

International Workshop

KOREA's "SMART" Road to SMR in CANADA

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Jeju ICC, Korea

Korean Nuclear Society

Division of Reactor System Technology

Export Controls Experience on the SMART PPE

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**Korean
Nuclear
Society**

2024 Spring Conference



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- 2 SMART PPE & EC Items**
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1 Overview of ROK Export Controls



01

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Overview of ROK Export Controls

01

International Treaties/ Bilateral NCA

- **Nuclear Non-proliferation Treaty**
- Biological Weapons Convention
- Chemical Weapons Convention
- Arms Trade Treaty
- **UN Security Counsel Resolution 1540**
- IAEA Safeguards Agreement (CSA, AP)
- Bilateral Nuclear Cooperation Agreements

02

Multilateral Export Control Regimes

- **Nuclear Suppliers Group (NSG)**
- Missile Technology Control Regime (MTCR)
- Australian Group (AG)
- Wassenaar Arrangement (WA)

Domestic Laws and Regulations

01

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Overview of ROK Export Controls

- ✓ NSSC : **N**uclear **S**afety and **S**ecurity **C**ommission
- ✓ KOSTI : **K**Orea **S**ecurity **A**gency of **T**rade and **I**ndustry

ROK-US-NCA (1956)

Foreign Trade Act (FTA) (1986)

Export Controls in FTA (1992)



KINAC (2006)
KOSTI (2007)



NSSC (2011)

SMART PPE (2015~2018)

NPT (1975)

Nuclear Safety Act (1982)

Join ZC, NSG (1995)

UAE BNPP/ Jordan JRTR (2009)

ITT& NuTech. License (2014)

- ✓ NCA : **N**uclear **C**ooperation **A**greement
- ✓ ZC : **Z**angger **C**ommittee
- ✓ NSG : **N**uclear **S**uppliers **G**roup

- ✓ BNPP : **B**arakah **N**uclear **P**ower **P**lant
- ✓ JRTR : **J**ordan **R**esearch & **T**raining **R**eactor
- ✓ PPE : **P**re-**P**roject **E**ngineering
- ✓ ITT : **I**ntangible **T**ransfer of **T**ech./Intangible **T**ech. **T**ransfer



01

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Overview of ROK Export Controls



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Overview of ROK Export Controls

- Multilateral Export Control Regime(MECR)
 - Groups of supplier countries which seek to contribute to the non-proliferation of WMD and delivery systems through the implementation of **Guidelines and control lists** for exports.
 - The Guidelines, which are implemented by each Participating Government in accordance with its **own laws and practices**, establish a set of global norms that limit the ability of proliferators to “shop” for suppliers with inferior export controls.

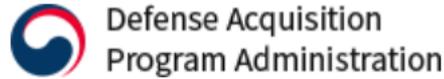


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Overview of ROK Export Controls

1 Munitions



Foreign Trade Act
Defense Acquisition Program Act

2 Dual-Use Items



Foreign Trade Act

3 Trigger List Items



Foreign Trade Act
Nuclear Safety Act

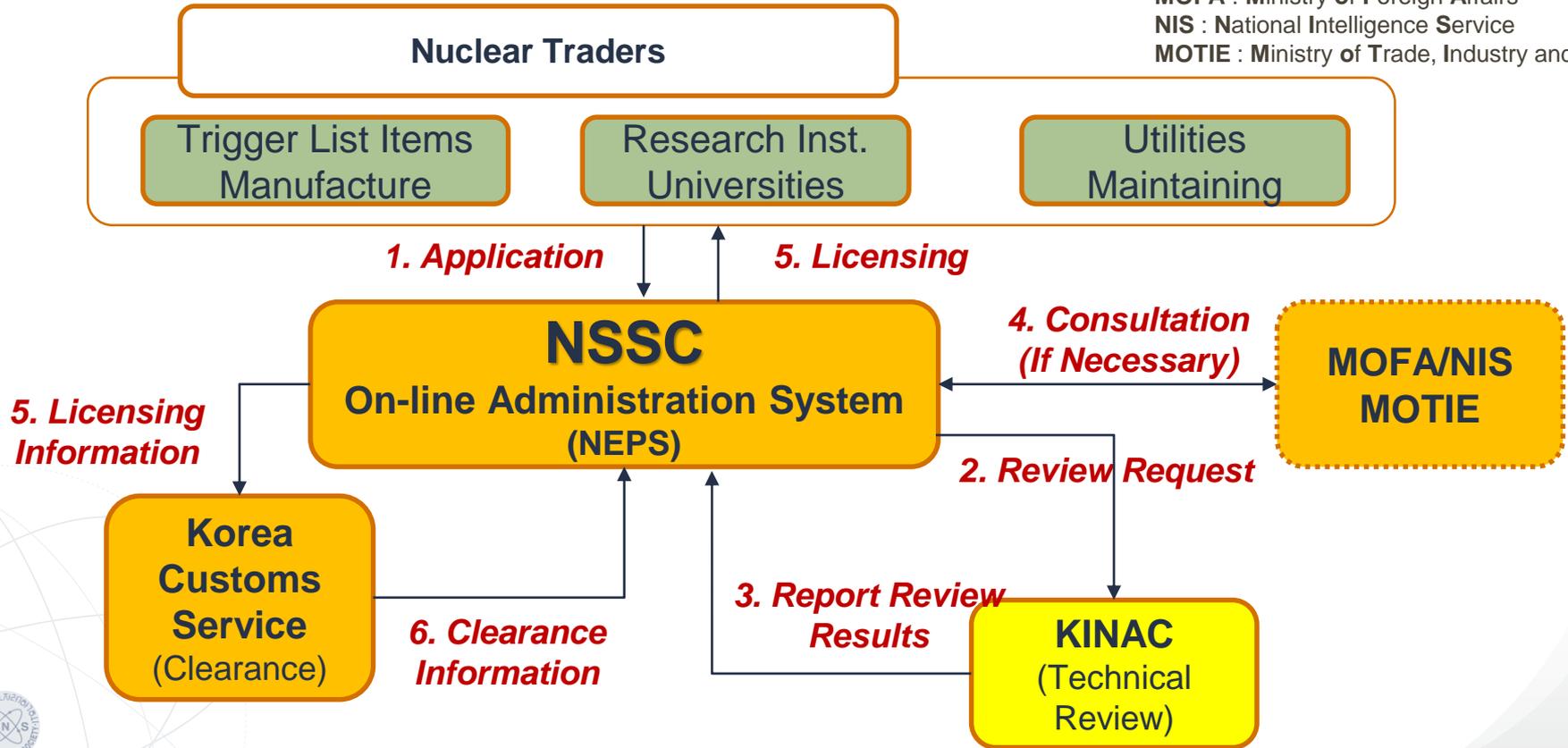


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Overview of ROK Export Controls

MOFA : Ministry of Foreign Affairs
NIS : National Intelligence Service
MOTIE : Ministry of Trade, Industry and Energy



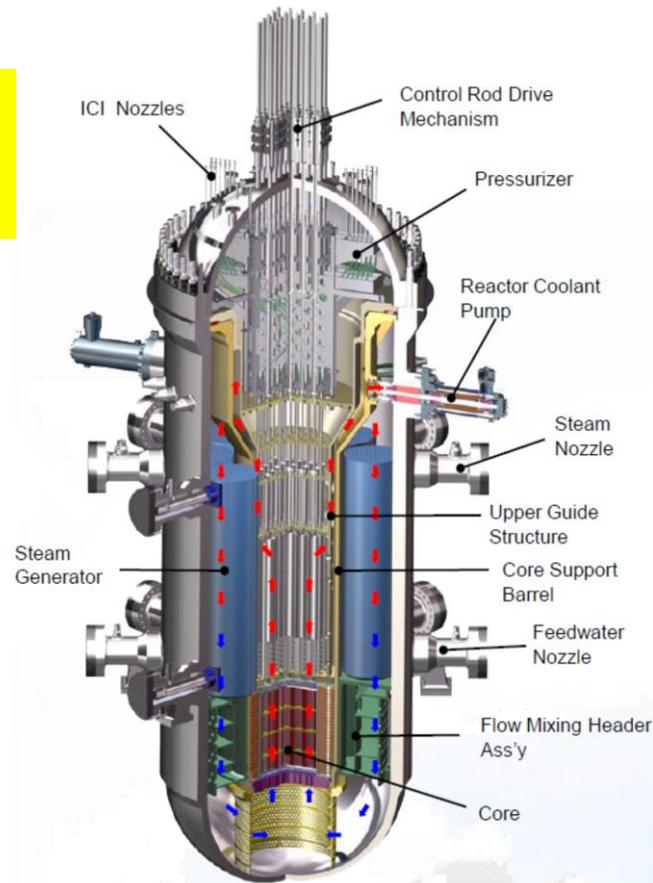
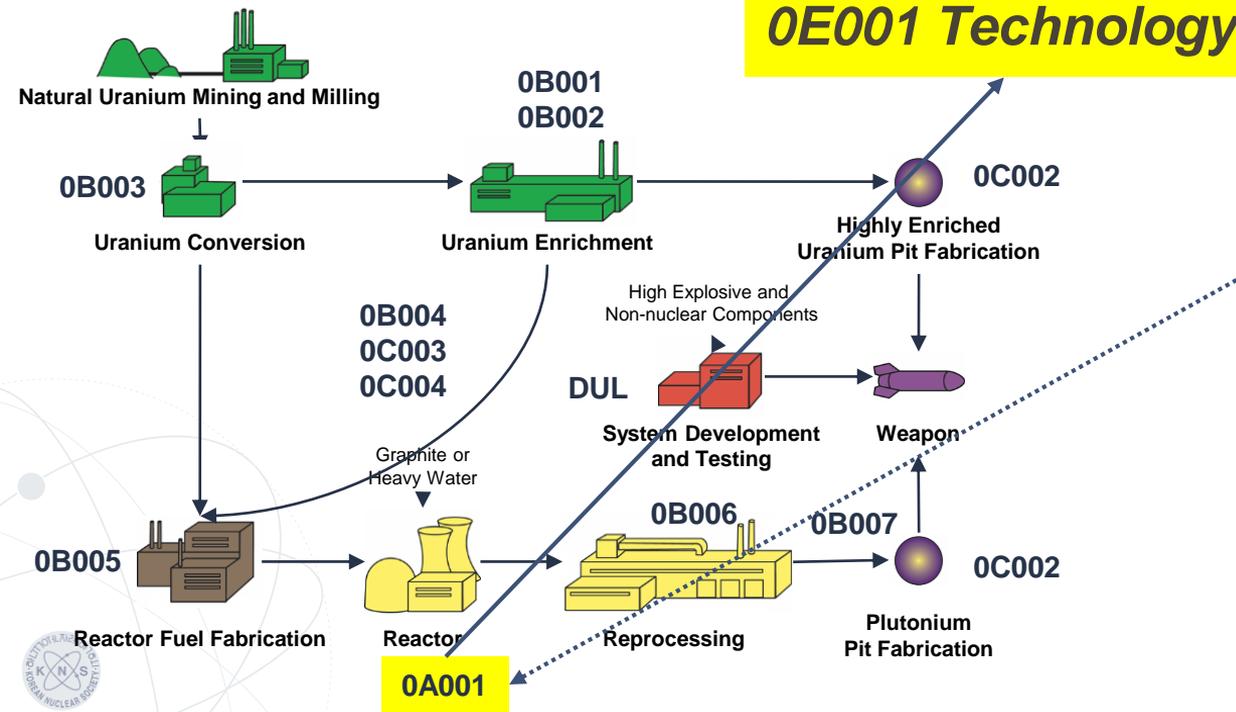
2 SMART PPE and Export Control Items



02 Trigger List Items SMART PPE and Export Control Items

Nuclear Fuel Cycle

0D001 S/W
0E001 Technology

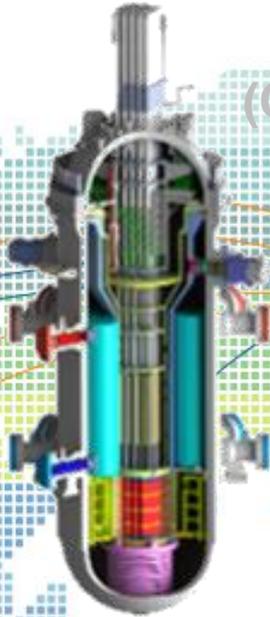


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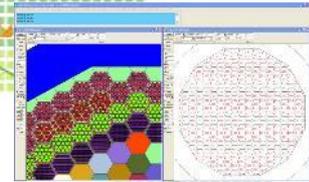
Export Control

SMART PPE and Export Control Items

SMART
(Commodity - Tangible)



**Technology
(Tangible / Intangible)**



**Software
(Commodity - Tangible)**

Human Capacity Building, PSAR, Engineering, Etc.

02 Technology Control SMART PPE and Export Control Items

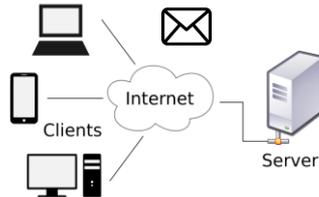
- **Technology Control** (INFCIRC/254/Part1/Rev.14)
 - "Technology" for the **"development", "production" or "use"** of Trigger List Item
 - Technical Data, Technical Assistance
 - Controls on Tangible and Intangible Transfer of Tech. (ITT)

Tangible Technology



Technical
Data

Intangible Method



Intangible Technology



Technical
Assistance

Intangible Method



3 SMART PPE Contract and Export Controls



03 SMART PPE Contract & Export Control

- Nuclear Cooperation Agreement between ROK-KSA



26th

Dec.2011
Kim_(ROK MOFA)
Yamani_(K.A.CARE)

※ NCA is not a requirement for TL export in ROK



03 SMART PPE Contract & Export Control

INFCIRC/254/Part1/Rev.14

■ Export Licensing Fundamental Principles (NSG&ROK)

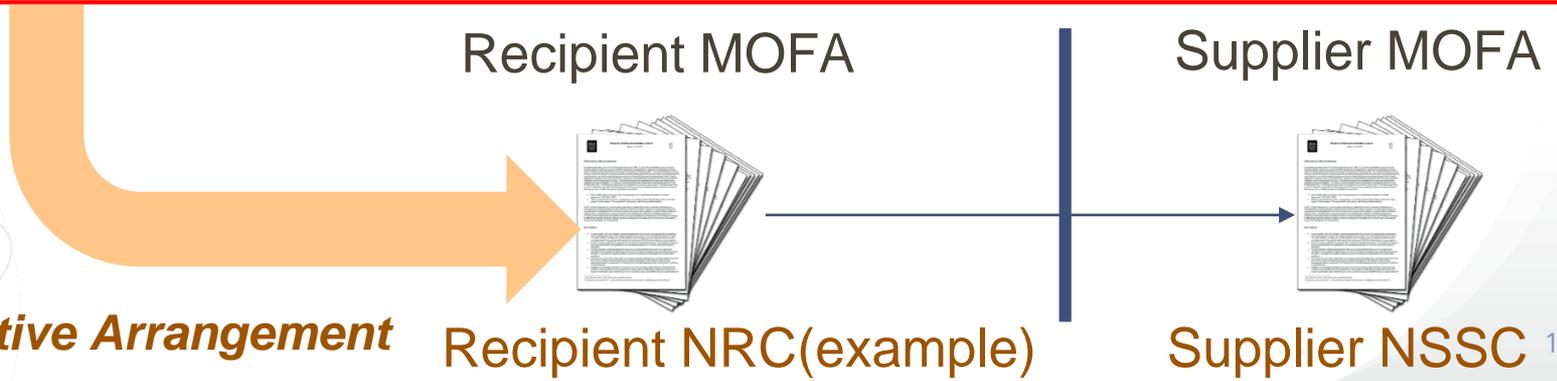
1. Prohibition on nuclear explosives (Peaceful Use)
2. Physical Protection
3. Safeguards
4. Special Controls on Sensitive Exports (if necessary)
5. Special arrangements for export of enrichment facilities, equipment and technology (if necessary)
6. Controls on supplied or derived material usable for nuclear weapons or other nuclear explosive devices
7. Controls on Retransfer

03 SMART PPE Contract & Export Control

GTGA : Government To Government Assurance

■ GTGA or NCA implementation

1. Prohibition on nuclear explosives (Peaceful Use)
2. Physical Protection
3. Safeguards (IAEA Comprehensive Safeguard Agreement)
4. Controls on Retransfer (Prior Consent)



*If there is
Administrative Arrangement*



03 SMART PPE Contract & Export Control

April/Dec.2015

EC Outreach for KAERI's High Level Managers/All Researchers
• Training : Exporter's Obligation and ROK's Law & Regulations, NSG Guideline, etc.

Sep. 2015

Officially Signed SMART Pre-Project Engineering(SMART PPE)

Nov. 2015

Application for Classification and Export license on Project

June.2016

Received **GTGA** from Kingdom of Saudi Arabia (K.A.CARE)

Aug. 2016

Established & Published the **SMART EC Guideline**

Sept. 2016

NSSC Issued the NPP Tech. Export License(Bulk)

Nov. 2016

Signed NSSC-K.A.CARE MOU

4 SMART PPE Export Controls Issues



04 SMART PPE Export Control Issues

- ① Efficient & Effective Export Control Measures
- ② TL items Classification
- ③ Retransfer Control & IP

04 - ① Efficient & Effective EC Measures

- Comprehensive GTGA and Bulk Tech. License

*Over 4,000 Tech.& S/W
& HCB*



1

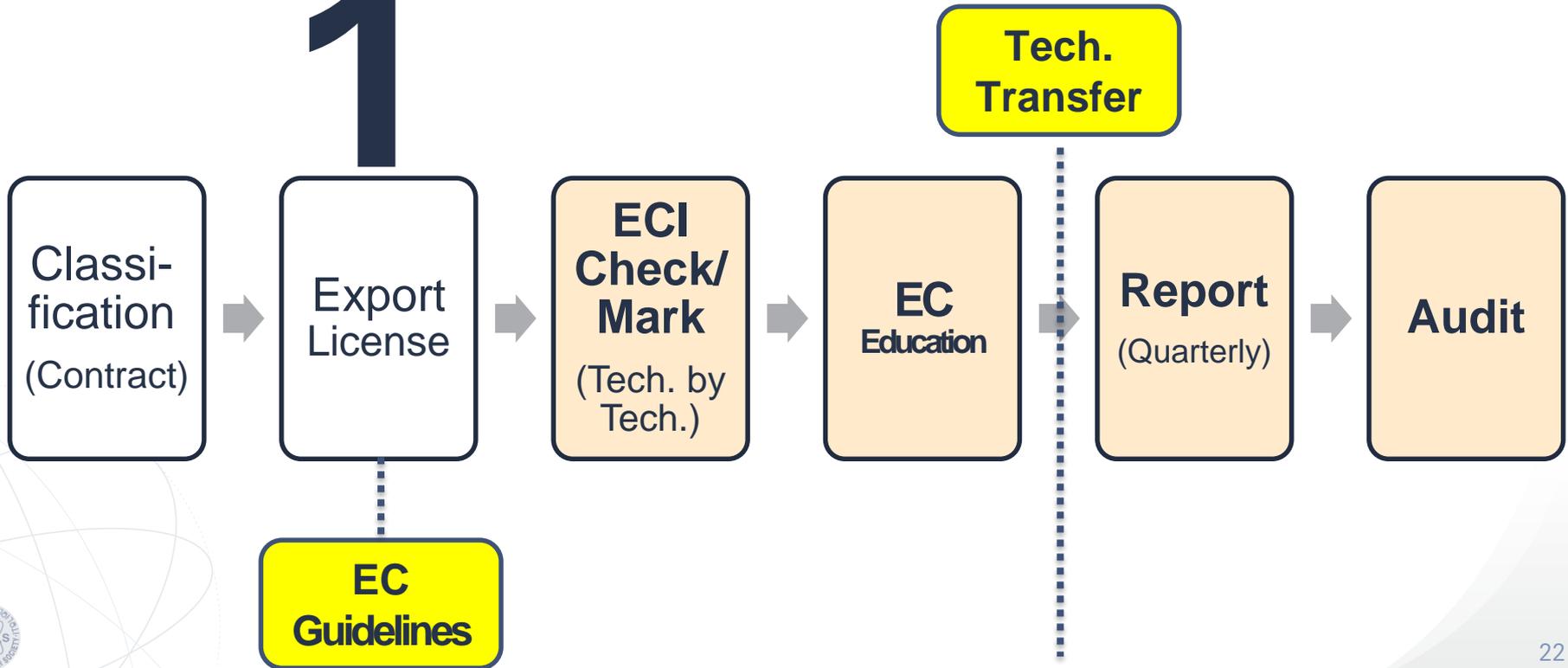
GTGA

1

Export License(Bulk)

04 - ① Efficient & Effective EC Measures

1



04 - ① Efficient & Effective EC Measures

EC Guidelines For SMART



Chapter 1 General Rules

- Article 1 : Guideline Purpose
- Article 2 : Scope of Application
- Article 3 : Definition

Chapter 2 Principle

- Article 4 : Export Licensing
- Article 5 : Governmental Assurance

Chapter 3 Procedure

- Article 6 : Classification
- Article 7 : Application of Export License
- Article 8 : Issue the License
- Article 9 : Revocation of License

Chapter 4 Conditions

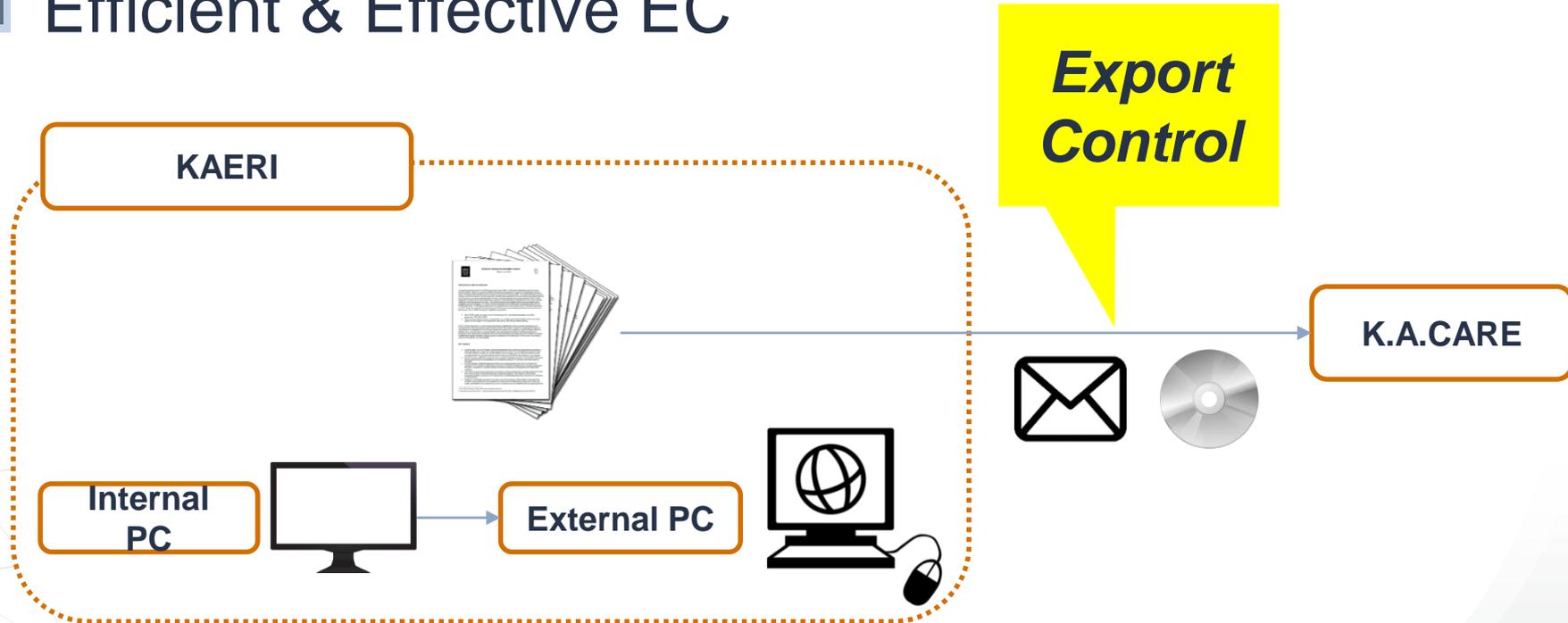
- Article 10 : Confirmation of Strategic Tech.(document)
- Article 11 : Marking the Strategic Tech.(document)
- Article 12 : Control of Trainee
- Article 13 : Control of Trainer
- Article 14 : Post Management

Chapter 5 Auditing

- Article 15 : Record Keeping & Auditing

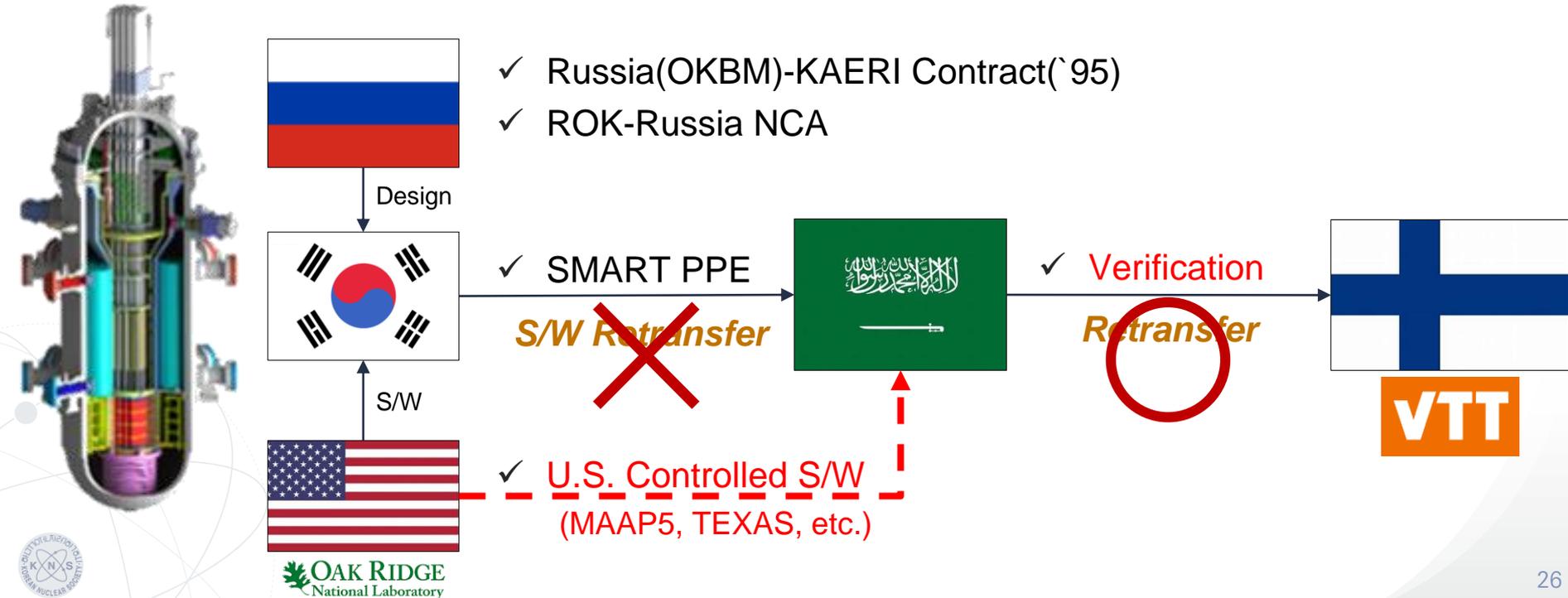
04 - ① Efficient & Effective EC Measures

■ Efficient & Effective EC



04 - ③ Retransfer Control & IP

■ Review on Retransfer Control & IP Issues



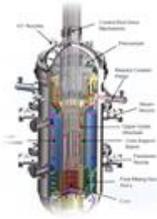
5 Summary & Conclusions



05 Summary & Conclusion

- UAE BNPP, JRTR & SMART PPE Experiences

UAE BNPP, JRTR, SMART PPE, APR-1400 NRC & EUR Design Certificate,...



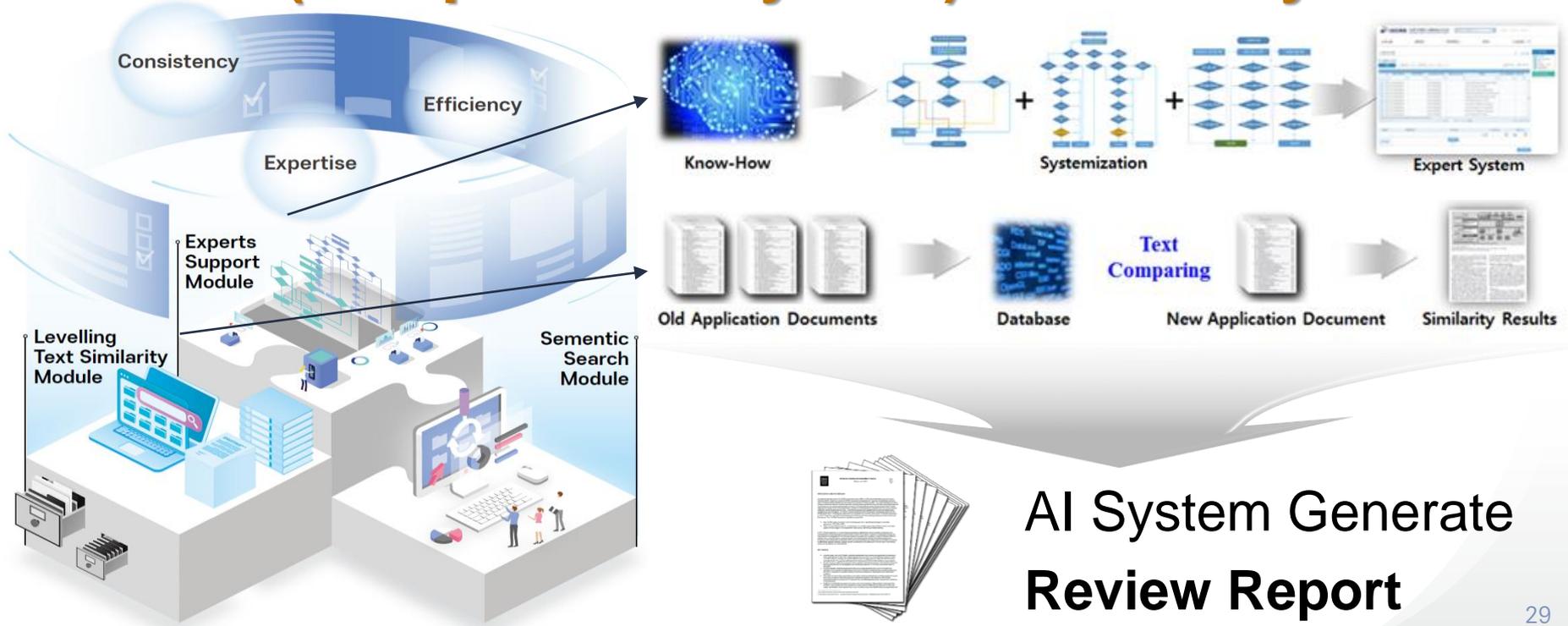
Nuclear Trade ↑
As a Nuclear Supplier

Standardized ROK EC System

(Bilateral/Interagency Channel, Regulation, Guidance, Outreach, etc.)

05 Summary & Conclusion

NEPS(1Stop Online-System) & AI aid System



05 Summary & Conclusion

- ROK Rigorously **adheres to international EC**, leading the way in developing and supporting the implementation of regulatory frameworks in recipient countries. → **Preparedness for Advanced Reactors and SMRs**
- Diverse Regulatory Experiences → **NSSC & KINAC promote Nuclear Transparency and Nonproliferation**



KOREA's "SMART" Road to SMR in CANADA

THANK YOU



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