



Multilateral Regimes for Export Regulation

AUECO – May 2022

1



Wassenaar Arrangement

John Varesi

Office of National Security and
Technology Transfer Controls

2



Wassenaar Arrangement (WA)

- Purpose
To contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilizing accumulations.
- The Initial Elements were originally established in 1996 and set out the purposes and scope of the Arrangement.
- There are currently 42 participating states.
- The permanent secretariat is located in Vienna, Austria.
- Visit the website – www.wassenaar.org.

3



Dual-use Selection Criteria

- **Basic List Selection Criteria:** Items that are major or key elements for the indigenous development, production, use or enhancement of military capabilities. Considerations are:
 - Foreign availability outside Participating States
 - The ability to control effectively the export of the goods
 - The ability to make a clear and objective specification of the item
 - Controlled by another regime
- The Sensitive & Very Sensitive Lists focus on select items from the Basic List that are considered to contribute to more advanced conventional military capabilities.

4



WA Bodies & Meeting Schedule

- March/April – **Experts Group (EG)** spring meeting
- May – **General Working Group (GWG)** spring meeting
- June – **EG** intersessional technical discussions
- June – **Licensing & Enforcement Officers Meeting (LEOM)**
- September/October – **EG** fall meeting
- October – **GWG** fall meeting
- December – **Plenary** meeting

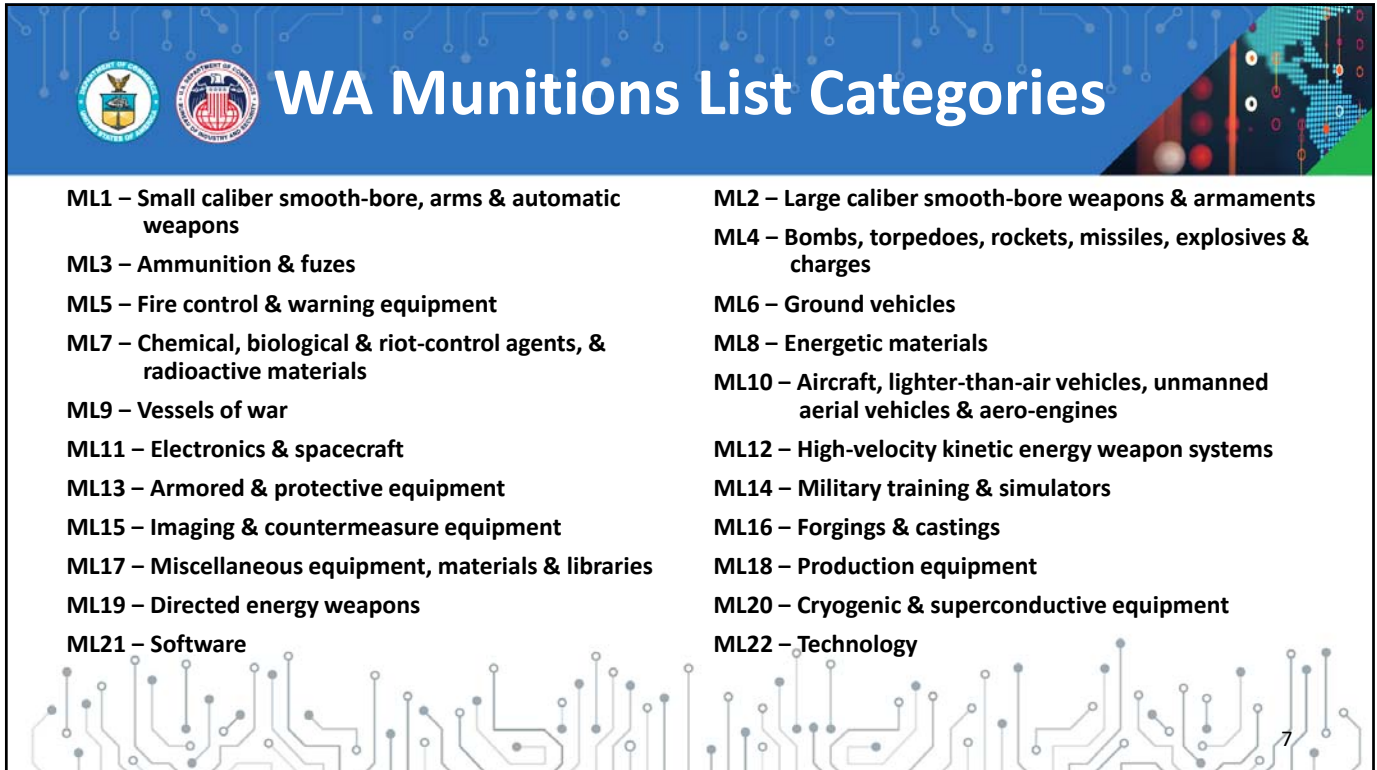
5



WA Dual-use List Categories

Category 1 – Special Materials & Related Equipment	Category 2 – Materials Processing
Category 3 – Electronics	Category 4 – Computers
Category 5P1 – Telecommunications	Category 5P2 – Information Security
Category 6 – Sensors & Lasers	Category 7 – Navigation & Avionics
Category 8 – Marine	Category 9 – Aerospace & Propulsion

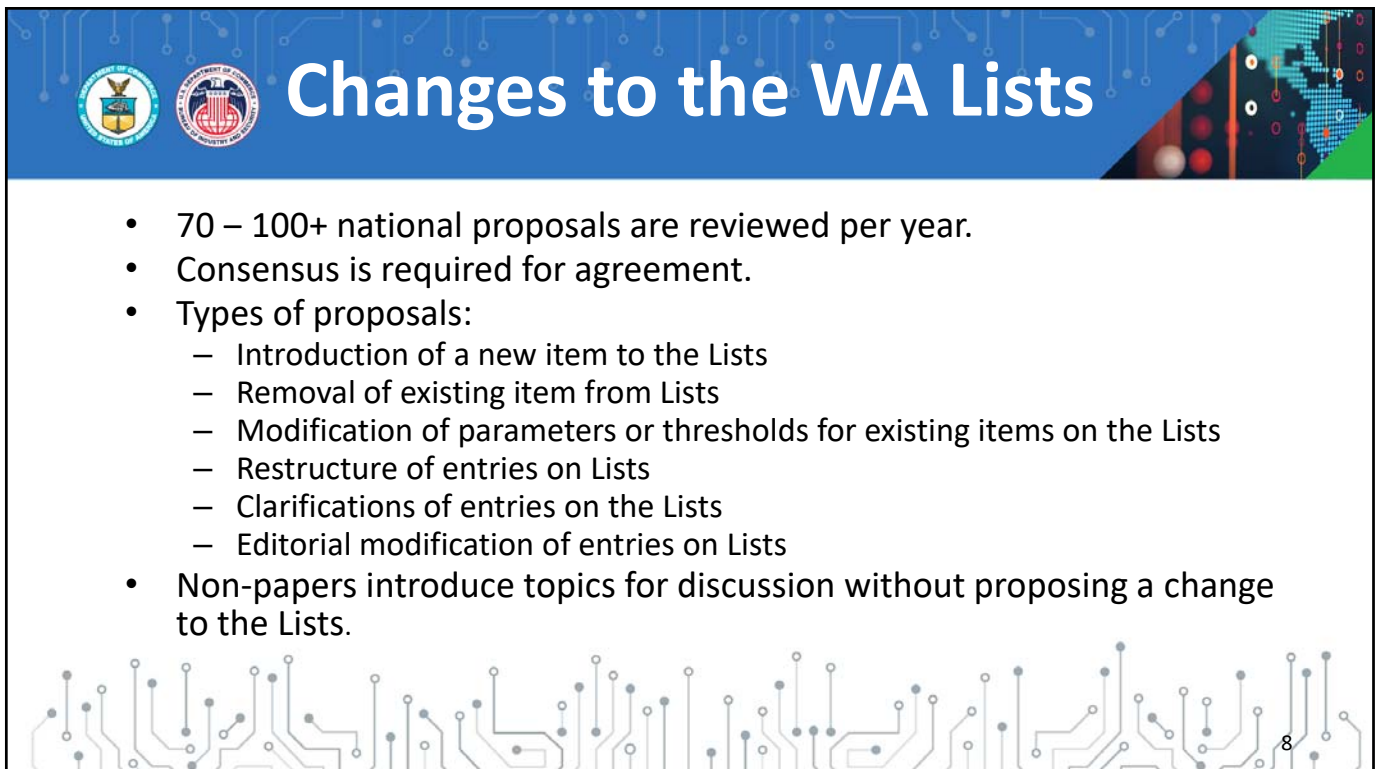
6



WA Munitions List Categories

ML1 – Small caliber smooth-bore, arms & automatic weapons	ML2 – Large caliber smooth-bore weapons & armaments
ML3 – Ammunition & fuzes	ML4 – Bombs, torpedoes, rockets, missiles, explosives & charges
ML5 – Fire control & warning equipment	ML6 – Ground vehicles
ML7 – Chemical, biological & riot-control agents, & radioactive materials	ML8 – Energetic materials
ML9 – Vessels of war	ML10 – Aircraft, lighter-than-air vehicles, unmanned aerial vehicles & aero-engines
ML11 – Electronics & spacecraft	ML12 – High-velocity kinetic energy weapon systems
ML13 – Armored & protective equipment	ML14 – Military training & simulators
ML15 – Imaging & countermeasure equipment	ML16 – Forgings & castings
ML17 – Miscellaneous equipment, materials & libraries	ML18 – Production equipment
ML19 – Directed energy weapons	ML20 – Cryogenic & superconductive equipment
ML21 – Software	ML22 – Technology

7



Changes to the WA Lists

- 70 – 100+ national proposals are reviewed per year.
- Consensus is required for agreement.
- Types of proposals:
 - Introduction of a new item to the Lists
 - Removal of existing item from Lists
 - Modification of parameters or thresholds for existing items on the Lists
 - Restructure of entries on Lists
 - Clarifications of entries on the Lists
 - Editorial modification of entries on Lists
- Non-papers introduce topics for discussion without proposing a change to the Lists.

8



Examples of 2021 WA List Changes

- Addition of pressure gain combustion technology to 9.E.3.a.2.
- Increase of the computer APP threshold in 4.A.3.b.
- Modification of the parameter ranges and thresholds for high-performance frequency synthesizers in 3.A.1.b.11.
- Deletion of fluorinated silicone fluids in 1.C.6.b.2.
- Removal of redundant metal-working parameter entries in 2.E.3.b.2.
- Addition of Electronic Computer-Aided Design (ECAD) software for advanced transistor designs in 3.D.6.
- Expansion of controls on air-launch platforms in 9.A.4.g. to include those for sub-orbital craft.

9

9



U.S. WA Proposal Cycle



10

10



How can you get involved?

- Join a Technical Advisory Committee (tac.bis.doc.gov)
 - Information Systems (ISTAC)
 - TRANSportation (TRANSTAC)
 - Emerging Technology (ETAC)
 - Sensors & Instrumentation (SITAC)
 - Materials & Equipment (METAC)
 - Regulations and Procedures (RPTAC)
- Monitor the Federal Register
- Participate in industry groups
- Attend the BIS annual conference

11

11



Nuclear Suppliers Group

Keeping Controls Updated and Relevant

Presented by Wesley Johnson, PhD
 Microbiologist, Chemical and Biological Controls Division
 Bureau of Industry and Security

12



NSG Background

- Founded in 1974
- Group of countries that seeks to contribute to the non-proliferation of nuclear weapons through the implementation two sets of guidelines/lists
 - Nuclear transfers (Trigger List)
 - Nuclear-related dual use items
- 48 Participating Governments (PGs) that implement the guidelines through national laws and practices



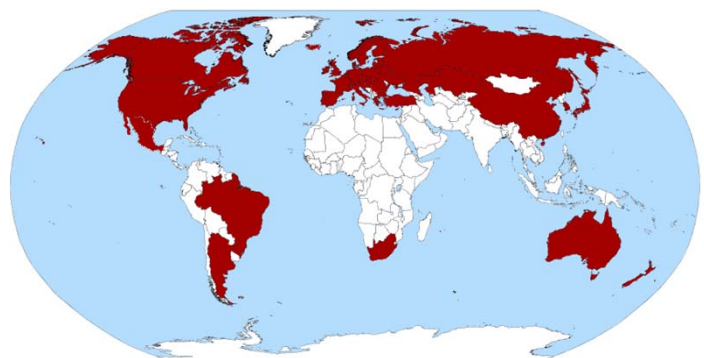
13

13



NSG Meetings

- **Annual plenary** – held in early summer hosted by rotating (voluntary) chair
- **Consultative Group (CG)** – meets twice a year to hold consultations on issues associated with the Guidelines on nuclear supply and its technical annexes
- **Technical Experts Group (TEG)** – meets twice a year (usually in conjunction with CG) and is responsible for keeping the control lists technically accurate and up to date



14

14



Influencing Change in the NSG

Proposals to alter control lists are submitted by individual countries and must reach consensus to be adopted

- Join Commerce Technical Advisory Committees (TACs)
- Multinational companies should consult with other branches and make Commerce aware of any differences in how the control language is interpreted/implemented
- Keep Commerce abreast of emerging technology or expanded uses of controlled items

15

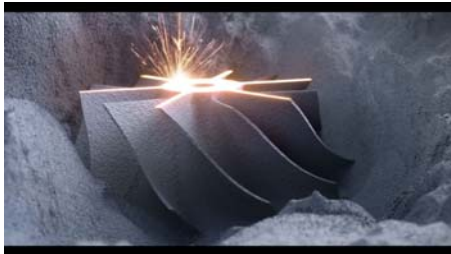
15



TEG Topics – Additive Manufacturing

“A New Way to do Old Things”

- Additive manufacturing (AM) – what should be controlled versus what can be controlled



- What about technology or materials?

- How do you properly define machines – ISO standards, parameters, characteristics?
- Job shops and parts by mail – is this a model for the future?

16

16



TEG Topics – Machine Tools

- Machine tools have been a fixture of export controls for over 60 years. New ISO standards, growing world wide availability, and greater capabilities are forcing the NSG to determine not only what machines are “usable”, but what machines can realistically be controlled.
- Are machine tool controls as relevant in light of emerging technologies such as AM or other casting techniques?



17

17



TEG Topics – Mass Spectrometers

- The types of mass spectrometers controlled have become much more widely used in laboratories throughout the world
- In 2017, the U.S. exported hundreds of 3A233 mass spectrometers all for civil end uses.
- The TEG is looking into whether the controls need updating



18



Future TEG Topics – Carbon Fiber?

- Carbon fiber was once the exotic material of aerospace, rocket motor cases, and centrifuge rotors. Now many of these early fibers/grades are obsolete with newer and better grades commonly used in sporting good and automobile applications.
- Given that these materials continue to have strategic applications, should the growing world wide availability and ever increasing civil and consumer uses force the NSG to look for innovative ways to address these concerns?



19

19



Australia Group Control Lists

Adjusting to Novel Applications and Emerging Technologies

Wesley Johnson, PhD
 Microbiologist
 Chemical and Biological Controls
 Bureau of Industry and Security

20




Australia Group



- 42 member states and the European Union
- Like-minded approach to prevent proliferation of chemical and biological weapons
- Common Control Lists
- “No undercut” policy on denials

21

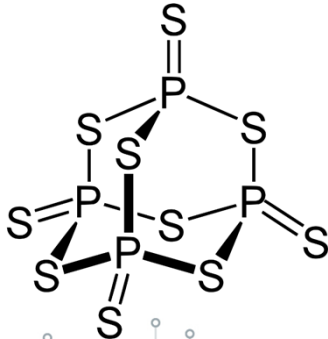
21




Common Control Lists

**Chemical Weapons Precursors (related technology) –
ECCNs 1C350, 1C355, 1C995 (1E001, 1E351, 1E355)**

OCCN(CCO)CO



CC(C)N(C)C(S)C



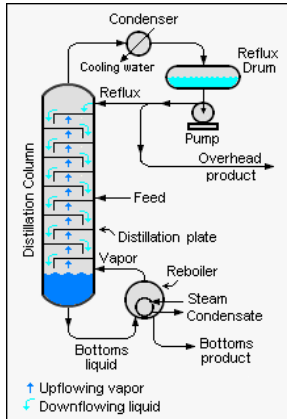
22

22



Common Control Lists

Dual-use chemical manufacturing facilities and equipment (related technology and software) – ECCNs 2B350, 2B351, 1A004 (2D351, 2E001, 2E002, 2E301, 2E351, 1D390, 1E350)



23



Common Control Lists

Dual-use biological equipment (related technology and software) – ECCN 2B352 (2E001, 2E002, 2E301, 2E321)



24

24

Common Control Lists

Human and Animal Pathogens and Toxins (related technology) – ECCNs 1C351, 1C353 (1E001, 1E351)









25

25

Common Control Lists

Plant pathogens (related technology) – ECCN 1C354 (1E001, 1E351)








26



Australia Group meetings

- **Plenary meeting every June**
 - Implementation meeting (control list changes)
 - Information exchange
 - Enforcement exchange (case studies)
- **Intersessional meeting most years (Dec-Mar)**
 - Implementation meeting (control list changes)
 - New and Evolving Technology Technical Experts Meeting (NETTEM)

27

27



Process

- Identify items to be added, deleted, or edited
- Discuss implications of changes for individual member states, academia, and industry (Virtual Working Groups)
- Changes must have consensus
- 30 day silence procedure for adoption
- Publication in regulations of member states

28

28



Identifying Issues

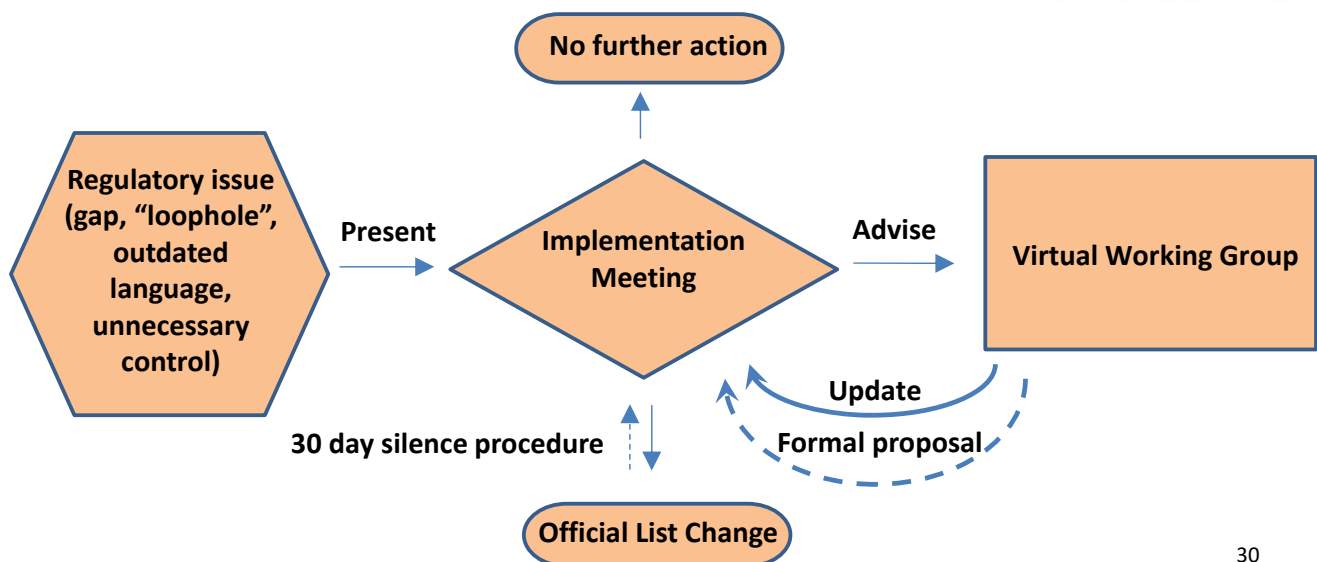
- Control List reviews
- Novel applications or improvements for existing items
- New technologies or commodities
- Unusual classification or licensing cases
- Interpretation surveys by AG members

29

29



Typical Process for List Changes




30

30


Case Study – Addition of DNA synthesizers

Digital sequence data

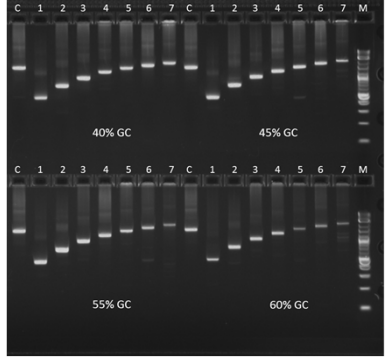
...AGAAGCCCTAGCTAGCCATATCGCCCTATCTTAAATTATTAAGCGCCGAT...



DNA Synthesizer




DNA (full length, functional gene)



31

Case Study – Addition of DNA Synthesizers


Timeline



Manufacturer USG-wide compliance review May 2014	NETTEM Chair's VWG Feb 2016	Consensus at Intersessional Meeting Feb 2017	Published Rule 83 FR 13849 Apr 2018
Manufacturer asked to present to AG Aug 2015	Plenary Formal Proposal June 2016	Adopted by 30 day silence procedure Mar 2017	

32

Case Study – Delisting Dengue Fever Virus



33

33

Case Study – Delisting Dengue Fever Virus

Timeline

Start of vaccine clinical trials Jun 2011	First successful Vaccine trial results Nov 2015	Consensus at Plenary Meeting June 2016	Published Rule 81 FR 90983 Dec 2016
Nonpaper reviewing Dengue virus at IIM Jan 2015		IIM Formal Proposal Feb 2016	Adopted by 30 day silence procedure July 2016

34

34



How/When Can Exporters Influence AG Rules?

- Once the AG has reached consensus, it is generally too late
- Join the Materials Technical Advisory Committee (MTAC)
- Communicate with BIS regarding new and emerging technologies
- Coordinate with other exporters through industry groups
- Be proactive in reviewing your products and technologies
- Respond to Department of Commerce Inquiries and surveys

35

35



Missile Technology Control Regime

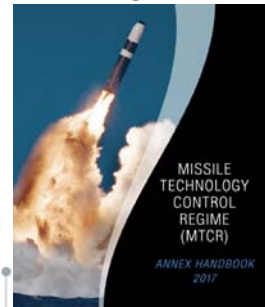
Presented by John Varesi
Office of National Security and Technology Transfer Controls
Bureau of Industry and Security

36



MTCR Background

- Founded in 1987 (informal political understanding)
- Goal of the MTCR is to limit the risks of proliferation of weapons of mass destruction (i.e., nuclear, chemical and biological weapons), by controlling transfers that could make a contribution to delivery systems (other than manned aircraft) for such weapons.
- 35 Partner countries that implement the guidelines through national legislation and practices
 - Export controls based on Equipment, Software, and Technology Annex
- U.S. publishes a Handbook for the Annex (mtcr.info)



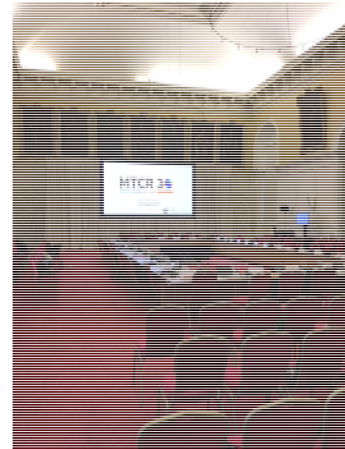
37

37



MTCR Meetings

- **Annual Plenary** typically held in the fall and hosted by rotating (voluntary) chair
- **Licensing & Enforcement Experts Meeting (LEEM)** and **Information Exchange (IE)** held with the Plenary
- **Technical Experts Meeting (TEM)**
 - Meets twice a year, once in conjunction with the Plenary, and once intersessionally
 - Responsible for making updates to the Annex



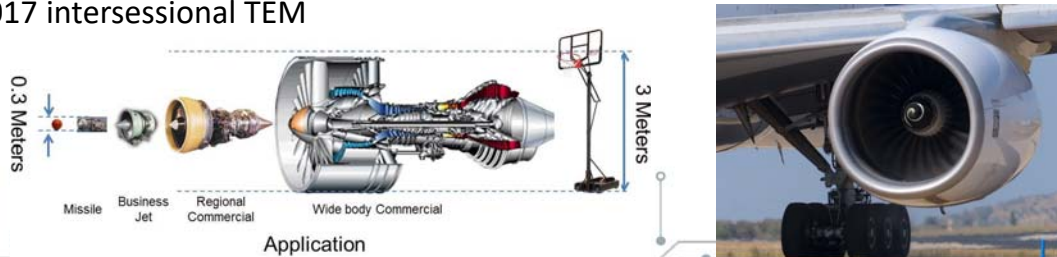
38

38



Turbojet and Turbofan Engine Updates

- 2006 changes removed the terms “small” and “lightweight” from the control on turbojet and turbofan engines (9A101), effectively removing the upper limit on controls for pre-civil certified engines
- Topic was brought up in Transportation Technical Advisory Committee (TransTAC)
- U.S. submitted a proposal limiting the control to engines with a dry weight less than 750 kg and first stage rotor diameter less than 1 meter - agreed to at the 2017 intersessional TEM

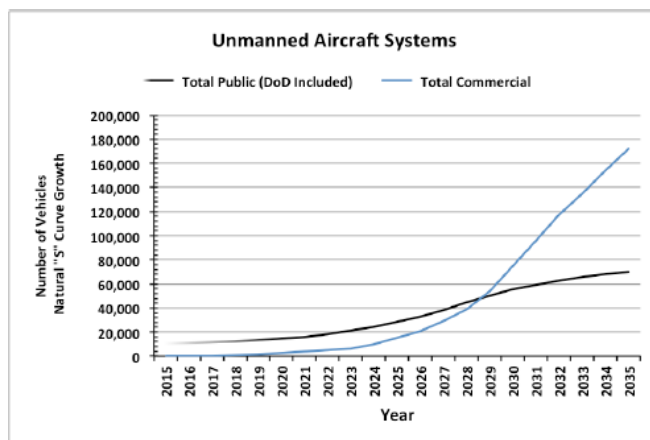


39

39



TEM Topics – Unmanned Aerial Vehicles (UAVs)



- UAVs are ready to assume many of the roles that were formerly done by a manned aircraft at a much lower cost and at less risk to the operators
- Industry studies indicate UAV expenditures will more than double over the next decade, with commercial development outpacing military

40

40



TEM Topics – Unmanned Aerial Vehicles (UAVs)

- In July 2020, the U.S. enacted the new UAV policy – Category I UAVs with maximum speed less than 800 km/hr can be treated as Category II and will be reviewed on a case-by-case basis instead of a presumption of denial (see EAR Section 742.5)
- The U.S. is pursuing a similar modification to the MTCR Annex, which would make this change multilateral

41

41



Influencing Change in the MTCR

Proposals to alter Annex are submitted by individual countries and must reach consensus to be adopted

- Join Commerce Technical Advisory Committees (TACs)
- Multinational companies should consult with other branches and make Commerce aware of any differences in how the control language is interpreted/implemented
- Keep Commerce abreast of emerging technology or expanded uses of controlled items

42

42