing the necessary green policy and technological building blocks enables post conflict reconstruction to contribute to long term stability and sustainable development.

Climate, Ecology and Resilience

Centuries of human exploitation of the earth's resources have stretched its resilience to the limit. The global consensus that this is not sustainable has in recent decades resulted in the adoption of international policies and strategies. For Europe this has translated into a vision for achieving growth in a resource efficient Europe with a low carbon economy. Increasing energy efficiency, reducing consumption and reducing emissions of greenhouse gasses are vital. The same applies to mitigating the loss of biodiversity in order to ensure the quality of essentials such as water, air and soil.

Doing nothing can increase average temperatures, which in some regions might raise sea levels causing floods while in others may result in water scarcity and drought. Continuing to pollute air, soil and water can impair life-support including the capability of producing food. Thus, in addition to these humanitarian risks, changes to climate and ecology can threaten international security as highlighted in the European Security Strategy. By pulling its weight the Defence and Crisis Management Community can help reduce the likelihood of these sorts of crisis occurring.

European Defence Agency's Step Forward

Military Green builds on legislation and EU directives. It further capitalises on the new Environmental Protection Concept. The Concept is being developed by the EU Military Staff and aims at establishing the principles and responsibilities to meet the requirements of Environmental Protection during EU-led military operations.

EDA uses Military Green as an umbrella for fostering responsible and more effective capabilities for the future. It tackles increasing energy efficiency and reducing consumption. It bolsters better water and waste management. It drives development towards more eco-friendly materials and muni-

tions. Enablers include understanding the impact on the climate and ecology, increasing awareness among stakeholders and establishing dedicated green policies and strategies.

The preparation and deployment of an operation can be described as a cycle of different phases. This is also applicable to the process of developing, purchasing and using materiel. Each phase in the two life-cycles comes with an environmental footprint. Good initial planning helps identify the necessary measures to be taken for each phase, mitigating adverse effects that could otherwise surface decades later.

MILITARY GREEN

SUSTAINABLE DEFENCE AND CRISIS MANAGEMENT THROUGH
INCREASED ENERGY AND ENVIRONMENTAL RESPONSIBILITY

Aims

Increase Safety
& Survivability

Increase
Operational
Effectiveness

Optimise
Through-Life
Management

Reduce
Through-Life
Environmental
Impact

Reduce Non-
European
Dependencies

Increasing
Awareness

Transversal Focal Areas

Climate &
Ecology

Education
& Training

Policy &
Strategy

Functional Focal Areas

Energy

Water

Waste

Materials

Munititons

Instruments

High Level Push

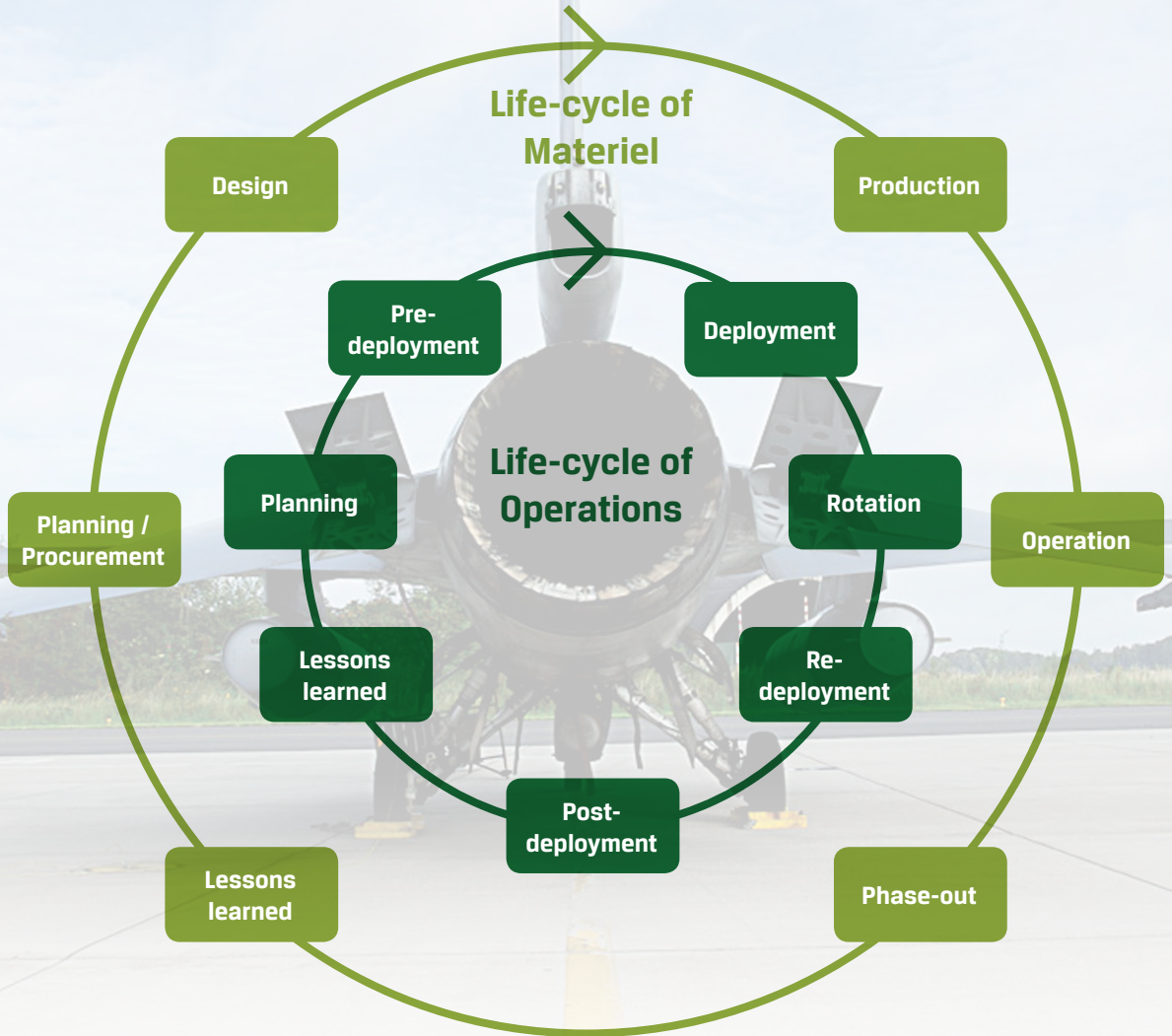
Incentives Mechanisms

Systems & Technology

Material and Operations Life-Cycle Approach

Environmental Protection Concept

Legislation and EU Directives



New Business Models for Catalysing Going Green



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At a high level of preparedness for delivering effective capabilities, defence is the biggest homeland energy consumer within European Governments. Reducing the associated costs is paramount in times of financial constraints. Using renewables can achieve this.

European Armed Forces GO GREEN is a novel EDA business model that cuts costs through implemen-

tation of renewables in the homeland. Established by six Member States¹, the project sees access rights to rooftops and land in military premises brought together via EDA. Pooled in one business case, they are offered to the market for electricity production using photovoltaic technology. A public-private partnership provides the necessary investment for the development, installation of the demonstration and through-life management. The electricity produced supplies the Armed Forces' premises as well as increases the presence of green energy on the local grid.

At no burden on the taxpayer, funding comes from private investment. The GO GREEN model can, once demonstrated, be implemented EU-wide and extended to other renewables.

Catalysing the choice of green alternatives requires creating a win-win situation for all involved – buyer, supplier, user and environment. GO GREEN is the pilot. EDA is also exploring other types of models that can be implemented in both the homeland and in theatre.

1. Austria, Cyprus, Czech Republic, Greece, Germany and Luxembourg

Teaming Up with Technology

Combining the strengths of conventional and novel technologies in a system mitigates their environmental weaknesses. The human element along with responsible doctrine, training and procedures realises the full potential – a team effort! The scope of EDA's actions includes:

- Achieving energy efficiency by novel energy supply technologies working alongside conventional in smart grids across all services (land, sea and air) covering all systems levels down to nano-level

Focus Areas: Fossil fuel dependencies, renewable / alternative energy sources, energy / power storage, efficient distribution and conversion, energy management and efficient components

- Reducing the logistical footprint for both waste and water
- Focus Areas: Biomass and modular deployable water production systems*

- Smarter engagement through greener munitions
- Focus Areas: New propellants, scalable effects, precision, life-cycle management and insensitivity*



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- Minimising through-life hazardous effects associated with materials
- Focus Areas: Structural materials, smart materials and surface protection*
- Studying impact on climate and ecology, gathering statistical data on impact and providing guidance for eco-friendly design
- Focus Areas: Biological effects of exposure to acoustic and electromagnetic fields, statistics on energy consumption and green design guidelines*



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