



Defense Green Technology of KOREA

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Agency for Defense Development

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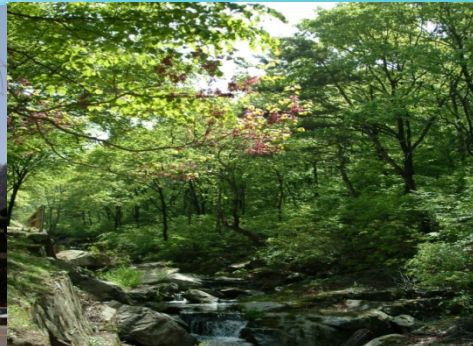
2. Defense Green Technology

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Introduction of ADD



Mission

Agency for Defense Development

Introduction | Weapon System/Technology | Test & Evaluation | Purchase & Bid

HOME KOREA

AGENCY FOR DEFENSE DEVELOPMENT

Be the Core the self-reliant Defense through World-Class Technology Competency

PRESIDENT'S MESSAGE

ADD WILL DO ITS BEST TO BE THE WORLD-CLASS ADVANCED AGENCY THROUGH INNOVATION ESPECIALLY IN R&D ENVIRONMENT.

INTERNATIONAL BIDDING

Technical Assistance for Prec.	2010.03.24
KGGB Wind Tunnel Testing(Fre.	2010.02.18
2010 oversea's journal	2009.10.23
1.5 INCH SIX-COMPONENTS MOME	2009.09.03

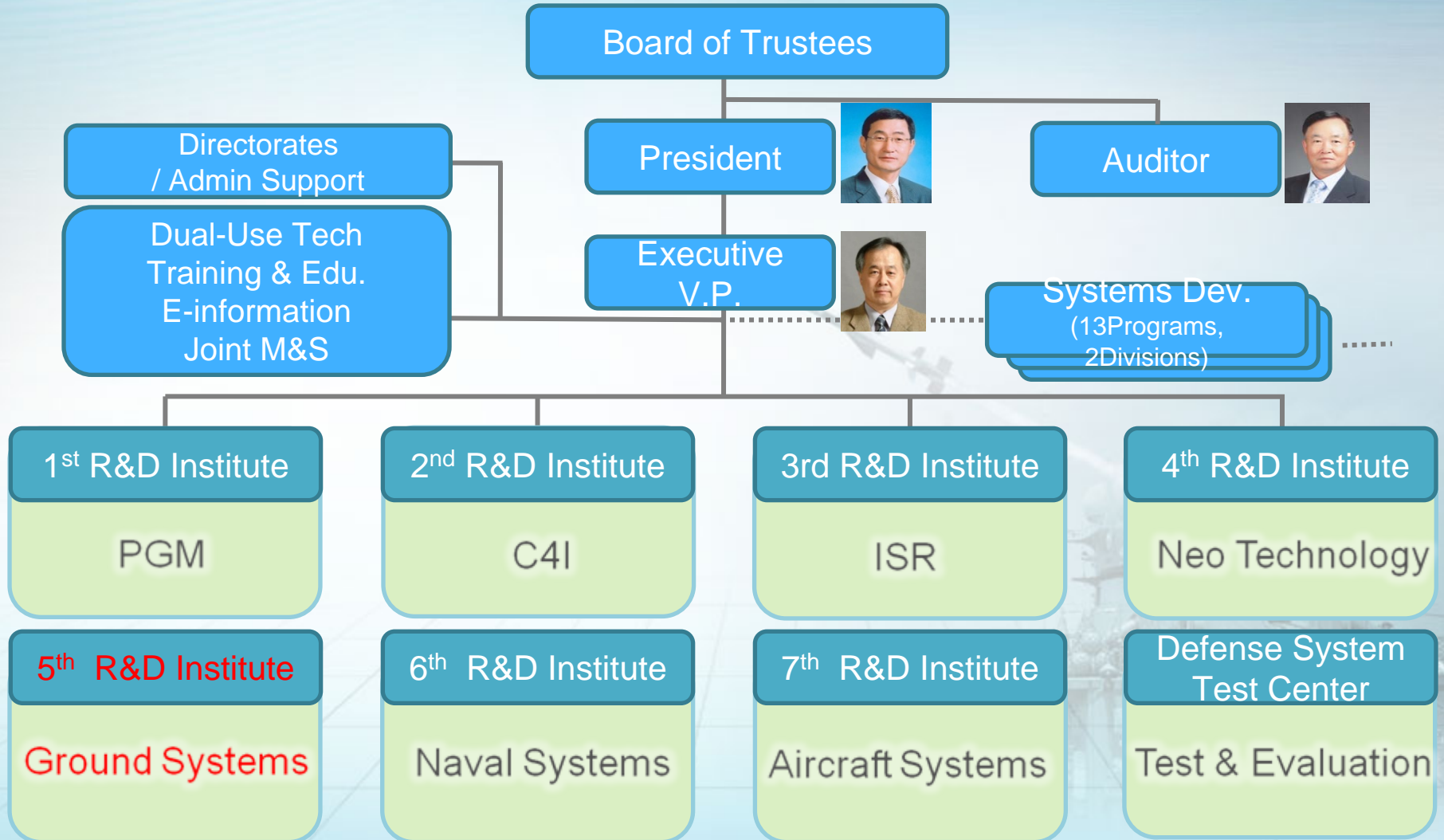
MASTERPIECES TOP10

ADD AGENCY FOR DEFENSE DEVELOPMENT

CATALOG | MEDIA

To Research, Develop, Test and Evaluate Weapon systems, Equipments, and Related Technologies to Reinforce Defense Capability for Self- reliant National Defense.

Organization



Resources

- **Laboratories : 56 labs**



EMI/EMC



Underwater
acoustic



Wind Tunnel

- **Proving Grounds : 4 sites**



Changwon



Darakdae



An-Heung

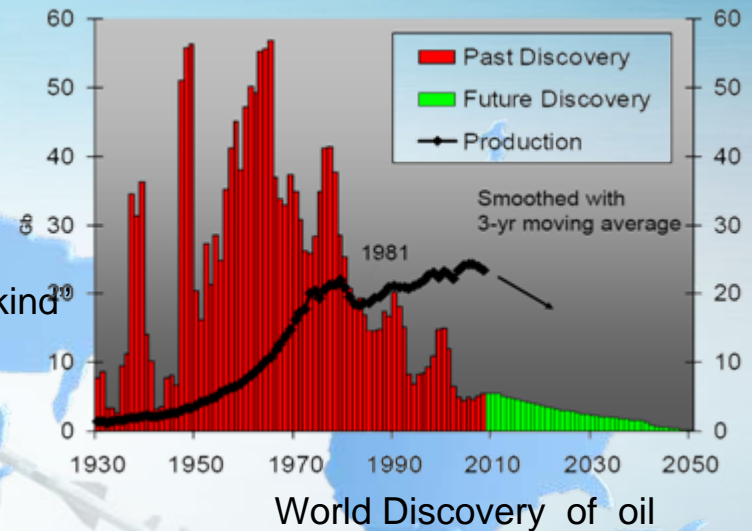
1. Green Growth

Environmental crisis and Resource shortage

• The end of oil-era

- Oil production is already at its max
- In 2050 able to supply 3 billion people

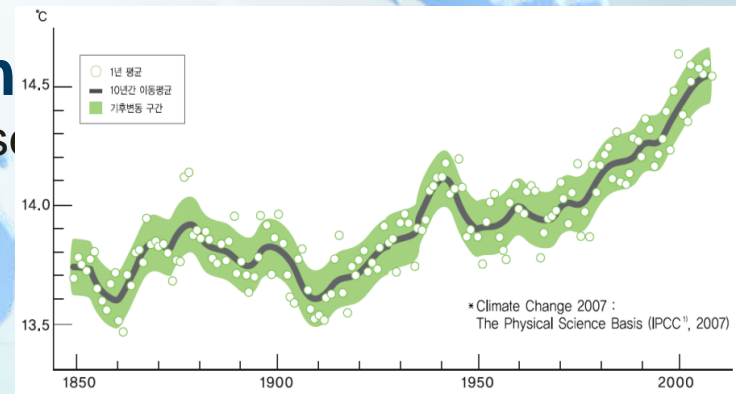
□ Dr. Campbell , “Peak Oil - A Turning Point for Mankind”
EVS24, May 2009



• Clear evidence of global warming

- In the 21C, 6.4℃ temp. rise, 59cm sea level rise compared to industrial revolution
- When temp. rises 1.5~2.5℃, 20~30% species extinct

□ IPCC 4th special report, 2007
(IPCC : Inter-governmental Panel on Climate Change)



World average temperature

Foreign Policies of Green Growth



- Initiative in the green market by developing green technology
- R&D by government + Commercialization by industry



- Carbon zero by 2050
- Formulation of green revolution plan in 2008



- Germany : R&D of renewable energy
- France : Policy for minimizing of climate change



- National vision of low carbon in 2008
- Cool Earth (Energy reformation technology plan) in 2008



- Enactment of a law on renewable energy in 2006
- R&D on low-carbon technology leading by government by 2050

Korean Green Growth



“Green Growth” is a sustainable development that can reduce the greenhouse gases and environmental pollution...



Green Korea '10~ '50 Plan

World 5th
Green Pioneer country

Green Tech & Industrial power

- Green Technology
- Increasing Exports
- Creating Green jobs
- Secure new growth engine

A world's 7th green growth leading country

- Supporting to developing country in Asia
- Improving nation's image

Infrastructure for green growth

- Establishment infrastructure using green growth national industries

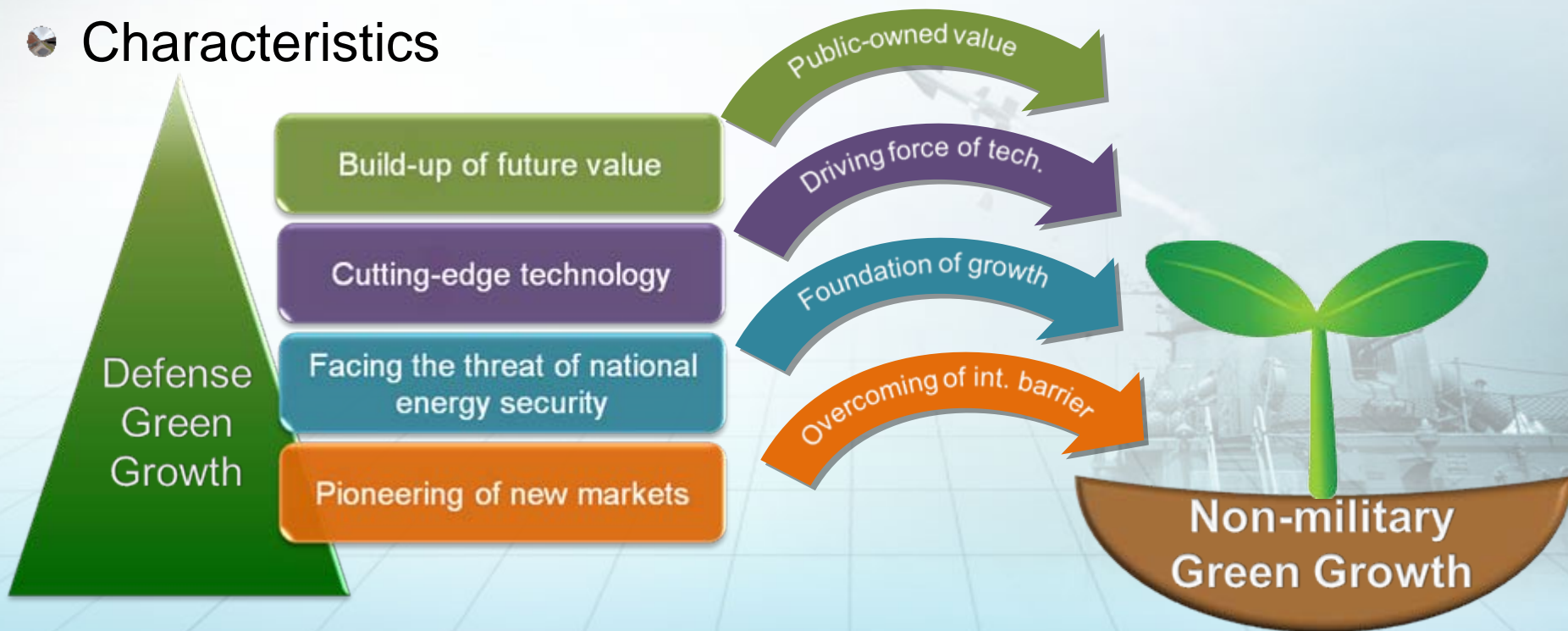
2. Defense Green Technology

Defense Green Growth

Definition

Green growth in the field of defense based on green technology and clean energy to build up military strength

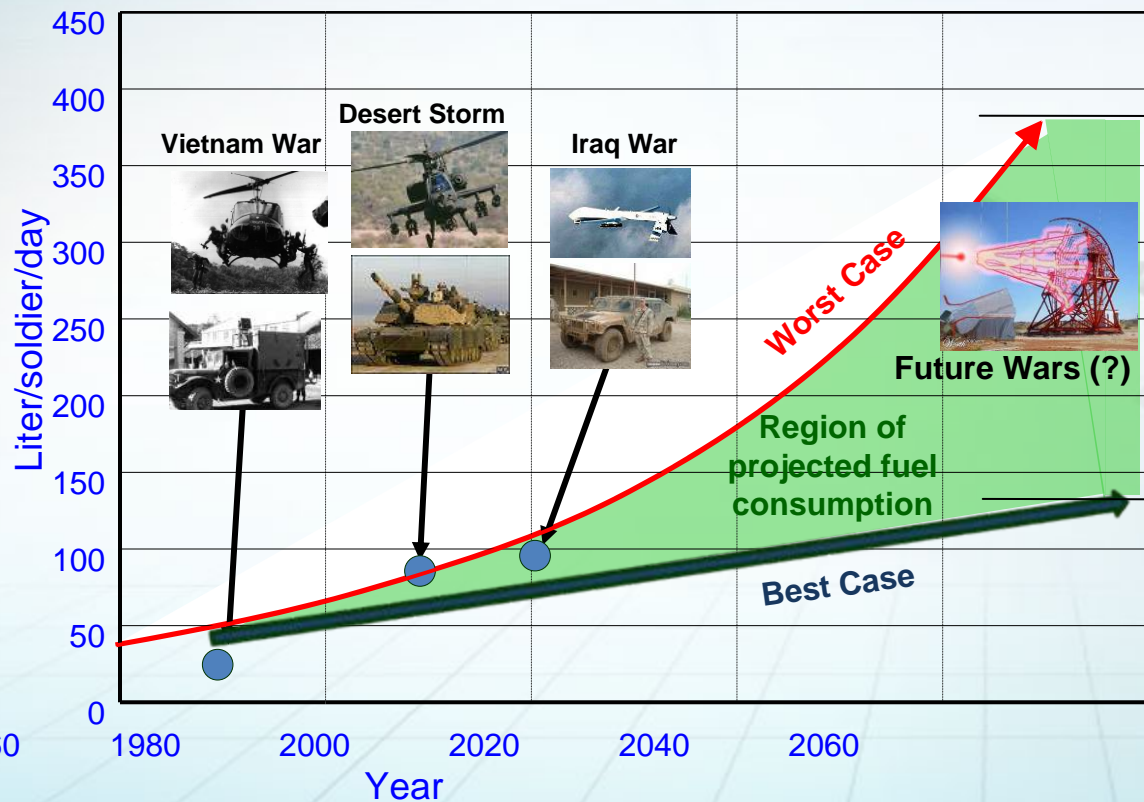
Characteristics



Why Defense Green Growth?

● Energy security

< Military Per Capita Fuel Consumption >



Green technology for future wars



Fuel cell



Hybrid electric propulsion platform



High efficient aircraft platform

⋮

□ Report of the Defense Science Board Task Force on DoD Energy Strategy (2007, US)

3. Strategy for Defense Green Technology

Strategy for Defense Green Technology

Low CO₂ , Green Growth

Preparation for post oil-era

Development of GT leading national green growth



Track 1

Barrack &
Green energy



Track 2

Low carbon platform
using clean energy



Track 3

Operating & Training
based on M&S

Track 1 Barrack life & Defense R&D based on green energy



- Defense green acquisition
- Green infrastructure
- Green barrack linking green new deal

Collapsible solar power module

Fuel cell for submarine

Piezoelectric & thermoelectric elements for soldiers

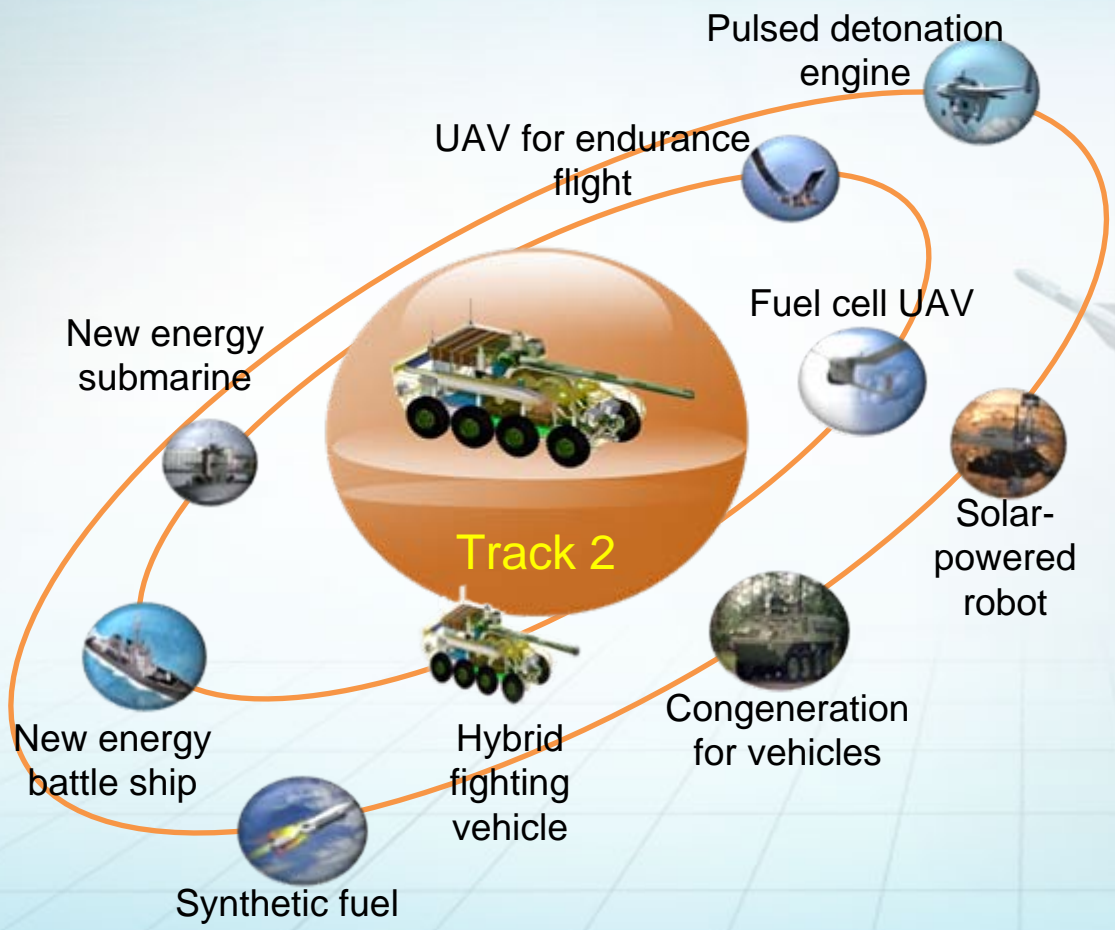
Integrated power source

'10

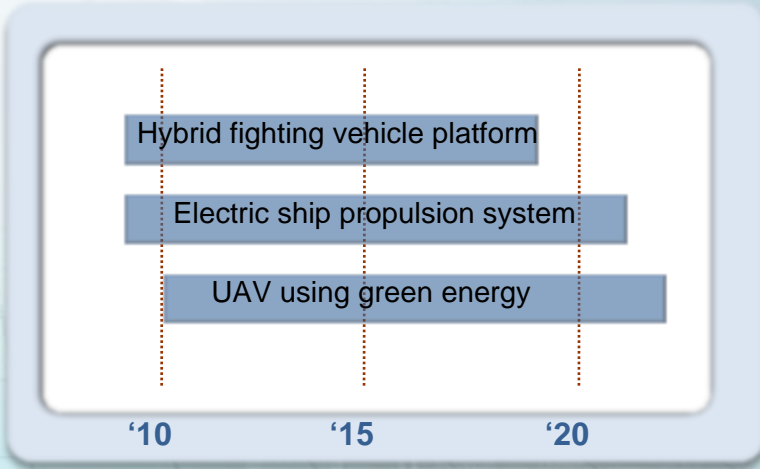
'15

'20

Track 2 Platform using clean energy with low carbon emission



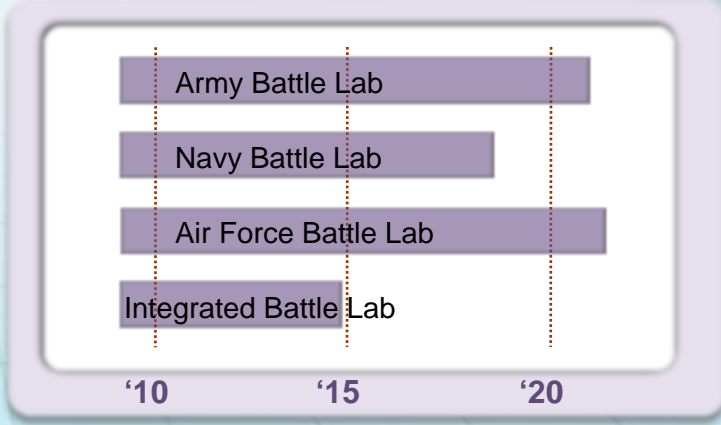
- Weapon development linking GT
- Hybrid/fuel-cell fighting vehicle
- Electric ship propulsion system
- Aircraft using clean energy



Track 3 Operating & Training based on M&S



- Maximization an effect of training & operating
- Training infrastructure based on M&S
- Green power management in peace time
- IT-based battle lab

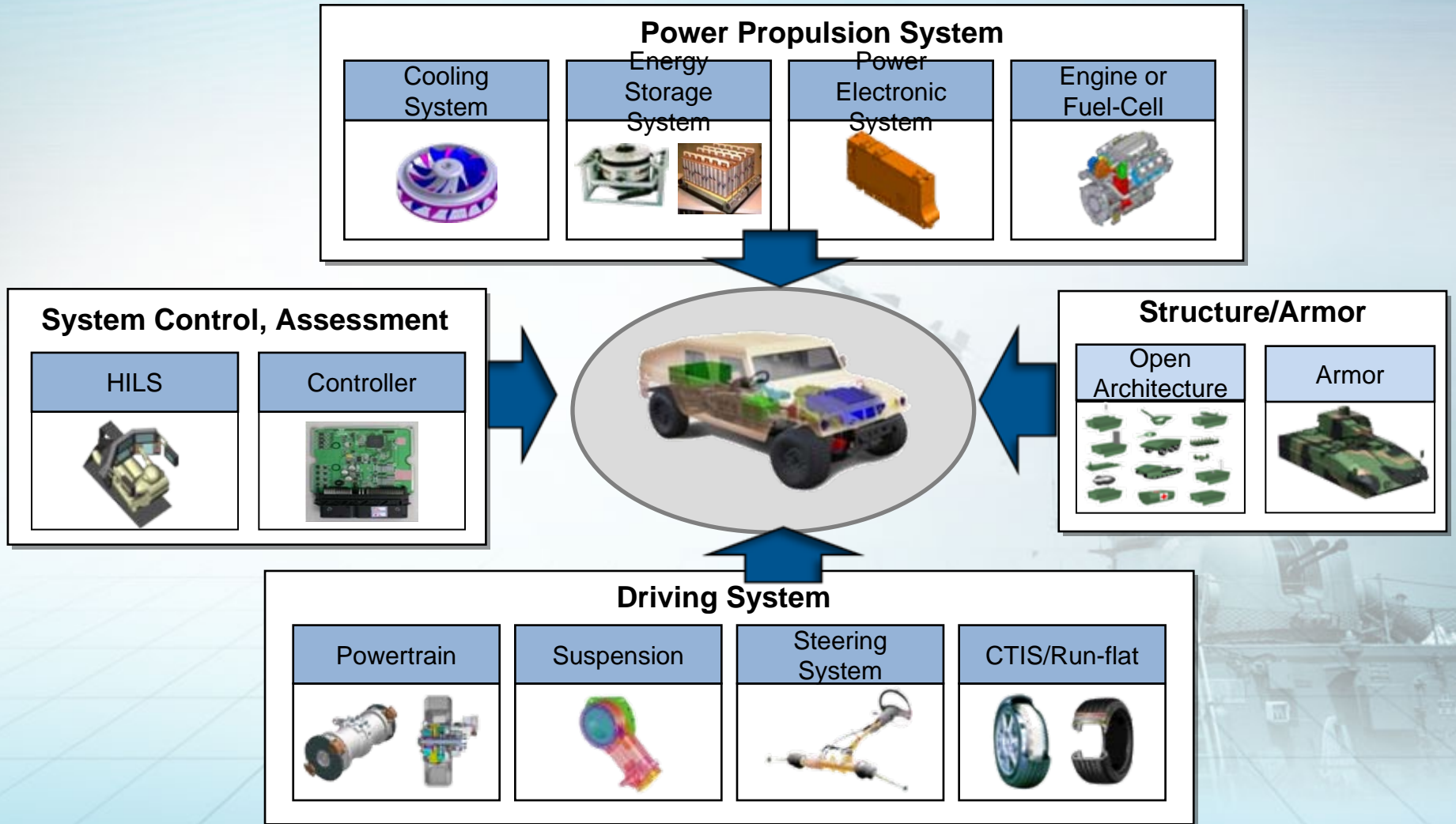


4. Hybrid Electric Combat Vehicles

Merits of Hybrid Electric Combat Vehicles



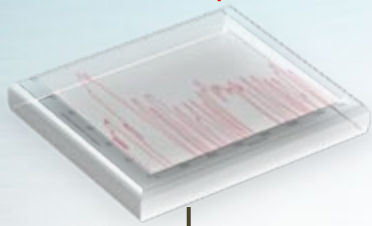
Core Parts of HECV



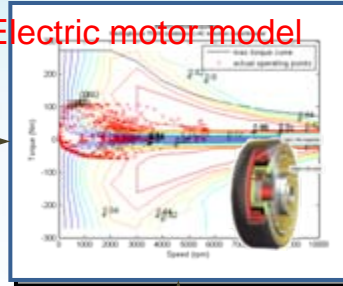
□ HILS : Hardware-In-the-Loop Simulation
 CTIS : Central Tire Inflation System

Hybrid Operating Software

Mission profile



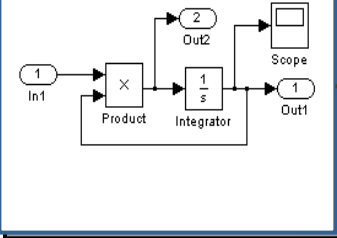
Electric motor model



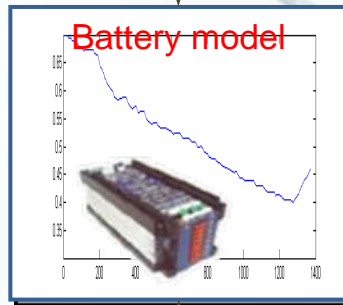
Terrain profile



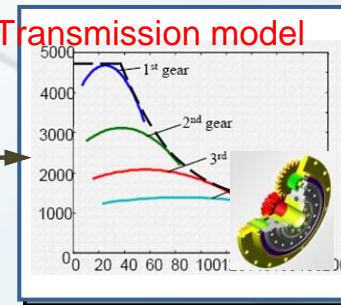
Control algorithm



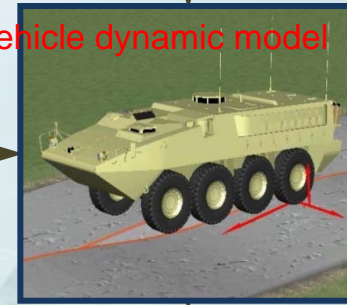
Battery model



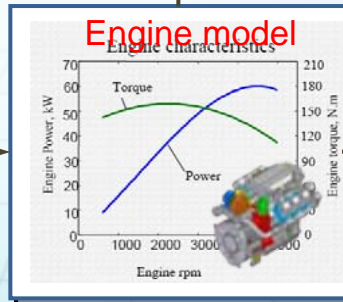
Transmission model



Vehicle dynamic model



Engine model



5. Conclusion

“Green Growth”

1. Positive effect on environment, economy, national defense
2. Strengthening the Global partnership
3. Defense green growth leading country
4. Suggest strong supports on green globe



Thank you